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**The effects of self-efficacy judgments and goal orientation on
social comparison choice**

Watson-Bernard, Janice Karol, Ph.D.

City University of New York, 1989

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A

THE EFFECTS OF SELF-EFFICACY JUDGMENTS
AND GOAL ORIENTATION ON
SOCIAL COMPARISON CHOICE

by
JANICE WATSON-BERNARD

A dissertation submitted to the Graduate Faculty in
Educational Psychology in partial fulfillment of the
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April 24, 1989
Date

Barry J. Zimmerman
Chair of Examining Committee

April 24, 1989
Date

Carol Kuhn Tull
Executive Officer

Professor Barry Zimmerman

Professor Marian Fish

Professor Philip Saigh
Supervisory Committee

The City University of New York

Abstract

THE EFFECTS OF SELF-EFFICACY JUDGMENTS AND GOAL ORIENTATION ON SOCIAL COMPARISON CHOICE

by

Janice Watson-Bernard

Advisor: Professor Barry Zimmerman

The purpose of the present study was to determine the effects of self-efficacy (as defined by Bandura) and goal orientation (as defined by Dweck) on the choice of a student's learning partner or social comparison choice. A second purpose was to determine the students' persistence on a task when paired by self-efficacy and goal orientation. It was hypothesized that students with high self-efficacy and a learning goal orientation would select higher ranking partners and would persist longer than students with low self-efficacy and a performance goal orientation. It was also hypothesized that in the learning goal orientation, students would choose high ranking partners and persist longer regardless of their self-efficacy.

In Phase 1, 88 fifth grade subjects were studied individually and a measure of their self-efficacy was taken on 10 anagrams. Goal orientation conditions were established for a paired anagram solving task to take place one week later by either cooperative (learning) and competitive (performance) instructions. The subjects then chose a partner for that task by the partner's rank on the anagram solving task on which the subjects had estimated their self-efficacy. In Phase 2 subjects were paired by cell and their persistence time on a 25 item anagram task measured.

The data were analysed using a 2 x 3 ANOVA for each dependent measure, with t tests for each hypothesis. Results indicated that students with high self-efficacy and a learning goal selected significantly higher ranking partners but did not display longer persistence times. Low self-efficacy subjects in the learning goal orientation chose equally high ranking partners as did high self-efficacy subjects and, contrary to prediction, persisted significantly longer on the paired anagram task. The results demonstrated the advantage of the learning goal orientation for all students, especially the ones with low self-efficacy.

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Finally, I would like to thank my mother, my Aunt Kathleen and Aunt Irene for their support and encouragement, my daughter, Amber, for her patience and love through years of study and most of all my husband, Dick, who really deserves a medal of honor.

Dedication

To the memory of my grandfather,

W. D. Aderhold

for his love of learning,

and

To the memory of my father,

J. E. Watson

for his love of life.

—

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CHAPTER I

REVIEW OF THE LITERATURE

A question of growing interest to educators and social scientists is the way children compare themselves to peers in the classroom. These social comparisons affect many aspects of the way children learn, such as their goals, their motivation and their choice of friends. Social cognitive theorists (e.g. Bandura, 1986) have hypothesized that social comparative processes may have an effect on children's perceptions of self-efficacy. To date, no one has attempted to determine if causation may be bi-directional.

Historically, interest in social comparison began with a theoretical analysis by Festinger (1954). This formulation has produced a body of literature that examined the role of cognitive processes that affect social comparisons as well as its effect on other processes. The present study is interested in children's social comparisons as a result of their self-efficacy judgments.

It is important to recognize that self-efficacy judgments do not exist in isolation. While many environmental factors may interact with self-efficacy judgments in producing behaviors, this study is interested

in investigating differences in the student's goal orientation. Recent research has linked goal orientation to confidence in one's ability (related to self-efficacy judgments) and this to a difference in behavior patterns (Dweck, 1986). Goal orientation will be studied in the present research as an experimentally manipulated independent variable and differentiated as 1) performance goal orientation and 2) learning goal orientation. Again, the specific behavior pattern of interest in the present study is the student's social comparison choice.

Three factors then, are of interest in the present research: 1) student levels of self-efficacy, 2) types of goal orientation, and 3) social comparisons. A second phase investigates the effects of self-efficacy and goal orientation on task persistence.

