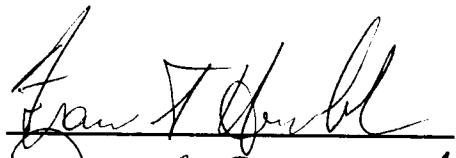
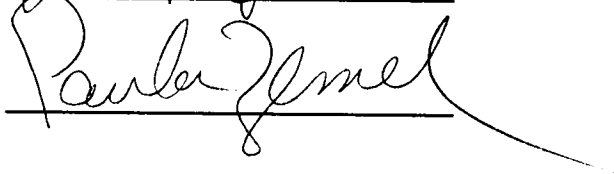


To the Graduate Council:

I am submitting herewith a thesis written by Marie Kathleen Mohrman entitled "The Effect of Participation in Adventure Games on the Self-concept of Adolescents with Hearing Impairments." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Recreation, Tourism, and Hospitality Management.

  
Gene A. Hayes, Major Professor

We have read this thesis  
and recommend its acceptance:

Accepted for the Council:

  
Associate Vice Chancellor and  
Dean of The Graduate School

**THE EFFECT OF PARTICIPATION IN ADVENTURE  
GAMES ON THE SELF-CONCEPT OF ADOLESCENTS  
WITH HEARING IMPAIRMENTS**

**A Thesis  
Presented for the  
Master of Science  
Degree  
The University of Tennessee, Knoxville**

**Marie Kathleen Mohrman  
May 1998**

## **Dedication**

This thesis is dedicated to

The faculty, staff and students at the Tennessee School for the Deaf  
for making this research project possible and teaching me about the  
true benefits of recreation

and to my husband

Jon Mohrman

for lovingly supporting my pursuits and adventures

## **Acknowledgements**

So often we fail to let people know  
that we appreciate things they have  
done to help along the way.  
G. J. Higgins

I give my sincere thanks to the faculty and staff of the Recreation and Tourism Management Program. Thank you for helping me in ways too numerous to list.

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Many thanks to my committee members Dr. Frank Hendrick, and Dr. Paula Zemel. You have been so patient and helpful during the entire thesis process.

Lastly, I owe my Mother, Margaret L. Rech, a tremendous debt of gratitude for instilling in me a life-long love of learning.

## **Abstract**

The purpose of this study was to investigate the effect of participation in adventure games on the self-concept of adolescents with hearing impairments. The population of this study consisted of 13 eighth and ninth grade students attending the Tennessee School for the Deaf, Knoxville Tennessee, during the Spring Semester of 1998. The Pier's-Harris Children's Self Concept Scale (PHCSCS) was administered to the subjects prior to participating in a six week adventure game program. A post-test of the PHCSCS was administered following the adventure games program. The research question states that there will be an increase in self-concept following the adventure games program. The following sub questions were investigated: Does the change in self-concept vary by gender? Does the age of the subject affect the change in self-concept? Does the grade level of the subject affect the change in self concept? Through a comparison of the pre-test and post test scores using t-tests these questions were addressed. No statistical difference between the control group and the experimental group was determined using the Mann-Whitney and the Wilcoxon W non parametric tests. The overall differences in the pre-test and post-test scores yielded a one tailed significance of 0.1575 with an alpha level of 0.05. The small sample size is the likely cause of the non-normality of the data. The sub questions were not addressed because of the small sample size. Due to the limitations in the sample size and the lack of statistically significant findings at the .05 level it is not possible to draw definitive conclusions from this

research. Observations by the researcher indicate that behavioral changes occurred in the experimental group during the adventure games program suggesting that more research in the area of the benefits of using adventure games to increase self-concept should be conducted.

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## **CHAPTER I**

### **Introduction**

The first chapter sets the tone for the research conducted in this study. The purpose is outlined in addition to the limitations and the delimitation's encountered during the course of the research. The rationale for the research is addressed specifically in terms of the purpose of the study and the expected outcome. To facilitate better understanding of the study the terms contained within are fully explained. The chapter concludes with information on the significance of the study.

Self-concept is necessary in all people (Greenburg, Solomon, Pyszczynski, Rosenblatt, Burling, Lyon, Simon, & Pinel, 1992). High self-concept affects academic and social success in a positive manner. Low self-esteem leads to problems in areas from basic functioning to behavior in social settings. Two groups in particular are at risk for low self-concept: (a) adolescents, and (b) special populations. Research on self-concept in deaf adolescents concludes that deaf adolescents are at an increased risk low self-concept (Cohen 1991).

Current research reveals that self-concept can be increased through participation in adventure games(Attarain 1991, 1990). Most all of the games are goal directed and use processing/validation techniques as specific interventions to enhance self-concept. Trust is valuable and is promoted in the content of adventure games.

This research was conducted at the Tennessee School for the Deaf in Knoxville, TN. The Tennessee School for the Deaf is a state run educational facility serving the needs of children with hearing impairments from age 2 through 18. The school functions as both a residential facility and a day school. The research spanned a six week period during the spring semester of 1998 and was performed during regularly scheduled physical education classes.

### **Purpose of the Study**

The purpose of this study was to investigate the effect of participation in adventure games on the self-concept of adolescents with hearing impairments.

### **Research Question**

The research question states that there will an increase in self-concept of the subjects after participating in the adventure games.

The following sub questions were investigated:

1. Does the change in self-concept vary by gender?
2. Does the age of the subject affect the change in self-concept?
3. Does the grade level of the subject affect the change in self-concept?

### **Assumptions**

The assumptions of the study were:

1. The respondents will complete the survey instruments honestly and correctly.
2. The respondents will understand the terms and the directions used in the survey.

3. The treatment will be applied correctly by trained individuals.

### **Delimitations**

The study was delimited by the following:

1. The scope of the study is limited to adolescents, age 11-15, grades 8-9, attending the Tennessee School for the Deaf in Knoxville, Tennessee during the Spring Semester of 1998.
2. The study is limited to a six week period, meeting three times per week for fifty minutes per session.
3. The study is limited to the times when the classes are regularly scheduled to meet.
4. After three absences a student will be eliminated from the study.

### **Limitations**

The study was limited by the following:

1. The results were limited in application to similar groups of adolescents with hearing impairments attending similar schools for the deaf.
2. The results were limited by the interaction between the control group and the experimental group on the Tennessee School for the Deaf Campus, in common areas and other social settings.
3. The results were limited by residence of the subjects. Some of the students live on campus, while others were day students.

## **Rationale**

There is a great deal of information available that indicates self-concept is important to all humans. Low self-concept presents problems in academic areas and in social settings. Two groups are at greater risk for low self-concept than others: (a) adolescents, and (b) special populations. Research on self-concept in deaf adolescents concludes that deaf adolescents are at an increased risk for low self-concept. Much of the literature presently available on self-concept and adventure programming suggests that more quantitative research needs to be conducted. There is a consensus among writings that more research needs to be done to substantiate the conclusions of the practitioners in the field. This study will help validate the work that is currently being done in the field by practitioners. This validation will not only add credence to their work but will allow them to promote this area of therapeutic recreation by citing concrete evidence of enhanced self-concept in the patients that they are serving. Additionally, a larger number of clients may enter into this type of therapy when more information concerning the outcome is provided.

## **Definitions of Terms**

To facilitate a better understanding of this study, the following terms are included:

**Adventure Games:** Used synonymously with terms such as: cooperative games, non-competitive games, challenge games, new games, developmental games, initiatives and low element or low ropes games. These games usually

present a problem or task that involves the participants interacting together to achieve a solution.

**Self-concept:** A relatively stable set of self-attitudes reflecting both a description and an evaluation of one's own behavior and attributes. Under this definition, self-concept is used interchangeably with the terms self-esteem and self-regard.

**Interventions:** Action taken by a professional person in cooperation with a given client to achieve predetermined and mutually agreed upon treatment goal.

**Processing--Debriefing:** A time for participants to reflect on experiences, recognize that learning has taken place, evaluate that learning and apply it to future experiences.

**Deaf:** A person who is unable to understand speech aurally, even with amplification is considered to be deaf (Sheetz 1993).

**Hearing Impaired:** A person with a hearing loss who is able to receive language aurally by hearing, with or without amplification is considered to be hearing impaired (Sheetz 1993). The terms deaf and hearing impaired are used interchangeably in this study.

### **Significance of the Study**

The information gained from this study will serve as confirmation of the currently accepted belief that participation in adventure games serves as a program to enhance self-concept in special populations. Self-concept is an

important aspect of human development. Since adolescents, especially deaf adolescents, are at a greater risk of low self-esteem, there is a need to determine what interventions are effective in increasing self-concept. Adventure games are perceived as an esteem building experience. The physical education department at the Tennessee School for the Deaf is seeking validation of the belief that interventions such as adventure games can be beneficial to their students. This research also seeks to support the widely held belief that adventure games have potential use in a variety of educational settings as a vehicle to enhance self-concept.

### **Summary**

This chapter has set forth the problems being investigated by this current research. Definition specific to this study have been given in an attempt to familiarize the reader with the concepts being used. The purpose, need, delimitations, limitations, assumptions and research question were explained.

## **Chapter II**

### **Review of Literature**

The review of Literature covers an extensive search of material concerning self-concept, hearing impairment, increasing self-concept and adventure games. The literature was found using the data bases at the University of Tennessee Lawson-McGhee Library.

This study is concerned with examining the ability of adventure games as a treatment to enhance the self-concept in adolescents with hearing impairments. Articles have been abstracted and are arranged in the following order: (a) the need for self-concept; (b) self-concept and hearing impairment;; (c) increasing self-concept in deaf adolescents; (d) increasing self-concept through adventure games; (e) improving self-concept in deaf adolescents through adventure games; and (f) measuring self-concept in special populations and in adolescents. The information and materials cover a time span beginning in 1989 and continuing through 1993.

#### **The Need For Self-concept**

Greenburg, Soloman, Pysczynski, Rosenblatt, Burling, Lyon, Simon, and Pinel(1992) conducted research on self-concept as an anxiety buffer. The study was conducted using 52 male subjects of college age using a test /post-test research design. While the research was primarily conducted in the area of terror management theory, several findings are directly applicable to self-concept in general. "In our view, the most compelling explanation for the present

set of findings is that self-concept—the feeling that one is valuable –provides protection against anxiety in response to threat (Greenburg et al., 1992, p. 921). The research conducted questioned the need for self-concept. The conclusion was that self-concept provides a feeling of perceived value.

