

THE DEVELOPMENT OF THREE RESEARCH INSTRUMENTS FOR THE
MEASUREMENT OF WILLINGNESS TO TRY THE
DIFFICULT IN PRESCHOOL AGE CHILDREN

By

NILOUFER AHMED

Bachelor of Arts
University of Dacca
Dacca, Pakistan
1957

Master of Arts
University of Dacca
Dacca, Pakistan
1960

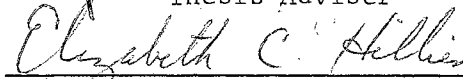
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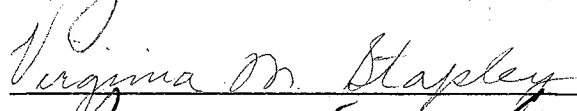
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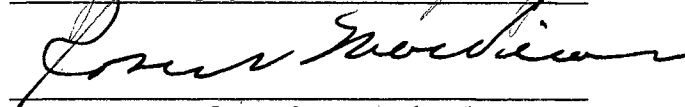
Thesis Approved:


Elizabeth F. Starbuck

Thesis Adviser


Elizabeth C. Hillis


Virginia M. Stapley


James Goodwin

Dean of Graduate School

To my
dear Mother and Father

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TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
Purpose of the Study	1
Definition of Willingness to Try the Difficult	1
Problem	2
Procedure	4
II. REVIEW OF LITERATURE	5
Willingness to Try the Difficult	5
Age as a Factor in Willingness to Try the Difficult	8
Criteria for Research Tasks	9
Research Tasks Suitable for Young Children	11
Methods of Scoring.	13
Adjustment for Ability	13
Awareness of Success and Failure	14
Numerical Scoring	15
Implications for the Present Study	16
III. METHOD AND PROCEDURE	18
Subjects.	18
Selection of Criteria for the Instruments	19
Interviews with Pakistani Students	19
Criteria	20
Research Instruments	21
Jumping Task	21
Puzzle Task	27
Button Task	31
Procedure	35
IV. ANALYSIS OF DATA	37
Validity of the Instruments	37
Jumping Task	38
Puzzle Task.	40
Button Task.	41
Comparison of the Instruments	43
Summary of Results	46

Chapter	Page
V. SUMMARY AND CONCLUSIONS	47
Recommendations for Modification of the Instruments	47
Jumping Task	47
Puzzle Task	48
Button Task	50
Scoring	50
Recommendations for use in Pakistan	51
Recommendations for Future Research	53
SELECTED BIBLIOGRAPHY	54
APPENDIX A	57
APPENDIX B	59
APPENDIX C	63

LIST OF TABLES

Table	Page
I. Sizes of Buttons in Paired Button Strips Presented to the Three Ability Groups in the First and Second Sessions . . .	30
II. Number of Pieces in Easy and Difficult Puzzles Assigned to the Three Ability Groups	34
III. Raw Scores of Individual Children, by Ability Groups, on a Jumping Task Designed to Measure Willingness to Try the Difficult	38
IV. Actual and Expected Scores of Three Ability Groups on a Jumping Task Designed to Measure Willingness to Try the Difficult	39
V. Raw Scores of Individual Children, by Ability Groups, on a Puzzle Task Designed to Measure Willingness to Try the Difficult	40
VI. Actual and Expected Scores of Three Ability Groups on a Puzzle Task Designed to Measure Willingness to Try the Difficult	41
VII. Raw Scores of Individual Children, by Ability Groups, on a Button Task Designed to Measure Willingness to Try the Difficult	42
VIII. Actual and Expected Scores of Two Ability Groups on a Button Task Designed to Measure Willingness to Try the Difficult	43
IX. Rank Order Scores of Individual Children on Three Tasks Designed to Measure Willingness to Try the Difficult	44
X. Rank Order Coefficients of Coorelation among the Three Tasks Designed to Measure Willingness to Try the Difficult	45
XI. Frequency of High-Scoring and Low-Scoring Subjects on a Button Task and a Puzzle Task Designed to Measure Willingness to Try the Difficult	45

Table	Page
XII. Age, Sex and Nursery School Group of Individual Children Serving as Subjects in a Study of Willingness to Try the Difficult	58
XIII. Raw Scores of Individual Children on a Jumping Task Designed to Measure Willingness to Try the Difficult . . .	60
XIV. Raw Scores of Individual Children on a Puzzle Task Designed to Measure Willingness to Try the Difficult	61
XV. Raw Scores of Individual Children on a Button Task Designed to Measure Willingness to Try the Difficult . . .	62

LIST OF FIGURES

Figure	Page
1. The instrument for the jumping task	23
2. Johnny demonstrates how high he can reach	23
3. Johnny jumps for the white ball	24
4. Sample score sheet for jumping task (Child-J)	26
5. The ten puzzle pictures	29
6. One set of puzzles	29
7. The trial strip of buttons	33
8. One set of button strips	33
9. Diagram of simplified jumping apparatus	52

CHAPTER I

INTRODUCTION

Purpose of the Study

The purpose of this research is to develop three instruments for the measurement of a child's willingness to try the difficult. These instruments are to be adapted for use with preschool children in Pakistan, but will necessarily be developed with preschool children in the United States.

As an exploratory study, the present research will be concerned with a variety of children's abilities and a variety of scoring methods. In this way the study will serve as a pilot study for the refinement of instruments which can be used in future research and which can have special educational value in Pakistan.

Definition of Willingness to Try the Difficult

Willingness to try the difficult is an individual's willingness to attempt a task at which he may fail, the task being one in which he sees himself as responsible for his own success or failure. This is similar to "level of aspiration," which has been defined by Frank (1939) as "the level of future performance in a familiar task which an individual, knowing his past performance in that task, explicitly undertakes to reach."

Willingness to try the difficult implies willingness to risk failure or to accept a challenge. It is concerned with the individual's reaction to the anticipation of possible failure. This is different from failure tolerance which is concerned with the individual's reaction to failure that he has actually experienced.

For the purpose of the present research, willingness to try the difficult is accepted as a personality characteristic, and it can be explained in terms of fear of failure. An individual who is not afraid of failure will be willing to try a task that is difficult relative to his own ability; whereas, an individual who is afraid of failure will not be willing to try a task that is difficult relative to his own ability.

Problem

Education is of great importance for the progress and development of any nation, but particularly for a nation in which the percentage of literacy is extremely low. In Pakistan, where this is true, an effort is being made to raise the educational standards, and increased emphasis is being placed on the education of young children. The teachers of these young children, nursery school teachers in particular, are in a position to help the children make their first major adjustment away from home, and these teachers need help in understanding the potentialities of the children.

Standardized tests for the measurement of learning ability and related personality characteristics do help teachers to meet the needs of individual children; however, to the writer's knowledge, no such tests, e.g., intelligence tests and reading readiness tests, have been standardized for young children in Pakistan.

The problem for the nursery school teacher is further complicated in Pakistan by the fact that there is no fixed age requirement for admission to nursery school. This means that the teacher has to work with a group of children who have an unusually wide range of abilities as a result of the wide age range of the group. This problem increases the need for objective methods of measuring young children's aptitudes and personality characteristics related to learning ability. Information gained from such tests could increase the nursery school teacher's understanding of her children and thus help her to prepare them for more formal education.

Learning ability is affected by many personality characteristics; among these is willingness to try the difficult. Over the years educators and psychologists have been interested in children's reactions to failure and their willingness to accept a challenge or risk failure. Baldwin and Levin (1958a) have described the effects of a failure experience as (a) cognitive, when the failure gives the subject information about his performance, (b) motivational, when the failure increases the subject's desire to do well, and (c) emotional, when the failure disrupts the subject's adaptive ability. Thus, learning may be enhanced when a child is motivated by a failure experience, and learning may be seriously hindered when a child is emotionally disturbed by a failure experience. In a child's attempt to meet and overcome difficulties as they arise, lie his opportunities to learn and to profit by experience.

The above facts led the writer to select willingness to try the difficult as the personality characteristic for study in the present research. This characteristic is related to learning ability, and it

can be measured objectively. Knowledge about this characteristic can help the teacher in her work with young children. Also, this characteristic is accepted as being common to children in the United States and in Pakistan. This is necessary inasmuch as the research instruments will be developed in the United States and then adapted for use in Pakistan.

Procedure

The main purpose of this study was the development of instruments for the measurement of children's willingness to try the difficult. To accomplish this purpose, six major steps were followed. (1) The literature was reviewed for an understanding of personality characteristics related to learning ability and for methods of studying these characteristics in young children. (2) Pakistani students at Oklahoma State University were interviewed for information about the expectations placed on young children in Pakistan and information about the types of toys and games familiar to children in Pakistan. (3) Activities common to children in Pakistan and in the United States were selected. (4) Research instruments, based on the selected activities, were developed for the measurement of willingness to try the difficult. (5) The instruments were administered to a group of nursery school children. (6) The results were analyzed and recommendations were made for the modification and adaptation of the instruments for use in Pakistan.

CHAPTER II

REVIEW OF LITERATURE

Willingness to Try the Difficult

Willingness to try the difficult implies a preference for difficult work or motivation to choose a level of difficulty at which one challenges himself to achieve a goal. Few writers have referred specifically to willingness to try the difficult; however, this characteristic is implied in research which is concerned with the influence of success and failure experiences on subsequent behavior. Actually, it is the influence of potential failure, rather than experienced failure, that is basic to the present study.

Success and failure experiences influence a child's self-confidence. (Nagge, 1942; Sears, 1940; Rychlak, 1959). This influence has been described by Skinner and Harriman (1941, pages 165-166).

Self-confidence is an emotional attitude built up by a long series of satisfying adjustments to difficulties. An excessively fearful child is unfitted for a happy, useful life because this feeling of self-confidence is absent. Two sorts of experiences seem to interfere with the development of a well-rounded sense of self-confidence. In the first place, the child may be confronted by situations in which the only possible outcome is defeat; in the second place, adults may judge the work of children by adult standards. Thus the development of self-confidence may be destroyed.

Similarly, Breckenridge and Vincent (1959) consider the development of a sense of success and failure as an important part of the development of

a sense of self. Success experiences tend to increase self-confidence; and self-confidence encourages willingness to try the difficult, i.e., children who are self-confident tend to have high levels of aspiration. For some children failure serves as a motivating force; they respond to failure by striving to do better (Baldwin and Levin, 1958a; Lowe, 1959; Rosenzweig, 1933).

