12-1990

Effect of Modified Instructions on Test Performance of First Graders

Lisa J. Nuss
Western Michigan University

Follow this and additional works at: http://scholarworks.wmich.edu/masters_theses

Part of the Educational Assessment, Evaluation, and Research Commons

Recommended Citation
http://scholarworks.wmich.edu/masters_theses/1088

This Masters Thesis-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Master's Theses by an authorized administrator of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.
EFFECT OF MODIFIED INSTRUCTIONS ON TEST PERFORMANCE OF FIRST GRADERS

by

Lisa J. Nuss

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the requirements for the Degree of Master of Science
Department of Occupational Therapy

Western Michigan University
Kalamazoo, Michigan
December 1990
EFFECT OF MODIFIED INSTRUCTIONS ON TEST PERFORMANCE OF FIRST GRADERS

Lisa J. Nuss, M.S.
Western Michigan University, 1990

This study uses a simple experimental design to examine the effect of standardized and adapted instructions on first graders' performance on selected subtests of the Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978). The mean age of the 20 female and 24 male subjects was 6.77 years. Subjects were randomly assigned to the two experimental conditions. Although the findings for both subtests are not statistically significant at the p<.05 level, they do indicate that motor performance of some populations may not be compromised by altering the wording of the standardized assessment directions. The implications of this study and the need for future research in this area are discussed.
ACKNOWLEDGEMENTS

I would like to express my appreciation to my committee members, Barbara A. Rider, Ph.D., OTR, FAOTA; Cindee Peterson, M.A., OTR; and, Shirley Lukens, M.Ed., OTR, for their guidance and patience throughout the research process.

Gratitude is extended to Rochester Community Schools, Rochester, Michigan, for their cooperation and support of student research.

I am also indebted to Sue Claflin-Rister, OTS, for her assistance with the data collection, and to my family for their encouragement during this project.

Lisa J. Nuss
INFORMATION TO USERS

The most advanced technology has been used to photograph and reproduce this manuscript from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road. Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Effect of modified instructions on test performance of first graders

Nuss, Lisa J., M.S.
Western Michigan University, 1990
NOTE TO USERS

THE ORIGINAL DOCUMENT RECEIVED BY U.M.I. CONTAINED PAGES WITH SLANTED AND POOR PRINT. PAGES WERE FILMED AS RECEIVED.

THIS REPRODUCTION IS THE BEST AVAILABLE COPY.
# TABLE OF CONTENTS

ACKNOWLEDGEMENTS .......................................... ii

LIST OF TABLES ............................................ iv

CHAPTER

I. INTRODUCTION ....................................... 1
   Statement of the Problem ........................ 1
   Purpose of the Study ............................. 3

II. REVIEW OF RELATED LITERATURE ................... 5

III. METHODOLOGY ....................................... 14
    Subject Selection ............................... 14
    Instrumentation ................................. 15
    Procedure ...................................... 17

IV. RESULTS ............................................ 20

V. DISCUSSION ......................................... 22
   Conclusion ..................................... 26

APPENDICES

A. Human Subjects Institutional Review Board
   Approval Form ..................................... 27

B. Rochester Community Schools Approval Form .... 29

C. Informed Consent Form ........................... 31

D. Equipment ......................................... 33

BIBLIOGRAPHY ............................................... 35

iii
LIST OF TABLES

1. Running Speed and Agility Subtest ................ 21
2. Standing Broad Jump Subtest ....................... 21
CHAPTER I

INTRODUCTION

Statement of the Problem

Activities have been an important part of occupational therapy since the founding of the profession. These activities should be purposeful in order to maximize their therapeutic benefit. Yet, the longstanding belief that there are positive effects on performance when the activities are purposeful has only recently begun to be studied.

In general, occupational therapy treatments are designed to assist individuals to function at their highest possible level. Therapy should be considered by the clients to be purposeful, fun, and interesting. For example, in pediatric settings, treatment often assumes a game-like atmosphere. However, the same qualities of interest and motivation emphasized in treatment are rarely incorporated into assessment instructions and activities.

