THE EFFECT OF TWO TYPES OF AUGMENTED FEEDBACK ON SELF-REINFORCEMENT OF HIGH SCHOOL PHYSICAL EDUCATION FEMALE STUDENTS AT TWO LEVELS OF SELF-ESTEEM

by

Carol A. Weinmann

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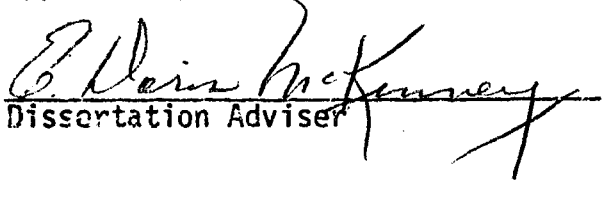

Dissertation Adviser

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

Dissertation Adviser E. Doris McKinney

Committee Members David E. Purpel

[illegible]

Gail M. Hennis

Rosemary McGee

May 2, 1977
Date of Acceptance by Committee

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The purpose of this study was to determine if self-esteem and augmented feedback had an effect on the amount of negative self-reinforcement which high school girls in physical education activity classes would give themselves after they performed a novel motor task.

The hypotheses were: (a) low self-esteem (LSE) individuals who received augmented affective reinforcement (AAR) and augmented informational feedback (AIF) would administer more negative self-reinforcement than would high self-esteem (HSE) individuals who received AAR and AIF, (b) HSE and LSE individuals who received AIF would respond with more negative self-reinforcement than would HSE and LSE individuals who received AAR, (c) LSE individuals who were administered AIF would give more negative self-reinforcement than would LSE individuals who were administered AAR, and (d) HSE individuals who were administered AAR would give more negative self-reinforcement than would HSE individuals who were administered AIF.

Forty subjects selected from 312 high school girls were assigned to two levels of self-esteem, high and low, according to the scores made on the Rogers and Dymond's revised version of the Self-Ideal-Ordinary Q-Sort. The subjects were randomly blocked to two augmented feedback conditions, AIF and AAR.

Four groups of 10 subjects each were exposed to a training phase which involved the performance of a novel motor skill. AAR or AIF was administered. A testing phase occurred immediately following the training phase. The testing phase consisted of performing a novel

motor task which was different from that of the training phase. A video tape was made of each subject's testing phase performance. Self-reinforcement statements regarding the performance of the novel motor task were requested from subjects during a playback review of the tape. After the completion of the self-reinforcement phase, a tape-recorded interview, regarding body and self-awareness, was conducted.

An analysis of variance using a 2 x 2 factorial design was applied to the data of the dependent variable, self-reinforcement. The interview data were not treated statistically but were used at appropriate times in the discussion section.

Results of the analysis revealed that there was a significant main effect with self-esteem. LSE individuals administered more negative self-reinforcement ($p < .005$) than did HSE individuals trained with both augmented feedback types.

No significant main effect was found for the augmented feedback types. The AIF delivered to low and high self-esteem subjects did not result in significantly more negative self-reinforcement than did AAR delivered to different subjects at the same self-esteem levels.

There was no significant interaction found among self-esteem levels and augmented feedback types. The LSE-AIF subjects did administer more negative self-reinforcement than did the LSE-AAR subjects but not to a degree significant at the .05 level. Subjects in the HSE-AAR group did not administer more negative self-reinforcement than did the subjects in the HSE-AIF group.

The conclusions warranted by this investigation are: (a) self-esteem appears to be a major factor in the way the subjects self-reinforce following the performance of a novel motor task, (b) augmented

feedback does not appear to influence the amount of self-reinforcement, and (c) the interaction of the subjects' self-esteem level and of the augmented feedback type appears not to influence self-reinforcement.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Page

FIGURE

CHAPTER I

INTRODUCTION

Behavior, in all human activity, results from the interaction of numerous and complex variables which cannot operate in isolation from one another. Thus, even in a context as specific as a high school physical education class, students' performances must be examined as the product not only of their psychomotor involvement, but of the interpersonal environment which they experience in the class. An important aspect of this interpersonal environment is the relationship between the students and the teacher.

One antecedent of interpersonal relationships is interaction which includes feedback of an external nature (Fisher, 1976; Mudra, 1970). In a student-to-teacher relationship, this external feedback for the student, or performer, may be augmented feedback, derived from the teacher, coach, or experimenter, which is given directly by using verbal or non-verbal techniques (Annett, 1969; Fitts & Posner, 1967; Milhorn, 1966; Stallings, 1973). It also may include extrapolated feedback given through the indirect mode of a visual aid, such as video tape (Stallings, 1973). These forms of feedback can be either new input or input that results from the performer's action or response to a stimulus situation. When a verbal feedback resulting from direct post-response information is given to the performer, it may be expressed either as augmented informational feedback, which provides an indication of the accuracy or correctness of the response (Bourne, 1966), or as

augmented affective reinforcement, which involves comment of support to the attainment of the desired goal (Annett & Kay, 1957). The latter type increases the probability of the response recurring without detailing the accuracy or correctness of the response (Bourne, 1966; Sage, 1971; Tzeng, 1975). Thus, the quality of the interpersonal environment is determined, in part, by the type and degree of post-response information, which can be categorized according to the type of augmented feedback provided the performer of a physical activity by a teacher or observer.

Augmented feedback may be classified by the nature of its content. This content may be informational or affective in nature. Augmented feedback given in a direct mode is the primary form of information operative in most high school physical education classes. This is a type of cue which plays a major role in the reflective appraisal of a performer (Jones & Gerard, 1967). The impact of the administration of the nature of augmented feedback should be examined since this variable is integral to the teaching role.

Self-esteem is a factor that helps to determine the effects which augmented feedback has on an individual (Shrauger & Rosenberg, 1970). Researchers have found that threats and failures which denude personal inadequacies or expose significant personality attributes, including self-esteem, may be the major cause of anxiety-provoking situations (Coopersmith, 1967; Shrauger & Rosenberg, 1970). Alderman (1974) concluded, "The lower the self-esteem, the greater the feelings of inadequacy and inferiority, and, consequently, the greater reliance that is placed on supportive feedback from other people" (p. 258).

However, other research reveals that individuals with low self-esteem do not trust positive feedback. Those individuals were found to respond less favorably to a positive source than to one that gave them negative feedback (Deutsch & Solomon, 1959; Howard & Berkowitz, 1959; Wilson, 1965).

Still other studies have found that both high and low self-esteem subjects tend to limit their cognitive input to information that is congruent with self-image or general self-concept (Silverman, 1964; Stotland & Hillmer, 1962). These findings support the premises of Festinger's Consonance Theory (1957), Heider's Cognitive Balance Theory (1946), Lecky's Self-Consistency Theory (1945), and Osgood, Suci, and Tannenbaum's Congruence Theory (1957). Cohen's (1959) report also corroborates the theoretical beliefs. He states that both high and low self-esteem individuals use self-protective reaction patterns which are congruent with their self-perceptions.

From these divergent findings, it is evident that the interaction between self-esteem and feedback is not wholly understood.

Augmented feedback subsequent to performance is not always available to the performer. Much of the behavior of the person must be self-monitored (Kanfer & Duerfeldt, 1968). According to Kanfer and Marston (1961) self-monitoring is accomplished through self-reinforcement which is a technique for providing feedback on one's own behavior without having specific control over the external influences that affect it. The results of self-reinforcement, they observed, may be manifested in the maintenance, development, and potential alteration of an individual's behavior. It also can be a motivational influence (Kanfer &

Duerfeldt, 1968). If self-reinforcement is a valid technique for helping the individual to structure his or her behavior, then the writer believes its application within formal educational experiences also should be investigated. Since research has indicated that the high incidence of augmented feedback in the school milieu and the impact of that feedback are related to the self-esteem of the individual student, it would seem important to examine the effects these two variables have on self-reinforcement behavior in a physical education setting within the school environment.

Many studies have been conducted of feedback in varying forms. Some have examined feedback as error information (Annett & Kay, 1957; Elwell & Grindley, 1938; Judd, 1905). Others have explored error information in conjunction with varied time intervals (Becker, Mussina & Persons, 1963; Bilodeau & Bilodeau, 1958; Bilodeau, Bilodeau & Schmusky, 1959; Bourne & Bunderson, 1963; Finger, 1942; Jones & Bourne, 1964). Still others have used feedback as an information tool to study the process of identifying concepts (Bourne, 1957; Buss & Buss, 1956). Payne (1970) and Penman (1969) investigated feedback as an indirect method in order to study its effects. Kanfer and Duerfeldt (1968) used affective reinforcement of both a positive and negative nature during the external augmented training phase of a visual task. Neistein and Katkovsky (1974) employed levels of self-esteem and inconsistent reinforcement that were affective in nature to study negative self-reinforcement. Shrauger and Rosenberg (1970) used the variables of self-esteem, as well as success and failure feedback on performance. No studies were found of the interaction of these

variables in a setting akin to a physical education class that requires gross motor responses.

A study of the two types of augmented feedback (affective reinforcement and informational feedback) frequently administered to students in physical education activity settings would serve to determine what effects, if any, these forms of feedback have on the self-reinforcement responses among both high and low self-esteem individuals. Such a study might contribute to current knowledge of the types of responses a physical educator could employ to have effects on the self-reinforcement behavior of students with high and low levels of self-esteem. The findings of this research also might benefit physical educators in helping students to develop appropriate self-reinforcement techniques that would enable them to maintain, develop, and alter their motor behavior without continuous dependence upon others for augmented feedback.

Statement of the Problem

The purpose of this investigation was to determine whether or not the level of self-esteem and the form of augmented feedback used affected the self-reinforcement that high school girls in physical education activity classes gave themselves after performing a novel motor task.

Hypotheses. The following directional hypotheses were tested:

1. Low self-esteem individuals trained with augmented informational feedback and augmented affective reinforcement would administer more negative self-reinforcement than would high self-esteem individuals

trained with augmented informational feedback and augmented affective reinforcement.

2. High and low self-esteem individuals would administer more negative self-reinforcement when trained using augmented informational feedback than when trained using augmented affective reinforcement.

3. Low self-esteem individuals trained with augmented informational feedback would administer more negative self-reinforcement than would low self-esteem individuals trained with augmented affective reinforcement.

4. High self-esteem individuals trained using augmented affective reinforcement would administer more negative self-reinforcement than would high self-esteem individuals trained using augmented informational feedback.

Definition of Terms

Augmented feedback. This is information which is derived externally by the individual (Annett, 1969; Fitts & Posner, 1967; Milhorn, 1966; Stallings, 1973). There are numerous types of augmented feedback. For the purpose of this study, two types of augmented feedback were used: (a) augmented affective reinforcement, and (b) augmented informational feedback provided by the experimenter.

Augmented affective reinforcement. This is a condition of feedback which increases the probability of a response recurring, but does not give the accuracy or correctness of the response (Bourne, 1966; Sage, 1971; Tzeng, 1975). This type of reinforcement is called "AAR."

Augmented informational feedback. This is feedback which occurs after the response and provides an indication of its accuracy or

correctness (Annett & Kay, 1957; Bourne, 1966; Tzeng, 1975). This type of feedback is called "AIF."

Self-reinforcement. This is a self-produced verbal evaluation.

Positive self-reinforcement. This is a verbal evaluation of self-performance as "good" or "well done" by the subject during the reinforcement phase.

Negative self-reinforcement. This is a verbal evaluation of self-performance as "poor" or "not well done" by the subject during the reinforcement phase.

Self-evaluation. This is a judgmental process in which the individual examines her performance, capabilities, and attributes on the basis of personal standards and values and arrives at an evaluation of her own worth (Coopersmith, 1967).

Self-esteem. This denotes how an individual measures herself in such aspects of personal adjustment as worth, capability, successfulness, significance, and self-confidence (Coopersmith, 1967; Maslow, 1970) in relation to her environment.

High self-esteem. This occurs in the study when congruence is found to exist between statements denoting high self-esteem on the modified version of the Self-Ideal-Ordinary Q-Sort and the statements that a subject selects to represent herself. High self-esteem is represented as "HSE."