### **Self-concept and Deafness**

People who are deaf are at a greater risk for low self-concept. Bat-Chava (1993) conducted a meta-analysis of 42 empirical studies on self-concept in deaf people. The conclusion reached through this research was that “deaf people have lower self-concept than hearing people” (Bat-Chava, 1993, p. 229). It is logical to conclude that deaf adolescents are also at a greater risk for low self-concept than their hearing peers.

### **Self-concept and Deaf Adolescents**

Dr. Oscar P. Cohen, the Executive Director of the Lexington School for the Deaf in Jackson Heights, New York, examined current research and government documents to determine social impacts, behavioral characteristics and issues facing deaf students. Cohen (1991) established that adolescents are at-risk and deaf adolescents have an even greater propensity to be at-risk.

Cohen cites an earlier study which he authored in 1978 he concluded that . . .

deaf adolescents are not precluded or protected by their deafness from those forces and social realities facing most teenagers in the United States. In fact the stresses, conflicts and pain experienced by so many adolescents may be exacerbated by deafness (Cohen, 1991, p. 61).

Additionally the research which Cohen (1991) conducted further established that clear identification of goals is essential to facilitating an increase in self-concept. According to Cohen. . . .

It is important to set a reasonably well-defined and integrated set of challenges, not a randomly assembled collection of options and contradictory experiences. Sharper goal definition is also required for communal identity (Cohen, 1991, p. 65).

Clear goals are an essential component of ropes therapy.

### **Increasing Self-concept Through Adventure Games**

Adventure games are also commonly called low ropes or initiatives.

Ropes programs are a popular form of adventure therapy. Adventure programs, often including a back country trip, are included in the same genre as ropes programs. Although the programs are different they contain the same process of goal setting and processing, which affords a similar therapeutic outcome.

Aram Attarian, a Professor of Physical Education at North Carolina State University in Raleigh, North Carolina, reviewed current research on recreation and ropes courses. Attarian (1990) investigated the increasing use of ropes courses in recreation and therapeutic settings. "A ropes course promotes teamwork, trust, cooperation, communication skills and personal growth among its participants" (Attarian. 1990, p. 31). Referencing a partial list of program, individual and group rationales and objectives for ropes course activities set forth at the 1988 Ropes Course Symposium Proceedings Attarian (1990) highlights two of the individual goals listed: (a) develop self-concept and trust

and (b) learn from mistakes. Further confirmation of self-concept enhancement is found through the use of high ropes courses. "The high ropes course is designed primarily to enhance one's self-concept and self-concept" (Attarian, 1990, p. 31).

In further exploration of the topic, Attarian (1991) reviewed research done primarily in the mid to late eighties on adventure recreation. "Recent research indicates that adventure programs can help strengthen one's self concept, decrease trait anxiety, and identify the fears associated with outdoor environments" (Attarian, 1991, p. 23).

Jon A. Johnson, Director of Adventure Therapies at Colonial Hills Hospital in San Antonio, Texas, conducted a review of literature to examine the goals and methodologies in ropes and wilderness adventure interventions as they satisfy the definition of therapeutic recreation. Johnson (1992) concluded that there is a significant connection between participation in adventure games and improvement of self-concept despite the lack of concrete research evidence. Johnson's research determined that the "true believers" in the use of adventure games highly recommend the intervention while seeking the support from current research. "The most frequently referenced need which adventure therapies seems to satisfy among its clientele is the need for positive self-concept (Johnson, 1992, 25).

Johnson(1992) investigated the theoretical connection between the child rearing practices of the traditional Native Americans and the content of

interventions in adventure games. Through the research of Brendtro, Brokenleg, and Van Bockern, Johnson(1992) recognized that the same four elements of positive self-concepts and self worth cultivated among Native American young were present in adventure games. "These four elements are: 1) engendering a sense of belonging, 2) providing opportunities to achieve mastery, 3) encouraging the expression of independence and 4) valuing generosity" (Johnson, 1992, p. 25). Through ropes therapy, and the application of sequences similar to the four elements outlined above the patient is able to increase self-concept. "The competence achieved by participation in these active, goal directed skills contributes to a sense of self that is purposeful and capable, and worthy of respect" (Johnson,1992, p. 24).

The element of trust is an essential component in adventure games. Self-concept is enhanced by trusting one's own abilities. In research conducted to clarify the role that Therapeutic Recreation plays in the treatment of substance abuse Kunstler (1992) determined that the goal of ropes intervention is to enhance self-concept. "Cooperative activities, such as New Games, ropes courses, painting a mural and putting on a play are non-competitive, promote trust and offer a role to all who participate" (Kunstler, 1992, p. 60).

There is significant evidence that participation in adventure games enhances the growth of self-concept in the general population. Research has been consistent in finding that there is a positive correlation between increased self-concept and participation in adventure games.

Rawson and McIntosh (1991) conducted a study on the effectiveness of a 10 day therapeutic camping trip on the general self-concept and the academic self-concept of children with severe behavior problems. The descriptive research was conducted using 33 boys between the ages of 10 and 12 years old using a pre-test, post-test research design. The research concluded that self-concept can be significantly improved through therapeutic camping and behavior modification (Rawson & McIntosh 1991). The conclusions of this research indicated a need for continued investigation. "Future research should concentrate specifically on identifying which therapeutic techniques have the most dramatic effect on children's self-concept" (Rawson & McIntosh, 1991, p. 48). Additionally, the need to study special populations was indicated, posing the question: To what extent do disabling conditions affect the self-concept in children? (Rawson & McIntosh 1991).

### **Increasing Self-concept in Hearing Impaired Adolescents Through Adventure Games**

Luckner(1989) studied the effects of participation in an outdoor education course on the self-concept of 10 hearing-impaired individuals, 8 female and 2 male college students from Gallaudet University using a pre-test, follow up research design. "The study suggested that participation in an outdoor adventure education course had a significant effect on one's self-concept" (Luckner, 1989, p. 48). The connection between outdoor adventure and task mastery provides the link needed for increased self-concept. As Luckner

investigated the results of the study he concluded that outdoor adventure education provides students with an . . .

opportunity to learn from a natural environment. It allows individuals to experience real situations that do not require generalizations. Through active involvement, one's attention is compelled to the problems at hand. Mastery of challenging tasks conveys salient evidence of enhanced competence. When combined with the provision of an interpersonal, social context through group interaction, outdoor adventure education offers a supportive highly structured framework for promoting self concept change (Luckner, 1989, p.48).

The study further suggested that continuing research is needed to explore the full potential of the impact of outdoor programming on self-concept. "In viewing the vital role that self-concept is ascribed for filtering perceptions, providing meaning to experiences and shaping future expectations, it is important to investigate the methods of intervention that promote feelings of self worth" (Luckner, 1989,p. 46).

### **Measuring Self-concept in Adolescents and in Special Populations**

The Piers-Harris Children's Self Concept Scale (PHCSCS) is an 80 statement self-report inventory designed to measure children's self concepts. The scale is designed for use with children aged eight to eighteen with a third grade reading skill level or better. (Robinson, et. Al, 1991 p. 137). The reliability of the PHCSCS ranges from .88 to .92 , which makes it a highly reliable instrument.

According to the Piers-Harris Children's Self-concept Scale Manual, revised in 1984, the PHCSCS has been successfully used with special populations and minority groups. Some differences in scores were noted. The manual outlines

the differences in scores. There is a cautionary note that short term interventions such as "a one week camping experience" may not show a difference in self-concept (Piers 1984), however, all activities in which the students are participating will be taken into consideration.

### **Implications**

Luckner (1989) and Rawson & McIntosh (1991) indicated that more research needs to be conducted. Luckner (1989) suggested that more research needs to be done in the specific area of self-concept in deaf adolescents through the use of ropes and adventure programming. Luckner implied that the structured activities and the feedback system essential program cited in his research should be applied in future program research. There is a consensus among writings that more research needs to be done to substantiate the conclusions of the practitioners in the field. Consistent across the findings of the research indicated that there is a large body of anecdotal evidence, and few examples of concrete research. This indicated that there is a need for research on the beneficial effects of increasing self-concept through the use of adventure games as a treatment to enhance the self-concept in adolescents with hearing impairments.

### **Summary**

A consistent theme throughout all of the articles abstracted for this review of literature is that self-concept is important to humans. Furthermore, self-concept is necessary in all people (Greenburg et al. 1992). Two groups are at

greater risk for low self esteem than others: (a) adolescents, and (b) special populations. Research on self-concept in deaf adolescents concludes that deaf adolescents are at an increased risk for low self esteem (Cohen 1991).

Current research reveals that self-concept can be increased through participation in ropes and adventure programming (Attarian 1990, Attarian 1991, Rawson & McIntosh 1991, Johnson 1992, Kunstler 1992). Most all of the articles pointed toward the goal directed, processing/validation techniques as specific interventions used to enhance self-concept. The element of trust was repeated through the research material. Trust is valuable and needs to be promoted as it is inextricably linked to self-concept. The conclusion which is consistent through the research is that self esteem is important and can be increased in adolescents, especially deaf adolescents, through the use of ropes and adventure programming.

No major conflicts were seen in the review of literature. The research was done in a variety of settings with different applications. The theoretical constructs have been used to explore the relationship between self-concept and adventure games. The literature reviewed for this thesis supported the problem and proposed research question.

## **Chapter III**

### **Methodology**

The purpose of this study was to investigate the effect of participation in adventure games to increase the self-concept of adolescents with hearing impairments. The study compared the self-concept of an experimental group of eighth and ninth grade students with hearing impairments who participated in a six week program of adventure games with the self-concept of a control group of deaf adolescents who participated in regularly scheduled physical education activities. The differences in pre-test and post-test self-concept scores were compared to the demographic characteristics of gender, residential situation and age. Additionally, pre-test and post-test scores will be compared with the time of the day at which the intervention was given.

This chapter explains all of the procedures used in the present study and is organized into the following sections: (a) subjects, (b) instrumentation, (c) pilot test, (d) procedures, and (f) analysis of data.

#### **Subjects**

The population of this study consisted of students attending the Tennessee School for the Deaf, Knoxville, Tennessee during the Spring Semester, 1998. The Tennessee School for the Deaf is a state run educational facility serving the needs of children with hearing impairments from age 2 through 18. The school functions as both a residential facility and a day school. The students were involved in regular physical education classes offered by the

Tennessee School for the Deaf. The subjects were students in grades eight and nine and were hearing impaired. Informed consent was received from the parents or guardians of the students involved, from the students, and from the Tennessee School for the Deaf. A copy of the informed consent letter is contained in Appendix A. The total number of subjects eligible for participation in the study was thirty six. The students were randomly assigned to the experimental group and to the control group.