One exception where an effort has been made to entice and maintain both the attention and enthusiasm of children who are performing motor tasks while being evaluated is in the Miller Assessment for Preschoolers (Miller, 1988). The purpose of this screening test is to detect possible mild to moderate developmental delays in young children.
mild to moderate developmental delays in young children (Miller, 1988). The test instructions resemble a game in their presentation. Yet, the decision to write the directions in this manner was based solely on informal observations during the screening tool's standardization rather than on empirical evidence (L.J. Miller, personal communication, 16 March 1990). Furthermore, it was believed that the children in the sample population performed better when the instructions were adapted in this manner, as opposed to when they were more traditionally worded, because there was increased interest and attention behavior noted during the administration of the directions (L.J. Miller, personal communication, 16 March 1990).

All possible attempts to engross children in the assessment process should be explored; otherwise, they may be inhibited from performing their best during the assessment process. Moreover, if purposeful activity is accepted as a valid treatment tool because performance may be enhanced, it is ironic that this same line of thought is frequently ignored during the assessment process since treatment goals and objectives are based upon their results.

It is true, however, that exercise and motor tasks individuals are asked to perform during testing are considered to be purposeful because they have a set goal.
Yet, their purpose may not be readily apparent or of interest to the people asked to perform them, especially children. As a result, the performance exhibited may not be an accurate portrayal of the individuals' abilities.

Purpose of the Study

The purpose of this study was to examine what effect the rewording of standardized assessment instructions would have on children's motor performance. The rewritten directions would attempt to enhance the interest and motivation level of children by increasing their participation level without changing the nature of the tasks themselves. It is hypothesized that the engagement of children in an imaginary adventure story while performing selected motor activities would give them added purpose and positively affect performance. Hence, in typical first graders, the adapted verbal instructions should improve performance on two gross motor subtests of the Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978) when compared to children who receive the standardized ones. In addition, there should be no significant difference between male and female performances in the same set of directions given due to a lack of gender differences in the standardized norms for this assessment (Bruininks, 1978).

This study utilized the following definitions to
distinguish the two experimental conditions:

**Standardized Instructions**—standardized verbal test instructions for the Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978) which are worded in a straightforward style that specifies the steps of the task the child is to perform.

**Adapted Instructions**—non-standardized verbal test instructions for the Bruininks-Oseretsky Test of Motor Proficiency which are worded in a creative style that embeds the steps of the task the child is to perform in an imaginary adventure story in which s/he is asked to participate.
CHAPTER II

REVIEW OF RELATED LITERATURE

Since the inception of occupational therapy, the profession has espoused a view that purposeful activities are a legitimate tool to promote, maintain, and restore health (Hinojosa, Sabari, & Rosenfeld, 1983; Hopkins, Smith, & Tiffany, 1978; Mosey, 1986; Trombly, 1989). Hinojosa, Sabari and Rosenfeld report that the American Occupational Therapy Association Commission on Practice formally defined purposeful activities in 1983 as "tasks or experiences in which the person actively engages" (p. 805). Unlike random, non-goal directed activities, purposeful activities have a predetermined goal. Furthermore, merely by participating in these activities, attention should naturally be directed away from the specific motor movement requirements and redirected towards their process or goal (King, 1978; Punwar, 1988; Trombly, 1989; Yerxa, 1967). Consequently, the tasks selected must not only elicit the desired response, but must be socially acceptable, age appropriate, and personally interesting.

Purposeful activities also serve a dual purpose. In therapy, these activities are most frequently used to facilitate, maintain, or restore health, as well as to
interest the patient in the treatment process. For instance, crafts and games are commonly used to accomplish treatment objectives. Hence, dual motivation is provided to the clients for engaging in therapy: getting well and completing the task.

Currently, quantitative research is limited in terms of studies investigating the effects of added purpose on motor performance, but the body of literature in this area has begun to grow in recent years. Kircher (1984), for example, found support for intrinsic motivation as a significant factor in the level of perceived exertion among women jumping rope and those going through similar motions without a rope. In both of these conditions, the subjects terminated the activity themselves when they perceived their exertion rate as "working very hard." The subjects who engaged in the actual rope jumping activity worked harder at the task based on higher end heart rate recordings than those who were in the non-rope jumping condition.

In a replication of Kircher's (1984) study, Bloch, Smith, and Nelson (1989) reported similar findings of a higher end heart rate at a given self-perceived level of exertion for those subjects jumping with a rope when compared to those jumping without one. Yet, unlike Kircher's study, a difference of statistical significance was neared by the subjects in the purposeful activity group.
who performed more repetitions before an equivalent level of perceived exertion was reached.