Low self-esteem. This refers to the lack of coincidence between the way a subject perceives herself and the HSE statements on the modified version of the Self-Ideal-Ordinary Q-Sort. "LSE" designates low self-esteem.

Self-reinforcement phase. This denotes the phase in this study in which a subject evaluated her own performances involving a bat and ball task.

Training phase. This refers to the phase in this study in which the feedback conditions AAR and AIF were applied by the investigator.

Assumptions

The following assumptions were made:

1. The subjects selected to participate in the study were a representative sampling of the 900 female students enrolled in the physical education activity program at El Dorado High School in Placentia, California, during the spring semester of the 1975-76 academic year.

2. The experiments chosen for utilization in the training and self-reinforcement phases were novel motor tasks.

3. Self-reinforcement among the subjects was induced by the instructions given by the experimenter prior to the self-reinforcement phase.

4. Self-reinforcement serves to motivate self-regulation of socially approved behavior which originally is based on information received from one's external environment.

5. The psychological inventory applied in this study is reliable and valid in a nonclinical setting.

Scope of the Study

This study was limited to subjects in one public high school in the state of California. The subjects were high school girls enrolled in physical education activity classes during class periods two,

three, and four at El Dorado High School in Placentia, California, during the 1975-76 academic year.

The study was conducted over a period of 14 days, Monday through Friday, during the class session. This time frame was established in accordance with the requirements of the Placentia School District and the schedule of the investigator.

The investigator identified two independent variables, self-esteem and augmented feedback. The modified version of the Self-Ideal-Ordinary (SIO) Q-Sort (Neistein, 1972) was used to classify the subjects into separate HSE and LSE groups. Two forms of verbal augmented feedback, AAR and AIF, were administered by the investigator during a training phase of the study, using a novel motor task. The subject's physical performances were video taped during the self-reinforcement phase. The video tape was used as a visual aid to elicit self-reinforcement data from the subjects. The investigator also conducted a subjective interview composed of four questions about body and self-awareness (see Appendix C for questions). Three subjects from each of the four cells (HSE-AAR, HSE-AIF, LSE-AAR, LSE-AIF) were interviewed. Although the data were not analyzed statistically, the interview offered insights appropriate for discussion.

Any study of an experimental nature has factors which jeopardize the validity of the research design. The investigator attempted to give these factors primary consideration to help alleviate confounded findings, yet, inherent weaknesses still existed in the experiment. The subjects, merely by being participants in the research study, assume the role of trying to be the type of people they think they are

supposed to be (Isaac & Michael, 1972) which may influence the results. An affective scale in general and in this specific study is only as valid as are the individuals who respond to the scale. The same comment applies to the subjective interviews used in the study. Additional weaknesses in the experimental conditions were how the subjects viewed the role of the experimenter as well as the ability of the subjects to generalize from the training phase to the self-reinforcement phase.

Significance of the Study

Feedback, whether informational or affective in nature, is apparent as an important aspect in the relationship between a student who is seeking to learn and a teacher who is seeking to help develop a motor skill. Each student has her general level of self-esteem. It is known that this level of self-esteem interacts in different ways with the administration of the different types of feedback (Alderman, 1974; Deutsch & Solomon, 1959; Howard & Berkowitz, 1959; Shrauger & Rosenberg, 1970; Silverman, 1964; Stotland & Hillmer, 1962), though the specific nature of these interactions has yet to be conclusively defined. The identification of a third variable, self-reinforcement, makes this study of particular relevance to physical educators. Self-reinforcement is essential for establishing a viable learning environment (Skinner, 1971; Whaley & Malott, 1971) in a physical education activity class (Rushall & Siedentop, 1972). The reasons for this are:

1. The size of the facility utilized in physical education instruction may reduce or prohibit teacher-to-student proximity during skill-learning experiences. This distance factor can detract from or prevent the administration of immediate post-response feedback. Thus,

the student may have no source of reinforcement other than self-reinforcement.

2. The size of class enrollments in a physical education program may produce a teacher-to-student ratio that limits the amount of augmented feedback which the teacher is able to give to each student. As a result, the student may have to be her own source of reinforcement.

3. The different rates at which individuals learn motor skills may require an inequitable distribution of teacher attention, and thus, augmented feedback. Those students whose learning experiences are not teacher-monitored may have to rely on self-reinforcement techniques for behavioral structuring and support.

It can be seen, then, that in the physical education setting in which the facility and enrollment are large, continual augmented feedback cannot be provided consistently. Research has found that, when augmented feedback is absent, behavior involving self-monitoring and self-reinforcement occurs to help provide the motivational factors normally supplied by augmented feedback (Kanfer & Duerfeldt, 1967b, 1968). Neistein and Katkovsky (1974) described this procedure as an internal process that may reflect the individual's general self-esteem. When objective external criteria are available for the student's use, these criteria were found to have greater impact on the student's own evaluations (Neistein & Katkovsky, 1974). It appears possible, then, that the compatibility of the student's self-reinforcing behavior with the stated goals of a physical education program may have a direct impact on the efficiency of learning that occurs in the physical education environment.

According to Alderman (1974), Jones and Gerard (1967), and Kanfer and Duerfeldt (1967b), individuals appraise their abilities on the basis of how they are regarded by others. Coopersmith (1967) stated that the level of self-esteem influences the way people perceive the behavior exhibited toward themselves by others. Thus, self-evaluation using self-reinforcement derives originally from the feedback one has received from his or her environment as well as his or her level of self-esteem. For this reason, if physical education teachers who must rely on student self-reinforcement can learn to use augmented feedback to have a desired impact on the self-reinforcement behavior of students with different levels of self-esteem, a significant advance may be made in the development of independent and self-sustaining learning patterns.

This study seeks to examine one way in which the role of a physical educator applying augmented feedback can influence the self-reinforcement behavior of students with different levels of self-esteem.

CHAPTER II

REVIEW OF LITERATURE

A comprehensive review of the literature related to the effects of augmented feedback on self-reinforcment revealed the existence of a large number of studies within the areas of experimental and educational psychology. These investigations have been concerned with various types of feedback, feedback types and self-esteem, and feedback effects on self-reinforcement during the performance of cognitive and verbal tasks. Few studies were found in which observations of motor tasks, feedback, self-esteem, and self-reinforcement were attempted. The background literature for the problem under study, therefore, is limited to pertinent studies primarily in the area of psychology. The investigations of augmented feedback have been categorized and summarized under the heading of (a) informational feedback and affective reinforcement, (b) informational feedback, affective reinforcement, and self-reinforcement, and (c) feedback, self-reinforcement, and self-esteem. The few motor task and physical education studies found are cited within the appropriate classifications noted.

Augmented Feedback

Informational feedback and affective reinforcement. Many of the studies surveyed suggest that direct informational feedback and affective reinforcement influence one's actions. Malina (1969) conducted two tests to determine the effects of informational feedback on physical performance. The first involved a throwing task, and the effects

of informational feedback on accuracy were measured. The second test included measurements of the speeds of the subjects performing identical physical movements. A design of five cells, each composed of 11 high school boys, was used for this study. The experimental conditions were (a) no practice, (b) speed information feedback, (c) accuracy information feedback, (d) speed-accuracy information feedback, and (e) no information feedback. A covariance statistic was used to analyze the data. The results supported Ammons' (1956) theory that the specificity of knowledge of performance is very important to the learner. The learner, according to Ammons (1956), directs his attention toward the informational feedback which is emphasized by the instructor.

Zigler and Kanzer (1962) studied the effects of direct augmented feedback and socio-economic status on performance, using a 2 x 2 factorial design. The affective reinforcer (praise) was found to be more effective on children from lower-income backgrounds than on children from middle-income backgrounds, whereas informational feedback (correctness) showed an inverse relationship with the socio-economic level.

Jones and Bourne (1964) using indirect informational feedback involving four-digit numbers, examined the effects of both immediate and delayed informational feedback. The comparative results between the two types of feedback were found to be nonsignificant. Even so, the group of subjects which received delayed informational feedback learned the verbal maze in fewer trials and with fewer errors than did the group which received immediate feedback. In a replication of this study involving two groups of volunteers from an introductory psychology course, no significant difference was found in the effects of

immediate and delayed feedback administration (Jones & Bourne, 1964) on identifying the correct numbers. The reason given for a directional trend in the initial study was that the subjects were asked to learn four-digit numbers rather than to identify the correct numbers.

An overall effect of informational feedback was found by Bourne, Guy, and Wadsworth (1967) in an experiment conducted with undergraduate students using the words "wrong" and "right". The factorial design used was a 5 x 3 x 3. The experiment employed five percentage levels of "wrong" trials, three percentage levels of "right" response trials, and three levels of problem sequences using dimensions of color, form, and number in the Wisconsin Card Sorting Task. The researchers found that fewer trials were needed to match a response card with the stimulus card when they used informational feedback "wrong" than when they used informational feedback "right".

In an investigation designed to examine the relationship between social reinforcement and complex motor performance, Roberts and Martens (1970) randomly selected 60 male undergraduate students. These subjects were assigned to groups receiving positive social reinforcement, negative social reinforcement, or nonreinforcement, or to a control group. The Schmidt-Hubbard coincident timer was used as the motor task. Results of analysis of variance showed that no significant differences occurred among the experimental groups when they received relevant nonambiguous information. The researchers concluded that the level of subtleness of the reinforcement may have rendered the treatment conditions ineffective. The experimenters also could not have been perceived by the subjects as a significant audience. This factor,

subsequently, was found to have a major effect on the verbal information actually received by the subjects (Cottrell, 1968).

Zahorik (1970) also explored the effects of feedback on motivation and reinforcement. He sought to determine whether the phase of the learning venture, medial or terminal, had a role in motivating elementary school students. Current events lessons, based on identical contents, were administered to all of the subjects over a period of 15 sessions. The Smith Systemized Format was used to categorize the teachers' feedback comments. Chi square statistical procedures were employed to determine the differences due to feedback. The results indicated that informational feedback was more effective in motivating and reinforcing than was ". . . simple perfunctory praise" (Zahorik, 1970, p. 423).

A 2 x 3 x 8 factorial design was used by Martens (1971) to study the effects of internal-external control and social reinforcement on subjects performing an accuracy motor task. The subjects were 60 male elementary school students. The motor task involved the use of an inclined board and a rubber ball. The results indicated that affective reinforcement and reproof of learning had little effect on the subjects' performances. The investigator concluded from the findings that social reinforcement may become an essential motivating variable once an accuracy task is learned.

Flowers and Marston (1972) concluded from their study that competence is not a significant variable in building self-confidence in sixth-grade students. This conclusion derived from an experiment in which a college bowl football game was televised in a natural

classroom setting. The experimenters classified the subjects as low responders or high responders. They reinforced the low self-confidence subjects. The investigators found that these low-confidence subjects answered questions correctly but did not achieve an increased level of confidence.

Martens, Burwitz, and Newell (1972) employed a research design involving money as a tangible reinforcement, affective reinforcement as a social reinforcement, and knowledge of results as a nonreinforcement. One hundred eight male college students performed a rotary pursuit task which included a learning phase and a performance phase. Results of a variance analysis indicated that tangible and affective reinforcement did not enhance performance in initial practice trials but may have helped to keep the subject motivated for the task.

Taffel, O'Leary, and Armel (1974) studied the effects of two types of augmented feedback on academic behavior in an experiment conducted with male and female grade school students. The results indicated that there was no significant difference among subjects who received praise, reasoning, or praise and reasoning in answering arithmetic problems correctly. However, the rate of response of the praise, reasoning, and praise and reasoning groups was found to be faster than that of the control group.

In another study using reason and praise (Taffel et al., 1974), second-grade students were administered feedback after they had completed a series of problems. Following four repetitions of the feedback condition, the researchers used the Mann-Whitney U Test to analyze the data. The number of problems completed correctly by subjects

who were administered reasoning feedback was found to be significantly greater than that of subjects who received no augmented verbal comments. Subjects who were given praise produced better results than the subjects who received no augmented verbal feedback. The group of subjects receiving reasoning feedback also were found to achieve higher scores than were the group of subjects receiving praise. The rate of response of the reasoning group was significantly faster than that of the control group, and the reasoning subjects had a longer concentration span than the praise subjects. Thus, in this study, informational feedback had a greater effect on subjects' performances than did affective statements, and was even more effective than giving the subjects no feedback at all.