### **Instrumentation**

The instrument used to collect data on the student's self-concept was the Piers-Harris Children's Self-concept Concept Scale (PHCSCS). The PHCSCS is a well accepted tool for measuring self-concept in children and adolescents. "The Piers-Harris appears to be the best children's self concept measure currently available" ( Robinson, Shaver & Wright 1991, p. 217 ). The PHCSCS is a valid and reliable tool. The reliability is measured at .78 to .93 which is in the very good to acceptable range. The validity is reported to be .54. The test consists of 80 items which are written in simple declarative statements. The test requires 20 minutes to complete (Piers, 1984). A copy of the instructions and the instrument is in Appendix B.

### **Pilot Test**

In a pilot test of the PHCSCS given to forty-three students at the Tennessee School for the Deaf in May of 1997, using the procedures outlined in the test manual. Administration of the test took approximately 40 minutes. The

test was signed and read to the class question by question. The results of this administration of the instrument fall within the normal limits of the standard range of plus or minus one standard deviation. Of the 43 tests given, two tests were not able to be scored because the tests were not completed correctly. The remainder of the tests yielded a collective t-score total median of 50 with a mean of 53. The standard deviation of 12.427 for the pilot test population was slightly lower than the reported standard deviation of 13.52 for the eight grade students as reported as normative data in the PHCSCS manual, (Piers, 1984). The range for the pilot test was 65, the mode was 46 and the standard error was 8.187. The complete pilot test data is contained in Appendix C. These statistics indicate that the PHCSCS is a valid instrument for this specific population. The total of the population in the research was 36. The successful pilot test of the instrument lead the researcher to believe that the use of this instrument will yield salient information regarding the effects of the adventure games on the self-concept of the students at the Tennessee School for the Deaf.

### **Procedures**

In implementing the study the researcher :

1. Reviewed the project with the Superintendent at the Tennessee School for the Deaf and the Head of the Physical Education Department to gain permission to conduct the research. A copy of the letter of permission is Appendix D.

2. Developed the adventure games program. A copy of the program is in Appendix E.
3. Reviewed the adventure game program with a panel of experts consisting of Physical Education Instructors from the Tennessee School for the Deaf to assure content validity.
4. Received approval for the Human Subjects Form B from the University. A copy of Form B is in Appendix F.
5. Obtained a profile for each subject containing the following information: age, gender, grade, and disability.
6. Administered a initial assessments to all the subjects involved in the study to determine base-line data prior to participation in Physical Education activities during the Spring Semester of 1998. The PHCSCS was read and signed to the subjects by Mr. Dick Hancock of the Physical Education Department at the Tennessee School for the Deaf.
7. Randomly assigned subjects into two groups and verified that the groups were similar in number, age, gender, and grade level. One group was the experimental group and the other was the control group. Subjects were assigned to groups after initial assessment as not to bias results based on expected inclusion in the control group or the experimental group.

8. The adventure game program was conducted with the experimental group during a six week period in regularly scheduled physical education classes offered by the Tennessee School for the Deaf. The classes meet three times per week. The total number of meetings during the research project was eighteen. During this time the members of the control group participated in the physical education activities that were regularly scheduled for that time period. Observations of the attendance and progress notes were recorded daily throughout the adventure games program for the subjects in the experimental group to provide qualitative data.
9. The post-test was signed and read to the subjects by Mr. Dick Hancock at the end of the six week period. The researcher recorded the activities in which the control group participated. The experimental group participated in regularly scheduled physical education activities.
10. Statistical analysis was performed on the pre-test and post-test scores. Descriptive statistics were determined for pre-test and post-test scores.
12. Findings were reported and conclusions drawn.

### **Analysis of Data**

The data obtained from the self-concept instruments were analyzed using one-tailed, paired t-tests with an alpha level of 0.05. The data gathered from the pre-test were compared with the data gathered from the post test. This

information was used to compare the difference in self-concept between the experimental group and the control group. The outcome data assesses the benefits of participation in the adventure game program.

### **Summary**

Chapter three outlined the procedures, the subjects, the instrumentation, and the analysis of data used in the current study. The instrumentation used in this study was explained and information on the reliability and validity was given. Information obtained during a pilot test of the instrument was given. The chapter concluded with a brief description of how the data were analyzed.

## **Chapter IV**

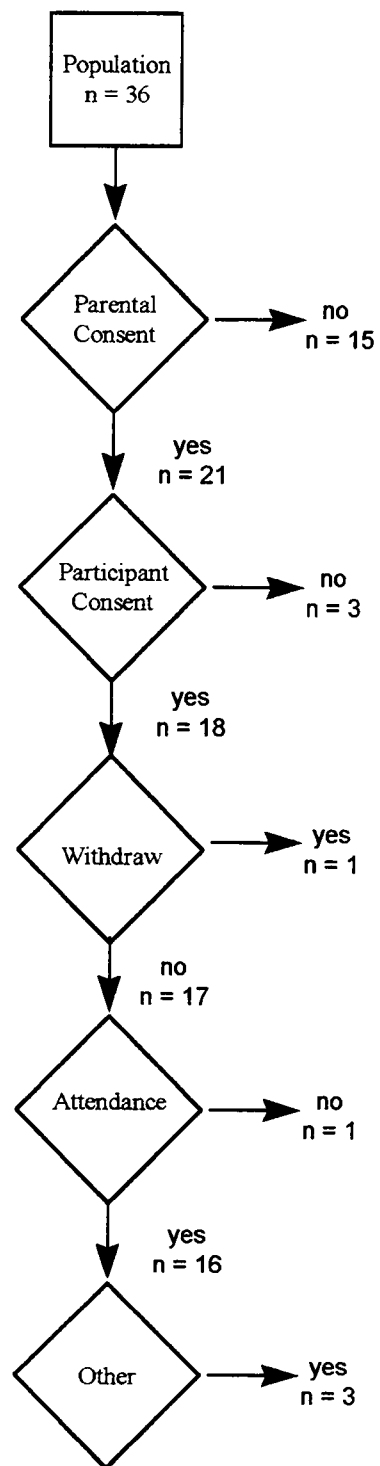
### **Analysis of Data**

The purpose of this study was to investigate the effect of involvement in a program of adventure games to increase the self-concept of adolescents with hearing impairments. The subjects were the 13 eighth and ninth grade students at the Tennessee School for the Deaf during the Spring Semester of 1998. Reasons for attrition are shown in Figure 1. Most subjects were eliminated because parental consent forms were not returned. Mann-Whitney tests and Wilcoxon W, non parametric versions of the t-tests and the Pearson Product Moment Correlation, respectively, were used due to the non-normality of the data.

An analysis of the data in this study are presented in this chapter as follows: (1) The research question or sub question, (2) Description of the scoring, (3) Report of overall findings, (4) Tables and Figures, (5) Highlights of the results. The chapter concludes with a summary.

### **Subjects**

The number of subjects eligible for inclusion in the final analysis was 13 of the 36 in the total population. Only 21 parental consent forms were signed and returned. Three forms were returned indicating that the parents refused consent. One participant withdrew from the study. One participant did not meet the minimum attendance requirement of 15 sessions. An attendance record can be found in Appendix G.



**Figure 1: Reasons for Participant Loss in the Adventure Games Program**

Three participants were ruled out for other reasons: one participant missed the pre-test, one participant missed the post-test, and one participant returned the parental consent form with signatures in both the "give permission" and the "do not give permission" lines. The total number of subjects participating the research at the conclusion of the program was 13. According to Batan, Roberts and McCluskey-Fawcett (1995), the rate of return of parental consent forms experienced by the researcher was consistent with established return rate patterns. A flow chart describing the attrition of subject population can be found in Figure 1.

## **Results**

The research question states that there will be an increase in the self-concept of the subjects after participating in adventure games. Presented in Table 1. is the analysis of the pre-test and post-test scores (n=13) revealed a pre-test median of 52, a post test median of 53. The mean of the pre-test scores was 50.69 while the mean of the post-test scores was 52.84. The standard deviation of the pre-test scores was 5.49, and 5.45 for the post-test scores. Both of the standard deviation measurers are smaller than the normative sample standard deviation scores reported in the PHCSCS manual (Piers 1984). The range of the scores for the pre-test was 19 and 22 for the post-test. The mode for the pre-test was 52 and 53 for the post-test.

The Mann-Whitney and Wilcoxon W non-parametric tests were performed on the overall differences in PHCSCS test scores yielding a one tailed

**Table 1. PHCSCS Pre-test and Post-test Scores for the Combined Control and Experimental Groups Including Median, Mean, Standard Deviation, Range and Mode.**

| NUMBER | GENDER | GRADE | AGE | GROUP | PRE-TEST | POST-TEST | DIFFERENCE |
|--------|--------|-------|-----|-------|----------|-----------|------------|
| 1      | MALE   | 8     | 14  | E     | 52       | 56        | 4          |
| 2      | FEMALE | 9     | 16  | E     | 48       | 53        | 5          |
| 3      | FEMALE | 9     | 14  | E     | 55       | 53        | -2         |
| 4      | MALE   | 9     | 14  | E     | 51       | 53        | 2          |
| 5      | FEMALE | 8     | 15  | C     | 56       | 48        | -8         |
| 6      | FEMALE | 9     | 16  | C     | 52       | 58        | 6          |
| 7      | MALE   | 8     | 14  | C     | 50       | 55        | 5          |
| 8      | MALE   | 9     | 15  | C     | 51       | 60        | 9          |
| 9      | MALE   | 9     | 15  | E     | 56       | 55        | -1         |
| 10     | MALE   | 8     | 13  | E     | 37       | 38        | 1          |
| 11     | MALE   | 8     | 14  | E     | 56       | 51        | -5         |
| 12     | FEMALE | 9     | 16  | E     | 43       | 51        | 8          |
| 13     | MALE   | 9     | 14  | E     | 52       | 56        | 4          |

|            |  |       |       |      |
|------------|--|-------|-------|------|
| MEDIAN     |  | 52    | 53    | 4    |
| MEAN       |  | 50.69 | 52.84 | 2.15 |
| STD<br>DEV |  | 5.49  | 5.45  | 5.01 |
| RANGE      |  | 19    | 22    | 17   |
| MODE       |  | 52    | 53    | 4    |

significance of .1575 . Using an alpha level of 0.05, the tests indicate no statistical difference in the pre-test and the post-test scores. The Control group  $n=4$  had a pre-test mean of 52.25 and a standard deviation of 2.63 with a minimum score of 50 and a maximum score of 56. On the post-test the control group had a mean of 55.25 and a standard deviation of 5.25 with a minimum score of 48 and a maximum score of 60. See Table 2.