In a study by Steinbeck (1986), subjects performed a greater number of repetitions for the same self-perceived level of exertion during two separate purposeful activities as opposed to the nonpurposeful ones which required similar motor movements. One of the purposeful activities was lower extremity pedaling of a drill press to make a game, and the other one was squeezing a rubber bulb with one hand to suspend a ping pong ball over a scored section of a game board. The nonpurposeful activities consisted of pedaling without a drill press and a rubber bulb without the game attachment. The subjects who engaged in the purposeful activity tasks were intrinsically motivated to perform longer.

Yoder, Nelson, and Smith (1989) also found an increase in the number of repetitions performed by elderly, female nursing home residents in stirring cookie dough for the purpose of making cookies as opposed to stirring for the purpose of exercise alone. The subjects also seemed to demonstrate more interest in the activity of making cookies than to merely exercising. Hence, the results of all of these studies indicate that when added purpose is embedded in activities, individuals are more likely to expend more energy or perform the task longer without perceiving...
themselves as being as fatigued than if the element of added purpose was omitted. Therefore, interest in an activity's process or outcome should act as a powerful motivator to improve motor performance.

Traditionally, occupational therapists have utilized physical participation in purposeful activities to enhance the quality of movement or increase motor performance during therapy. Yet, evidence indicates that mental participation may be just as effective as physical practice. While support for imagery or visualization is only now beginning to accumulate, areas such as the martial arts and hypnosis have used such techniques for centuries (Craisilneck & Hall, 1975). In visualization, images may be suggested in whole or part by a guide or they may derive entirely from the individual. These images are believed to affect motor performance or physiological functioning because the mind and body are interconnected. Hence, a change in one part will automatically affect the other.

Early electrophysiology studies demonstrated that electrical activity is detectable in the muscles when a specific motor activity is imagined (Jacobson, 1932). Moreover, relaxation alone may help to facilitate motor activities (Craisilneck & Hall, 1975). As a result of these findings, athletes, psychologists, and occupational therapists are beginning to conduct quantitative studies of
their own as imagery becomes more commonly used and accepted in their own practice arenas.

Previous studies have examined the effect of mental imagery on motor performance. Activities which were the subjects of these studies included basketball shots (Clark, 1960), gymnastic moves (Egstrom, 1964), dart throwing (Mendoza & Wichman, 1978), piano playing (Rubin-Rabson, 1941), and ring toss (Twining, 1949). Generally, these studies were structured so that subjects were assigned to one of four experimental conditions. These were (1) no practice, (2) physical practice only, (3) mental practice only, and, (4) physical and mental practice combined to perform the physical task. Findings of these studies demonstrated a hierarchy of improved performance levels based on the type of practice engaged in during the course of these studies. The least to the most effective practice techniques were no practice, mental practice only, physical practice only, and physical and mental practice combined. Hence, mental practice appears to be an important adjunct to physical practice in terms of improving motor performance.

More recently, Linden, Uhley, Smith and Bush (1989) investigated the effect of mental practice on elderly females' walking balance. She did not find any significant differences in the walking balance performance between
subjects who mentally practiced walking through an activity course and those who did not practice at all. Unforeseen problems with the practice cassette tape were cited to explain the lack of significance in her findings. However, she did find a significant difference in equilibrium reactions in favor of those subjects who mentally practiced when a plate of cookies and a glass of juice were carried across the same course versus when they walked with their hands free. As a result, imagery did have some effect on these subjects' motor performance.

Ricco, Nelson, and Bush (1987) also examined the effects of imagery in elderly women. Visualization served as the added purpose in encouraging the subjects to perform two reaching exercises. An image of picking apples was used to augment upward reaching movements, while picking imaginary coins off the floor was used in the downwards ones. A significant difference in favor of the subjects who received imagery cues over those who did not was reported for the reaching up exercise. In addition, the reaching down exercise approached, but did not achieve statistical significance for the group of subjects in the imagery experimental condition. Consequently, the role of imagery in improving motor performance is evident, but the degree to which it is effective is still unclear.