Wankel (1975) sought to determine the effects of ability level, audience, and social reinforcement upon the gross motor performance of a group of junior high school boys in balancing on a stabilometer. Boys with the best scores were assigned to the "high-ability group" and boys with the poorest scores to the "low-ability group". An analysis of variance was conducted with repeated measures on the last factor of a 2 (ability level) x 3 (social reinforcement) x 2 (audience) x 5 (trial blocks). The effects of ability level on the subjects' performances were found to be significant. However, neither positive and negative social reinforcement nor audience demonstrated significant effects. The results also indicated that positive and negative social reinforcement retarded the rate of learning.

Informational feedback, affective reinforcement, and self-reinforcement. Deutsch and Solomon (1959) investigated the reactions of a group of women telephone operators to external evaluation. The researchers administered the Tennessee Self-Concept Scale to discover how the subjects evaluated themselves. During the training and testing phase indirect external feedback was administered to the subjects. The results revealed that a subject's self-evaluation was more favorable when the external evaluation provided was consistent with her own beliefs, even if such external evaluation were negative.

Kanfer and Marston (1963) conducted a study in which three groups of male college students performed in a series of 10 verbal discrimination acts consisting of nonsense syllables. Each group was composed of 10 students. During the training phase each subject was indirectly reinforced by the flashing of a signal light when he selected the correct nonsense syllable set for his group. The conditions required each group to reach a different criterion level of learning. During the testing phase each subject was asked to self-reinforce by pressing a green light button when he thought he had selected the correct nonsense syllable. To analyze the data of the three different groups and 10-trial blocks, an analysis of variance with repeated measures was used. The subjects who had a higher set criterion for learning in the training phase gave more frequent and more accurate self-reinforcement responses in the testing phase. In another experiment using the same instrumentation and statistical test (Kanfer & Marston, 1963), the investigators found that, when more lenient

instructions were given to male college students before the testing phase, the subjects gave more self-reinforcement.

A study more relevant to the present research examined the performance of a nonsense syllable task from the training phase to the testing phase in order to determine the effects of feedback on self-reinforcement (Kanfer & Marston, 1963). The subjects were male undergraduate college students. All of the subjects were trained to a criterion level of learning. During the testing phase two groups were assigned to perform the same task, while two other groups performed a different task. Two types of reinforcing stimuli, a light and no light, were used. Each subject completed 10 blocks of the task, with each block consisting of 10 trials. Thus, the experiment produced a 2 x 2 x 10 factorial design. The results showed that when the tasks assigned were different from the training phase to the testing phase, the informational feedback was not generalized as rapidly by the subjects. The self-reinforcement rate also was found to be lower for the latter condition, and the number of incorrect responses increased.

A view of negative self-reinforcement presented by Aronfreed (1964) suggests that the habit of self-criticism is developed and used as a means to reduce personal anxiety. The investigator conducted his study among grade school children, using dolls and a device with levers. Chi square statistical procedures were employed to treat the data. The results indicated that the subjects tended to give themselves reinforcement congruent with the reinforcement provided by the external source.

In a task consisting of learning a series of nonsense syllables, Marston (1964) investigated the relationship between indirect external

reinforcement administered during the training phase and self-reinforcement given during the testing phase. The subjects were randomly selected male undergraduate college students. Three levels of indirect external reinforcement (100%, 75%, and 50%) were used in the training phase. Three conditions were established for the testing phase. The first group was given no further external reinforcement, the second group was told that no more external reinforcement would be given, and the third group was instructed to administer self-reinforcement by turning on a light. An analysis of variance showed that those subjects who had learned the nonsense syllables to a higher criterion in the training phase were more accurate in their self-reinforcement in the testing phase.

In a study by Kanfer and Duerfeldt (1967a), a training phase and a testing phase were used to determine the effects of external evaluation on the rate of self-evaluation among the subjects. The participants randomly selected for the study were female nurses. In the training phase, the experimenter gave different groups of subjects different rates of evaluation. The results of the test phase revealed that prior evaluation by the experimenter significantly affected subsequent rates of self-evaluation.

Kanfer and Duerfeldt (1967b) also sought to determine the motivational influences of self-reinforcement. Their research employed a perceptual task which required college-age female subjects to match one of four choices to a presented stimulus. A light was used by the experimenter to communicate reinforcement. During Phase I, three groups of subjects were given 60% noncontingent reinforcement.

Subjects in the control group received no reinforcement. During Phase II, subjects in the indirect external reinforcement group received the same amount of reinforcement as was administered in Phase I. Members of the control group and the extinction group received no reinforcement. Members of the self-reinforcement group were told to administer self-reinforcement by depressing a button to illuminate a light each time they thought they had performed correctly. During Phase III, no external reinforcement was given to any of the four groups. From the analysis of variance performed for each phase and on the trial-block effect, it was found that self-reinforced subjects gave more accurate evaluations than did subjects who received only indirect external reinforcement. The researchers concluded from this finding that individuals who administer self-reinforcement are more critical observers and tend to be more alert than are individuals who depend chiefly upon external feedback.

The relative reinforcing effects of direct external feedback on self-reinforcement were studied by Marston (1967). The 59 male undergraduate subjects selected for the study were directed to perform a dart-throwing task. All of the subjects received direct external feedback. The results indicated that self-reinforcement was consonant with covert behavior in the initial stages of the dart-throwing task. The study also indicated that self-evaluation was either suspended by the subject during periods of direct external feedback or became more consonant with external evaluation in the closing stages of the dart task.

Judgement of line lengths involving two groups of 162 male college undergraduates was used by Marston (1967) to study the relative reinforcing effects of direct external feedback and self-reinforcement. During the initial trials, verbal-external feedback was found to hinder rather than enhance the performance of the first group of subjects. The verbal-external feedback administered toward the end of the 10 trials was found to have the same effect on performance as the self-reinforcement administered by members of the second group.

An experiment involving the verbal learning rate of self-reinforcement was conducted by Kanfer and Duerfeldt (1968). Four experimental groups were subjected to a training phase. The analysis of variance results of the self-reinforcement administered over four-trial blocks in the testing phase indicated that the rate of self-reinforcement was determined not by indirect externally administered reinforcement, but by the nature of self-reinforcement. The researchers found that those subjects who were fairly certain of their accuracy administered a higher rate of positive self-reinforcement which increased their self-correction. Among those subjects who were less certain of their accuracy, a lower rate of negative self-reinforcement was administered which resulted in less frequent self-correction.

Neistein and Katkovsky (1974) administered the revised SIO Q-Sort to a group of randomly selected undergraduate college females. The results of the Q-Sort were used to select high self-esteem and low self-esteem subjects for the experiment. Verbal feedback of positive and negative nature was administered to each group during the training phase. In the testing phase, each subject was told to self-administer

negative self-reinforcement when, in her opinion, her drawing was not creative. The researchers conducted a 2 x 3 x 3 factorial analysis of variance involving the two levels of self-esteem, three levels of reinforcement, and three-trial blocks. The results revealed that subjects who received inconsistent informational feedback administered more negative self-reinforcement than did subjects who received consistent informational feedback.

Feedback, self-reinforcement, and self-esteem. Several of the works surveyed suggest that an individual's self-attitude, and not the opinions of his or her peers, is a prime determinant of the level of his or her self-esteem. Beller (1955), Gewitz (1954), and Heathers (1955) found this to be increasingly true with the increasing maturity of the subjects. Studies by Fitts and Posner (1967), Sage (1971), and Stallings (1973) revealed that the reinforcers of attention and praise diminished in effectiveness as individuals obtained increasing reinforcement from the informational feedback inherent in the performance of the task. Another source observed that "This latter type of reinforcer appears to serve primarily as a cue for the administration of self-reinforcement" (Zigler & Kanzer, 1962, p. 161).

Stotland, Thorley, Thomas, Cohen, and Zander (1957) conducted an investigation using Cohen's paragraph test. The subjects were randomly selected undergraduate college students. The researchers found that subjects classified as "high self-esteem" evaluated their task performance more favorably when they had failed than did "low self-esteem" subjects. The relevancy of the task performed also proved to be significant. The results showed that self-esteem was a

major factor in how a subject who had failed on an irrelevant task evaluated his or her performance. If the task was relevant, however, then self-esteem was found to be less important to self-evaluation than was the influence of the group.

Howard and Berkowitz (1959) studied subjects' reactions to an evaluator as they performed an ambiguous task involving radar control of flight patterns in which the use of information from past performance was precluded. Prior to the experiment, the subjects were classified as either low-level or high-level achievers on the basis of results from a level of aspiration questionnaire administered by the researchers. Five experimental conditions were established, and each group was given different amounts of evaluation from the observers. The results indicated that the subjects perceived high evaluations as incorrect when one observer deviated from the evaluations given by other observers. This finding suggested to the investigators that self-enhancement was not as important to the subjects as was accurate and reliable evaluation.

Results similar to those found in the Stotland et al. (1957) study also were found in an investigation by Silverman (1964). The undergraduate subjects selected for this experiment were identified as "low self-esteem" and "high self-esteem" through the use of the Janis and Field Self-Rating Inventory. Subjects were then assigned to four experimental groups: high self-esteem failure, high self-esteem success, low self-esteem failure, and low self-esteem success. Each group was administered an item quiz on topics related to contemporary world affairs. Contrived average scores were used to determine the

results which provided the success or failure condition. The quiz was then readministered to determine the dependent measurement, extent of improvement. The low self-esteem and high self-esteem subjects evaluated themselves and responded in a manner which was congruent with their levels of self-esteem. Failure was shown to have had more influence on the responses of low self-esteem subjects, whereas those of high self-esteem subjects were more influenced by success.

Herbert, Gelfand, and Hartmann (1969) found that elementary school children performing a bowling task exhibited self-esteem characteristics identical to those observed in the Neistein and Katkovsky (1974) research using college students. The children were classified into two categories of self-esteem on the basis of results from the P. S. Sears Self-Concept Inventory. Subjects in both groups were assigned to play a game in which they could score varying points by rolling a ball over hidden switches and then relinquishing tokens if they felt their performances were poor. The analysis of variance, performed on the sum of the tokens relinquished, show that low self-esteem subjects rated their performances lower than did high self-esteem subjects.

Neale, Sonstroem, and Metz (1969) studied the relationships among physical fitness, self-esteem, and attitudes toward physical activity among adolescent-age boys in a physical education setting. The experiment used the AAHPER Youth Fitness Test, a 10-item self-esteem scale developed by Rosenberg, and a self-report on voluntary participation in physical activity. The analysis of the results showed that general self-esteem and physical fitness were not related. The researchers

concluded from this finding that self-esteem in adolescent boys is related to other key factors besides physical fitness.

In a study conducted by Shrauger and Rosenberg (1970), 36 male college students were classified as high self-esteem or low self-esteem subjects based on the results of a self-descriptive inventory developed by Cutick and administered by the researchers. The subjects subsequently were administered a fictitious test called the "Feldman-Collier Personality Inference Inventory." The tests were graded and certain high self-esteem and low self-esteem subjects were told that they had failed the test on the basis of the grading norms, while two other groups of subjects were told they had passed the test. Next, an adjective checklist test was administered to determine each subject's sensitivity to the other subjects. A *t*-test and an analysis of variance were used to interpret the data. The high self-esteem and low self-esteem subjects who had received evaluative feedback were found to have varying perceptions of social sensitivity. The subjects who received success feedback increased in awareness to the feelings of others, whereas the subjects receiving failure feedback registered decreased awareness to the feelings of others. Also found was that, as a subject was more aware of others, his performance on the digit-symbol test improved. The significant interaction results showed that low self-esteem subjects who received failure feedback projected more negative answers on the personality test, while the high self-esteem subjects who received success feedback projected more positive answers on the personality test.