Interest in an activity, or the attractiveness of an activity, is also affected by success and failure experiences. However, the anticipation of failure, more than the actual experience of failure, reduces the attractiveness of a task (Gebhard, 1948; Cartwright, 1942). Sears (1940) has indicated that the potency of a success or failure experience depends on the ego-value which the task has for the child; she has suggested that a task which is to be used with children should be intrinsically interesting in order that the children be motivated to try the task even when it is difficult.

In studies of level of aspiration and goal-setting behavior, knowledge of one's own performance and knowledge of the performance of others have been found to exert a strong influence on willingness to try the difficult. When individuals recognize that they are making progress, their performance improves and they are more willing to try the difficult. Here the success or failure of the individual's performance in the immediate past is the motivating factor. This finding has been evident in many studies of level of aspiration. (Chase, 1932; Anderson, 1936; Anderson and Brandt, 1939; Cartwright, 1942; Bayton and Whyte, 1950). Recently Baldwin and Levin (1958a) found that failure experiences tended to increase the individual's speed and decrease his accuracy of performance while success experiences tended to have the opposite effect.

Insofar as the performance of others is concerned, individuals tend to set their goals so that they approximate those of the group. For example, subjects tend to choose more difficult goals when they learn that their previous goals have been relatively easy as compared to those of other group members. (Chase, 1932; Anderson and Brandt, 1939; Chapman and Volkman, 1939; Festinger, 1942).

The encouragement of others, or social facilitation, is another factor which influences an individual's willingness to try the difficult. Nagge (1942) and others have considered praise a better form of incentive than reproof. Keister (1943) accepted a child's reaction to failure as a measure of his emotional adjustment, and she attempted to train nursery school children to have greater tolerance for failure experiences.

More recently the specific influence of an observer or an audience on the behavior of young children has been studied. Sears and Levin (1957), in a study of the goal-setting behavior of preschool children, found that a child's initial achievement pressures gradually relaxed in a friendly non-evaluative atmosphere and that he was then more free to choose tasks for which success was assured. In a study of first grade children, similar results were obtained by Starkweather (1957); in addition to this reaction to a friendly atmosphere, she found that the children, girls in particular, tended to choose more difficult tasks when they were observed by an audience of three peers. In another study of the influence of "public exposure" on children's behavior, Baldwin and Levin (1958b) interpreted their findings as indicating that the anticipation of shame or of pride affected the subsequent behavior.

Insofar as the present research is concerned, these studies indicate that the tasks developed for the measurement of willingness to try the difficult must be intrinsically interesting for young children and that factors which could influence the potency of success and failure must be controlled.

Age as a Factor in Willingness to Try the Difficult

A child must be able to recognize potential success and failure if he is to demonstrate willingness to try the difficult. This raises the question of whether the development of an instrument for the measurement of this characteristic is possible with preschool children.

Fales (1940) recognized the initial development of "aspiration" in two year old children, indicating that success and failure had some meaning at this young age. She observed children striving for independence, refusing help, and wanting to do certain simple tasks by themselves. They showed this independence on easy tasks more frequently than on difficult tasks.

Anderson (1940), in a study of children three to eight years of age, observed a marked difference in the meaning of success and failure for younger and older children. In a ring-toss game, the younger children understood a simple concrete goal, that of putting a ring over a peg; whereas the older children understood a complex goal, that of using a certain means to attain the end result, i.e., to toss the ring rather than merely dropping it over the peg. The younger children also did not recognize failure as did the older children. A ring that missed the peg was merely rethrown or placed on the peg by a younger child; whereas an older child accepted the miss as a failure.

Skinner and Harriman (1941) agreed with these findings that failure does not have the same meaning for a young child that it has for an older child, and that, to this extent, young children do not benefit from failure.

Fales (1940) indicated that young children prefer to do independently tasks which are easy for them. This finding was substantiated by Rosenzweig (1945) in a study of children five to fourteen years of age. He found that the children under eight years of age showed a preference for repeating tasks on which they had succeeded and that older children showed a preference for repeating tasks on which they had failed.

Sears and Levin (1957) developed specific instruments for use with children of preschool age in the study of level of aspiration. Like their predecessors, they found that young children prefer those tasks on which they are assured success. Sears and Levin also stated explicitly certain criteria which must be considered in the development of research instruments for use with young children in the study of responses to anticipated and experienced success and failure.

These studies all indicate the possibility of using children of preschool age in a study of willingness to try the difficult, and they also indicate certain factors which must be considered in the development of criteria for the research instrument.

Criteria for Research Tasks

The criteria which have served as guides in the selection of research tasks for use with young children have necessarily varied with the purpose of the particular research. Studies of level of aspiration and studies of responses to failure offer criteria which are relevant for the present study.

Certain criteria used in the development of intelligence test items are applicable to research tasks. Stuttsman (1931) pointed out that the test material should have inherent interest for the child, should be easily administered, and the scoring should be objective.

Keister (1943), who was interested in children's reactions to failure, formulated the criteria (1) that the task be interesting to children of preschool age, (2) that the task be possible of accomplishment and yet of such difficulty that the child could not succeed immediately, (3) that the task provide a natural situation, that is, failure should not be obviously or forcibly imposed, and (4) that the task provide a situation in which the average child would see himself as the instrument of his success or failure.

Sears and Levin (1957) developed tasks for the measurement of level of aspiration in preschool children. Their criteria were (1) that the task be absorbing and challenging and yet require no prior experience, (2) that the instruments be simple and novel, (3) that success and failure be apparent to the child and perceived by him as the result of his own performance, and (4) that a graduated order of difficulty be presented in each task, and this concept be learned by the child and transferred from task to task.

Tether (1961) stated simply that the level of aspiration task which she used with first grade children would include more than one level of difficulty, easily recognized by the children, and should offer an opportunity for a choice between these levels of difficulty.

These studies suggest criteria which should be considered in the development of instruments for the measurement of willingness to try the difficult.

Research Task Suitable For Young Children

A variety of instruments have been developed for use in research with young children. Those which might be adapted for use in the study of willingness to try the difficult are those dependent on measurable abilities, such as, gross motor coordination, fine motor coordination, the ability to see visual relationships, and certain intellectual abilities.

Sears and Levin (1957) developed several tasks for use with pre-school age children in the study of level of aspiration. Three of these were based on gross motor ability. These were (1) a task in which the child jumped for balls suspended from different heights, (2) a task involving broad jumping and (3) a task involving the lifting of weights. The first of these, jumping for balls, proved to be interesting, successful, and adaptable; it has been used in other studies. For example, Dryer and Haupt (1959) used this task in a study of children's willingness to take a risk.

Coloring tasks and buttoning tasks which are dependent on fine motor coordination, have also been used with young children. Tether (1961) in a study of persistence, used a task in which children colored the squares in a checkerboard. Stuttsman (1931), in developing the Merrill-Palmer Scale of Intelligence, found that buttoning tasks discriminated among the children of preschool age. Button strips of one, two, and four buttons were included in the final Scale. She found strips with more than four buttons to be too difficult for inclusion in the Scale.

Puzzle and form boards, which are dependent on the ability to see visual relationships, have been used in intelligence tests and in research studies. In both the Stanford-Binet Intelligence Scale (Terman and Merrill, 1960) and the Merrill-Palmer Scale of Intelligence (Stuttsman, 1931), puzzles have been used to discriminate among children of preschool age. Two-piece puzzles have been used with children as young as thirty months. Stuttsman found that puzzles of five pieces and more were too difficult for most preschool children. Rosenzweig (1933) used puzzles in a study of children's reactions to success and failure; his subjects ranged in age from five to fourteen years. Tether (1961), in a study of independent behavior, used inlay puzzles with first grade children. She offered easier puzzles to the less capable children and more difficult puzzles to the more capable children. This was possible inasmuch as the inlay puzzles were a type with which the young children were familiar, and a number of the manufacturers offered puzzles which were graded in difficulty. Sears and Levin (1957) developed a level of aspiration task consisting of block designs which the child reproduced; the designs of different levels of difficulty were printed on cards, and the child chose the one which he wanted to reproduce with blocks. If the design was reproduced within two minutes, the child had succeeded; if not, he had failed.

Memory tasks and reading tasks are dependent on intellectual ability. Sears and Levin (1957) developed a memory task for use in studying the level of aspiration of preschool children; however, this was not one of the more successful tasks that they developed. Tether (1961), in her study of first grade children, developed a reading task for use in measuring a child's willingness to risk failure. In

this task the child chose to read one of two sentences, one easy and the other difficult relative to his ability; each child had forty opportunities to make such a choice, thereby revealing his tendency to choose the difficult and risk failure.

These studies suggest a variety of tasks which may be adapted for use in the study of willingness to try the difficult.

Methods of Scoring

Scoring methods have necessarily been influenced by the criteria for the research tasks which have been developed for use with young children. Various methods have been used (1) to adjust the task to the ability of the child, (2) to make success and failure obvious to the child, and (3) to obtain an objective score for the child's performance.

Adjustment for Ability

If a child is to be offered a choice between the easy and the difficult, the task must be sufficiently broad to offer easy and difficult opportunities to all children regardless of their ability, or the task must be adjusted to the ability of each child.

Sears and Levin (1957) developed a task in which the child jumped for balls. An adjustment for ability was made by raising or lowering the balls so that each child was able to touch the lowest ball.

Tether (1961) developed a reading task and a puzzle task. She divided her subjects (first grade children) into ability groups according to their demonstrated reading ability and then gave more difficult tasks to the more skilled children.

Starkweather (1957) developed a target game which was sufficiently broad so that it offered all children opportunities for success and failure regardless of their ability. The ability of each child was then determined statistically by analyzing his actual performance; it was then possible to weight each child's final scores in terms of his ability as demonstrated in the task.

Awareness of Success and Failure

If a child is to react to success and failure, he must be aware of the fact that he has succeeded or failed, and he must see himself as the instrument of his success or failure.