Children are highly susceptible to imagery suggestions
"because they routinely spend a great deal of time in ASC [altered states of consciousness] and utilize the powers of imagery as natural phenomena" (Korn & Johnson, 1983, pp. 202-203). As a result, they are likely to achieve positive results with these techniques. Moreover, it is believed that the sensitivity to these suggestions begins at age seven and peaks between eight and eleven years. At age 14, this ability begins to decrease (Korn & Johnson, 1983).

The time spent by children utilizing their imaginative ability aids them in learning about themselves and the world around them (Korn & Johnson, 1983).

The ability of children to engage in fantasy is commonly used in the occupational therapy treatment process, but it is rarely considered in the assessment phase. This ability, however, has the potential to improve performances on motor assessments since the mind and the body are linked. It may help children to relax during testing and direct their attention away from the motor movement requirements of the task. Furthermore, the use of the imagination could serve as an added motivator to maintain their attention and encourage their attempts to do well on these tasks. It may also aid in establishing positive rapport between the client and occupational therapist.

One way to merge children’s imaginative ability with
the assessment process is to reword the test directions. An instruction commands a specific behavior. When the exhibited behavior is in accordance with the command, it has been properly followed (Kaplan & White, 1980). Individuals, especially children, are constantly being bombarded with instructions. For instance, Kaplan and White (1980) found that after analyzing tape recordings of 18 kindergarten through fifth grade teachers, directions were vocalized approximately every 40 seconds. Yet, students are expected to process and follow these directions with great accuracy. It is ironic, therefore, that there is a scarcity of literature examining the characteristics of directions and children's ability to follow them.

The available literature indicates that the ability to follow instructions increases with age (Binet & Simon, 1912; Kaplan & White, 1980; Thorndike, 1927). Kaplan and White (1980) found that direction-following performance during a direction following game improved steadily through grades K-3 and then seemed to level off in grades four and five. This study also demonstrated that instructions were more likely to be executed correctly if the number of steps asked to be completed and their accompanying qualification statements were strictly limited. A qualification statement provides the who, what, where, or how a command is to be carried out. These linguistically simpler instructions
were shown to be especially effective when the number of qualifications did not exceed more than one (Kaplan & White, 1980). Moreover, there is considerable variation in the acquisition rate of basic concepts such as "below" among children of the same age (Boehm, 1967). However, it is these basic concepts which often constitute the beginning of a qualification statement. Hence, it is important to consider a child's information processing ability and concept mastery level when wording instructions.

Directions which have been reworded to actively engage children in motor assessment tasks have the potential to facilitate motor performances provided that consideration has been given to their semantic complexity. This study attempted to explore and quantify this potential by comparing adapted instructions and standardized instructions on the performances of first graders on selected tasks of the Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978).

The adapted directions sought to engage children in an adventure story while performing the same motor movements required by the standardized ones. It was hypothesized that by embedding added purpose in assessment instructions, children's participation in the tasks would increase and result in improved motor performance.
CHAPTER III

METHODOLOGY

This was an experimental study of the effect of standardized and adapted instructions on typical first graders' motor performance on two gross motor subtests of the Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978). The subtests were "Running Speed and Agility" and "Standing Broad Jump."

Subject Selection

Permission to conduct the study was granted from both Western Michigan University's (Kalamazoo) Human Subjects Institutional Review Board and Rochester Community Schools, Rochester, Michigan, prior to any contact with the sample population (see Appendices A and B).

The study was conducted at a public elementary school in an upper-middle class suburban area of the Midwest. Fifty-two of the 80 first graders returned a signed permission slip (see Appendix C). They were reminded to wear tennis or crepe-soled shoes on the day of testing. Eight of these children were absent on the day of testing.

The remaining 44 children met the following selection criteria: (a) demonstrated a willingness to participate,
(b) had a sufficient understanding of the English language, and, (c) wore tennis or crepe-soled shoes. Two of the 44 children were allowed to participate although one subject performed the task barefoot and the other one wore rubber-soled boots. However, no significant differences between their scores and the scores of the other subjects were found. The 20 female and 24 male subjects in the sample population ranged in age from 6.03 to 8.07 years old with a mean age of 6.77 years.

The 44 children were randomly assigned to one of the two evaluators. Subjects in each examiner's group were then randomly assigned to one of the two experimental conditions: standardized or adapted instructions. The subjects assigned to the standardized instruction condition consisted of 13 females and 10 males. Those assigned to the adapted instruction condition consisted of seven females and 14 males. All subjects performed the two trials of the "Running Speed and Agility Subtest" prior to the three trials of the "Standing Broad Jump Subtest." This is the specified subtest order in the standardized test protocol.