The experimental group  $n=9$  had a pre-test mean of 49.88 and a standard deviation of 6.29 with a minimum score of 37 and a maximum score of 56. The experimental group post-test mean was 51.88 and a standard deviation of 5.57 with a minimum score of 38 and a maximum score of 56 (See Table 2).

### **Sub questions**

The sub questions were not answered because of the small sample size which did not produce appropriate data.

### **Observations**

Although the results of the statistical analysis did not yield a significant difference in the change in self-concept in the subjects, the observations of the researcher included in the progress notes indicated changes in behaviors. Progress notes taken of the experimental group during the adventure games program indicated improvement in the behaviors of the subjects in the following areas:

1. Individual and group problem solving.
2. Active participation by members of the group.

**Table 2. Descriptive statistics for the Control and Experimental Groups**  
**Including pre-test and post-test scores, number of subjects, minimum and**  
**maximum scores, mean and standard deviation.**

| <b>Group</b> | <b>Test</b> | <b>N</b> | <b>Minimum</b> | <b>Maximum</b> | <b>Mean</b> | <b>Standard Deviation</b> |
|--------------|-------------|----------|----------------|----------------|-------------|---------------------------|
| Control      | Pre         | 4        | 50             | 56             | 52.25       | 2.63                      |
| Control      | Post        | 4        | 48             | 60             | 55.25       | 5.25                      |
| Experimental | Pre         | 9        | 37             | 56             | 49.88       | 6.29                      |
| Experimental | Post        | 9        | 38             | 56             | 51.88       | 5.57                      |

3. Emerging Leadership.
4. Contributions of ideas to the group.
5. Appropriate positive behaviors.
6. Positive communication.
7. Teamwork.

These observation suggest that while the measurements yielded by the instrument may not have indicated a change in self-concept, changes in the behaviors of the experimental group did take place.

### **Summary**

This chapter presented the results of the investigation into the effects of participation in adventure games on the self-concept of adolescents with hearing impairments. The population consisted of 13 eighth and ninth grade students at the Tennessee School for the Deaf during the Spring Semester of 1998. The pre-test and post test scores of the PHCSCS were analyzed using the Mann-Whitney and the Wilcoxon W non parametric versions of the t-test. The results

were analyzed in terms of the research question. It was found that there was no significant difference between the scores of the experimental group and the scores of the control group. Due to small sample size and non normality of the data the sub questions were not addressed. Observations summarized by the researcher from daily progress notes yielded information concerning behavioral changes in the subjects in the experimental group and are presented here.

## **Chapter V**

### **Summary, Conclusions, and Recommendations**

This chapter presents a summary of the research. This is followed by the researchers conclusions and recommendations for further research on the ability of adventure games to enhance the self-concept of adolescents with hearing impairments and future programs are suggested.

#### **Summary of the Research**

The purpose of this research was to investigate the effect of a program of adventure games to increase the self-concept in adolescents with hearing impairments. The research was conducted with 13 eighth and ninth grade students at the Tennessee School for the Deaf in Knoxville, TN. The adventure games program was applied over a six week period during the Spring Semester of 1998. The instrument used was the Piers-Harris Children's Self Concept Scale (PHCSCS).

The research question stated that there will be an increase in the self-concept of the adolescents participating in the adventure games program. Due to the small sample size of the final population the sub questions were not able to be investigated. (See Figure 1 in Chapter Four). The sub questions compared the pre-test and post-test scores of the PHCSCS with the gender, age and grade of the subjects. Analysis of the differences between the PHCSCS pre-test and post-test scores with the groups combined or between the control group and the experimental group revealed no statistical differences using

Mann-Whitney and Wilcoxon W non parametric versions of the paired t-test and the Pearson Product Moment Coefficient, respectively.

### **Findings**

Results of the data analysis revealed no statistical difference in the difference or gain between the PHCSCS pre-test and the PHCSCS Post-test scores using the Mann-Whitney and the Wilcoxon W non parametric version of the t-test and the Pearson Product Moment Correlation. Using an alpha value of 0.05, the one tailed significance of the test was .1575, resulting in the researcher's conclusion that there was no statically significant difference between the scores.

### **Conclusions**

The purpose of this research was to see if self-concept could be increased through participation in a six week program of adventure games by adolescents with hearing impairments. Due to the limitations in the sample size and the lack of statistically significant results at the .05 level it was not possible to draw definitive conclusions from this research.

The sample size was limited by the number on consent forms returned from parents. The attrition rate of potential subjects was highest in the area of parental consent. The majority of the missing forms simply were not returned. Although the rate of return experienced in this research project was consistent with that of other studies (Betan, Roberts & McClusky-Fawcett 1995), the circumstances may have been complicated by the problems inherent in working

with this population. The situation was further complicated by the requirement that the subjects sign an informed consent form as well. Adolescents and especially adolescents who are hearing impaired crave power but have little opportunity to exercise it. By allowing the participants to choose to participate in the research program and to exercise that choice at any time during the adventure games program, they had power. The subjects exercised that power.

Another contributing factor to the lack of statistical significance between the pre-test and post-test scores of the control group and the experimental group may have been the activities of the control group. During the six week period of the research program the control group participated in mini-tournaments. These activities were competitive and physical in nature, producing a first, second and third place winner in a variety of physical education activities. Since these activities included competition, and winning, rather than a more passive classroom activity, the results may have tainted the outcome of the PHCSCS post-test scores.

An examination of relevant research from the review of literature in Chapter Two revealed differences in methods and results of studies concerning change in self-concept following participation in adventure programs. Luckner, (1989), conducted a 10 day winter outdoor adventure program with 10 individuals with hearing impairments in a pre/post follow- up research design. There were similarities in the population and the small sample size between Luckner's research and the current research project. There were differences in

the instrumentation, statistical analysis and the age of the population. The differences were notable enough to account for the lack of statistically significant change in self-concept as reported in this research.

Based on the observations of the researcher, changes in the behavior of the subjects in the experimental group were noted.

### **Recommendations**

Based on the outcome of the present study, the following recommendations for further research are suggested.

1. Based on the observations of the researcher, adventure game programs have benefits for adolescents with hearing impairments although these results were not detected by statically significant changes in the pre-test and post test scores on the PHCSCS . Further research into the specific benefits needs to be conducted.
2. It is recommended that a similar study is conducted using a different instrument to measure self-concept. A different instrument may yield better information.
3. Greater efforts should be taken to increase the return rate of the parental consent forms. Follow up calls should be placed, additional letters should be sent to ensure a better rate of return.
4. It is recommended that a similar study be conducted that would consider that change is occurring in the subjects in another area other than self-concept.
5. A similar study conducted using a larger sample size is recommended.

6. A similar study conducted using a longer program of adventure games is suggested.
7. The behavioral observations could be analyzed in a qualitative manner.
8. A similar study conducted on other special populations is recommended.

### **Summary**

Chapter five began with a summary of the present research. This was followed by the researcher's conclusions based on the analysis of the PHCSCS pre-test and post test scores. The recommendations for future research were presented in the final section of the chapter.

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## **Appendices**

## **Appendix A**

## **INFORMED CONSENT**

### **From Participant**

Please read the following information. If you agree to participate please sign the consent form. An information sheet will be read or signed to you explaining your involvement in this research.

#### **Title**

The ability of adventure games to increase self-concept in adolescents with hearing impairment.

#### **Purpose of the Study**

The purpose of the study is to see if playing adventure games can increase the self-concept in 8<sup>th</sup> and 9<sup>th</sup> grade students with hearing impairments. This study is for a Master's Thesis at the University of Tennessee. A test will be given at the beginning of the 6 week period, followed by the games. You will be asked to solve problems during the games. The second test will be given at the end of the program. The test scores will be compared. The games take place over six weeks, three days per week. Each class will last 50 minutes. These games will be played during your physical education classes.

If at any time you do not wish to be in the study participation may be ended. There is no penalty for canceling your participation. Your grade will not be affected if you choose not to be in the study.

#### **Confidentiality**

A number will be assigned to each student and no one will be identified by name. Complete confidentiality is not possible, but we will do our best to protect your identity. Participation in this study involves minimal physical or emotional risks.

**I HAVE READ THE ABOVE STATEMENTS ABOUT THE STUDY, MY ROLE IN THE PROJECT, AND THE RISKS INVOLVED IN MY PARTICIPATION. THE PROCEDURES WERE EXPLAINED TO ME IN THE INFORMATION SHEET ABOUT THIS STUDY.**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Please Print Name \_\_\_\_\_

For further information please contact:  
Marie K. Mohrman or Dr. Gene Hayes, (423) 974-1288  
(423) 974-5041 (TTY equipped)  
Tourism and Recreation Management Program  
The University of Tennessee  
1914 Andy Holt Ave.  
Knoxville, TN 37996-2710

**INFORMED CONSENT**  
From Parent or Guardian

**Title**

The ability of adventure games to increase self-concept in adolescents with hearing impairment.

**Purpose of the Study**

The purpose of the study is to see if playing adventure games can increase the self-concept of 8<sup>th</sup> and 9<sup>th</sup> grade students with hearing impairments. This study is for a Master's Thesis at the University of Tennessee. A test will be given at the beginning of the 6 week period, followed by the adventure games. During the adventure games the students will be asked to solve problems. The second test will be given at the end of the program. The test scores will be compared. The scheduling of the games takes place over six weeks, three days per week. The games will be played during physical education class. Each class will last 50 minutes.

If at any time you do not wish your child to be in the study, participation may be ended. Physical education grades will not be affected if a student chooses not to be a part of the study.

**Confidentiality**

A number will be given to each student and no one will be identified by name. Complete confidentiality is not possible given the nature of the activities, however, every effort will be made to protect confidentiality to the extent that is possible. Participation in this study involves minimal physical or emotional risks.

**I HAVE READ THE ABOVE STATEMENTS ABOUT THE STUDY, MY CHILD'S ROLE IN THE PROJECT, AND THE RISKS INVOLVED IN MY CHILD'S PARTICIPATION.**

Signature of Parent or Guardian: \_\_\_\_\_  
Date: \_\_\_\_\_

Please Print Name \_\_\_\_\_

For further information please contact:  
Marie K. Mohrman or Dr. Gene Hayes,  
(423) 974 1288  
(423) 974-5041 (TTY available)  
Tourism and Recreation Management Program  
The University of Tennessee  
1914 Andy Holt Ave.  
Knoxville, TN 37996-2710

## **INFORMATION SHEET**

**The following will be read or signed to the participants.**

### **Informed Consent**

You have the opportunity to participate in a research project. I am going to explain to you your involvement in the project you. When I am finished, you may sign the consent form indicating that you will participate.