In a later examination of self-esteem, Stein (1971) employed two instruments, Coopersmith's Self-Esteem Inventory and the Leonard Gordon Survey of Personal Values. The subjects were high school seniors. The results showed a significant Pearson product-moment correlation between self-esteem and personal values of achievement among the subjects. Among students at other grade levels, however, a significant relationship between these two factors was not found. One possible explanation the authors presented for this disparity was that the younger students may have had conceptual limitations which impaired their abilities to express their covert attitudes on a self-report test. Another reason suggested by the researchers was that self-esteem may not have been associated with any specific set of values but may have varied according to the successful experiences of the subjects.

Just as the primary effects of informational feedback were found to be inconsistent in the work by Neistein and Katkovsky (1974), the same investigators found no significant interaction between self-esteem and reinforcement conditions. However, low self-esteem subjects proved to administer more negative self-reinforcement than did high self-esteem subjects. The reason given by the researchers was that low self-esteem subjects tended to view themselves more negatively than did high self-esteem subjects, even though their performances might have been equal or superior to those of high self-esteem subjects.

Summary

The review of literature revealed a large number of investigations have been conducted to determine the effects of different types of augmented feedback on task performances. Some of the

researchers sought to determine the influence of feedback on the self-reinforcement behavior of individuals during training and testing phases. Still other investigators attempted to learn how a specific personal characteristic, such as self-esteem, was affected by feedback administration in various performance situations. The subjects in these studies ranged from elementary school children through college students and working adults.

Informational feedback and affective reinforcement. The studies conducted to determine the influence of informational feedback and affective reinforcement on elementary school children produced conflicting results. Two experiments both by Taffel et al. (1974) found no significant differences between the effectiveness of different forms of feedback on performances, while another study by Zahorik (1970) found informational feedback to be more effective than perfunctory praise in motivating and reinforcing the subjects. This difference, according to the authors, may have been caused not by the independent variable, feedback, but by the time at which the feedback was given to the subjects. In the study by Taffel et al. (1974), feedback was given at one-minute intervals during the arithmetic problem-solving work period. In the second experiment by these same examiners (Taffel et al., 1974), the feedback was administered after the subjects had completed the set of problems. Both of these investigations found conclusively that subjects in the augmented feedback groups had more sustained motivation to complete the arithmetic problems than did subjects in the control groups who received no feedback. Results obtained by Martens (1971) and Martens et al. (1972) also supported the

motivational qualities of affective reinforcement in the performance of an accuracy task and qualitative motor task, respectively.

An additional report in the literature revealed the behavior reactions of young subjects after they were told that they had answered questions correctly. This positive feedback was found to have helped low self-confidence subjects become more competent in responding correctly. However, the results also showed that it did not motivate the subjects to display higher levels of self-confidence (Flower & Marston, 1972).

Using a factorial design and a statistical procedure different from those employed in the preceding study, Bourne, Guy, and Wadsworth (1967) determined that a word classified as "negative informational" was more influential and expedited the learning of a task more effectively than did a word designated "positive informational". In contrast to this finding, another investigation found that social reinforcement of a negative nature tended to slow the rate of learning (Wankel, 1975). This disparity may be explained by the fact that the first study employed a perceptual motor task which required the subject to match a response card involving color, shape, and form to a stimulus card, whereas the latter study employed a gross motor task involving physical balance.

Jones and Bourne (1964) discovered another possible explanation for the conflict between the results in the research. Using a task which involved an intellectual verbal maze, their work showed that the results differed according to whether the task was to identify the correct numbers or to memorize them. The feedback, if delayed, was

found to be more beneficial to the subjects' performances in the recognition task, while no difference was found between the benefits of immediate feedback and delayed feedback in the memorization task. Several other studies (Malina, 1969; Roberts & Martens, 1970; Zigler & Kanzer, 1962) indicated that specificity of feedback, subtleness of reinforcement, and role of experimenter were possible determinants in the interaction between the augmented feedback a subject received and its effects on his or her performance.

Informational feedback, affective reinforcement, and self-reinforcement. When seeking to determine the relationship between information feedback, affective reinforcement, and self-reinforcement, the majority of the investigations reviewed used the same basic design: a training phase followed by a testing phase. During the training phase in these studies, the examiners employed external feedback. In the testing phases they determined the rate and accuracy of self-reinforcement. The findings of two studies were similar in that the rate and accuracy of self-reinforcement increased in direct proportion to the criterion for learning which was established in the training phase if the feedback was external and the task identical in both phases (Kanfer & Marston, 1963; Marston, 1964). When the task used in the training phase was replaced by a new task in the testing phase, the amount of correct self-reinforcement decreased, and the amount of incorrect self-reinforcement increased proportionately (Kanfer & Marston, 1963). Another factor which was shown to increase self-reinforcement was greater leniency in the instructions given to the

subjects (Kanfer & Marston, 1963). While this factor was found to increase the quantity of self-reinforcement, it also increased the inaccuracy of the self-reinforcement. Thus, it was found that giving lenient instructions, or utilizing a task in the test phase different from that used in the training phase, increased the inaccuracy of the self-reinforcement.

Different results occurred when the research was designed to test the effects of negative and positive self-reinforcement. If the task was performed accurately, more positive self-reinforcement was administered by the subjects. If the task was performed inaccurately, however, less negative self-reinforcement was administered (Kanfer & Duerfeldt, 1968). Thus, the nature of self-reinforcement and the accuracy of performance were found to determine the rate of self-reinforcement. In still another study, the motivational properties of self-reinforcement were found to be more beneficial than those of external feedback (Kanfer & Duerfeldt, 1967b). In these two investigations, elements such as awareness and task relevancy were not controlled. As a result, these elements could cause self-reinforcement to appear as a stronger motivational tool than could external feedback.

In a study by Aronfreed (1964), augmented feedback appeared to influence self-reinforcement, which became consistent with the independent variable, even if the augmented feedback was negative. In the physical tasks employed by Marston (1967), external feedback was found to hinder the subjects' performances, and to enhance the performances of self-reinforced subjects. In subsequent task performances, external feedback was found to be as effective as self-reinforcement.

These results were in agreement with those of another experiment (Deutsch & Solomon, 1959) in which the subjects sought feedback which was consistent with their self-evaluation, regardless of whether or not feedback was negative in nature. Findings such as these lend support to the beneficial effect of self-reinforcement in a learning environment.

Feedback, self-reinforcement, and self-esteem. The research reviewed on self-esteem indicated that this personality variable was directly related somehow to self-evaluations of task performances, to perceptions received from others, and to evaluations of self-worth. Various kinds of instrumentation, such as the P. S. Sears Self-Concept Inventory (Herbert et al., 1969), the level of aspiration questionnaire (Howard & Berkowitz, 1959), the SIO Q-Sort (Neistein & Katkovsky, 1974), the Cutick Self-Descriptive Inventory (Shrauger & Rosenberg, 1970), the Janis Field Self-Rating Inventory (Silverman, 1964), and the Coopersmith Self-Esteem Inventory (Stein, 1971), were used by the researchers to classify subjects into "high self-esteem" and "low self-esteem" categories.

Investigators who examined the effects of success- and failure-oriented feedback found that there was, at times, a relationship between feedback and self-esteem. High self-esteem subjects displayed more positive responses when they received positive feedback than did low self-esteem subjects who received positive feedback (Neistein & Katkovsky, 1974; Shrauger & Rosenberg, 1970; Silverman, 1964; Stotland et al., 1957). Similarly, low self-esteem subjects who received failure feedback showed more negative responses than did high

self-esteem subjects who received failure feedback. Stotland et al. (1957) also suggested that self-esteem was a major factor in determining self-evaluation when the task performed was irrelevant. When the task was relevant, however, the subjects administered a greater amount of self-reinforcement. A number of investigators of feedback and self-esteem reported that the subjects' level of self-esteem was a significant factor in their interpretation of external feedback (Neistein & Katkovsky, 1974; Shrauger & Rosenberg, 1970; Silverman, 1964). Still other researchers found that personal success, rather than external feedback, affected self-esteem (Beller, 1955; Gewitz, 1954; Heather, 1955). The latter finding, particularly, agreed with those of studies designed to measure the self-esteem of mature subjects. Beller (1955), Gewitz (1954), and Heather (1955) found that the more mature an individual became, the more independent he was. Thus, the subject's self-attitude, rather than the opinions of his peers, determined his level of self-esteem. However, the findings also indicate that the subject's own intrinsic feedback was influenced by external feedback, and that the learning stage of intrinsic feedback served as the cue for the administration of self-reinforcement (Beller, 1955; Fitts & Posner, 1967; Gewitz, 1954; Heather, 1955; Sage, 1971; Stallings, 1973; Zigler & Kanzer, 1962).

Further investigation of the effects of self-esteem on one's own evaluation seems warranted. Throughout the research self-esteem was found to affect self-evaluation of performance as well as to be effected by evaluations from others. Moreover, when variables such as augmented informational feedback and affective reinforcement were

used in the studies surveyed, the findings did not clearly establish the relationship of these factors to self-esteem. Thus, further investigation into the role of self-esteem is needed, particularly as it relates to augmented feedback and self-reinforcement after performing a motor task.

CHAPTER III

PROCEDURES

The purpose of this study was to investigate the effect of AAR and AIF in physical education activity classes on the self-reinforcement behavior of high and low self-esteem subjects among high school girls.

Subjects

The experimenter, after receiving the parents' permission (see Appendix B for letter of consent), administered the revised version of the SIO Q-Sort to 312 high school girls enrolled in the second, third, and fourth period physical education activity classes at El Dorado High School in Placentia, California, during the spring semester of 1975-76. The student ages ranged from 14 to 18 years. After administering the SIO Q-Sort, subjects were rank-ordered according to the results obtained. An independent t-test was conducted between the means of the top 20 HSE and lower 20 LSE subjects used in the study confirming the existence of a significant difference beyond t (38) = 2.72, $p < .01$ for the two groups. From the top 20 subjects in the HSE group, 10 subjects were given assignments to each of the feedback conditions (AAR and AIF) by using a random block procedure. Identical procedures were followed for the LSE subjects. The testing sequence for each subject was arranged on a master schedule to include the date and time. Notices indicating which subjects had been selected were given to the physical education instructors who subsequently notified

their respective students that they had been selected for further participation in the study. At this time, a slip of paper indicating the time, date, place, and appropriate clothing for participation was given to the subjects by their respective teachers. Then a rank-ordered reserve list of the 10 HSE subjects and 10 LSE subjects who numerically followed the upper 6.4% and the lower 6.4% segment of subjects was developed. These reserve list subjects were to be notified by their instructor if their services were needed to complete the sample.

Instruments

SIO Q-Sort. The personality instrument used to identify the LSE and HSE subjects was the modified version of Rogers and Dymond's (1954) SIO Q-Sort. It was selected because it allows the subject to evaluate, describe, and reveal her self-perception of her personal adjustment in the areas of self-confidence and self-worth, which are beliefs about one's self in relation to her environment. Branden (1969), Coopersmith (1967), and Maslow (1970) believe this perception of self-confidence and self-worth represents the construct, self-esteem. The items in the Q-Sort allow for maximum discrimination between the two levels of self-esteem, high and low, because a wide variety of intrapersonal feelings are sampled by the items chosen (Neistein & Katkovsky, 1974).

The modified version of the SIO Q-Sort does not involve conditional probabilities which preclude valuable information. Instead, the scale promotes independent probabilities (Cronbach & Gleser, 1953; Block, 1956). Another reason for selecting the unforced Q-Sort was that subjects are not frustrated with meeting the number requirement. The subjects can concentrate on the content on the paper (Gaito, 1962).

Furthermore, a search was made for a scale which had items which were not ambiguous, rather brief and capable of being easily administered.