Instrumentation

The Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978) was designed to assess the motor devel-
opment of children 4.5 to 14.5 years of age. Test-retest reliability studies for second and sixth graders on the short form of this assessment were reported at a reliability co-efficient of 0.87 and 0.84 respectively (Bruininks, 1978).

The standardized equipment from the Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978) was utilized (see Appendix D). A stopwatch was the only additional piece of equipment supplied by the examiner. The following subtest directions are specified in the assessment examiner's manual and were used as the standardized condition of the study (Bruininks, 1978):

Subtest 1/Item 1: Running Speed and Agility

Stand beside the timing line and have the subject stand behind the start/finish line. Say: "When I say 'On your mark, get set, go,' run as fast as you can to the block (point to the block), pick it up, and bring it back across this line (point to the start/finish line). Don't slow down; run fast across this line (point again to the start/finish line). On your mark, get set, go!" (p. 51).

Subtest 4/Item 1: Standing Broad Jump

Have the subject jump up and down a few times before starting. Then say: "Stand behind this line (point to the starting line) with your feet spread about as far apart as your shoulders (demonstrate). Bend your knees, lean forward, and swing your arms at your sides a few times. When I say go, put your arms back and jump forward as far as you can, letting your arms swing forward, and land on both feet (demonstrate). Remember, bend your knees, swing your arms back, and jump as far as you can. When you jump, let your arms swing forward and try to land on both feet. If you lose your balance, try to fall forward. Ready, go!" (p.70).
The following directions were created for the adapted condition of the study:

Subtest 1/Item 1: Running Speed and Agility

Stand beside the timing line and have the subject stand behind the start/finish line. Say: "You are a spy and are being sent on a secret mission. You have to go and pick up a secret, orange package (point to the block), and bring it back here to safety (point to the start/finish line). Keep running fast until after you have reached safety (point again to the start/finish line). On your mark, get set, go!"

Subtest 4/Item 1: Standing Broad Jump

Have the subject jump up and down a few times before starting. Then say: "You are standing on the edge of a pond with alligators in it (Point to the starting line) with your feet spread apart a little bit (demonstrate). You want to get to the playground on the other side, but the bridge is broken, so you have to jump. You want to make sure you get all the way across and you know that if you bend your knees, and throw your arms forward when you jump, and land on both feet like this (demonstrate) that you will have a better chance of making it all the way across. If you lose your balance, try to fall forward to the other side because the alligators might be hungry and want to eat hands for lunch. Ready, go!"

Procedure

Each subject was asked to accompany the examiners one-at-a-time to the test site. The test environment was the end of a well-lighted and ventilated school hallway. The transition time was used by the examiners to establish rapport with the subjects by collecting information regarding the subjects' birthday and asking neutral
questions about their school day and health. During class breaks or times of hallway activity, testing was stopped to minimize the distractions experienced by the subjects.

Once at the test site, the assigned examiner administered procedures for the two subtests. The other examiner observed from approximately six feet away. The primary examiner read the subject's assigned instructional condition and encouraged the subject to do his/her best throughout the subtests. For instance, the subject may have been reminded to keep running fast on the "Running Speed and Agility Subtest" if s/he began to slow down. The examiner also pointed out errors in the subject's performance of the task, when they occurred, by enthusiastically suggesting to the subject alternative ways of doing the task which might produce better results. Both the examiner and the observer recorded the time for the "Running Speed and Agility Subtest" and the measurement for the "Standing Broad Jump Subtest" on the standardized recording form.

On the two subtests, quantifiable dependent variables were used for comparing the effects of the independent variables: standardized and adapted instructions. The dependent variable on the "Running Speed and Agility Subtest" was the subject's running time reported to hundredths of a second rather than the 0.2 of a second.
specified in the standardized test protocol (Bruininks, 1978). The point score for the "Standing Broad Jump Subtest" was used as this subtest's dependent variable.