Social Cognitive Theory

A social cognitive theory view of human psychological functioning synthesizes principles of behavior theory with those of cognitive psychology. In this view the individual is seen as being influenced by a continual and reciprocal interaction between his or her own behavior, personal factors and environment (Bandura, 1977). Many theorists have contributed to the development of this theoretical model (Bandura, 1969, 1971a, 1971b, 1977a, 1982; Bandura and Walters, 1963, Mischel, 1968, Miller & Dollard, 1941, Rosenthal and Zimmerman, 1978; Schunk, 1983; Zimmerman,

1983; 1985 and others).

The social cognitive position gives an important role to cognitive-symbolic functioning in the acquisition and regulation of new behaviors and their uses. One of the fundamental premises of social cognitive theory is that people can learn skilled performance through observation of another person.

Although other theorists (Tolman, 1932, 1951) have focused on the importance of an expectancy that an action will be followed by a given consequence (outcome expectations), Bandura (1977a) has focused attention on a phenomenological dimension of expectations called perceived self-efficacy.

Self-Efficacy Defined

Self-efficacy has been defined by Bandura as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is not concerned with the skills one has but rather with judgments of what one can do with whatever skills one possesses" (Bandura, 1986, p. 391).

Self-efficacy is differentiated in social cognitive theory from self-concept (Rogers, 1959, Wylie, 1974) by its specificity to activity, levels of activity, and circumstances. Self-concept, on the other hand, involves an undifferentiated, global definition of the self-image that correlates only modestly with actual behavior in any given

situation (Rogers, Smith & Coleman, 1978). Likewise, self-esteem, with which much research has been concerned, is a measure of self-worth based on a culturally biased ideal and how well the behavior of the individual matches it. Self-efficacy is not concerned with the self-worth of the individual but with how the individual judges his capacity to perform in a particular situation.

Self-efficacy is also differentiated from "effectance motivation" (White, 1959, 1960). Effectance motivation is defined as an innate drive for the person to deal with the environment. Social cognitive theory sees behavior involving choice, effort and affective arousal as partially caused by self-efficacy and not by a drive (as well as other theoretical differences) (Bandura, 1986, p. 410).

Outcome-expectancy theories (Irwin, 1971; Bolles, 1975; Rotter, 1966, Seligman, 1975; Atkinson, 1964; Feather, 1982; Vroom, 1964, and Tolman 1932, 1951) as stated above, focused on the premise that learning is a "development of expectation that behavior will produce certain outcomes" (Bandura, 1986, p. 412). Self-efficacy as a part of social cognitive theory adds the person into this process in the form of self-judgments of one's ability. This addition directs researchers' attention to the motivating effects of a learner's sense of power.

According to Bandura (1986), self-efficacy is a product of four main sources of information: enactive performance

attainments, vicarious experiences of observing others' performances, social influences such as verbal persuasion, and physiological states. Each source of information is combined with the others to form a composite self-efficacy assessment for each situational performance. This is not always an efficient or accurate assessment. The research has shown that when comparisons are made between actual judgements and descriptions of their judgmental processes, people may not adequately rely on important cues and at other times they may over evaluate cues of lesser value.

Development of Self-Efficacy

The development of self-efficacy has been discussed by Bandura (1986). He points out that in infancy and early childhood, the lack of accurate self-efficacy judgments can lead children to attempt dangerous and unrealistic tasks that must be supervised by adults to prevent injury or death. Through repeated performances the developing infant learns that: (a) he or she can affect the physical and social environment in predictable ways and (b) those actions are under volitional control. Social factors have been theorized to affect self-efficacy. The family affects a child's growth of self-efficacy positively or negatively by the amount of communicative responsiveness they show, the richness of the physical environment and the freedom of movement they allow him. Peers are a very important source of self-efficacy information because they provide modeling

experiences and comparison information. To a degree, families can control peer associates and thus the child's peer modeling experiences and his or her sense of self-efficacy.

School is probably the first socially structured environment in which the child's thinking skills are evaluated and compared against those of his peers. (Bandura, 1986). Children who are successful are compared favorably by their teachers to lower achievers and their self-efficacy for specific skills is enhanced. The prevailing system of instruction in lock-step sequence, ability groupings and competitive practices such as public grading systems, may undermine self-efficacy in many specific skill areas when the child is not initially successful or for the child who has learning problems.