The subjects were instructed to rate the 44 items according to the way each statement described them (see Appendix B for self-esteem scale). The choice of description is as follows: (a) never like me, (b) seldom like me, (c) sometimes like me, (d) usually like me, and (e) always like me. For scoring purposes, numerical values are assigned to each response category, with a = 1, b = 2, c = 3, d = 4, and e = 5, for the HSE items, and the reverse values for the LSE items. Therefore, the higher the score obtained, the higher the self-esteem of the subject. For example, if the subject had placed all 15 items reflecting HSE on the "always like me" point on the scale, and the 19 items reflecting LSE on the "never like me" point on the scale, she would have obtained the maximum score of 170. Conversely, if the subject had placed all 15 items reflecting HSE on the "never like me" point on the scale, and the 19 items reflecting LSE on the "always like me" point on the scale, she would have obtained the minimum score of 34.

Rogers and Dymond (1954) estimated the reliability of the SIO Q-Sort with the test-retest method. The SIO Q-Sort was developed at the University of Chicago for use as a measure of the effectiveness of client-centered therapy. Since the experimental group was expected to change over a period of time, and the control group was expected to remain constant, the reliability was based on the stability of the control group. It was found that over a period varying from six months to one year, the correlation of the retest reliability of the

control group was .86. Neistein (1972), in his use of his modified version of the SIO Q-Sort did not determine the reliability factor. Thus, a pilot study was conducted using the Placentia High School girls enrolled in first period physical activity classes. The intraclass correlation using the one-way analysis of variance (Baumgartner & Jackson, 1975) resulted in a reliability coefficient of .88 for the modified version of the SIO Q-Sort.

After constructing the 100 item SIO Q-Sort scale, Rogers and Dymond (1954) had two practicing clinicians sort the items according to (a) those which the well-adjusted person should say are unlike him, and (b) those which the well-adjusted person should say are like him. The clinicians agreed upon 74 self-statements of which 37 items described good adjustment. The remaining 26 items were discarded. Because Neistein and Katkovsky (1974) felt that a number of the adjusted SIO Q-Sort statements described extreme negative self-attitudes which would not elicit differentiating responses, a panel of six psychologists was selected to design a revised version for nonclinical subjects. In order for an item to meet the criteria and be selected for the revised version, five of the six judges had to agree. This was accomplished with 19 LSE and 15 HSE items. In addition, 10 items were added to serve as a buffer to disguise the nature of the scale. This instrument possessed satisfactory content and construct validity. Prior to this, Rogers and Dymond (1954) had correlated the SIO Adjustment Q-Sort with the TAT and the results revealed a .47 validity correlation.

Equipment. During the training phase of the experimental condition, the subject performed a novel agility task on a regulation

wrestling mat in the auxiliary gymnasium. The instructor used a stop watch to time the act.

For the reinforcement phase of the investigation, a Hanna Batrite softball bat and regulation Harwood Softballs were used by the subject.

An Akai video tape machine with a self-mount was used by the investigator to film the subject in the performance of the bat and ball task. The film provided the subject with a picture of her performance for self-evaluation purposes during the self-reinforcement process.

Training Phase Condition

Agility task description. The development of the novel motor task originated from a visiting volleyball coach, Moo Park, who had coached the Women's Korean 1968 Olympic Volleyball Team. It was an agility task which had been used periodically every semester by the experimenter since 1970 (excluding 1973-74) and had proved to be a novel motor task for all students involved. This training phase task was used in the experiment to provide a setting in which the experimenter gave verbal feedback of AAR and AIF to the subjects.

Prior to receiving verbal feedback, the subject lay in a supine position with her head nearest the back wall (see Figure 1, Step 1). She rotated her body so that her head was toward the front wall and she was in a prone position (see Figure 1, Step 2). At all times, some part of her pelvic area remained in contact with the floor when changing from a supine to a prone position. She returned to a supine position with her head near the back wall to complete this act. Again, some part of the pelvic area remained in contact with the floor. This cycle completed a 360 degree circle, e.g., if the subject moved to the

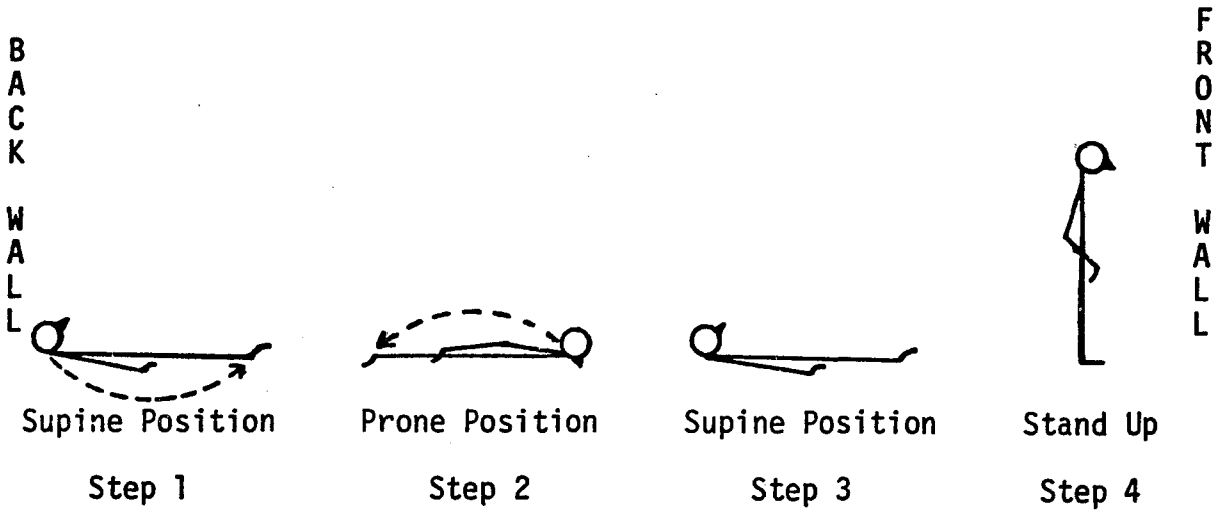

Figure 1. Sequence of a novel agility task.

right first when changing from a supine to a prone position (see Figure 1, Step 1), the subject moved to the left when returning to a supine position from the prone position (see Figure 1, Step 2). A subject who commenced by going to her left first, returned to the starting position by going to her right. After returning to a supine layout position, the subject stood up. This completed one trial.

Agility task instructions. Upon arrival of the subject, the experimenter instructed her to sit and observe the task which she was to perform (see Appendix D for detailed instructions). The task was demonstrated twice by the experimenter. After the demonstration, the subject was told, "Assume your ready position on the mat with your head toward the back wall and your body in a supine position." Following the initial instructions, a preparatory signal, "Ready", was given. After a pause of 2 seconds, the subject was given a starting signal, "Go", and the experimenter started the stop watch. When the subject came to a standing position at the completion of the task (see Figure 1, Step 4), the stop watch was stopped and the subject was given an AAR by the experimenter. The subject repeated the same procedure after a 15-second rest period and was given another AAR. This was completed four times in the first block of trials. A subsequent 2-minute rest period followed. The second block of trials was completed using the same procedures as were used in block one trials. Block three was a replication of block two which began with a 2-minute rest period. During the performance a stop watch was used to time the novel motor task. The results of each task were recorded on the data recording sheet for the

training phase by the experimenter (see Appendix E for data recording sheet).

AAR procedures. The possible permutations of the four AAR phases, (a) "Say, you are doing fine, keep pushing", (b) "Hey that is good, keep it up", (c) "Good show, that is pretty good", and (d) "Nice job, you are doing OK", were placed on slips of paper in an envelope and were randomly drawn by the investigator. The order of the AAR on the slip was assigned to S_1 during block one of the training phase. The slip was returned to the envelope and the same procedure was repeated for S_2. This was repeated for each subject receiving AAR. When all of these subjects were assigned a series of AAR during block one, the same procedure was followed until AAR had been assigned for the remaining two blocks. A master schedule was developed one week prior to the beginning of the actual training phase period to represent the order of AAR each subject would receive.

AIF procedures. The LSE and HSE subjects who were randomly blocked to the AIF used the same novel motor task during the training phase as the subjects in the AAR condition except they received AIF which was contingent upon the act. The AIF was a response which provided an indication of the correctness of the performance. The most correct move made by the subject was the criterion reference from which the experimenter based her AIF. Examples of this type of feedback were: (a) "because you quickly pulled your legs underneath you before you stood up, you improved your time", (b) "because you tucked your legs up and tucked your chin down to form a ball, you rotated much faster", and (c) "because you kept one of your hips in contact with

the floor when rotating, you were successful". This concluded the training phase which consisted of approximately 10 to 11 minutes per student.

Self-Reinforcement Phase Condition

Bat and ball task description. Incorporated in the task were a bat and a ball which were used in the self-reinforcement phase to permit the subject to evaluate her own performance via video tape.

Immediately upon completion of the training phase, the subject was given a bat which was held parallel to the floor with a pronated grasp on the taped handle. With the nondominant hand, the ball was dropped onto the bat. As the ball bounced from the bat onto the floor, the act counted as one attempt. The exercise was repeated four more times and a total of five attempts constituted trial one. Each subject was given 15 trials. Seventy-five independent acts, dropping the ball, stroking the ball with the bat, and allowing the ball to fall to the floor, were involved in the 15 trials. If the ball missed the bat when it was dropped, it counted as one of the five attempts in the trial.

Bat and ball task instructions. After completing the training phase, the subject was asked to sit and observe a demonstration of the bat and ball task. The subject was instructed to hold the bat in her dominant hand with a pronated grip somewhere on the taped handle. The nondominant hand held a softball. After the command "Begin", the subject began the task (see Appendix D for detailed instructions).

Self-reinforcement procedures. Following each five attempts or one trial of the bat and ball tasks, the subject reviewed her

performance which had been filmed by the investigator with an Akai video tape. Upon completing the viewing process, she verbally selected immediately one of the following descriptive terms which was typed on a 3 x 5 card and was attached to the monitor. The terms were: (a) "done well", (b) "good", (c) "not done well", and (d) "poor".

The recording of each of the 15 self-reinforcements offered by the subject was marked immediately on the data recording sheet (see Appendix E for self-reinforcement recording sheet) by the investigator. Each "not done well" or "poor" self-reinforcement was tallied as a negative self-reinforcement for which a sum was derived. This completed the subject's role in the self-reinforcement phase which had consumed a total of 30 minutes.

Subjective Interview

After the completion of the self-reinforcement phase, a tape-recorded interview, regarding body and self-awareness, was conducted to gain phenomenological insights. The data were not statistically analyzed.

Twelve subjects were interviewed. They were chosen on the basis of their rank position after completing the SIO Q-Sort. A total of six individuals, including three from the HSE-AAR experimental condition and three from the HSE-AIF experimental condition who scored the highest on the SIO Q-Sort, represented the HSE subjects. The six LSE representative subjects included the three lowest scoring LSE-AAR subjects and the three lowest scoring LSE-AIF subjects in the experimental condition.

Each subject was asked the following four questions: (a) "Tell me how you felt when you were doing this?", (b) "What were your body parts doing when you were experiencing this?", (c) "Since you experienced this, do you feel any differently?", and (d) "Did the words used in the training phase have any influence on you in the self-reinforcement phase?".

Analysis

Four groups of 10 subjects each were randomly blocked to two augmented feedback conditions, AAR and AIF, after the self-esteem levels were determined. A two-way analysis of variance was employed to compare the means of the four groups and two conditions (HSE-AAR, HSE-AIF, LSE-AAR, and LSE-AIF) regarding the dependent variable, self-reinforcement. The data were processed by using the BMD02V (Dixon, 1973) in the computer center at California State University, Fullerton. This program, appropriate for cells of equal size, gave main and interaction effects for all the variables.

CHAPTER IV

ANALYSIS AND EVALUATION OF DATA

This investigation was conducted to determine the effects of augmented affective reinforcement and informational feedback on the self-reinforcement of high and low self-esteem female students in a high school physical education program.

Identification of LSE and HSE Groups

The subjects selected to participate in this research were 312 female students at El Dorado High School in Placentia, California. To determine levels of self-esteem, the revised SIO Q-Sort (Neistein, 1972) was administered to the subjects. The range of scores for the total group was 88 to 169 on a scale with a maximum range of 34 to 170. The subjects' mean score was determined to be 122.59.