### **Procedures**

During your regular Physical Education classes you will be asked to take two tests. One at the beginning of the project and one at the end. The scores from the tests will be compared. The tests are not difficult. You will not need to study. The test takes about 20 minutes to complete. For the remainder of the study you will be asked to play adventure games. The games usually present a problem or task that involves finding a solution by cooperating or working together. These games are similar to the games you already play in P.E. class. Your grade will not be affected if you decide not to participate in the study.

### **Benefits and Risks**

It is not likely that you will get hurt by playing the games. You will enjoy the games.

### **Voluntary Participation**

You may choose to participate in the research or you may choose not to participate. Your grade will not be affected if you choose not to participate. You may end your participation at any time.

## **Appendix B**



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April 29, 1998

Marie K. Mohrman  
c/o Gene A. Hayes, Ph.D.  
Professor and Chair  
Recreation and Tourism Management  
Department of Health and Safety Sciences  
College of Human Ecology  
The University of Tennessee, Knoxville  
1914 Andy Holt Avenue  
Knoxville, TN 37996-2710

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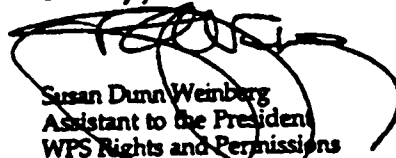
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Susan Dunn Weinberg  
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SDW:se

**Instructions for administering the Piers-Harris test:**

1. Have each student fill in the information in the gray box  
name  
today's date:  
age:  
boy or girl  
grade  
**it is not necessary to fill in school or teacher**
2. Explain that there is no right or wrong answer on this test. Choose the answer that best describes how you feel. If the statement is mostly true mark yes. If the statement is mostly false mark no.
3. Circle the best answer.
4. Do not erase. If you want to change your answer, cross it out with an "X", and circle the new answer.
5. Read and sign the statements one by one as the class follows along. Explain any terms—See attached copy of the test for changes. Please note any terms you explain and how you explained them.
6. Let me know if you have any questions or suggestions.

Changes or explanation of terms on the Piers-Harris Children's Self-concept scale. The changes are in parenthesis.

7. I get nervous (or scared) when the teacher calls on me.

11. I am unpopular (not popular).

14. I cause trouble to my family (or in my cottage)

28. I am nervous (worried).

35. I am obedient at home (or in my cottage).

46. I am among (one of) the last to be chosen for games.

50. I am unhappy (not happy).

55. I have lots of pep (energy).

60. I have a pleasant (nice) face.

64. I am clumsy (fall often).

67. I am easy to get along with (socialize well)

68. I lose my temper (get mad) easily.

78. I think bad thoughts (things).

- |                                                                    |     |    |
|--------------------------------------------------------------------|-----|----|
| 1. My classmates make fun of me .....                              | yes | no |
| 2. I am a happy person .....                                       | yes | no |
| 3. It is hard for me to make friends .....                         | yes | no |
| 4. I am often sad .....                                            | yes | no |
| 5. I am smart .....                                                | yes | no |
| 6. I am shy .....                                                  | yes | no |
| 7. I get nervous when the teacher calls on me .....                | yes | no |
| 8. My looks bother me .....                                        | yes | no |
| 9. When I grow up, I will be an important person .....             | yes | no |
| 10. I get worried when we have tests in school .....               | yes | no |
| 11. I am <sup>not popular</sup> unpopular .....                    | yes | no |
| 12. I am well behaved in school .....                              | yes | no |
| 13. It is usually my fault when something goes wrong .....         | yes | no |
| 14. I cause trouble to my family <sup>or in my cottage</sup> ..... | yes | no |
| 15. I am strong .....                                              | yes | no |
| 16. I have good ideas .....                                        | yes | no |
| 17. I am an important member of my family .....                    | yes | no |
| 18. I usually want my own way .....                                | yes | no |
| 19. I am good at making things with my hands .....                 | yes | no |
| 20. I give up easily .....                                         | yes | no |
| 21. I am good in my school work .....                              | yes | no |
| 22. I do many bad things .....                                     | yes | no |
| 23. I can draw well .....                                          | yes | no |
| 24. I am good in music .....                                       | yes | no |
| 25. I behave badly at home .....                                   | yes | no |
| 26. I am slow in finishing my school work .....                    | yes | no |
| 27. I am an important member of my class .....                     | yes | no |
| 28. I am nervous <sup>worried</sup> .....                          | yes | no |
| 29. I have pretty eyes .....                                       | yes | no |
| 30. I can give a good report in front of the class .....           | yes | no |
| 31. In school I am a dreamer .....                                 | yes | no |
| 32. I pick on my brother(s) and sister(s) .....                    | yes | no |
| 33. My friends like my ideas .....                                 | yes | no |
| 34. I often get into trouble .....                                 | yes | no |
| 35. I am obedient at home <sup>or in my cottage</sup> .....        | yes | no |
| 36. I am lucky .....                                               | yes | no |
| 37. I worry a lot .....                                            | yes | no |
| 38. My parents expect too much of me .....                         | yes | no |
| 39. I like being the way I am .....                                | yes | no |
| 40. I feel left out of things .....                                | yes | no |

# THE WAY I FEEL ABOUT MYSELF

## THE PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

Ellen V Piers, Ph.D. and Dale B. Harris, Ph.D.

Client's Name .....

Today's Date .....

Age .....

Sex (circle one):      Girl      Boy

Grade .....

School .....

Teacher's Name (optional) .....

### Directions

Here is a set of statements that tell how some people feel about themselves. Read each statement and decide whether or not it describes the way you feel about yourself. If it is *true* or *mostly true* for you, circle the word "yes" next to the statement. If it is *false* or *mostly false* for you, circle the word "no." Answer every question, even if some are hard to decide. Do not circle both "yes" and "no" for the same statement. If you want to change your answer, cross it out with an X, and circle your new answer.

Remember that there are no right or wrong answers. Only you can tell us how you feel about yourself, so we hope you will mark the way you really feel inside.

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W-180J

- |                                                                         |     |    |
|-------------------------------------------------------------------------|-----|----|
| 41. I have nice hair .....                                              | yes | no |
| 42. I often volunteer in school .....                                   | yes | no |
| 43. I wish I were different .....                                       | yes | no |
| 44. I sleep well at night .....                                         | yes | no |
| 45. I hate school .....                                                 | yes | no |
| 46. I am among <sup>one of</sup> the last to be chosen for games .....  | yes | no |
| 47. I am sick a lot .....                                               | yes | no |
| 48. I am often mean to other people .....                               | yes | no |
| 49. My classmates in school think I have good ideas .....               | yes | no |
| 50. I am unhappy <del>not happy</del> .....                             | yes | no |
| 51. I have many friends .....                                           | yes | no |
| 52. I am cheerful .....                                                 | yes | no |
| 53. I am dumb about most things .....                                   | yes | no |
| 54. I am good-looking .....                                             | yes | no |
| 55. I have lots of pep <del>energy</del> .....                          | yes | no |
| 56. I get into a lot of fights .....                                    | yes | no |
| 57. I am popular with boys .....                                        | yes | no |
| 58. People pick on me .....                                             | yes | no |
| 59. My family is disappointed in me .....                               | yes | no |
| 60. I have a pleasant face <sup>nice</sup> .....                        | yes | no |
| 61. When I try to make something,<br>everything seems to go wrong ..... | yes | no |
| 62. I am picked on at home .....                                        | yes | no |
| 63. I am a leader in games and sports .....                             | yes | no |
| 64. I am clumsy <sup>fall often</sup> .....                             | yes | no |
| 65. In games and sports, I watch instead of play .....                  | yes | no |
| 66. I forget what I learn .....                                         | yes | no |
| 67. I am easy to get along with <sup>socialize well</sup> .....         | yes | no |
| 68. I lose my temper easily <del>get mad easily</del> .....             | yes | no |
| 69. I am popular with girls .....                                       | yes | no |
| 70. I am a good reader .....                                            | yes | no |
| 71. I would rather work alone than with a group .....                   | yes | no |
| 72. I like my brother (sister) .....                                    | yes | no |
| 73. I have a good figure .....                                          | yes | no |
| 74. I am often afraid .....                                             | yes | no |
| 75. I am always dropping or breaking things .....                       | yes | no |
| 76. I can be trusted .....                                              | yes | no |
| 77. I am different from other people .....                              | yes | no |
| 78. I think bad thoughts <sup>things</sup> .....                        | yes | no |
| 79. I cry easily .....                                                  | yes | no |
| 80. I am a good person .....                                            | yes | no |