Inter-observer reliability was assessed on the first 11 subjects to determine the accuracy with which the measurements were recorded. The times recorded on both trials of the "Running Speed and Agility Subtest" and the point scores recorded on all three of the trials for the "Standing Broad Jump Subtest" were used as the measurement to establish reliability. A Pearson correlation was used to determine inter-observer reliability for the "Running Speed and Agility" and "Standing Broad Jump" subtests. Correlations were 96% and 100% respectively.
CHAPTER IV

RESULTS

An independent \( t \)-test used for statistical analysis produced a \( t(42) = 1.68, p = .251 \) for the comparison between the independent variable and running time, and a \( t(42) = 1.06, p = .894 \) between the independent variable and standing broad jump point score, indicating a lack of statistical significance between style of instructions at the \( p < .05 \) level (see Tables 1 and 2). There was also no evidence of statistical significance at the \( p < .05 \) level comparing gender and running time, \( t(42) = 1.16, p = .726 \), and gender and standing broad jump point score, \( t(42) = 1.86, p = .172 \).
### Table 1
**Running Speed and Agility Subtest**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardized Instructions</td>
<td>23</td>
<td>6.9578</td>
<td>.744</td>
<td>1.68</td>
<td>.251</td>
</tr>
<tr>
<td>Adapted Instructions</td>
<td>21</td>
<td>6.8462*</td>
<td>.574</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Although statistically not significant at the p < .05 level, a slightly faster running speed is indicated by the lower mean for the subjects randomly assigned to the adapted instruction condition.*

### Table 2
**Standing Broad Jump Subtest**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardized Instructions</td>
<td>23</td>
<td>5.4783</td>
<td>1.310</td>
<td>1.06</td>
<td>.894</td>
</tr>
<tr>
<td>Adapted Instructions</td>
<td>21</td>
<td>5.7143*</td>
<td>1.347</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Although statistically not significant at the p < .05 level, a slightly longer standing broad jump is indicated by the higher mean for the subjects randomly assigned to the adapted instruction condition.*
CHAPTER V

DISCUSSION

Results of the study indicated no differences in the motor performance of the first graders tested in the study on the "Running Speed and Agility" and "Standing Broad Jump" subtests of the Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978) in response to different semantic styles of verbal instructions. There were also no significant gender differences between subtest performances and experimental conditions. Lack of support for the study's main hypothesis may be related to the novelty of the test situation itself. The children may have already had a high degree of interest in performing well before the experimental conditions were administered because they were taken out of the classroom for a brief period of time to perform two usually forbidden hallway activities: running and jumping. In addition, the adapted instructions were presented as a game. Also, according to available literature (Bloch et al., 1989; King, 1978; Kircher, 1984; Ricco et al., 1987; Steinbeck, 1986) subjects assigned to the adapted condition would have had fewer cortical demands to achieve performance scores compared to those subjects who were read the standardized instructions.
Those subjects who had received the adapted instructions were observed to exhibit greater attending behaviors throughout the test administration. These behaviors included eye contact, looking in the direction of the examiner, and practice in moving their body parts according to the instructions. These subjects also asked fewer questions concerning instruction clarification and did not need to have the directions repeated as frequently before each trial as did those subjects in the standardized condition. Further study to quantify the observed attention/non-attention behavior during verbal test administration to children is needed. In addition, the subjects who were randomly assigned to the adapted instruction condition expressed greater interest to both the examiner and their classroom teacher in performing the subtests over again. After talking with their classmates during recess, the subjects in the standardized condition asked if they could have a turn being "a spy" or jumping "over alligators." Thus, the type of directions used as it relates to increased interest in performing tasks on a motor assessment should be examined for test-retest implications in the clinical setting.

The occasional interruption between trials due to hallway activity did not appear to affect performance scores. Similar subtest trial scores for each of these
subjects before and after the one to two minute interruption were recorded. Hence, a fatigue or rest factor was ruled out as a significant confounding variable.

Several unexpected behaviors were exhibited by a number of children in the study on both subtests regardless of the experimental condition assigned. The only unanticipated observation in the "Running Speed and Agility Subtest" was noted in approximately 7 of the subjects. These children ran past the orange block and attempted to pick up the casing for the tape measure instead of the block and bring it back to the finish line.