Some investigators have induced success or failure, that is, imposed success or failure on the child regardless of his actual ability. Rosenzweig (1933) gave the child the experience of failure by stopping him before he was able to complete the task. Keister (1943) gave the child tasks which appeared to be easy but which were actually impossible for him to do. Sears (1940) and Baldwin and Levin (1958a) created an atmosphere of success or failure by telling the child that his previous performance had been superior to, or inferior to, the performance of other children in his group.

Some investigators have set a time limit for the task and the child succeeded if he completed the task within that time limit. Sears and Levin (1957) used this method in a task which required the child to reproduce designs, limiting the child to two minutes for each design. Timing is frequently used in intelligence tests; in some instances the child is permitted to work until he either succeeds or admits failure

and gives up, and in other instances the length of time that he is permitted to work on a task is limited.

In some research the child's success or failure has been obvious to him as a result of his performance. In the task in which the child jumped for balls suspended above him (Sears and Levin, 1957), the child either hit the ball or missed it and his success or failure was immediately obvious to him. Similarly, in a target game (Starkweather, 1957) the child either hit the target or missed it and the success or failure of his throw was immediately obvious.

In some research the child's success or failure has not been measured specifically, but it has been assumed that the child had a feeling of success when he was able to perform the task easily and quickly, and that he had a feeling of failure when he performed the task with difficulty or needed help. This was true of the reading task developed by Tether (1961).

Numerical Scoring

An objective numerical score which is related to the child's ability is needed if the performance of one child is to be compared to that of another.

In a target game, Starkweather (1957) compared the children by using standard scores which indicated the child's performance relative to his actual ability.

In the Sears and Levin (1957) task in which the child jumped for balls, two methods of scoring have been used. Sears and Levin were interested in which level of difficulty was chosen the most frequently;

therefore, they gave each level a score which indicated the number of times it was chosen relative to the number of times that it might have been chosen. Dryer and Haupt (1959) arbitrarily scored the two lowest balls as easy and the two highest balls as difficult. They then gave each child a score which indicated the frequency with which he chose the difficult balls relative to the total number of times he chose the easy and difficult balls.

In some studies the scoring has been a simple numerical count of the number of times a child chose the difficult goal when he had a choice between the easy and the difficult (Tether, 1961).

Implications for the Present Study

The literature indicates that the development of a research task for the measurement of preschool children's willingness to try the difficult should be possible. Some important points which should be kept in mind in the development of such a task are also indicated in the literature.

Insofar as the task itself is concerned, it should be possible to develop instruments which are dependent on several different abilities, e.g., gross motor coordination, fine motor coordination, and the ability to see visual relationships. Each task should be simple in order that the child understand it readily; it should be attractive to the child in order that he be interested in playing with it; and it should be novel, in order that the influence of past experience be held to a minimum.

Insofar as the situation is concerned, certain factors which might affect the child's behavior should be controlled. In order that the child feel free and secure in his play, he should be in a friendly and accepting atmosphere, an atmosphere in which he does not feel that he is being evaluated or criticized. Information about the performance of other children can affect a child's responses; therefore he should be unobserved by other children and he should not be given information about their performances.

Several different methods of scoring have been reported in the literature. These should be explored in order to determine which methods are most suitable for use in the present research.

CHAPTER III

METHOD AND PROCEDURE

This chapter will include information about the subjects who participated in the research, a statement about the selection of the criteria for the research instruments and a list of the criteria, a detailed description of the three research instruments, and a statement about the general procedure which was followed in the administration of the instruments.

Subjects

The subjects were 24 of the children enrolled in two of the Laboratory nursery school groups at Oklahoma State University during the spring of 1962. Of these children, 15 were girls and nine were boys, and the age range was from four years to five years six months. All children in the two nursery school groups who were within this age range were included in the study except two boys who were not interested in playing the games. (Information about the individual subjects is presented in Appendix A, Table XII.)

Community children and other nursery school children who were not included in the final study, were used as subjects for pretesting the research instruments.

Selection of Criteria for the Instruments

The criteria necessary for the research instruments used in the present study were based on information obtained from a review of the literature and interviews with Pakistani students enrolled at Oklahoma State University. The literature was reviewed for information about types of instruments suitable for use with children of preschool age, methods of administering and scoring these instruments, and problems which may occur with certain types of instruments and which may occur when doing research with children of preschool age. The Pakistani students were interviewed for information about the achievement expectations which adults have for young children in Pakistan and for information about activities and toys which are common to children in Pakistan and in the United States.

Interviews with Pakistani Students

Eight Pakistani students, four men and four women, were interviewed. This group included undergraduate and graduate students enrolled in the Colleges of Arts and Sciences, Business, Engineering, and Home Economics at Oklahoma State University. These students came from rural and urban areas of East and West Pakistan and were from upper and upper-middle class families. All eight were experienced with young children inasmuch as all of them came from large families, and three were married and had children of their own.

From these interviews information was obtained about adult expectations and about activities and toys. The preschool child in Pakistan is expected to learn to help himself in toileting, eating,

and dressing, and he is expected to show respect for his elders. Insofar as dressing is concerned, he is taught to snap snapfasteners, button buttons, tie his shoelaces, and comb his hair. The children's toys, many of which are imported from the United States and the United Kingdom, include such common toys as blocks, books, picture puzzles, mechanical toys and toy trucks, carts, boats, airplanes, etc. The play of the young Pakistani child is active rather than quiet; that is, he does run, climb, and jump in his play.

Criteria

After the literature had been reviewed and the Pakistani students at Oklahoma State University had been interviewed, specific criteria for the research instruments were formulated.

1. The instruments should have inherent interest for the child. Such interest would serve to motivate the child and assure his cooperation during the research.
2. The instruments should be novel to the child; that is, the specific materials should be ones with which the child has had no previous experience, even though the general type of activity involved would be familiar to him.
3. Each of the three instruments to be developed should be based on a different type of ability. If willingness to try the difficult is a general personality characteristic, as has been postulated, it should be measurable in a variety of situations.
4. Objective measurement of the child's ability should be possible. This is necessary if the child is to be offered a choice of tasks which are easy and difficult relative to his own ability.

5. Each instrument should contain more than one level of difficulty which are obvious to the child. The child would then have an opportunity to attempt the task at an easy or difficult level.

6. The child's success or failure in his play with the instrument should be obvious to him.

7. The child should see himself as responsible for his success or failure; that is, success or failure should not be induced by the experimenter.

8. Objective measurement of the child's performance on the task should be possible. This is necessary if the child's performance is to be considered relative to his ability.

9. The environmental factors of the experimental situation should be controlled insofar as possible. This should be done in order that the influence of environmental factors on the potency of a possible failure of success be held to a minimum.

Research Instruments

Consideration of the above criteria led to the selection of three research instruments, each based on a different skill or ability. The instruments were (1) a jumping task, based on gross motor ability, (2) a button task, based on fine motor coordination, and (3) a puzzle task, based on the ability to see visual relationships.

Jumping Task

A jumping task, based on gross motor coordination, was adapted from Sears and Levin (1957). This task fulfilled the necessary criteria.

The children found the task interesting; jumping was familiar to them and they had no previous experience with this particular game. The potency of the situation could be controlled by having the child in a familiar room with the experimenter but with no other observers. The child's actual ability and the level of difficulty at which he chose to play the game could be measured objectively.

The instrument used in this research is pictured in Figure 1. It consisted of two wooden posts (eight feet tall) which supported a horizontal rod (seven feet long) from which five colored balls were suspended at different heights. The horizontal bar could be raised or lowered in order to adjust the height of the balls for each child. The lowest ball was placed so that the child could touch it with his fingertips, and the other balls were then two, four, six, and eight inches higher. In the Sears and Levin research, each successive ball was three inches higher than the last, and in the present research each was two inches higher. This adjustment in the instrument was made so that the higher balls would not be completely impossible goals for the children.

Colored marks on the two posts served as guides for the raising and lowering of the horizontal bar. Figure 2 shows a child demonstrating how high he can reach and thus indicating the height at which the lowest ball should be placed. Figure 3 shows this same child jumping for one of the balls.

Administration.- The child was shown the instrument and asked if he would like to have fun jumping for the balls. He was then asked to stand close to one pole and show how high he could reach so that the

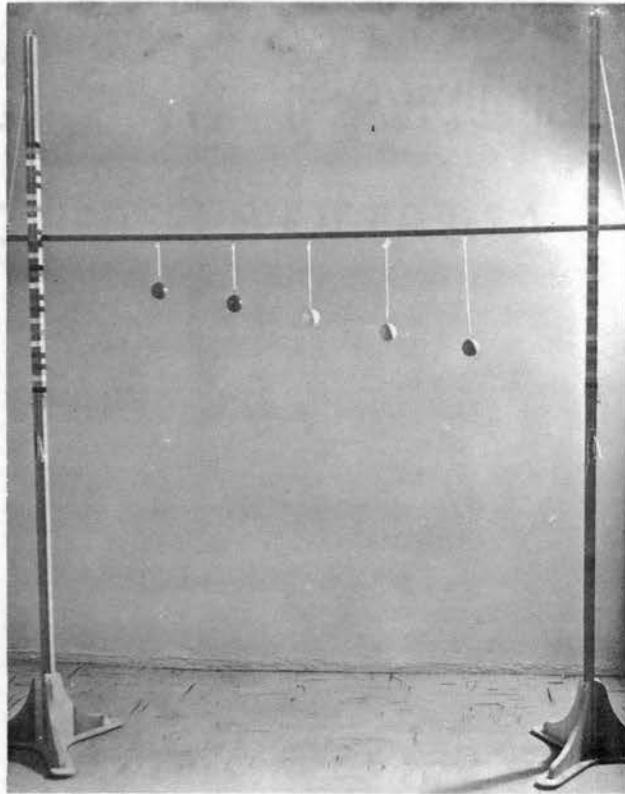


Figure 1. The instrument for the jumping task.