## **Appendix C**

| PILOT TEST DATA |       |       |       |       |       |       |       |       |        |     |     |     |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-----|-----|-----|
| ID              | IN    | RB    | I     | II    | III   | IV    | V     | VI    | TOTAL  | AGE | SEX | GRA |
| 1               | 74    | 64    | 41    | 52    | 64    | 56    | 56    | 47    | 56     | 11  | M   | 6   |
| 2               | 68    | 69    | 33    | 43    | 49    | 49    | 42    | 32    | 42     |     | M   |     |
| 3               | 57    | 59    | 28    | 41    | 43    | 52    | 45    | 36    | 41     |     | F   |     |
| 4               | 53    | 59    | 35    | 50    | 46    | 59    | 51    | 41    | 50     | 12  | M   | 6   |
| 5               | 61    | 55    | 54    | 55    | 53    | 55    | 57    | 56    | 59     | 11  | F   |     |
| 6               | 61    | 66    | 41    | 46    | 49    | 45    | 36    | 47    | 45     | 13  | F   | 6   |
| 7               | 68    | 56    | 46    | 39    | 40    | 45    | 47    | 42    | 44     |     | F   |     |
| 8               | 81    | 66    | 35    | 47    | 49    | 47    | 34    | 36    | 42     |     | F   |     |
| 9               | 64    | 63    | 23    | 35    | 37    | 44    | 41    | 46    | 35     |     | F   |     |
| 10              | 61    | 66    | 26    | 34    | 43    | 48    | 41    | 42    | 38     |     |     |     |
| 11              | 71    | 48    | 59    | 45    | 49    | 59    | 49    | 52    | 53     |     | F   |     |
| 12              | 54    | 62    | 66    | 56    | 64    | 49    | 41    | 52    | 59     |     | M   |     |
| 13              | 74    | 55    | 35    | 43    | 49    | 59    | 51    | 52    | 49     |     | M   |     |
| 14              | 79    | 80    | 20    | 41    | 60    | 48    | 32    | 46    | 38     |     |     |     |
| 15              |       |       |       |       |       |       |       |       |        |     |     |     |
| 16              | 79    | 80    | 36    | 50    | 64    | 39    | 39    | 34    | 44     |     | M   |     |
| 17              | 71    | 80    | 41    | 59    | 37    | 45    | 41    | 47    | 46     | 14  | M   | 7   |
| 18              | 56    | 66    | 35    | 59    | 49    | 44    | 35    | 36    | 45     | 15  | M   | 8   |
| 19              | 53    | 53    | 66    | 63    | 50    | 64    | 69    | 56    | 79     | 14  | M   | 8   |
| 20              | 74    | 64    | 44    | 50    | 53    | 47    | 49    | 43    | 48     | 15  | M   | 8   |
| 21              | 54    | 71    | 29    | 41    | 49    | 39    | 45    | 36    | 49     | 16  | F   | 8   |
| 22              | 69    | 72    | 44    | 55    | 60    | 48    | 41    | 56    | 53     | 15  | F   | 8   |
| 23              | 57    | 60    | 48    | 55    | 61    | 60    | 45    | 52    | 58     |     | M   |     |
| 24              | 64    | 66    | 50    | 52    | 64    | 59    | 44    | 56    | 60     | 15  | M   | 8   |
| 25              | 64    | 62    | 54    | 53    | 46    | 49    | 43    | 64    | 57     | 14  | M   | 8   |
| 26              | 69    | 59    | 50    | 48    | 44    | 56    | 35    | 56    | 50     |     | F   |     |
| 27              | 74    | 66    | 41    | 46    | 53    | 44    | 47    | 42    | 46     | 13  | F   | 7   |
| 28              | 57    | 48    | 50    | 55    | 54    | 59    | 55    | 57    | 60     | 13  | M   | 7   |
| 29              | 74    | 58    | 50    | 59    | 49    | 51    | 46    | 32    | 53     |     | M   | 7   |
| 30              | 56    | 30    | 47    | 41    | 37    | 55    | 44    | 36    | 46     |     | M   |     |
| 31              | 61    | 60    | 47    | 52    | 61    | 59    | 44    | 56    | 58     | 13  | M   | 7   |
| 32              |       |       |       |       |       |       |       |       |        |     |     |     |
| 33              | 48    | 55    | 50    | 47    | 46    | 51    | 47    | 56    | 52     | 13  | F   | 7   |
| 34              | 61    | 57    | 45    | 50    | 43    | 47    | 36    | 42    | 46     | 15  | F   | 7   |
| 35              | 49    | 56    | 59    | 70    | 69    | 63    | 55    | 63    | 79     | 13  | F   | 7   |
| 36              | 48    | 51    | 47    | 52    | 55    | 59    | 61    | 56    | 61     | 13  | F   | 7   |
| 37              | 56    | 62    | 41    | 55    | 60    | 49    | 55    | 42    | 54     | 13  | F   | 7   |
| 38              | 53    | 51    | 54    | 59    | 60    | 59    | 56    | 56    | 66     | 13  | M   | 7   |
| 39              | 57    | 51    | 46    | 41    | 43    | 44    | 51    | 47    | 46     | 14  | M   | 8   |
| 40              | 47    | 57    | 59    | 70    | 60    | 52    | 51    | 47    | 63     |     | M   |     |
| 41              | 58    | 44    | 66    | 63    | 56    | 64    | 55    | 56    | 69     |     |     |     |
| 42              | 53    | 53    | 59    | 70    | 69    | 69    | 61    | 65    | 100    |     |     |     |
| 43              | 53    | 46    | 34    | 43    | 49    | 56    | 62    | 52    | 49     |     |     |     |
| TOTAL           | 2541  | 2446  | 1834  | 2085  | 2136  | 2146  | 1935  | 1968  | 2188   |     |     |     |
| MEDIAN          | 61    | 59    | 46    | 50    | 49    | 51    | 46    | 47    | 50     |     |     |     |
| MEAN            | 61.98 | 59.66 | 44.73 | 50.85 | 52.1  | 52.34 | 47.2  | 48    | 53.366 |     |     |     |
| STD DEV         | 9.422 | 9.904 | 11.55 | 9.015 | 8.757 | 7.275 | 8.571 | 9.036 | 12.427 |     |     |     |
| RANGE           | 33    | 50    | 44    | 29    | 32    | 30    | 37    | 33    | 65     |     |     |     |
| MODE            | 74    | 66    | 41    | 41    | 49    | 59    | 41    | 56    | 46     |     |     |     |

## **Appendix D**



TENNESSEE SCHOOL FOR THE DEAF  
and  
EDUCATIONAL RESOURCE CENTER FOR THE HEARING IMPAIRED  
2725 Island Home Blvd.  
Knoxville, Tennessee 37920

January 5, 1998

Ms. Kathy Mohrman  
3700 Sutherland Ave., Apt. V-1  
Knoxville, TN 37919

Dear Kathy,

Enclosed please find authorization for you to proceed with your research project on the effect of cooperative, non-competitive, initiative and challenge games to enhance the self-esteem of adolescents with hearing impairments.

We look forward to working with you on this project.

Sincerely,

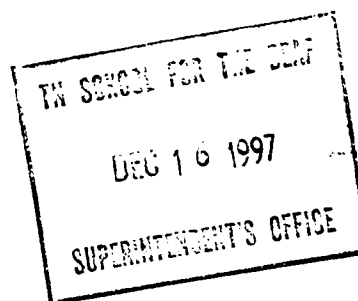
  
Alan J. Mealka  
Superintendent

AJM:hw  
Encl.

cc: Elaine Alexander  
Mark Battle

December 15, 1997

Alan Mealka  
Superintendent  
Tennessee School for the Deaf  
2527 Island Home Blvd.  
Knoxville, TN 37920



Dear Mr. Mealka,

The purpose of this letter is to request your cooperation in my research on the effect of cooperative, non-competitive, initiative and challenge games (hereafter called adventure games) to enhance the self-esteem of adolescents with hearing impairments. I would like to conduct this research at the Tennessee School for the Deaf through physical education classes.

Participation in the study would involve a time commitment of 80 minutes over two sessions for paper and pencil tests in a pre-test, post-test format. The six week adventure game program is designed to meet in the regularly scheduled physical education classes for the middle school, high school and alternative school. Individual consent by participants and parents of guardians of participants to participate in the study will be requested prior to the administration of the first test. Each participant will: (a) have the right to participate or not to participate and/or withdraw from the study at any time without penalty, and (b) be informed that participation in the study is entirely voluntary, (c) all information collected will be held in confidence. The research is scheduled to begin the week of Monday, January 19, 1997.

After meeting with Mark Battle, we have determined that this research is feasible within the current structure and schedule of the physical education classes. The research would be an extension of the current activities for the alternative school students and fits into the curriculum for the middle school and high school students.

Research on the effects of self-esteem after participating in adventure games is largely considered to be positive, however there has not been a significant amount of quantitative research done on the subject. Additionally, currently available research suggests that further study using special populations is needed.

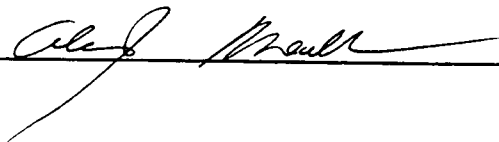
If you would be willing to allow your middle school students, high school students and alternative high school students to participate, indicate by signing the bottom of this letter. Please keep a copy for your files.

At the conclusion I will send you a summary of the results. Thank you for considering this request. We are looking forward to working with you.

Sincerely,

A handwritten signature in cursive script that reads "Kathy Mohrman".

Marie K. (Kathy) Mohrman  
M.S. Candidate

Signature:  Date: 12-29-97



TENNESSEE SCHOOL FOR THE DEAF  
and  
EDUCATIONAL RESOURCE CENTER FOR THE HEARING IMPAIRED  
2725 Island Home Blvd.  
Knoxville, Tennessee 37920

February 4, 1998

Marie K. Mohrman  
3700 Sutherland Ave. #V-1  
Knoxville, TN 37919

Dear Ms. Mohrman,

This letter serves as confirmation of our agreement to participate in your research and as a recap of our discussions of the involvement of the physical education students from the Tennessee School for the Deaf in your research. The purpose of your study and the goal of our physical education program are closely linked. The information obtained from the study: The ability of involvement in adventure games to improve the self-concept of adolescents with hearing impairments, is valuable information for the continuance of our current curriculum.

This research is feasible within the current structure and schedule of the physical education classes. An intervention consisting of adventure games is an extension of the current activities for the students and fits into the curriculum for the eighth and ninth grade. These activities will take place in established commonly accepted educational settings, involving normal educational practices. The results yielded by your study will allow us to compare instructional strategies, and curriculum for use in increasing self-concept with our students. The six week pattern you have chosen for your intervention fits into the grading schedule.

Participation in the study will involve a time commitment of 80 minutes over two sessions for paper and pencil tests in a pre-test, post-test format. The six week adventure game intervention will involve a time commitment of fifteen hours and is scheduled to meet during established physical education class times for the eighth and ninth grades.

It is my understanding that the responses or observations will be recorded in such a manner that the students will not be able to be identified directly or indirectly through identifiers linked to the subjects. Since the subjects of the research are under the age of eighteen, individual consent by participants and parents or guardians will be obtained prior to the administration of the first test. Each participant will: (a) have the right to participate or not to participate and/or to withdraw from the study at any time without penalty, and (b) to be informed that participation in the study is entirely voluntary, (c) all information collected will be held in confidence.

We are excited about the involvement of our students in your research. We are also anxious to see the results of the study, particularly how they might help us improve our current curriculum. Please let me know if we can be of further assistance.

Sincerely,

A handwritten signature in cursive script, appearing to read "Mark Battle".

Mark Battle, M.Ed.  
Supervisor of Health and Physical Education  
Tennessee School for the Deaf

A handwritten signature in cursive script, appearing to read "Elaine B. Alexander".

Elaine B. Alexander, M.Ed.  
Director of Instruction  
Tennessee School for the Deaf

***The Tennessee School for the Deaf is an equal opportunity, equal access, affirmative action employer.***



TENNESSEE SCHOOL FOR THE DEAF  
and  
EDUCATIONAL RESOURCE CENTER FOR THE HEARING IMPAIRED  
2725 Island Home Blvd.  
Knoxville, Tennessee 37920

February 16, 1998

Dear Parent/Guardian,

Your son/daughter has been selected to participate in a research project conducted by the University of Tennessee Department of Health, Leisure and Safety Science. The title of the project is *"The effect of cooperative, non-competitive, initiative, challenge and adventure games on the self-esteem in adolescents with hearing impairments."*

The study will include two (2) paper and pencil tests, and participation in adventure games. A test will be given at the beginning of the program, followed by participation in the adventure games. The second test will be given at the end of the program. The scheduling of the games takes place over six weeks. Each session will last 50 minutes. This program supports and compliments the current physical education and Life Time Wellness curriculum currently in place. It does not impact your child's current IEP.