The investigation included subjects who represented the upper 6.4% and the lower 6.4%, according to scores on the SIO Q-Sort, of the original group of 312 students. A t-test of the means of the upper and lower groups was significant beyond the .01 level (see Table 1 for values). This procedure resulted in a total sample of 40 subjects. The range of scores for subjects in the upper 6.4% segment was 152 to 169. The mean score was 158.10. For subjects in the lower 6.4% group, the score range was 88 to 106 with a mean of 99.85 (see Table 1 for values). The independent t-test revealed a $t = 35.27$ which was significant beyond $t\ (38) = 2.72$, $p < .01$ (see Table 1 for values). The significant difference found permitted the division of the 40 subjects

into HSE and LSE groups of 20 each. The subjects were blocked randomly to the two experimental conditions of the investigation.

Table 1

Range, Mean Scores, Mean Difference, and *t*-Test of HSE and LSE Groups on SIO Q-Sort

Subjects	Range	Mean scores	Mean difference	*t*
LSE				
(n = 20)	88 - 106	99.85	---	---
HSE				
(n = 20)	152 - 169	158.10	---	---
---	---	---	58.25	35.27*

*$p < .01$.

Analysis of Hypotheses

The data were analyzed by means of the 02V Biomedical Computer Program (Dixon, 1973) using a 2 x 2 factorial design. The main effects and the interaction effects of the independent variables, self-esteem and augmented feedback, on the dependent variable of self-reinforcement were analyzed (see Appendix F for self-reinforcement scores). The significance level for acceptance of the hypotheses was placed at the .05 level.

Hypothesis 1. The first hypothesis stated that LSE individuals, trained with AAR and AIF, would administer more negative reinforcement than would HSE individuals, trained with AAR and AIF. The mean

negative self-reinforcement score of the LSE subjects was 4.65, while the mean of the HSE subjects was 2.25 (see Table 2 for -SR means).

Table 2

Negative Self-Reinforcement Group Means

Group	Mean	Group	Mean
LSE	4.65	LSE-AAR	4.50
HSE	2.25	LSE-AIF	4.80
AAR	3.25	HSE-AAR	2.00
AIF	3.65	HSE-AIF	2.50

The analysis of variance, reported in Table 3, supported the directional hypothesis (F (1,36) = 9.94, $p < .005$). The results revealed that LSE subjects administered significantly more negative self-reinforcement than the HSE subjects did when the type of augmented feedback was not considered.

Hypothesis 2. This hypothesis was concerned with the effect that the type of augmented feedback would have on the HSE and LSE subjects. The statement predicted that AIF delivered to the subjects would result in more negative self-reinforcement than AAR would when self-esteem level was not considered. The mean negative self-reinforcement score for the AIF group was 3.65, while the negative reinforcement mean score for the AAR group was 3.25 (see Table 2 for -SR means). The analysis of variance, displayed in Table 3, revealed no significant difference between the AAR and AIF groups (F (1,36) = <1.0). The hypothesis, therefore, was not tenable. The type of feedback given to the subjects

Table 3

Analysis of Variance for Treatment Variables

on Negative Self-Reinforcement

Source of variation	df	MS	F-ratio	p
(A) Self-esteem	1	57.600	9.94	<.005
(B) Augmented feedback	1	1.600	<1	NS
(A x B) Self-esteem x Augmented feedback	1	.100	<1	NS
Within variance error	36	5.794	---	---
Total	39	---	---	---

did not influence significantly the amount of negative self-reinforcement administered by the HSE and LSE subjects.

Hypothesis 3 and Hypothesis 4. These hypotheses were concerned with the interaction which might exist between self-esteem level and augmented feedback type and with the effect of that interaction on self-reinforcement. Hypothesis 3 related to the LSE subjects, while hypothesis 4 related to the HSE subjects. The mean score of the LSE-AIF subjects on self-reinforcement was 4.80. The LSE-AAR group obtained a mean of 4.50 (see Table 2 for -SR means). The mean scores for the HSE-AIF and HSE-AAR groups were 2.50 and 2.00 respectively (see Table 2 for -SR means). The analysis of variance, displayed in Table 3, demonstrated an interaction of F (1,36) = $<$1.0. This interaction is illustrated in Figure 2. The failure of the interaction to reach a critical level of significance resulted in the rejection of the hypotheses. The subjects did not reinforce themselves negatively as a result of their self-esteem level interacting significantly with the type of feedback received.

Summary and Discussion

The analysis indicated that the self-esteem level was significantly ($p < .005$) related to self-reinforcement. Subjects with HSE were found to administer less negative self-reinforcement, while the LSE subjects were shown to evaluate themselves with more negative self-reinforcement. These findings were synonymous with those reported earlier by Herbert et al. (1969), Neistein and Katkovsky (1974), Shrauger and Rosenberg (1970), and Silverman (1964), as well as with

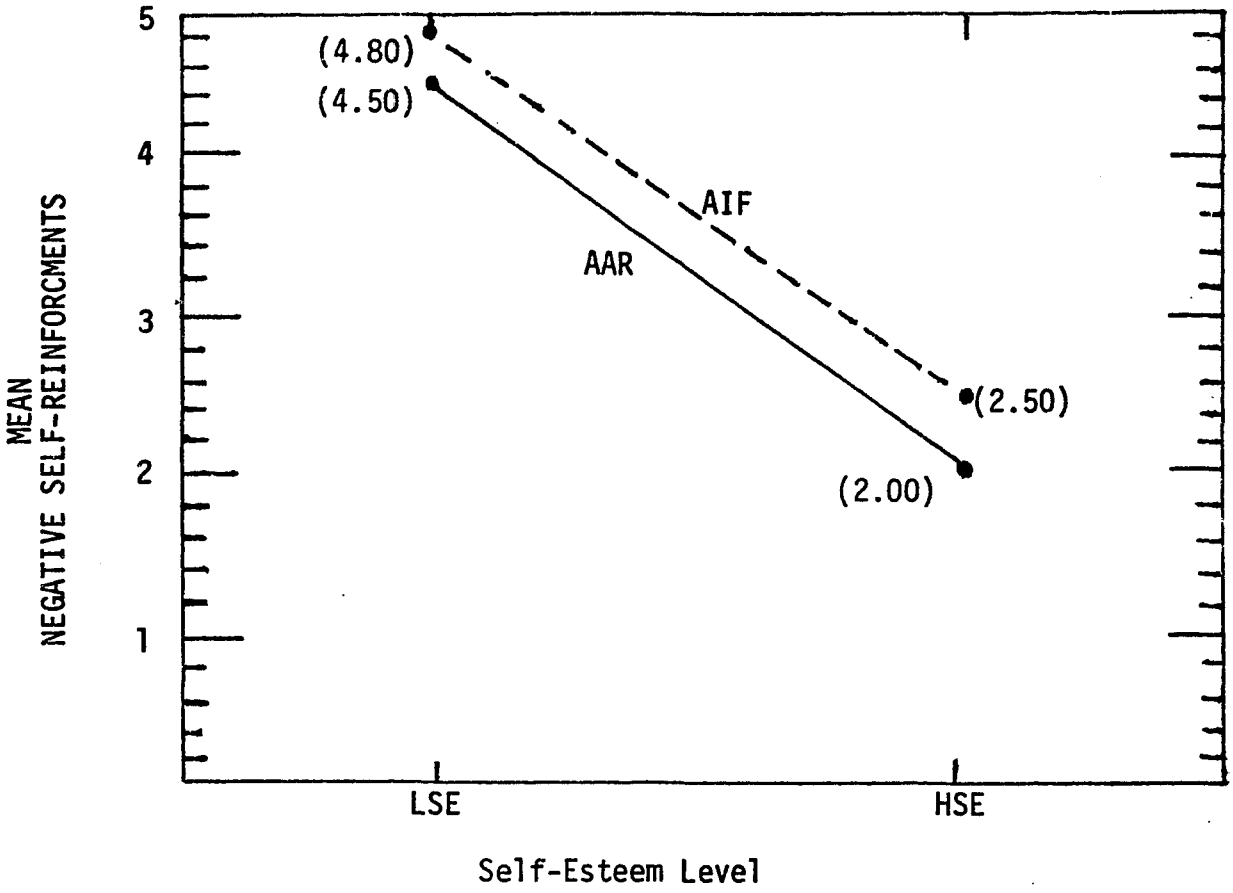

Figure 2. Interaction of levels of self-esteem and types of augmented feedback.

the implications of Cohen (1959). Subjects evaluate themselves in congruence with their own perception.

No significant main effects were found for the independent variables, AAR and AIF. The reasons postulated for this are that such effects may be related to the nature of the task (Maslow, 1970; Neistein & Katkovsky, 1974; Stotland et al., 1957) as well as to the individual administering the augmented feedback and to the nature of the augmented feedback (Bourne et al., 1967; Festinger, 1957; Heider, 1946; Lecky, 1945; Osgood et al., 1957; Shrauger & Rosenberg, 1970).

No significant interaction effects were found to exist between high and low self-esteem and AAR and AIF. However, LSE-AIF and HSE-AIF were shown to reinforce themselves more negatively than did LSE-AAR and HSE-AAR, respectively, though not to a significant level of .05. Although the differences were not statistically significant, speculation on the mean differences may, in part, include the utilization of Cohen's (1959) idea.

According to Cohen (1959), subjects with HSE employ an "avoidance defense" while LSE subjects use an "expressive defense", both of which are protective reaction patterns. The "avoidance defense" is a self-protective facade utilized by an individual to resist new external influence and new information, particularly when the participant is involved in an irrelevant task. This mechanism, according to Cohen (1959), is characteristically used by the HSE person, who rejects external influences and relies instead on his or her own self-perceptions for the purpose of self-evaluation. Such a mechanism would tend to explain the lower degree of negative self-reinforcement found to

exist among the HSE subjects. In contrast, the LSE individual, even though performing the task in a manner similar to that of the HSE individual, has been found to evaluate his or her performance in keeping with his or her self-perceptions, yet uses an expressive defense, such as projection to explain the discrepancy between what he or she believes to be the ideal performance and the performance attained. The tendency toward projection may explain why the LSE participants in this research evaluated their performance with a higher degree of negative self-reinforcement. The application of a different type of AAR and AIF may have demonstrated differences which were not uncovered by the treatment conditions of the present investigation.

Another explanation for the findings of the present study might be found in the dissonance theories advanced by Festinger (1957), Heider (1946), Lecky (1945), and Osgood et al. (1957), which support the results reported by Herbert et al. (1969), Neistein and Katkovsky (1974), Shrauger and Rosenberg (1970), and Silverman (1964). The dissonance theories set forth by the former researchers maintain that humans strive for psychological consistency. To do this, people limit their cognitive input to information that is congruent with their own evaluative beliefs. If these theories are valid, individuals with LSE and HSE will reflect the characteristic behavioral patterns they have utilized successfully in the past to fulfill their needs. Thus, individuals with LSE will expect negative input which coincides with their self-perceptions, while individuals with HSE will self-reinforce their levels of esteem with information that coincides with their positive beliefs.

According to the statistical findings of this investigation, the type of feedback used did not affect the amount of negative self-reinforcements the subjects gave themselves. The finding that the AAR and AIF feedback had a nonsignificant effect tends to be supported by the interpretations of Neistein and Katkovsky (1974) as well as by Maslow's Theory (1970). According to these sources, feelings of self-worth derive from the recognition and acknowledgment one receives from others regarding his or her performance of a task. When an individual is placed in a situation with a task change from one phase of performance to another phase of performance, and when the task is irrelevant (one not used in a typical learning situation), that person must rely on his or her own generalized self-esteem rather than upon external supports such as feedback. If the task used during the self-reinforcement phase of the study had been the same as that used during the training phase, and if it had been a relevant task, the augmented feedback may have been found to affect the subjects' self-reinforcement. The assumption is that the internal support, external support, and relevancy of the task are all valid references, as the research has indicated (Neistein & Katkovsky, 1974; Stotland et al., 1957).