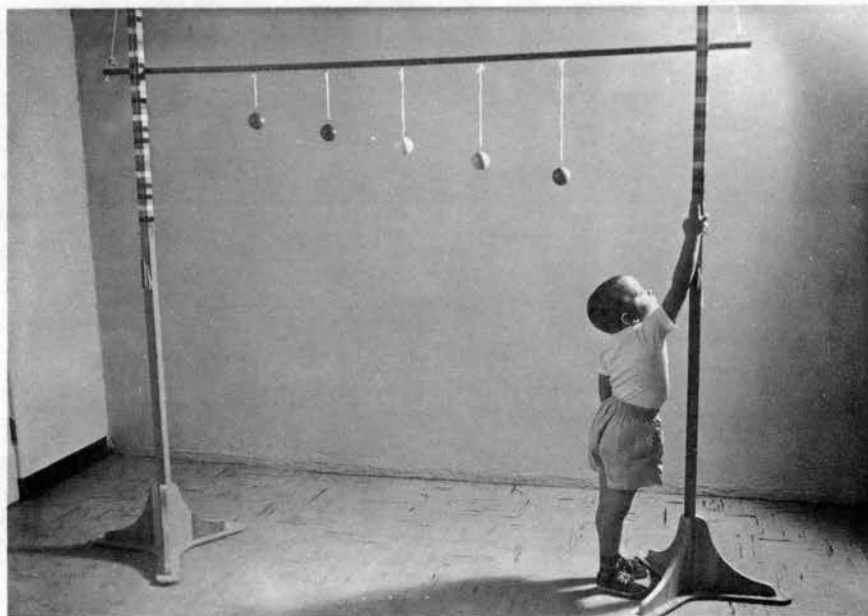


Figure 2. Johnny demonstrates how high he can reach.

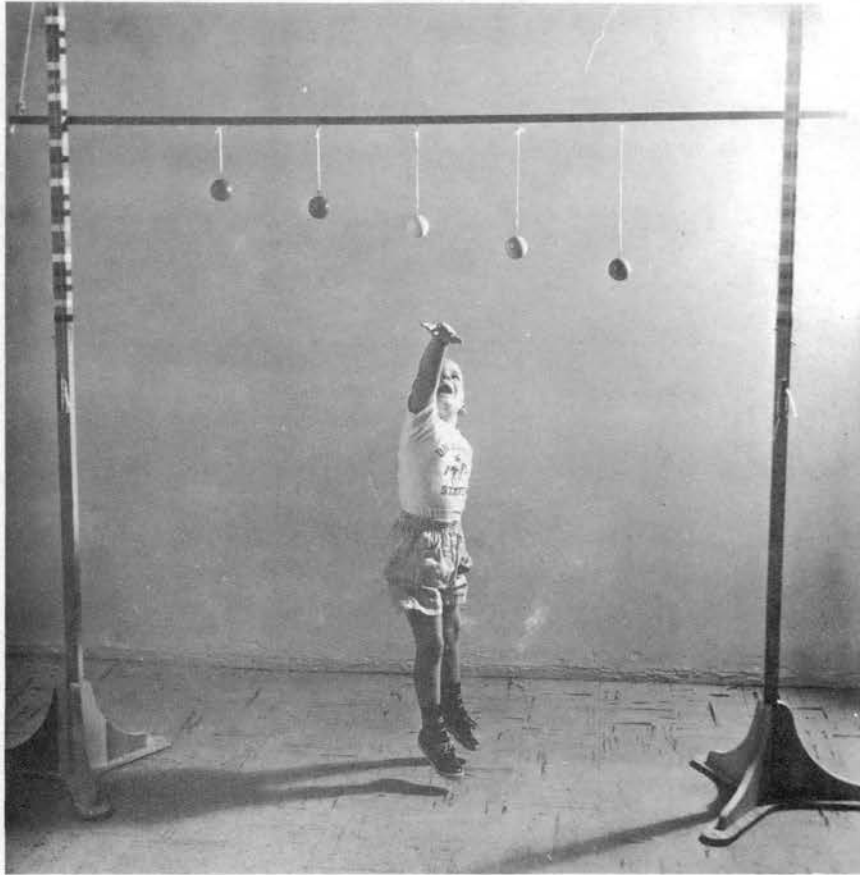


Figure 3. Johnny jumps for the white ball.

balls could be adjusted for him. This was done and he was then given two trial jumps for each ball, starting with the easiest (the lowest). This was done in order that the child be aware of the range of difficulty before playing the game. The experimenter said, "We have five pretty balls here. Let's start with the green one. (Johnny), you jump for the green ball. (He jumps.) Again, for the green ball. (He jumps.) Now, the blue ball. (He jumps.) Again for the blue ball." In this way the child was directed to jump twice for each of the balls; and a record was kept of the success or failure of each jump.

After the trial jumps, the child played the game by choosing the balls for which he wanted to jump. The experimenter said, "Now you can choose. Which one do you want to jump for?" The child indicated his choice by naming the color or pointing to the ball; the experimenter then said, "All right, you jump for the (blue) ball." If the child hit the ball, he was told, "You hit the (blue) ball." If he missed the ball, he was told, "You didn't hit the (blue) ball." These remarks were made as statements of fact and the child was immediately asked, "Now which one do you want to jump for?" In this way the child was given ten choices.

A record was kept of the child's choices and of his successes and failures for all jumps, including the trial jumps. An example of the score sheet is presented below.

Scoring.- Three scores were figured for each child, an ability score, a play score, and a W.D. score (willingness-to-try-the-difficult score).

The score sheet for Child-J is presented in Figure 4. The three scores will be explained and illustrated in terms of this child's responses.

Ball Color	Weighted Scores	Trial Jumps		Child's Ten Choices										
		A	B	1	2	3	4	5	6	7	8	9	10	
Red	5	F	F											
Blue	4	F	F										F	
White	3	F	S							F	S			
Yellow	2	S	S					S	S					
Green	1	S	S	S	S	S	S							S

Figure 4. Sample score sheet for jumping task (Child-J)

The ability score is a measure of the child's ability in the task. A crude adjustment for ability was made by raising or lowering the balls so that the child could touch the lowest ball (the green ball) without jumping. This adjustment made the task possible for the child but did not indicate his jumping ability. Therefore, an ability score was figured from the successes and failures that the child experienced when jumping for the balls. The child's trial jumps and his ten choices were used in figuring this score. For each level of difficulty (each ball), a score was figured by dividing the number of successes by the total number of successes and failures at that level. The ability score was then the sum of these five scores. The formula can be written as follows:

$$\text{Ability Score} = \frac{S_1}{S_1+F_1} + \frac{S_2}{S_2+F_2} + \frac{S_3}{S_3+F_3} + \frac{S_4}{S_4+F_4} + \frac{S_5}{S_5+F_5}$$

Figured from this formula, the ability score for Child-J is 2.50.

$$\text{Ability Score} = 7/7 + 4/4 + 2/4 + 0/3 + 0/2 = 2.50.$$

The play score is a measure of the level of difficulty at which the child chose to play the game. This score was figured from the levels of difficulty the child chose, whether or not he succeeded in hitting the ball for which he jumped. The levels of difficulty were given weights of one to five points; thus the child received one point when he chose to jump for the lowest ball and five points when he chose to jump for the highest ball. The play score was the sum of these weighted scores divided by ten. The formula can be written as follows:

$$\text{Play Score} = \left[1(S_1+F_1)+2(S_2+F_2)+3(S_3+F_3)+4(S_4+F_4)+5(S_5+F_5) \right] \div 10.$$

Figured from this formula, the play score for Child-J is 1.90.

$$\text{Play Score} = \left[1(5)+2(2)+3(2)+4(1)+5(0) \right] \div 10 = 1.90.$$

The W.D. score is the score which indicates the child's willingness to try the difficult relative to his ability. This score, which is figured by subtracting the ability score from the play score, indicates whether the child chose to play the game so that it was relatively difficult or relatively easy for him. For Child-J, the play score (1.90) minus the ability score (2.50) yields a W.D. score of -.60. This negative score is interpreted as indicating that Child-J chose to play the game so that it was relatively easy for him.

Puzzle Task

A puzzle task, based on the ability to see visual relationships, was developed. Interviews with Pakistani students at the University and observation of children in the nursery school indicated that

children in both countries play with puzzles. The pictures on the puzzles available in Pakistan are frequently those of common animals. This suggested that animal picture puzzles might be suitable for this research.

The puzzle task was accepted as fulfilling the necessary criteria. Brightly colored animal pictures made the task attractive; the children were familiar with puzzles, and yet the specific puzzles used in this task were new to them. The potency of the situation could be controlled as it was for the jumping task. A child's ability could be estimated by timing him, and the level of difficulty at which he chose to play the game could be objectively measured by his choices of difficult and easy puzzles.

The puzzles, as used in the research, consisted of ten sets of four puzzles each. Each set was of a different picture; whereas the four puzzles in each set were of the same picture. The ten pictures from which puzzles were made are shown in Figure 5. One set of puzzles is shown in Figure 6. Each set included a three, a four, a six, and a nine-piece puzzle. The puzzles were all cut into straight edged pieces as illustrated in Figure 6. The puzzles with three pieces were accepted as the easiest; and those with nine pieces were accepted as the most difficult.

The puzzle task was offered in two sessions, half of the puzzles being presented in the first session and half in the second. The child was offered his choice between a relatively easy puzzle and a more difficult puzzle, both of the same picture. His score was then the number of times that he chose the more difficult puzzle.