Two unforeseen behaviors were observed in the "Standing Broad Jump Subtest." One of these behaviors was seen in approximately 9 subjects who intentionally fell forward after completing the standing broad jump despite appearing to have their balance. It is hypothesized that these children could not adequately process all of the information given to them in the short amount of time provided. In addition, support has been shown that as the complexity of a task increases, as in the case of receiving directions for accomplishing such an activity, then so does the listeners' reliance on the speakers' literal meaning (Bonitatibus, 1988). Consequently, the subjects may have only partially processed the directions to "try to fall forward," and they literally fell after completing the jump.
and gaining their balance. The other behavior seen in this subtest was exhibited by approximately 12 different subjects. These children seemed to interpret the statements "jump as far as you can" and "make sure you get all the way across" differently from the intended meanings by taking numerous small jumps toward the other end of the tape measure until they were stopped by the examiner. Again, either an auditory processing problem or instruction complexity is hypothesized to be at the root of this behavior.

These behaviors were observed in children who have not been diagnosed as having any particular problem, nor were any problems suspected of existing. Moreover, since each child was tested individually, all of the aforementioned observed behaviors are not attributable to imitative behaviors. It is speculated that for some children in this age range, the amount of verbalized steps expected to be followed in these instructions is too demanding for their current processing capabilities (Kaplan & White, 1980). Hence, further study is warranted to determine if the problem lies within the directions of the assessment itself or with the children who follow them since poor test results may have an enormous impact on a child's life.
Conclusion

The results of the study did not support the hypothesis that in the first graders tested, there would be differences between the performance scores on two of the gross motor subtests of the Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978) in response to standardized or adapted verbal instructions. The lack of statistically significant differences in these scores suggests that an alternative method of phrasing instructions for children's motor assessments may be appropriate with some populations without compromising performance. Further research of assessment instructional format is needed.
Appendix A

Human Subjects Institutional Review Board Approval Form
Date: February 16, 1990
To: Lisa J. Nuss
From: Mary Anne Bunde, Chair

This letter will serve as confirmation that your research protocol, "Effects of Traditional and Non-Traditional Instructions on Normal First Graders' Performance on Subtests of the Bruininks-Oseretsky Test of Motor Performance", has been approved as expedited by the HSIRB. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the approval application.

You must seek reapproval for any change in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

cc: B. Rider, Occupational Therapy

HSIRB Project Number 90-01-21
Approval Termination February 16, 1991
Appendix B

Rochester Community Schools Approval Form
FROM: JOHN TELFORD, ASSISTANT SUPERINTENDENT

TO: Mr. Lienauer

Approved

Reminder

Thanks/Nice Job

Per Your/My Request

Per Our Discussion

Please Contact Me

Please Review & Share with

Superintendent

Exec. Director of Pers.

Asst. Supt. for Business

Administrator of:

Elementary Education

Community Education

Secondary Education

Special Education

Educational Technology

Pupil Personnel

Bldgs., Grnds., & Tra

Phys. Ed. & Athletics

Vocational Education

G.O.A.L.

Per PROFS Message

Dictation

No Return

on tape

Per Attachment

cc: Dr. Schulte

Mr. Dentley

Mr. Bell
Appendix C

Informed Consent Form
Dear Parent/Guardian,

I am a graduate occupational therapy student at Western Michigan University in Kalamazoo, Michigan, and I am conducting a study at North Hill Elementary School to learn more about how normal first graders respond to instructions. This study will take less than seven minutes of your child's time during regular school hours if he/she participates.

Each child will be read a set of instructions and then be asked to perform two simple physical tasks: running and jumping. There are no known risks or discomforts involved in participating in this study.

Confidentiality will be maintained throughout the study and your child's name will not be used. He/she is free not to participate and may withdraw from the study at any time. Moreover, your decision will in no way affect your child's schooling or be listed in his/her school file. Any questions that you may have regarding this study can be answered by me, Lisa J. Nuss, by calling either (616) 385-2115 or (616) 387-2653.

If you would like your child to participate in this research project, please fill out the lower half of this sheet and return it to your child's classroom teacher as soon as possible. Thank you.

I, __________________________, have read and understand the above information and have agreed to allow __________________________ to participate in this study.

______________________________
Signature of Parent/Guardian

______________________________
Date
Appendix D
Equipment
Subtest 1/Item 1: Running Speed and Agility

Kit Equipment: Tape measure, masking tape, block*
Other Equipment: Stopwatch

*Plastic orange block is 5" x 1", and hollow.

Subtest 4/Item 1: Standing Broad Jump

Kit Equipment: Tape measure, masking tape
Other Equipment: None
BIBLIOGRAPHY