The subjective interview by the writer following the self-reinforcement phase also tended to support the premise set forth in hypothesis two. The HSE-AAR subjects stated that the feedback they received during the training phase had no effect on their self-evaluation. The LSE subjects also stated that the feedback administered during the training phase had no influence on their self-evaluation, but felt that it helped them perform during the training phase. This seems to

contradict the research of Shrauger and Rosenberg (1970), which found that the AAR feedback administered in two of their investigations had a major influence on the subjects' self-evaluations. One study conducted by these researchers involved a social sensitivity rating, while the other one used an adjective checklist. Neither study employed the performance of a physical task as did the present investigation. The physical task in this investigation might account for the different results.

The feedback result reported by Shrauger and Rosenberg (1970) also was evidenced in the research of Neistein and Katkovsky (1974), although the latter study utilized a creativity task requiring the subjects to connect lines in a creative format. The contradiction between the findings of these studies and those of the current investigation may be attributable to the comparative relevancy of the tasks employed. Neistein and Katkovsky (1974) and Stotland et al. (1957) found that, when an irrelevant task was used, self-esteem served as a frame of reference for the subject rather than the external feedback given about the performance of the task.

During the interview by the writer, the subjects participating in this investigation were asked how they had felt when they performed the task. The HSE-AAR subjects stated that the drill was unique, but said they had felt self-conscious while performing the task. The LSE subjects reported they had felt embarrassed while performing the task. These interview data strongly support self-esteem, rather than feedback, as the reference point of the subject.

The writer believes that still another factor determining the relevancy of the task may substantiate the findings of the study with regard to the effects of augmented feedback. The task may have been regarded as "irrelevant" because the group leader was a stranger and the administration of the feedback on performance, therefore, had no personal meaning for the individuals. Conversely, the effect of the feedback may have been significantly greater had the subjects' physical education teacher conducted the performance task and administered the feedback.

One more factor which may influence the relative effect of the feedback was the nature of the feedback itself. In the earlier research studies cited, the feedback given involved failure information. In the present investigation, however, no failure feedback was given during the training phase. The HSE-AIF subjects said during the interview that, had the feedback directly pointed out their incorrect actions during their performance (failure feedback), they would have evaluated themselves more strictly since this type of feedback would have indicated how strict an evaluation the group leader wanted them to make. Added support for this rationale can be found in the research of Bourne et al. (1967), and Shrauger and Rosenberg (1970). These studies found that failure feedback influences a subject's psychological reactions far more than does success feedback.

The findings of Festinger (1957), Heider (1946), Lecky (1945), and Osgood et al. (1957) also serve to explain why the feedback given in this experiment had a nonsignificant effect on the subjects. While these researchers explain the concept of "constancy" in somewhat

different terms, their positions suggest that, if feedback is incongruent with the subject's psychological beliefs, he or she will effect behavior to reduce this imbalance. To illustrate this, if the feedback given to a HSE subject is not consistent with his or her self-evaluative ratings, the subject will use the ego defense of avoidance by blocking the feedback from his or her cognitive input. Since HSE subjects evaluate themselves favorably, however, and since the external feedback administered in this investigation was positive in nature, it did not give rise to dissonance. Thus, the HSE subjects did not respond differently to either form of feedback utilized in administering self-reinforcement during the testing phase. The nature of feedback also may explain why the LSE subjects administered more negative self-reinforcement than did the HSE subjects. The feedback received by the LSE subjects was positive in nature and thus may have been incongruent with their beliefs. To help restore equilibrium, these subjects administered more negative self-reinforcement during the testing phase. The seeking for a consonant state may explain why no interacting effects were found. The two types of feedback used caused dissonance among the LSE subjects. However, neither type was more powerful than the other, possibly because they were administered by a group leader who was a stranger to the subjects.

One interesting finding was observed with regard to trial blocks and negative self-reinforcement (see Figure 3 for trial effects) though no statistical analysis of the results was conducted by trial blocks. Subjects with HSE-AIF and HSE-AAR were found to be quite consistent in their self-evaluation to augmented feedback per block of

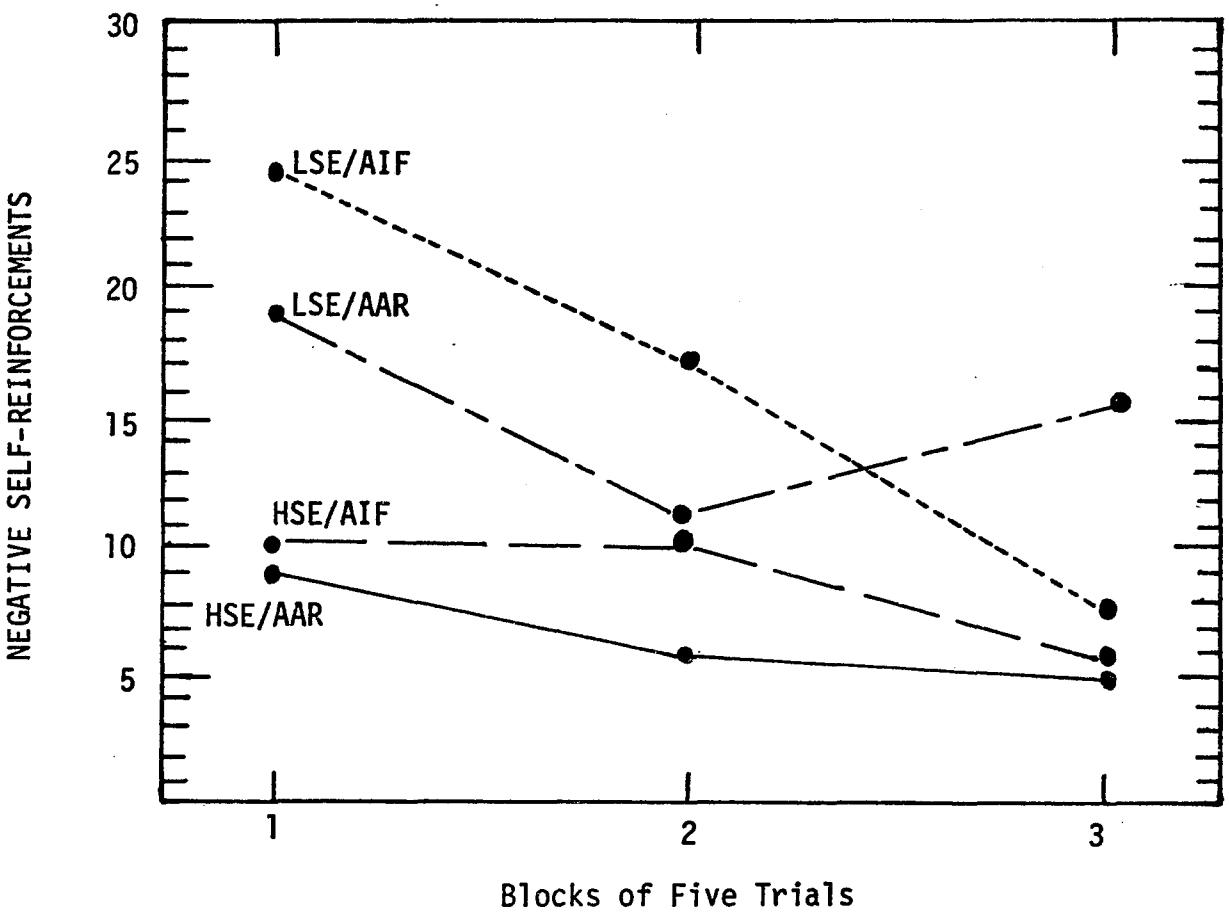

Figure 3. Group total scores of self-esteem levels and augmented feedback types by trials.

trials, while the LSE subjects fluctuated in their self-evaluation per block of trials. According to the findings of Deutsch and Solomon (1959), Howard and Berkowitz (1959), and Wilson (1965), LSE individuals do not trust positive feedback and tend to evaluate a positive source less favorably than do HSE individuals. As a result, during the self-reinforcement phase of this study, the LSE subjects degraded their performances by administering more negative self-reinforcement throughout each trial block than did the HSE subjects. In addition, LSE-AIF subjects administered more negative self-reinforcement in trial blocks one and two than did LSE-AAR subjects. This can be graphically seen in Figure 3. The final trial block, in which LSE-AAR subjects administered more negative self-reinforcement than did LSE-AIF subjects, provided a contradiction to the third hypothesis. According to Welford's single-channel hypothesis (cited in Kahneman, 1973), AAR is much more beneficial than AIF to LSE individuals when faced with performing a new task for the first time since AIF involves the presentation of detailed information. Thus, AIF would tend to be far more complex than would AAR in handling a variable such as a new task. The inverse profile of LSE-AAR subjects in the third trial block may be explained by subjects gaining greater competence in their motor performance as the trials progressed. If this is true, then AAR would tend to produce more negative self-reinforcement than would AIF. From this, one may surmise that, as an LSE subject develops competence in performing a task, AIF will not be as threatening to the subject as would be AAR.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary

The problem. The major concern of this study was to determine the effect of two types of augmented feedback on self-reinforcement of high school physical education female subjects at two levels of self-esteem.

The literature. Previous research on verbal augmentation is extensive, but investigations of the application of augmentation to a novel motor response and the subsequent self-reinforcement of students in a physical education setting, however, are limited. The self-esteem research, particularly in relationship to informational and affective augmented feedback, in physical education has received little attention.

Previous research (Neistein & Katkovsky, 1974; Shrauger & Rosenberg, 1970; Silverman, 1964) is in contradiction in the findings of interaction effects between self-esteem and augmented feedback. In the studies of Aronfreed (1964), and Deutsch and Solomon (1959), self-reinforcement becomes congruent with the type of augmented feedback the subject receives, even if it entails the administration of negative self-reinforcement. Other research (Stotland, et al., 1957; Neistein & Katkovsky, 1974; Shrauger & Rosenberg, 1970; Silverman, 1964) claimed that the level of self-esteem is an influential factor in

determining the nature of self-reinforcement. If augmented feedback and self-esteem did, in fact, influence self-reinforcement, the investigator thought that different types of augmented feedback and different levels of self-esteem had the potential for showing the amounts of negative self-reinforcement an individual would administer during a self-evaluative period.

The procedures. The subjects for this study were 40 high school girls registered in the second, third, and fourth period physical education activity classes at El Dorado High School in Placentia, California, during the spring of 1976. Twenty of the subjects formed the HSE group in which a random block assignment of 10 subjects was made to each type of augmented feedback condition. The same procedure was followed for LSE subjects. After the assignment to the feedback condition, each high and low self-esteem subject participated in two phases of the experiment: (a) the training phase, in which the treatment conditions were established, and (b) the self-reinforcement phase, in which the subjects' number of negative self-evaluations of performance were recorded.

The self-reinforcement was measured by having the subjects execute a novel motor task which they evaluated via video tape during the self-reinforcement phase. The data were analyzed through the Biomedical Computer Program 02V. A subjective tape-recorded interview regarding body and self-awareness followed the self-reinforcement phase. The data from this interview were not statistically analyzed but were used at appropriate times in the discussion section.

The results. The F value for the main effects of self-esteem on the dependent variable, negative self-reinforcement, was large enough (F (1,36) = 9.94, $p < .005$) to reject the null hypothesis. The statistical analysis confirms hypothesis one, which stated that LSE-AAR and LSE-AIF would administer more negative self-reinforcement than would HSE-AAR and HSE-AIF.

There were no significant main effects for augmented feedback, AAR and AIF, on negative self-reinforcement. The F value (F (1,36) $\leq$ 1.0) for augmented feedback was not large enough to be considered significant on negative self-reinforcement as set forth in hypothesis two which stated: HSE and LSE subjects who received AIF would respond with more negative self-reinforcement than would HSE and LSE subjects who received AAR.

The F ratio (F (1,36) $\leq$ 1.0) associated with interaction of self-esteem and augmented feedback on negative self-reinforcement did not reach the critical value for the third hypothesis, that LSE-AIF would administer more negative self-reinforcement than would LSE-AAR. The same result also was true for hypothesis four, which stated that HSE-AAR would administer more negative self-reinforcement than would HSE-AIF. Therefore, hypotheses three and four were not found tenable.