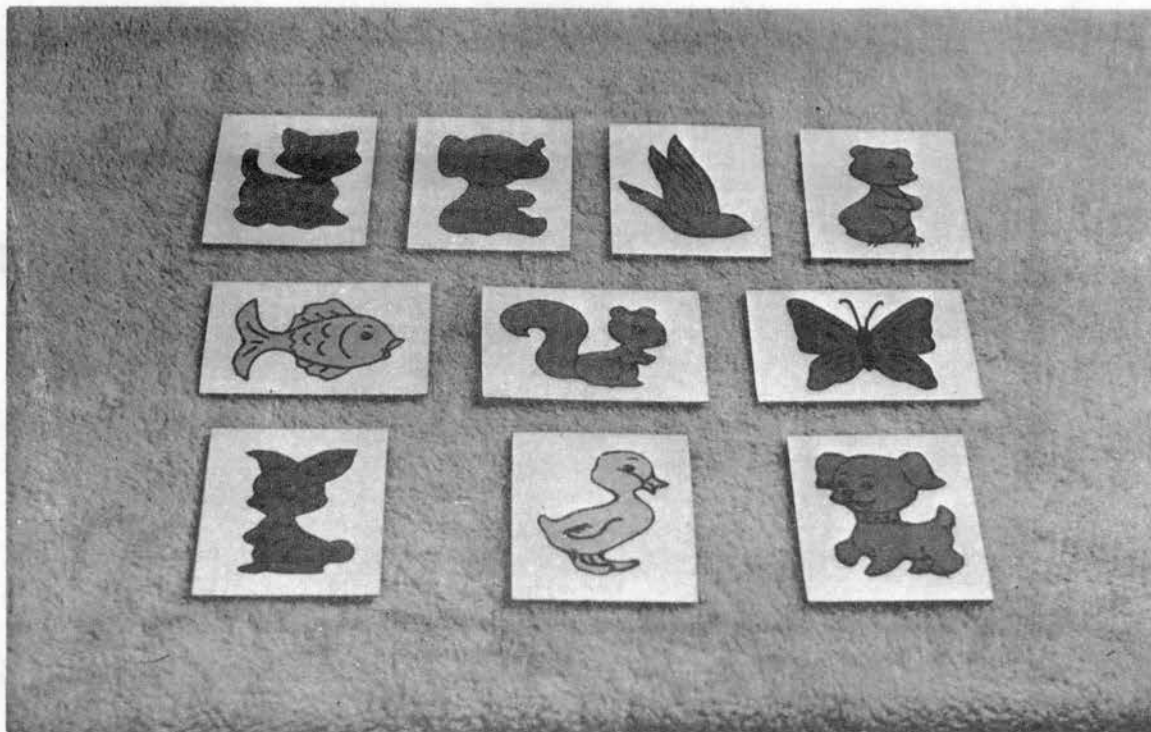


Figure 5. The ten puzzle pictures.

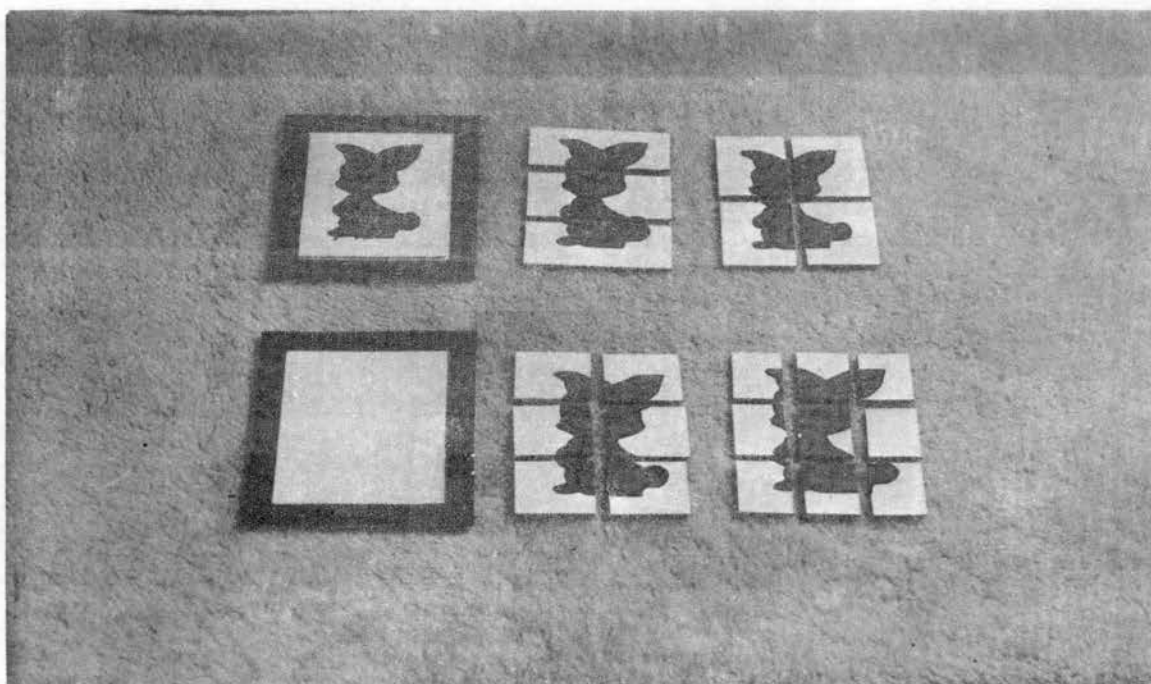


Figure 6. One set of puzzles.

Before the actual administration of the task, each child was timed on a four-piece puzzle. The children were then arbitrarily assigned to ability groups. The children who completed the puzzle in 17 to 28 seconds were assigned to Group A; those who completed the puzzle in 31 to 42 seconds were assigned to Group B; those who completed the puzzle in 49 seconds or more were assigned to Group C. The timing for the individual children and the ability groups to which they were assigned are given in Appendix B, Table XIV.

The assignment of the children to ability groups made it possible to make some adjustment in the task for each child's ability. Group A was offered puzzles which were more difficult than those offered to Group B; Group B was offered puzzles which were more difficult than those offered to Group C. In this way each child was offered a choice between two puzzles, one which was relatively easy for him and the other which was relatively difficult. In Table I the number of pieces in the easy and difficult puzzles offered to each ability group is presented.

TABLE I
NUMBER OF PIECES IN EASY AND DIFFICULT PUZZLES
ASSIGNED TO THE THREE ABILITY GROUPS

Ability Group	Easy Puzzle	Difficult Puzzle
Group A	6	9
Group B	4	6
Group C	3	4

Administration.:- Two puzzle frames, as illustrated in Figure 6, were placed before the child. In one frame the experimenter placed a picture to show the child what his puzzle would look like when completed. She then offered him the first pair of puzzles, saying, "Now, (Johnny), here is a picture of a (rabbit). You can make one like it. Here are two (rabbit-puzzles); this one is easy and this one is hard. Which one do you want to do?" The child took one of the puzzles and worked until he completed it. He was then offered a second pair of puzzles and again chose between the easy and the difficult. In this way the child was given the ten puzzles, five in the first session and five in the second; and a record was kept of the choices the child made.

Scoring.- The scoring of this task was a simple count of the number of times each child chose the difficult puzzle in each pair. Thus, the possible range of scores was from zero to ten.

Button Task

A button task, based on fine motor coordination, was developed. The decision to use a button task was made after interviewing the Pakistani students at Oklahoma State University and observing the children in the nursery school at the University. From these interviews and observations the writer learned that children in both countries learn to button their clothing and to fasten snaps as they learn to dress themselves. Experimentation with these two types of tasks indicated that buttons were more suitable than the snaps for the present research. Small buttons were more difficult for the children to handle than the large buttons; the children could button the large buttons faster than the small buttons. The snaps required both strength and coordination; the

large snaps were difficult because of the strength required to snap them and the small snaps were difficult because of the coordination required to snap them. Because of these two dimensions of difficulty, the snap fasteners were discarded as a possible task.

The button task was accepted as fulfilling the necessary criteria. Colorful button strips made the task attractive; the children were familiar with buttons and yet the task itself was novel to them. The potency of the situation could be controlled as it was for the other two tasks. A child's actual ability could be determined by timing him, and the level of difficulty at which he chose to play the game could be objectively measured by his choices of difficult and easy button strips.

A trial strip of buttons, which consisted of one button of each size, was used in determining the relative ability of each child. This trial strip is pictured in Figure 7. Each child was timed on this button strip before he actually participated in the research.

The button task as used in the research consisted of five sets of button strips, each of a different color (red, blue, green, yellow, and orchid). One set of button strips is pictured in Figure 8. Each set consisted of six strips, each having four buttons of the same size. For example, one strip had four buttons, size $\frac{3}{8}$ inch; and another had four buttons, size $\frac{3}{4}$ inch. The buttons which were used in the task were of the following sizes: $\frac{17}{16}$ inch, $\frac{3}{4}$ inch, $\frac{5}{8}$ inch, $\frac{1}{2}$ inch, $\frac{3}{8}$ inch, and $\frac{5}{16}$ inch.

The button task was offered in two sessions. In the first session the child was given his choice between an easy and a difficult button strip in each of five pairs of strips; in the second session he was given his choice in five pairs which were somewhat more difficult than

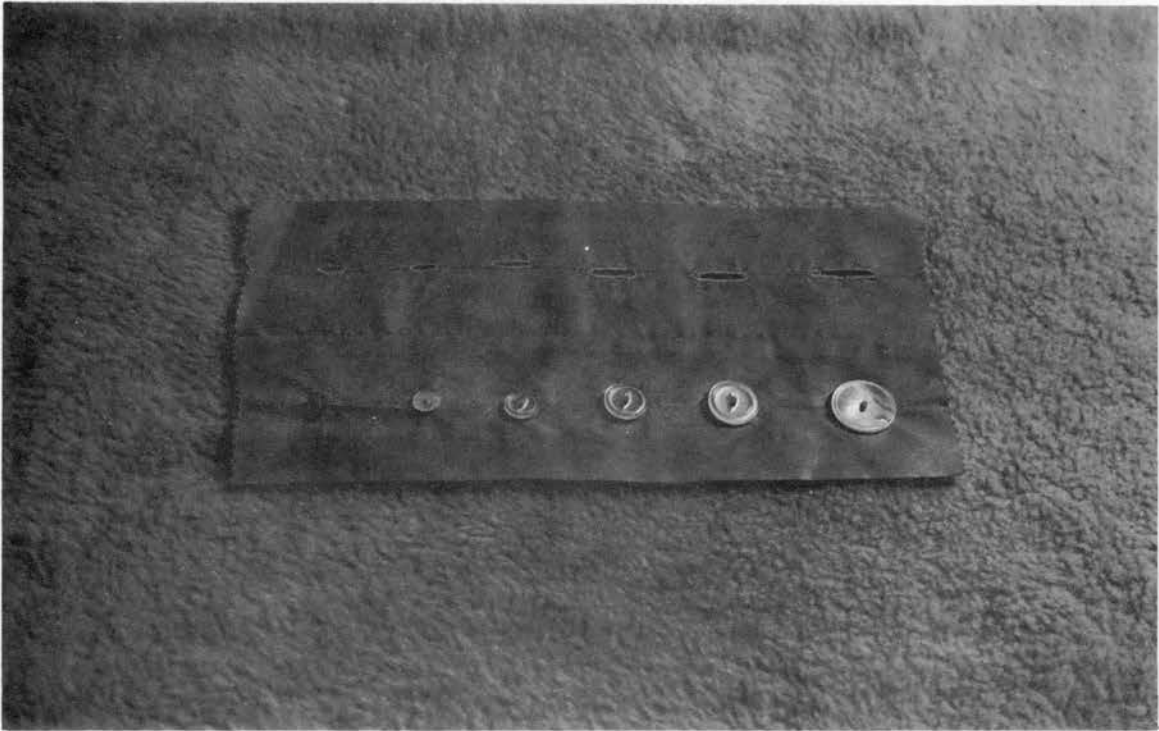


Figure 7. The trial strip of buttons.