Participation in this study is completely voluntary. If at any time your child does not wish to continue with either the testing, or participation in the games he/she will be released from the study. There is no penalty for canceling their participation.

A number will be assigned to each participant and no one will be identified by name in order to insure complete confidentiality. Participation in this study does not involve any anticipated physical or emotional risks.

Please complete the attached form and return it to:

Mark Battle  
Supervisor of Health and Physical Education  
Tennessee School for the Deaf  
2725 Island Home Blvd.  
Knoxville, TN 37920

If you have any questions, please contact me. Your cooperation and support of this project is appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Battle".

Mark Battle  
Supervisor, Health and Physical Education

A handwritten signature in black ink, appearing to read "Elaine B. Alexander".

Elaine B. Alexander  
Director of Instruction

*The Tennessee School for the Deaf is an equal opportunity, equal access, affirmative action employer.*

## **Appendix E**

# **Adventure Games Program Experimental Group**

## **#1 2-23-98**

A. Pre-test

## **#2 2-25-98**

- A. Complete Pre-test
- B. Divide groups
- C. Explain Full Value Contract
- D. Play #10 tin Can Pass

### **#10 Tin Can Pass**

**Source:** The Bottomless Bag, Karl Rhonke (1991)

**Equipment:** One #10 tin can, 5 or 6 tennis balls.

**Directions:** 1. Explain that the object of the game is to pass the can from person to person without dropping it.  
2. When the group is successful with the task, add tennis balls to the can.

**Objective:** To understand that personal behavior affects the group.

## **#3 2-26-98**

- A. Review the full value contract
- B. Game: Circle Slap, Statue
- C. Introduction to processing

### **Circle Slap**

**Source:** Funn Stuff, Karl Rhonke (1996)

**Equipment:** None

**Directions:** 1. Instruct the group to lie on the floor in a circle.  
2. Link arms in an overlapping fashion.  
3. The leader begins by slapping the floor and the group follows by slapping in sequence of the hands.  
4. The leader signals direction and speed changes.

**Objectives:** To learn to pay attention to what the group is doing.

## Statue

**Source:** Adventure Based Resource Index System, Charles Learned, (1991)

**Equipment:** One bean bag per person.

**Directions:**

1. Explain that everyone will have a bean bag on their head.
2. As long as the bean bag remains on the head, movement is unrestricted.
3. If the bean bag should fall off, that player must freeze.
4. Another player may pick up the bean bag and replace it on the head of the original player.

**Skill Objective:** To experience the concept of helping behavior.

## #4 3-2-98

A. Review full value contract, review objective

B. Game: Pile On

C. Process

## Pile On

**Source:** Silver Bullets, Karl Rhonke (1984)

**Equipment:** Hundreds of tennis balls

**Directions:**

1. Divide the group into smaller groups of 3-5 people.
2. Divide the tennis balls evenly among the players.
3. Each group chooses one person to hold the tennis balls.
4. See how many tennis balls can be held off the floor for five seconds. The only body parts that the tennis ball holder may have touching the floor are his or her feet. The use of clothing is not allowed for supporting tennis balls.
5. Any tennis ball that falls to the floor during stuffing attempts counts against the team.

**Objective:** To learn to set appropriate goals.

## **#5 3-4-98**

- A. Review the full value contract
- B. Game: Jungle Cruise
- C. Process

### **Jungle Cruise**

**Source:** The Bottomless Bag, Karl Rhonke (1991)

**Equipment:** Hundreds of tennis balls, 4 broomsticks fitted with crutch tips. One milk crate, one large piece of plywood.

**Directions:**

1. Explain that the object is to cross the gym floor on the plywood.
2. The entire group must cross the floor on the wood.
3. Only the tennis balls and the broomsticks may touch the floor beyond the "safe zones".

**Objective:** To learn to be successful at a difficult task.

## **#6 3-5-98**

- A. Review the full value contract
- B. Game: Complete Jungle Cruise
- C. Process

## **#7 3-9-98**

- A. Review the full value contract
- B. Game: Pick and Choose
- C. Process

### **Pick and Choose**

**Source:** The Bottomless Bag, Karl Rhonke (1991)

**Equipment:** Hundreds of tennis balls, 6 large buckets, one gymnasium

**Directions:**

1. Set up the buckets in two lines about ten feet apart, with the gym wall at the back.
2. Divide into two teams.
3. Designate a throw line.
4. The first team will attempt to throw the balls into the buckets, the other team will return the balls to the first team.

5. Within the five minute time limit see how many balls each team gets into the buckets.
6. Allow the team members to revise the plan to get more balls into the buckets on the second attempt.

**Objective:** To learn to devise and modify a plan.

## **#8 3-11-98**

- A. Review the full value contract
- B. Game: Pipeline
- C. Process

### **Pipeline**

**Source:** unknown

**Equipment:** 5 pieces of pipe insulation cut into various sizes. A marble.

- Directions:**
1. Explain that the object is to get the marble from one point to another, though the pipeline without hitting the floor.
  2. The players may not move their feet while the marble is in their pipe.
  3. The players may not touch each others pipes.
  4. If the marble falls out of the pipe the group must start over.

**Skill Objectives:** To reinforce the concept of working together as a team.

## **#9 3-12-98**

- A. Review the full value contract
- B. Game: Magic Carpet, Twirly Toss
- C. Process

### **Magic Carpet**

**Source:** Unknown

**Equipment:** One piece of fabric - a.k.a. magic carpet

- Directions:**
1. Have all of the participants stand on the magic carpet.
  2. Explain that the object of the game is to turn the carpet over without stepping off the fabric.

**Objective:** To learn that good communication helps the group solve problems.

## Twirly Toss

**Source:** Funn Stuff, Karl Rhonke (1996)

**Equipment:** One twirly per person, one circular target

**Directions:**

1. Hand out one twirly per person.
2. Have the group experiment with flying and catching the twirls.
3. Have the group pass the twirls between pairs, first with one twirly then with two.
4. Assemble the group around the target. Explain that the object is to stand around the outside of the target and get the twirls to land in the inside circle of the target without touching the outside circle of the target with hands or feet.

**Objective:** To understand that some problems are harder than they initially look and how to deal with that realization.

## #10 3-16-98

- A. Review the full value contract
- B. Game: Cross the Great Divide
- C. Process

## Cross the Great Divide

**Source:** Adventure Based Resource Index System, Charles Learned (1991)

**Equipment:** None

**Directions:**

1. Participants form a line with the sides of their feet touching.
2. The group has to get across the designated finish line without feet becoming detached.
3. If feet become detached, the group must start over.

**Skill Objective:** To understand how setting a goal helps the group achieve success.

## **#11 3-16-98**

- A. Review the full value contract
- B. Game: Modified Minefield
- C. Process

### **Modified Minefield**

**Source:** The Bottomless Bag, Karl Rhonke (1991)

**Equipment:** A variety of "stuff" from the bag of tricks

- Directions:**
1. Mark off a boundary with a rope.
  2. Have the participants put the stuff inside of the rope boundary.
  3. Have the group decide in what order the group will cross the minefield, and how they will communicate the person who is crossing.
  4. The person crossing the minefield must do so backwards.

**Objective:** To learn to make decisions as a group.

## **#12 3-19-98**

- A. Review the full value contract
- B. Game: Shark
- C. Process

### **Shark!**

**Source:** The Bottomless Bag, Karl Rhonke (1991)

**Equipment:** Large pieces of cardboard

- Directions:**
1. Have the group select a lifeguard.
  2. Divide the remaining people into two groups.
  3. The object of the game is to cross the gym floor without being eaten by sharks.
  4. The group must get all the members onto the ship to cross safely.
  5. The lifeguard signals when a shark is sighted. The group must all get onto the ship, both feet, before the other group to win a point.
  6. The group with the most points wins.
  7. Have the groups decide how they can do better and try again.

**Objective:** To learn to create and modify a plan.

## **#13 3-23-98**

- A. Review the full value contract
- B. Game: Spiders Web
- C. Process

### **Spiders Web**

**Source:** Feeding the Zircon Gorilla, Sam Sikes (1995)

**Equipment:** Spiders web made from elastic cord

**Directions:** 1. The team must get through the spiders web without touching it.  
2. If anyone in the team touches the web, the entire team must begin again.

**Skill Objectives:** To learn to use the strengths of the team.

## **#14 3-24-98**

- A. Review the full value contract
- B. Game: Diminishing all aboard, Porcupine progression
- C. Process

### **Diminishing all aboard**

**Source:** Unknown

**Equipment:** Three all aboard boxes, one large, one medium, one small

**Directions:** 1. Explain to the group that they must get all of the members on to the three boxes.  
2. Remove the large box and have the group try again.  
3. Remove the medium box and have the group try again.

**Skill Objective:** To learn to make and modify a plan of action.

### **Porcupine Progression**

**Source:** The Bottomless Bag, Karl Rhonke (1991)

**Equipment:** 13 nails, one platform

**Directions:** 1. All of the nails must be balanced one nail head.

**Objectives:** To learn to solve problems by using creative thinking.

## **#15 3-26-98**

- A. Review full value contract
- B. Game: Penny Arcade
- C. Process

### **Penny Arcade**

**Source:** Larry Y. Brown CTRS

**Equipment:** Penny Arcade device, one string per person, a variety of objects to lift.

**Directions:**

1. The object is to pick up all of the objects with the "jaws"
2. The group will need to decide who will be the communicators
3. The remainder of the group will divide the string tasks among themselves

**Skill Objectives:** To experience choosing peers as leaders.

## **#16 3-30-98**

- A. Review the full value contract
- B. Game: Egg Drop
- C. Process

### **Egg Drop**

**Source:** Adventure Based Resource Index System, Charles Learned, (1991)

**Equipment:** Eggs, materials to build a container for the egg

**Directions:**

1. Divide the group into two parts.
2. Each group will construct a container for the egg.
3. The egg will be dropped from the top of the bleachers.
4. The group or groups with the egg intact after the drop wins.

**Skill Objectives:** To foster problem solving and creative thinking.

## **#17 4-1-98**

Post-test

## **#18 4-2-98**

Games with both the control group and the experimental group followed by cold drinks.