Conclusions

The following conclusions appear to be warranted by this investigation:

1. The amount of negative self-reinforcement appears to be a function of the level of self-esteem.

2. Positive AAR and AIF do not appear to influence the amount

of negative self-reinforcement administered.

3. The amount of negative self-reinforcement expressed does not appear to be dependent upon the interaction of augmented feedback and self-esteem levels.

Implications

The conclusion about the effect of self-esteem on self-reinforcement supports the dissonance theories of Festinger (1957), Heider (1946), Lecky (1945), and Osgood, Suci, and Tannebaum (1957). This information should help make the practitioner aware of the fact that students with whom they work will evaluate and reinforce themselves at times in the framework which is congruent with their own established self-esteem level.

One knows that a human being is an integrated whole which does not function in segregated parts. The esteem of others for oneself is a relevant factor in influencing one's own self-esteem. One's own self-esteem, then, influences one's own self-reinforcement. In this particular study, the selected positive AAR and AIF do not appear to influence one's self-reinforcement. This appears to be in contradiction to man's logical reasoning. The practitioner should be made aware of this fact that maybe the selected augmented feedback variable did not differentiate enough in meaning since both variables carried a positive connotation. The practitioner should not dispense with the fact that augmented feedback may influence a student's self-esteem which, in turn, may influence the student's self-reinforcement, but should be made aware that this factor may have been hidden in this particular study.

Recommendations

The findings of this study and the experiences encountered during the course of the research suggest that further investigations of self-esteem and feedback may be directed toward the following: (a) a study of the effect that the person administering the augmented feedback has on self-reinforcement, (b) a study of the effect of augmented feedback, including both negative and positive AAR and AIF, on self-reinforcement, (c) a study of the interaction effect of augmented feedback and self-esteem on self-reinforcement after performing a specific type of motor task that has practical meaning, and (d) a study of the motivational effect of AAR and AIF on self-reinforcement during repeated trial blocks.

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APPENDIX A

California State University, Fullerton

Parent Consent for Psychological and Psychomotor Intervention

I, _____, the (Father) (Mother) (Legal Guardian) of _____, a minor, in return for the opportunity for such minor to participate as a subject in a scientific research investigation proposed by Carol A. Weinmann of the Physical Education Department at California State University, Fullerton and for other consideration, hereby authorize the performance upon such minor of the following procedure:

A psychological test that is administered and used to identify subject for further study which may aid in identifying types of augmented feedback (information given by a teacher) which are beneficial in a teaching-learning situation.

An administration of two motor tasks, agility and coordination, which helps corroborate the type of augmented feedback which proves beneficial to the individual when performing a physical activity.

The testing situation involves approximately a total of two hours, one hour per day, and is conducted during the school hours with the consent of Mr. Jerry Jertberg, Principal, El Dorado High School, Placentia, California.

I understand the procedures and the investigation as described in paragraph one involve the following risk and safeguards for my personal welfare:

There exists the possibility of certain physical changes occurring from the motor tasks. The changes include, but are not limited to, soreness or pulled muscles during the agility and coordination tasks. To deal with unusual situations which may arise, the Para-Medical Emergency service is within four miles. If any undue psychological anxiety or discomfort results, you may discontinue any activity at once. Your identity will remain confidential and the data generated from your participation will be reported by the use of number and not by name.

The possible benefits to _____ of Society are as follows:

The information gained from the impact of augmented feedback on self-reinforcement behavior is that it provides insight to the professional area of teaching on the types of feedback which is most

generally appropriate in helping the learner. In addition, the results from the collected data may be useful to other various professionals conducting research in the area of self-esteem, self-reinforcement, and augmented feedback.

I understand that Carol A. Weinmann will answer any inquiries I may have at any time concerning the research investigation which may influence my willingness to participate. (Also, if there are any questions about the meaning of the terminology used in describing the procedures, you are encouraged to contact Carol Weinmann at 870-3140 or 870-3316.)

I have read this form and this consent I give voluntarily and after the nature and purpose of the experimental procedure, the known dangers, and the possible risks have been fully explained to me and to such minor. For myself and for such minor, I knowingly assume the risks involved, and I am aware that I may withdraw without penalty to myself or such minor.

Subject's Signature _____

Subject's Age _____

Father/Mother/
Guardian Signature _____

Dated _____

APPENDIX B

Self-Esteem Scale and Instructions

The statements on this scale describe different attitudes one has about herself. Read each statement carefully. Using the key provided to the right, evaluate each statement as to how characteristic it is of you by blackening in the appropriate space. If you feel you have made an improper choice, X through your answer and blacken in the appropriate space. Before you start, sign your name on the back of this packet at the top of the right hand side. If you do not understand the meaning of any words, please ask me for the definition.

KEY

	Never Like Me	Seldom Like Me	Sometimes Like Me	Usually Like Me	Always Like Me
1. I often feel humiliated.	○	○	○	○	○
2. I am a responsible person.	○	○	○	○	○
3. I am optimistic.	○	○	○	○	○
4. I have a feeling of hopelessness.	○	○	○	○	○
5. I am well-groomed.	○	○	○	○	○
6. I have few values and standards of my own.	○	○	○	○	○
7. I am liked by most people who know me.	○	○	○	○	○
8. I feel apathetic.	○	○	○	○	○
9. I am intelligent.	○	○	○	○	○

KEY

	Never Like Me	Seldom Like Me	Sometimes Like Me	Usually Like Me	Always Like Me
10. I am a truthful person.	○	○	○	○	○
11. I feel hopeless.	○	○	○	○	○
12. My personality is attractive to the opposite sex.	○	○	○	○	○
13. It's pretty tough to be me.	○	○	○	○	○
14. I am a good mixer.	○	○	○	○	○
15. I am even tempered.	○	○	○	○	○
16. I have initiative.	○	○	○	○	○
17. I am disorganized.	○	○	○	○	○
18. I am worthless.	○	○	○	○	○
19. I am a good sport.	○	○	○	○	○
20. I feel insecure within myself.	○	○	○	○	○
21. I am poised.	○	○	○	○	○

KEY

	Never Like Me	Seldom Like Me	Sometimes Like Me	Usually Like Me	Always Like Me
22. I am confused.	○	○	○	○	○
23. I have an attractive personality.	○	○	○	○	○
24. I am no one. Nothing seems to be me.	○	○	○	○	○
25. I am a gossip.	○	○	○	○	○
26. I feel helpless.	○	○	○	○	○
27. I am a rational person.	○	○	○	○	○
28. I am likable.	○	○	○	○	○
29. I just don't respect myself.	○	○	○	○	○
30. I am physically healthy.	○	○	○	○	○
31. I shrink from facing a crisis or difficulty.	○	○	○	○	○
32. I despise myself.	○	○	○	○	○
33. I am self-reliant.	○	○	○	○	○

KEY

	Never Like Me	Seldom Like Me	Sometimes Like Me	Usually Like Me	Always Like Me
34. I am emotionally mature.	○	○	○	○	○
35. I am stingy with money.	○	○	○	○	○
36. I am studious.	○	○	○	○	○
37. I can't seem to make up my mind.	○	○	○	○	○
38. I am ambitious.	○	○	○	○	○
39. I take a positive attitude towards myself.	○	○	○	○	○
40. I like to read novels.	○	○	○	○	○
41. I am shy.	○	○	○	○	○
42. I have a fear of failing in anything I want to do.	○	○	○	○	○
43. I am unreliable.	○	○	○	○	○
44. I am jovial.	○	○	○	○	○

Key to Items Reflecting High and Low Self-Esteem

High Self-Esteem	Low Self-Esteem	Buffer
2, 3, 7, 9, 12,	1, 4, 6, 8, 11,	5, 10, 15,
14, 16, 21, 23,	13, 17, 18, 20,	19, 25, 30,
27, 28, 33, 34,	22, 24, 26, 29,	35, 36, 40,
38, 39.	31, 32, 37, 41,	44.
	42, 43.	

APPENDIX C

Subjective Interview Regarding

Body and Self-Awareness

1. Tell me how you felt when you were doing the physical movement?
2. What were your body and body parts doing when you were experiencing this?
3. Do you feel any differently since you experienced this?
4. Did the words used in the training phase have any influence on you in the self-reinforcement phase?

APPENDIX D

Instructions for Training and Self-Reinforcement Phases

Training Phase

You have just seen a demonstration of a motor task you will be performing. At this time, I would like to have you practice this task twice. Once as I simultaneously talk you through the movement and a second time on your own. This will help you understand what is to be performed physically.

Assume a ready position on the mat with your head toward the back wall and your body in a supine position. You will be given a preparatory signal "Ready", and then you will be given a starting signal "Go". At this time, you change your supine position to a prone position by rotating your body in a half circle and by placing your head toward the front wall. During this rotation you must keep one of your hips in contact with the floor. Now you complete this exercise by rotating your body so your head is toward the back wall and your body is in a supine position. Remember during the rotation that one hip must remain in contact with the floor. Finally, from this last supine position, you stand up.

Now you complete this once by yourself.

Before we start the actual testing, do you have any questions?

I would like to remind you that you will be doing this task several times with rest periods interspersed throughout the trials. During the rest periods I would like you to think about the feedback you have received.

Self-Reinforcement Phase

You have just finished a motor task and at this time I would like to have you do another motor task which will involve using a ball and a bat.

You will grip the bat around the taped handle in your dominant hand. In your nondominant hand you will hold a softball. After the word "Begin", you will drop the ball onto the bat, bounce the ball from the bat once, and let the ball fall to the floor. Each time the ball falls to the floor, pick up another ball which will be on the table and repeat the procedure. Every five attempts will count as <u>one</u> trial. You will be asked to complete 15 trials.

After each trial you will go over to the table, sit down, and view the video tape of yourself. When you finish viewing the tape, you will select one of the words that is printed on a card attached to the video tape machine. You will announce this selection verbally and it should represent your evaluation of your act.

Do you have any questions? If not, let's start.

APPENDIX E

Data Recording Sheet for Training

and Self-Reinforcement Phases

Training Phase

Time

Block 1

Trial 1 _____
2 _____
3 _____
4 _____

Mean _____

Block 2

Trial 5 _____
6 _____
7 _____
8 _____

Mean _____

Block 3

Trial 9 _____
10 _____
11 _____
12 _____

Mean _____

Subject's Name _____

Category _____

Self-Reinforcement Phase

	Good +	Done Well +	Not Done Well -	Poor -	Positive Reinforcement	Negative Reinforcement
Trial 1						
Trial 2						
Trial 3						
Trial 4						
Trial 5						
Trial 6						
Trial 7						
Trial 8						
Trial 9						
Trial 10						
Trial 11						
Trial 12						
Trial 13						
Trial 14						
Trial 15						
TOTAL						

APPENDIX F

Table 4

Raw Data: Negative Self-Reinforcement Administered Out of a Possible 15

Self-esteem	Augmented feedback	Subject	No. of -SR
LSE	AAR	1	7
LSE	AAR	2	8
LSE	AAR	3	5
LSE	AAR	4	4
LSE	AAR	5	4
LSE	AAR	6	1
LSE	AAR	7	5
LSE	AAR	8	0
LSE	AAR	9	3
LSE	AAR	10	8
LSE	AIF	11	5
LSE	AIF	12	10
LSE	AIF	13	2
LSE	AIF	14	1
LSE	AIF	15	4
LSE	AIF	16	2
LSE	AIF	17	8
LSE	AIF	18	5
LSE	AIF	19	7
LSE	AIF	20	4
HSE	AAR	21	6
HSE	AAR	22	2
HSE	AAR	23	0
HSE	AAR	24	0
HSE	AAR	25	1
HSE	AAR	26	1
HSE	AAR	27	3
HSE	AAR	28	4
HSE	AAR	29	0
HSE	AAR	30	3

Table 4 (Continued)

Self-esteem	Augmented feedback	Subject	No. of -SR
HSE	AIF	31	0
HSE	AIF	32	3
HSE	AIF	33	3
HSE	AIF	34	2
HSE	AIF	35	4
HSE	AIF	36	4
HSE	AIF	37	5
HSE	AIF	38	0
HSE	AIF	39	4
HSE	AIF	40	0


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