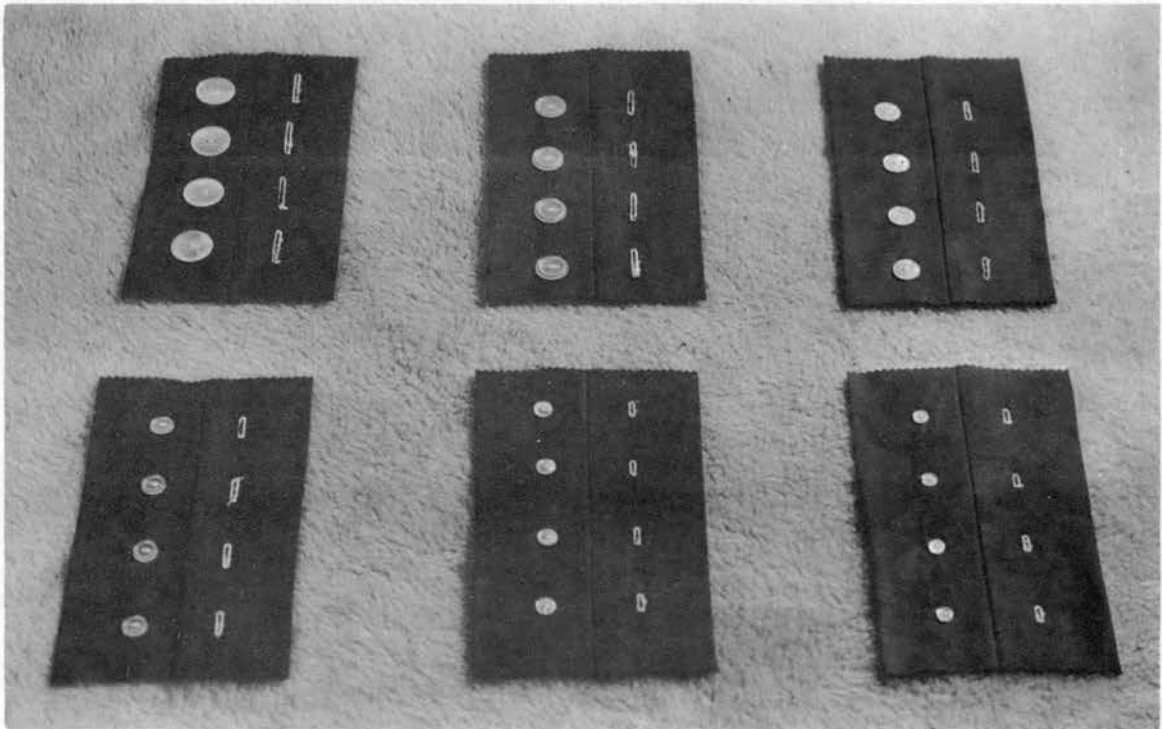


Figure 8. One set of button strips.

the first five. His score was then the number of times that he chose the more difficult strip.

Before the actual administration of the task, each child was timed on the trial button strip. The children were then arbitrarily assigned to three ability groups. The children who completed the trial strip in 33 to 68 seconds were assigned to Group A; those who completed the trial strip in 113 to 120 seconds were assigned to Group B; those who completed the trial strip in 151 to 152 seconds were assigned to Group C. The timing for the individual children and the ability groups to which they were assigned are presented in Appendix B, Table XV.

As with the puzzle task, the assignment of the children to ability groups made it possible to make some adjustment in the task for each child's ability. For example, Group A was offered button strips which were more difficult than those offered to Group B; Group B was offered button strips which were more difficult than those offered to Group C. In this way each child was offered a choice between button strips which were easy and difficult relative to his ability. In Table II, the paired button strips which were offered to each of the ability groups in the two sessions are presented. The sizes of the buttons, from easy to difficult, are indicated by numbers one to six.

TABLE II
SIZES OF BUTTONS IN PAIRED BUTTON STRIPS PRESENTED
TO THE THREE ABILITY GROUPS IN THE
FIRST AND SECOND SESSIONS

	First Session	Second Session
Group A	3 and 5	4 and 6
Group B	2 and 4	3 and 5
Group C	1 and 3	2 and 4

Administration.- The child was shown a pair of button strips, an easy and a difficult strip both of the same color. The experimenter then said, "Now, (Johnny), we have two (red) button strips; this one is easy and this one is hard. Which one do you want to button?" The child took one and buttoned it; the other strip was put aside. He was then shown another pair of button strips and was told, "Now, here are two (green) button strips; this one is easy and this one is hard. Which one do you want to button?" In this way the child was given ten pairs of button strips, five in the first session and five in the second; a record was kept of the choices the child made.

Scoring.- As with the puzzle task, the scoring of this task was a simple count of the number of times each child chose the difficult button strip in each pair. Thus, the possible range of scores was from zero to ten.

Procedure

Each child was taken to the research laboratory on two different days to play with the research instruments. He was familiar with the laboratory room and he knew the experimenter, who was the only person observing him.

During the child's first session in the laboratory, he played with all three of the research instruments. He did five button strips and five puzzles and then played the jumping game, completing it in this first session. During his second session in the laboratory, the child did five button strips, which were somewhat more idfficult than those he was offered during his first session; and he did the five remaining puzzles.

In this way during two sessions in the laboratory, each child made a total of ten choices between the easy and the difficult on each of the three research tasks.

CHAPTER IV

ANALYSIS OF DATA

This chapter will include (1) an examination of the children's responses on each of the three research instruments in order to determine whether a valid measure of willingness to try the difficult has been obtained, and (2) a comparison of the children's responses in the three situations in order to determine whether the same characteristic has been measured by each instrument. The raw scores of the individual children on each of the three research tasks are presented in Appendix B, Tables XIII, XIV, and XV. The score sheet for one child (Child-0) is presented in Appendix C.

Validity of the Instruments

The three instruments were designed so that each child could be offered a choice of tasks which were easy and difficult relative to his own ability. This required (1) that ability as a variable be controlled, and (2) that each instrument offer a sufficiently broad range of choices in order that all children have an opportunity to choose between the easy and the difficult regardless of their ability. In order to determine whether these requirements were fulfilled, the responses of the children in the different ability groups were compared. If ability was adequately controlled and if the tasks were sufficiently

broad to offer all children an opportunity to try the easy or the difficult, no real differences should exist in the responses of the different ability groups.

Jumping Task

In the jumping task the height of the balls was adjusted for each child and an ability score was figured from his actual successes and failures. On the basis of these scores the children were divided into three ability groups. In Table III, the raw scores of the individual children, by ability groups, are presented.

TABLE III

RAW SCORES OF INDIVIDUAL CHILDREN, BY ABILITY GROUPS, ON A JUMPING TASK DESIGNED TO MEASURE WILLINGNESS TO TRY THE DIFFICULT (N = 24)

<u>High Ability Group</u>		<u>Medium Ability Group</u>		<u>Low Ability Group</u>	
Child	Score	Child	Score	Child	Score
A	+0.51	D	-0.48	B	+1.13
E	-0.75	M	+0.85	C	-0.30
G	+0.90	N	+0.45	F	+0.70
H	-0.20	O	+0.56	K	+0.17
J	-0.60	Q	+0.86	P	+0.33
L	-0.65	S	+1.05	T	+0.80
R	-0.68	U	+0.45	V	+1.50
W	-0.75	X	+0.92	Y	+0.72

Chi-square = 13.403; (p < .01).

A Chi-square analysis of these data indicated that the responses of the three ability groups were significantly different. (Chi-square = 13.403; $p < .01$) The children in the high ability group were less willing to try the difficult than were the children in the medium and low ability groups. The actual and expected scores used in this analysis are presented in Table IV.

TABLE IV
ACTUAL AND EXPECTED SCORES OF THREE ABILITY GROUPS
ON A JUMPING TASK DESIGNED TO MEASURE
WILLINGNESS TO TRY THE DIFFICULT

Ability group	Number of children	Actual	Expected
High	8	-2.22	+2.50
Medium	8	+4.66	+2.49
Low	8	+5.05	+2.50
Total	24	+7.49	+7.49

A conclusion which may be drawn is that the narrow range of difficulty levels which the instrument offered may have prevented children of high ability from accurately demonstrating their willingness to try the difficult. To obtain a positive W.D. score, a child of high ability would have to confine his choices to the more difficult levels (the high balls) and ignore the easier levels (the low balls). Recommendations will be made for the modification of this instrument.

Puzzle Task

For the puzzle task, each child was timed on a four-piece puzzle. On the basis of the skill that he demonstrated, he was arbitrarily placed in one of three ability groups. In Table V, the raw scores of the individual children, by ability groups, are presented.

TABLE V
RAW SCORES OF INDIVIDUAL CHILDREN, BY ABILITY GROUPS, ON
A PUZZLE TASK DESIGNED TO MEASURE WILLINGNESS
TO TRY THE DIFFICULT (N = 24)

<u>High Ability</u>		<u>Medium Ability</u>		<u>Low Ability</u>	
Child	Score	Child	Score	Child	Score
C	0	E	1	A	3
D	0	G	6	B	3
F	1	K	0	H	9
J	0	O	4	N	3
L	0	P	1	S	0
M	6	Q	4	U	4
V	1	R	0	X	2
		T	3	Y	5
		W	0		

Chi-square = 10.09; (p < .01)

A Chi-square analysis of these data indicated that the responses of the three ability groups were significantly different. (Chi-square = 10.09; p < .01) The children in the high ability group seldom chose to do the difficult; whereas the children in the low ability group

frequently chose to do the difficult. The actual and expected scores used in this analysis are presented in Table VI.