## **Lesson Plan Control Group**

### **#1**

A. Pre-test

### **#2 through Week #16**

A. Regularly scheduled activities—Mini- tournaments

### **#17**

A. Post-test

### **#18**

A. Games and cold drinks with the experimental group.

## **Modified Full Value Contract**

1. Be safe.
2. Respect others.
3. Respect yourself.
4. Pay attention.
5. Call group when needed.

## **Appendix F**

**FORM B**

IRB# 5514B

Date Received in OR \_\_\_\_\_

**THE UNIVERSITY OF TENNESSEE, KNOXVILLE**

Application for review of Research Involving Human Subjects

**I. Identification of Project**

**A. Project Director**

Marie K. Mohrman  
3700 Sutherland Ave. #V-1  
Knoxville, TN 37919  
423 974 5041 (TTY equipped)  
kmohrman@utkux.utcc.utk.edu

**Faculty Advisor**

Gene A. Hayes, Ph.D.  
Recreation and Tourism Management  
1914 Andy Holt Ave.  
Knoxville, TN 37966  
423 974 5042 (TTY equipped)  
ghayes@utk.edu

**Department/Unit:** Recreation and Tourism Management

**B. Project Status:** Masters Thesis

**C. Title of Project:** The ability of adventure games to increase the self-concept of adolescents with hearing impairments.

**D. Starting Date:** Monday, February, 23, 1998 or Upon IRB Approval

**E. Estimated Completion Date:** May 1998

**F. External Funding:** N/A

**II. Project Objectives**

The problem addressed in this study is the investigation of the ability of adventure games to increase the self-concept of adolescents with hearing impairments. The study will compare the self-concept of an experimental group of adolescents with hearing impairments in grades eight and nine who will participate in a program of adventure games with the self-concept of a control

group of adolescents with hearing impairments who will not be participating in the activities. The control group will be matched with the experimental group in terms of grade level, gender and residential situation. The pre-test scores will be compared with the post test scores. The research will be conducted at the Tennessee School for the Deaf during regularly scheduled physical education classes as part of the ongoing curriculum.

### **III. Description And Source Of Research Subjects**

The population available for this study will consist of eighth and ninth grade students attending the Tennessee School for the Deaf, Knoxville TN, during the spring semester of 1998. The subjects are enrolled in regular physical education courses with an adventure-based curriculum. The setting for the research is in established and commonly accepted educational settings involving normal education practices. The research involves comparison among instructional techniques, curricula, and classroom management techniques. The total number of anticipated subjects is thirty six. Eighteen participants will be in the experimental group and eighteen in the control group. Prior to beginning any research informed consent will be obtained from parents or guardians of all participants and of the participants. The informed consent forms may be read or signed by an interpreter to the participants to facilitate understanding.

### **IV. Methods or Procedures**

The instrument that will be used is the Piers-Harris Children's Self-concept Scale (PHCSS). The test takes approximately twenty minutes to administer. An initial assessment will be determined for each of the students involved. The adventure games will be conducted with the experimental group during regularly scheduled physical education classes over a six week period. Adventure games are cooperative, non-competitive, challenge games, "New" games, or initiatives. These games usually present a problem or task that involves the participants interacting together to achieve a problem. As an example, one of the games called "Jungle Cruise" involves giving the group a piece of plywood, several hundred tennis balls and four broomsticks. The entire group must be transported across the gym floor using only these materials. No one may walk across. The group must come up with a plan and successfully execute the plan within the confines of the rules. The classes meet three times per week for fifty minutes. The total time involved is fifteen hours. During this time the control group will participate in health instruction activities scheduled for that time period. The pre-test will be given on Monday, February 23, 1998, and the first activity will begin. Activities will be scheduled on Mondays, Wednesdays, and Thursdays, through March 30, 1998. The subjects will be involved in the last session and the post test will be given on Wednesday, April 1, 1998. The information taken from these sources will be recorded in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. Given the nature of the adventure games complete confidentiality is not possible. Efforts will be made to protect confidentiality to the extent possible.

## **V. Specific Risks and Protection Measures:**

The participants in this study will be exposed to minimal risk. Procedures are non-evasive. Participation is strictly voluntary, and the participants are advised that they may terminate the project at any time. Information will be protected by assigning numbers to each participant. The numbers and names will be known only to the researcher and academic advisor. Test results will be kept in a locked file cabinet in 362 HPER building, 1914 Andy Holt Ave. UTK and will be destroyed at the end of May 1998. Informed consent forms will be stored in a locked file cabinet in 362 HPER, 1914 Andy Holt Ave., UTK and will be destroyed at the end of May 2001.

## **VI. Benefits**

There are minimal physical risks and psychological risks anticipated in this research. Possible benefits to the subjects of this investigation include increased self-concept.

## **VII. Methods for Obtaining "Informed Consent" From Participants**

A meeting was held with Mark Battle, Department Head, Physical Education at the Tennessee School for the Deaf to explain the study. A list of students matching the age requirements as participants was requested. Consent will be obtained from the students and their parents or guardians through a letter of explanation from the Tennessee School for the Deaf and a consent form sent home with the students. Mark Battle approved the research and reviewed the lesson plans. Additionally, Mark Battle supervises all of the physical education activities at the Tennessee School for the Deaf. The form must be signed and returned prior to beginning the research. Consent will be required of each participant. Consent forms will be stored in a locked file cabinet in 362 HPER Building 1914 Andy Holt Ave. UTK and will be destroyed at the end of May 2001.

## **VIII. Qualifications of the Investigators**

The Masters Candidate has experience directly related to the research. Two years of using initiatives and adventure games at Girl Scout Camps, course work on the undergraduate and graduate level pertaining to initiative games and processing, fourteen months of working with students with hearing impairments at the Tennessee School for the Deaf, three weeks of summer camp at the Tennessee School for the Deaf and an internship dealing with initiatives and processing. The advisor has practical, professional and theoretical experience in this type of research with over 40 articles published, 100 presentations and over a million dollars in federal grant money.

## **IX. Facilities and Equipment To Be Used In The Research**

Research will be conducted at the Tennessee School for the Deaf using the physical education facilities. A letter of permission from the Tennessee School for the Deaf is attached. The facilities are completely adequate for this research. The equipment used in the project consists of items usually found in physical education classes such as tennis balls, hula hoops, and

beach balls. Additionally, items commonly used in adventure games will be used, such as a "spider's web" consisting of elastic cord on a flexible frame, #10 tin cans, five gallon buckets, small pieces of PVC pipe and koosh balls.

#### **X. Responsibility Of The Principle Investigator**

By compliance with the policies established by the Institutional Review Board of the University of Tennessee, Knoxville, the principle investigator subscribes to the principles stated in "The Belmont Report" and the standards of professional ethics in all research, development, and related activities involving human participants under the auspices of the University of Tennessee, Knoxville. The principle investigator further agrees that:

- a. Approval will be obtained from the Institutional Review Board prior to instituting any change in this research project.
- b. Development of any unexpected risks will be immediately reported to the compliance section.
- c. An annual review and progress report (Form R) will be completed and submitted when requested by the Institutional Review Board
- d. Signed consent documents will be kept for the duration of the project and for at least three years thereafter at a location approved by the Institutional Review Board.

#### **XI. Signatures**

Principle Investigator \_\_\_\_\_

Signature \_\_\_\_\_ Date: \_\_\_\_\_

Student Advisor \_\_\_\_\_

Signature \_\_\_\_\_ Date: \_\_\_\_\_

#### **XII. Department Review And Approval**

The application described above has been reviewed by the IRB department review committee and has been approved. The DRC further recommends that this application be reviewed as:

OR Expedited Review -- Category(ies)  
Full IRB Review

Chair, DRC \_\_\_\_\_  
(Name)

Signature \_\_\_\_\_  
(Date)

Department Head \_\_\_\_\_  
(Name)

Signature \_\_\_\_\_  
(Date)

Protocol sent to Compliance Section for final approval on \_\_\_\_\_  
(Date)

Approved: Compliance Section  
Office of Research  
404 Andy Holt Tower

\_\_\_\_\_  
Signature Date

## **Appendix G**

# Record of Attendance

| #  | 2/23 | 2/25 | 2/26 | 3/2 | 3/4 | 3/5 | 3/9 | 3/11 | 3/12 | 3/16 | 3/18 | 3/19 | 3/23 | 3/25 | 3/26 | 3/30 | 4/1 |  |
|----|------|------|------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|-----|--|
| 1  |      |      |      |     |     |     | A   | A    | A    |      |      |      |      |      |      |      |     |  |
| 2  |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 3  |      |      |      |     |     |     | A   |      |      |      |      |      |      |      |      |      |     |  |
| 4  |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 5  |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 5  |      |      |      |     |     |     |     |      |      |      |      |      | A    |      |      |      |     |  |
| 6  |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 7  |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 8  |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 9  |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      | A    |     |  |
| 10 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 11 |      |      |      |     |     |     | A   | A    | A    |      |      |      |      |      |      |      |     |  |
| 12 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 13 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 14 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 15 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 16 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 17 |      |      |      |     |     |     | A   |      |      |      |      |      |      |      |      |      |     |  |
| 18 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 19 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 10 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 21 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 22 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 23 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 24 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 25 |      |      |      |     |     |     |     |      |      | A    | A    |      |      |      |      |      |     |  |
| 26 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 27 |      |      |      |     |     |     |     |      |      | A    | A    | A    |      |      |      |      |     |  |
| 28 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 29 |      |      |      |     |     |     |     | A    | A    | A    |      |      |      |      |      |      |     |  |
| 30 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 31 |      |      |      |     |     |     |     |      |      |      | A    |      |      |      |      |      |     |  |
| 32 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 33 |      |      |      |     |     |     |     |      |      |      |      | A    |      |      |      |      |     |  |
| 34 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 35 |      |      |      |     |     |     |     |      |      |      |      |      |      |      |      |      |     |  |
| 35 |      |      |      |     |     |     |     |      |      | A    | A    |      |      |      |      |      |     |  |

## VITA

Marie Kathleen Mohrman was born in Chicago, Illinois. She is a graduate of St. Vincent's Academy in Shreveport, Louisiana. She received her Bachelor of Arts Degree from Louisiana State University in the spring of 1982.

Working experience has included Media Director and Marketing Director. These positions involved media and marketing activities in the banking and whitewater industries.

In the fall of 1996 Mrs. Mohrman began working toward a Master of Science Degree at the University of Tennessee, in Knoxville in the Recreation, Tourism and Hospitality Management Program, with an emphasis in Therapeutic Recreation. She accepted a graduate research assistantship under the direction of Gene A. Hayes from the fall of 1996 through spring of 1998.

Mrs. Mohrman was awarded her Master's degree in May of 1998.