TABLE VI
ACTUAL AND EXPECTED SCORES OF THREE ABILITY GROUPS
ON A PUZZLE TASK DESIGNED TO MEASURE
WILLINGNESS TO TRY THE DIFFICULT

Ability group	Number of children	Actual	Expected
High	7	8	16.3
Medium	9	19	21.0
Low	8	29	18.7
Total	24	56	56.0

The conclusion which may be drawn is that all children were not offered equal opportunity to choose between the easy and the difficult relative to their ability. The difficult puzzles offered to the high ability children were apparently too difficult for them; whereas the difficult puzzles offered to the low ability children were apparently rather easy for them. Recommendations will be made for the modification of this instrument.

Button Task

For the button task, each child was timed on a trial strip of buttons. On the basis of the skill that he demonstrated, he was arbitrarily placed in one of three ability groups. Inasmuch as the majority of the children were in the high ability group, the medium

and low ability groups were combined for this analysis. In Table VII, the raw scores of individual children, by ability groups, are presented.

TABLE VII
 RAW SCORES OF INDIVIDUAL CHILDREN, BY ABILITY
 GROUPS, ON A BUTTON TASK DESIGNED
 TO MEASURE WILLINGNESS TO TRY
 THE DIFFICULT (N = 24)

<u>High Ability</u>		<u>Medium-low Ability</u>	
Child	Score	Child	Score
A	2	G	5
B	4	J	1
C	1	L	4
D	0	N	2
E	1	T	3
F	0	X	1
H	7	Y	2
K	0		
M	3		
O	4		
P	3		
Q	5		
R	2		
S	0		
U	4		
V	4		
W	4		

Chi-square = 0.005; not significant.

A Chi-square analysis of these data indicated that the responses of the two ability groups were not significantly different. The actual and

expected scores used in this analysis are presented in Table VIII.

TABLE VIII

ACTUAL AND EXPECTED SCORES OF TWO ABILITY GROUPS
ON A BUTTON TASK DESIGNED TO MEASURE
WILLINGNESS TO TRY THE DIFFICULT

Ability group	Number of children	Actual	Expected
High	17	44	43.92
Medium-Low	7	18	18.09
Total	24	62	62.00

The conclusion which may be drawn is that ability, as a variable, was adequately controlled in this task. Apparently all children had equal opportunity to choose between tasks which were easy and difficult relative to their ability. To this extent, the button task can be accepted as the most valid of the three instruments developed in this research.

Comparison of the Instruments

An examination of the three instruments indicated that they did not offer all children equal opportunity to choose between the easy and the difficult. The jumping task limited the opportunity for high ability children to choose the difficult. The puzzle task was relatively difficult for the high ability children and relatively easy for the low ability children. The button task apparently offered equal opportunity to children of different ability. Because of the apparent faults in the

instruments themselves, the responses of all children could not be included in the comparison of the three instruments.

The nine children who were in the middle ability group on the puzzle task were selected as subjects to be used in a comparison of the three instruments. Most of these children were in the middle or low ability groups for the jumping task. The rank order scores of these nine children on the three tasks are presented in Table IX.

TABLE IX
RANK ORDER SCORES OF INDIVIDUAL CHILDREN ON THREE
TASKS DESIGNED TO MEASURE WILLINGNESS
TO TRY THE DIFFICULT (N = 9)

Child	Jumping Task	Puzzle Task	Button Task
E	8.5	5.5	8.0
G	1.0	1.0	1.5
K	6.0	8.0	9.0
O	4.0	2.5	3.5
P	5.0	5.5	5.5
Q	2.0	2.5	1.5
R	7.0	8.0	7.0
T	3.0	4.0	5.5
W	8.5	8.0	3.5

An analysis of these scores shows that the children who were willing to try the difficult relative to their own ability on one task, tended to be those who were willing to try the difficult on another task. The rank order correlations obtained in this analysis are presented Table X.

TABLE X

RANK ORDER COEFFICIENTS OF CORRELATION AMONG
THE THREE TASKS DESIGNED TO MEASURE
WILLINGNESS TO TRY THE DIFFICULT

Tasks	rho	p
Jumping and Puzzle	+0.683	<.05
Jumping and Button	+0.654	<.10
Puzzle and Button	+0.725	<.05

Here the implication is that willingness to try the difficult is a constant personality characteristic and can be measured if ability and other variables which might influence performance are controlled. More refined research is needed in this area.

Inasmuch as the puzzle task and the button task were of similar design, i.e., administered and scored in the same manner, a comparison of the responses of all children to these two tasks was possible. The data for a Chi-square analysis of this relationship is presented in Table XI.

TABLE XI

FREQUENCY OF HIGH-SCORING AND LOW-SCORING SUBJECTS ON
TWO TASKS DESIGNED TO MEASURE WILLINGNESS
TO TRY THE DIFFICULT (N = 24)

Button Task	Puzzle Task		Total
	High-scoring (3-plus)	Low-scoring (0-1-2)	
High-scoring (3-plus)	8	4	12
Low-scoring (0-1-2)	3	9	12
Total	11	13	24

Chi-square = 4.1958; (p <.05)

The Chi-square analysis of these data indicated that the children who were willing to try the difficult on the button task tended to be those who were willing to try the difficult on the puzzle task. Those who were not willing to try the difficult on the button task tended to be those who were not willing to try the difficult on the puzzle task. (Chi-square = 4.1958; $p < .05$)

Summary of Results

The data collected and analyzed in this study have revealed two major findings:

1. The three instruments did not offer all children equal opportunity to choose between the easy and the difficult relative to their ability.
 - a. The jumping task limited the opportunity for the high ability children to choose the difficult.
 - b. The puzzle task was relatively difficult for the high ability children and relatively easy for the low ability children.
 - c. The button task apparently offered equal opportunity to children of different ability.
2. Willingness to try the difficult appears to be a constant personality characteristic which can be measured if ability and other variables which might influence performance are controlled.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this research was to develop three instruments for the measurement of a preschool child's willingness to try the difficult. A jumping task, a puzzle task, and a button task were developed. Each task was based on a different skill; for each task, an adjustment was made for the child's actual ability in order that he be offered choices between tasks which were easy and difficult relative to his ability. The subjects were 24 nursery school children, four and five years of age.

The data analysis indicated that faults in the design of the instruments prevented them from offering to all children equal opportunity to choose between the easy and the difficult. A comparison of the data obtained from the three instruments indicated that willingness to try the difficult may be a constant personality characteristic which can be measured if ability and other variables which may influence performance are controlled.

Recommendations for Modification of the Instruments

Jumping Task

The need to modify the jumping task was indicated by certain problems which occurred during the research. (1) Some of the children jumped repeatedly for one ball without making a second choice. (2)

Several of the children complained that their necks hurt from looking up at the balls. (3) Some of the children confused the colors on the posts with the colors of the balls. In these cases, the children seemed to believe that they were to jump for the ball which was the color of the mark which they had reached on the post. (4) The data analysis indicated that the range of difficulty levels was not sufficiently broad to offer children of high ability an opportunity to try for difficult goals.

It is recommended that the children have a "material" way of making their choices. For example, the child could indicate his choice by selecting a disc of colored paper. The time for indicating his choice in this manner would offer him a rest between jumps.

It is recommended that the markings on the posts be changed to black lines, thereby eliminating the possibility of the child's confusing these with the colors of the balls.

It is recommended that the range of difficulty offered by the task be increased. The number of balls could be increased, e.g., from five to seven, and the height differences could be one and a half inches instead of two inches. Some experimentation will be needed to determine what height difference offers the best range of difficulty for this task.

Puzzle Task

The need to modify the puzzle task was indicated by certain problems which occurred during the research. (1) For some of the puzzles, the frame was in a horizontal position and for others it was in a vertical

position. This was confusing to some of the children. (2) Some of the puzzles were definitely more difficult than others. The bird and the butterfly, in particular, seemed to be more difficult for all the children. (3) No special arrangement of the puzzle pieces was planned, and occasionally, as the pieces were dropped on the table, they landed in their correct positions; consequently, that particular puzzle was easy for the child. (4) Only two levels of difficulty were offered for each puzzle. This limited the possible range of scores and resulted in the task being difficult for some children and easy for others. (5) There was no definite success or failure experience for the child as there was in the jumping task. It was assumed that the length of time that a child took to complete a puzzle would indicate to him whether it was easy or difficult. However, some children apparently experienced real success after working for a long time on a difficult puzzle.

It is recommended that the puzzles be designed so that all of them are the same shape, e.g., a vertical rectangle.

It is recommended that a number of puzzles be tested for difficulty, and that ten which are of similar difficulty be selected for use in the revised puzzle task.

The arrangement of the puzzle pieces should be predetermined in order that they be presented to all children in the same way.

It is recommended that the task be revised so that the child is offered his choice of all levels of difficulty for each puzzle. If, as with the jumping task, the child is given his choice of seven levels of difficulty, the task should be sufficiently broad to offer all children a choice between the easy and the difficult.

Success and failure experiences should be more definite for the child. This could be accomplished by setting a time limit for the completion of each puzzle. In order to control differences in ability, the more skilled children could be offered a shorter time limit than the less skilled children. Experimentation with timing devices is recommended.

Button Task

Specific problems did not occur in the administration of the button task. However, modification is advisable in order that the administration and scoring be similar to that of the jumping task and the puzzle task. Therefore, it is recommended that the task be revised so that the child is given his choice of all levels of difficulty for each set of buttons. As with the other two tasks, the child should be given his choice of seven levels of difficulty, and a time limit should be imposed in order that the child have an obvious experience of success or failure. As was suggested for the puzzle task, the more skilled children could be offered a shorter time limit than the less skilled children.

Scoring

If the changes in the tasks are made as recommended above, scoring should be similar for all three tasks. It should be possible to figure an ability score, a play score, and a W.D. score for each child on each task. This similarity of scoring would simplify the comparison of the tasks in a study of willingness to try the difficult as a constant personality characteristic.

Recommendations for Use in Pakistan

The writer plans to return to East Pakistan, where she will teach in the laboratory nursery school in the College of Home Economics at Dacca. Standardized tests for the measurement of learning ability and related personality characteristics are not available in Pakistan at this time; therefore, the writer hopes to modify the instruments developed in this research for use in Pakistan, and use them to gain a better understanding of the young children with whom she will work.

The use of these instruments with the nursery school children in Pakistan should indicate which children are most willing to try the difficult and which are least willing to try the difficult. The writer assumes that this latter group needs the safety of assured success and could be helped to gain increased self-confidence if given reassurance and encouragement in their everyday contacts away from their immediate families. The writer believes that a child's willingness to try the difficult may increase his opportunities to learn and to profit by experience.

The instruments themselves will be modified as recommended. The jumping apparatus can be made more simply for use in Pakistan and still retain the features necessary for the measurement of willingness to try the difficult. For the present research, two posts were used to support the bar from which the balls were hung. The apparatus could be simplified by suspending the rod from the ceiling by means of a cord which can be pulled to raise or lower the height of the balls. This suggested simplification of the apparatus is diagramed in Figure 9.

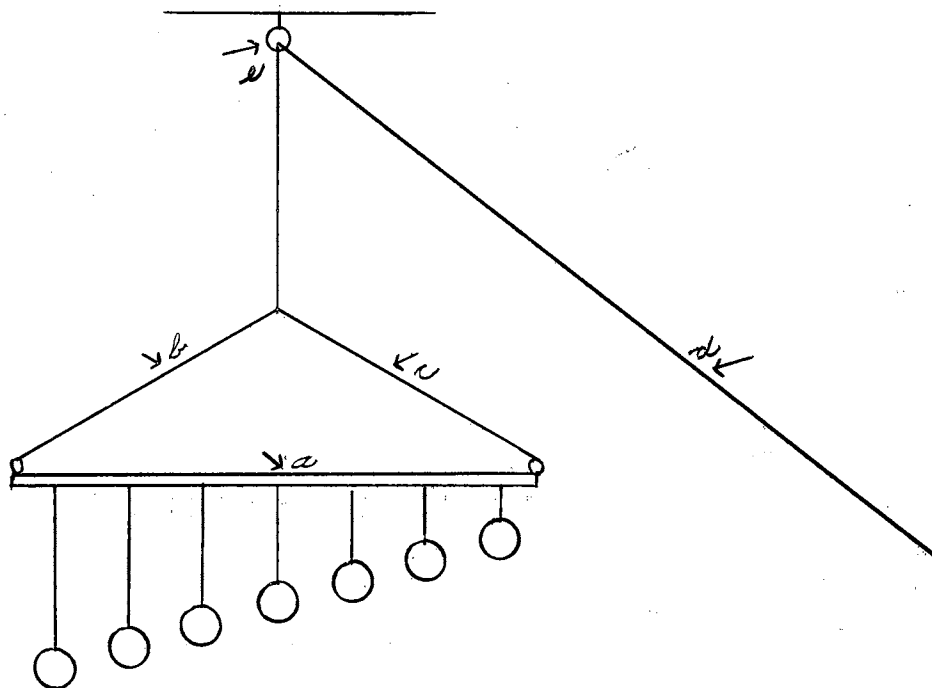


Figure 9. Diagram of simplified jumping apparatus.

Seven balls are suspended from a wooden rod (a). A cord (b-c) is attached to each end of the rod (a). A long cord (d) is attached to the center of the first cord (b-c) and extends through a metal eye (e) which is fastened to the ceiling of the room. This long cord (d) is used by the experimenter to raise and lower the wooden rod (a). Made in this way the apparatus can be used only in rooms where it is possible to suspend it from the ceiling in some manner.

Recommendations for Future Research

The three instruments developed in the present research should be modified as recommended. A study of willingness to try the difficult, as a constant personality characteristic, should then be undertaken with a large group of four and five year old children. A comparison of data gathered in the United States and data gathered in Pakistan should be made. Willingness to try the difficult is assumed to be a universal characteristic. However, marked cultural differences may be found, and such differences could have major implications for the field of education. For example, the methods of motivating a child to learn should be influenced by the achievement expectations of the culture, and these expectations may be implied by willingness to try the difficult as it is expressed by members of the particular culture.

Willingness to try the difficult has been accepted as a characteristic which is necessary for the expression of creative ability. The writer hopes that the modified instruments for the measurement of willingness to try the difficult will be of use in the future study of creative ability in young children.

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APPENDIX A

TABLE XII

AGE, SEX AND NURSERY SCHOOL GROUP OF INDIVIDUAL CHILDREN
SERVING AS SUBJECTS IN A STUDY OF WILLINGNESS
TO TRY THE DIFFICULT (N = 24)

Child	Age Years-Months	Sex	Nursery School Group
A	4-7	F	III
B	4-10	F	III
C	4-10	M	I
D	5-3	F	III
E	4-5	M	I
F	5-2	M	III
G	5-4	M	III
H	5-4	M	III
J	4-5	F	I
K	4-2	F	I
L	4-9	F	I
M	5-5	M	III
N	4-3	M	I
O	4-10	F	III
P	4-1	F	I
Q	4-8	F	III
R	5-2	F	III
S	4-8	M	I
T	4-0	F	I
U	4-8	F	III
V	5-6	F	III
W	5-5	F	III
X	4-2	M	I
Y	4-7	F	I

APPENDIX B

TABLE XIII
 RAW SCORES OF INDIVIDUAL CHILDREN ON A JUMPING
 TASK DESIGNED TO MEASURE WILLINGNESS
 TO TRY THE DIFFICULT (N = 24)

Child	Ability Score	Play Score	W. D. Score*
A	2.29	2.80	+0.51
B	1.17	2.30	+1.13
C	1.60	1.30	-0.30
D	2.08	1.60	-0.48
E	3.75	3.00	-0.75
F	1.40	2.10	+0.70
G	2.50	3.40	+0.90
H	3.50	3.30	-0.20
J	2.50	1.90	-0.60
K	0.83	1.00	+0.17
L	3.25	2.60	-0.65
M	1.95	2.80	+0.85
N	1.95	2.40	+0.45
O	2.14	2.70	+0.56
P	0.67	1.00	+0.33
Q	2.24	3.10	+0.86
R	3.08	2.40	-0.68
S	1.75	2.80	+1.05
T	1.60	2.40	+0.80
U	2.25	2.70	+1.50
V	1.50	3.00	+1.50
W	3.45	2.70	-0.75
X	2.08	3.00	+0.92
Y	1.18	1.90	+0.72

*Score for Willingness to try the difficult

TABLE XIV

RAW SCORES OF INDIVIDUAL CHILDREN ON A PUZZLE
TASK DESIGNED TO MEASURE WILLINGNESS
TO TRY THE DIFFICULT (N = 24)

Child	Ability Time	Ability Group	W.D. Score*
A	68"	C	3
B	156"	C	3
C	23"	A	0
D	28"	A	0
E	34"	B	1
F	17"	A	1
G	31"	B	6
H	50"	C	9
J	26"	A	0
K	32"	B	0
L	22"	A	0
M	18"	A	6
N	42"	B	3
O	40"	B	4
P	31"	B	1
Q	33"	B	4
R	37"	B	0
S	49"	C	0
T	34"	B	3
U	80"	C	4
V	27"	A	1
W	34"	B	0
X	56"	C	2
Y	59"	C	5

*Score for willingness to try the difficult

TABLE XV

RAW SCORES OF INDIVIDUAL CHILDREN ON A BUTTON
TASK DESIGNED TO MEASURE WILLINGNESS
TO TRY THE DIFFICULT (N = 24)

Child	Ability Time	Ability Group	W.D. Score*
A	52"	A	2
B	45"	A	4
C	46"	A	1
D	48"	A	0
E	60"	A	1
F	68"	A	0
G	151"	C	5
H	54"	A	7
J	120"	B	1
K	33"	A	0
L	116"	B	4
M	49"	A	3
N	118"	B	2
O	48"	A	4
P	43"	A	3
Q	47"	A	5
R	49"	A	2
S	59"	A	0
T	113"	B	3
U	54"	A	4
V	42"	A	4
W	56"	A	4
X	113"	B	1
Y	152"	C	2

*Score for willingness to try the difficult

APPENDIX C

SCORE SHEET FOR CHILD-O

NAME Child-O Birthdate 7-1-57 Age 4-10 N.S Group III

Dates: Session I 4-24-62 Session II 5-8-62

BUTTON TASK

Time 48" Group A

Session I

Button Sizes 3-5

- 1. (E) D
- 2. E (D)
- 3. (E) D
- 4. E (D)
- 5. (E) D

Session II

Button Sizes 4-6

- 6. (E) D
- 7. E (D)
- 8. (E) D
- 9. E (D)
- 10. (E) D

PUZZLE TASK

Time 40" Group B

Session I

Puzzle Pieces 4-6

- 1. (E) D
- 2. (E) D
- 3. (E) D
- 4. E (D)
- 5. (E) D

Session II

Puzzle Pieces 4-6

- 6. (E) D
- 7. E (D)
- 8. (E) D
- 9. E (D)
- 10. E (D)

JUMPING TASK

Color	Trials		Ten Choices									
	A	B	1	2	3	4	5	6	7	8	9	10
Red	F	F										
Blue	S	F							F	F		
White	F	F	F		F	F		S				S
Yellow	S	S		S								
Green	F	S					S				S	

BUTTON TASK

W.D. Score 4

Puzzle Task

W.D. Score 4

Jumping Task

Play Score 2.70
 Ability Score 2.14
 W.D. Score 10.56

VITA

Niloufer Ahmed

Candidate for the Degree of

Master of Science

Thesis: THE DEVELOPMENT OF THREE INSTRUMENTS TO MEASURE WILLINGNESS
TO TRY THE DIFFICULT IN PRESCHOOL AGE CHILDREN.

Major Field: Family Relations and Child Development

Biographical:

Personal Data: Born at Dacca, East Pakistan, March 28, 1937,
daughter of Syed Bahauddin Ahmed and Rowshanara Ahmed.

Education: Attended grade school at Dacca, Pakistan; graduated
from Eden Girls College Dacca, Pakistan in 1954; received
the Bachelor of Arts degree in Geography from the University
of Dacca in 1957; received the Diploma in Education from
the American University of Beirut, Lebanon, in 1959;
received the Master of Arts degree in Geography from the
University of Dacca in September 1960; completed the re-
quirements for the Masters of Science degree in January
1963.

Professional experience: Taught at Cantonment Modern School,
Dacca, Pakistan from November 1959 until December 1960.