Rosenholtz (1982) and others (Rosenholtz and Rosenholtz, 1981; Rosenholtz and Simpson, 1984a, b; Rosenholtz and Wilson, 1980) present a compelling argument against teachers' creation of a unidimensional classroom in which children are given a single normative standard for achievement and are constantly compared against it. They argue for a multidimensional classroom where children are encouraged to compare themselves against their own prior performances and are given the opportunity to excel through instruction tailored for them, with less emphasis on peer competition and teacher normative grading.

Adolescence and adulthood require increasing responsibility of students in social, professional and personal areas. Their choices made in any goal directed activity, whether dating or passing a course, depend to a large extent on the perceived self-efficacy that person has acquired. Patterns do become established but because of radical changes in technology and social mores, new challenges arise constantly.

Social Comparison in Social Cognitive Theory

Bandura also addresses the issue and influence of social comparison processes (1986). He suggests that judgment of one's performance will be enhanced by comparing that performance to those who attained less and will be lessened by comparison to those who attained more. Since the value of comparison with lower ability persons is questionable, people usually decide to compare themselves to someone of similar or slightly superior ability. These kinds of comparisons have the advantages of providing attainable goals and social incentive to improve in cultures where merit is valued, such as the school.

Bandura discusses the liabilities of comparisons in which individuals overevaluate their performance against persons with much less ability or grossly devalue their performance against the highest achievers in the area. Self-comparison is seen as a continually used process for assessing current performances. Most people try to surpass

what they have accomplished in selected areas.

Self-comparison research has shown that only a portion of those who have attained a difficult goal will subsequently attempt to surpass it; others may be content to match it and still others may even lower their aspirations (Bandura, 1986). Consequently, in the face of repeated failure, most people will alter their goals; however, certain persons will continue to adhere to their unrealistic performance standards (Sears, 1940). Simon (1979) found that depressed persons set unrealistically high standards for themselves.

The view of Rosenholtz and others is that learning experiences, particularly those in the school setting, should be designed to promote self-comparison rather than group (social) comparison practices. However, Bandura has pointed out that in our competitive society (where success by one person is often contingent on the failure of another), social comparisons are unavoidable.

Schunk (1985) has derived a model of motivated learning in the classroom which incorporates features from several theories including social cognitive theory. Central to his analysis is the concept of self-efficacy and its relationship to social comparisons.

In Schunk's model social comparison is listed with such other constructs as a task engagement variable along with motivation, cognitive processing and skills. These processes convey to the student information about their

ability to learn. Schunk proposes that efficacy cues from task engagements go into reappraisals or confirmation of present and future expectancies.

In his analysis, Schunk accepts Festinger's (1954) definition of social comparison as a comparison between oneself and others. Use of social comparison information appears to be dependent to a certain extent on the age or grade of children. After approximately the fourth grade, children begin to use social comparison information as adults do to evaluate their competence (Ruble, Boggiano, Feldman & Loeb1, 1980; Ruble, Feldman & Boggiano, 1976). Schunk (1983b) studied children who were provided with goals, comparative information, goals and comparative information or neither. He found that goals only enhanced self-efficacy but comparative information promoted task motivation. Schunk concludes that social comparative information may have adverse effects on children: if they compare themselves to similar and average others, they may have no reason to feel highly competent even if they perform better. In his view, a more effective practice for enhancing self-efficacy is for children to compare their present performance with prior, and usually lesser, performance.

Theory of Social Comparative Processes

In 1954 Leon Festinger published "A Theory of Social Comparison Processes" (Festinger, 1954) in which he extended

a series of hypotheses he had outlined in 1950 concerning group communication (Festinger, 1950). The emphasis in the second of these publications was on how an individual uses the social group to gain information with which to evaluate his or her abilities and opinions. The theory was stated in a series of nine Hypotheses and attending Corollaries and Derivations. Basic to the theory was the drive, or survival need of humans to appraise their aptitudes and beliefs (Hypothesis I). The second tenet of the theory was that humans first attempt to evaluate themselves by objective standards but when this is not possible, they do so by comparing themselves with the abilities and opinions of other people (Hypothesis II). When a difference exists between a person's belief or ability and that of the comparison other the tendency to compare decreases (Hypothesis III). Corollary IIIA stated that one would choose to compare, therefore, with someone close to one's own ability or opinion and Derivation B (from Hypotheses I, II, III) that a tendency to change one's evaluation of an opinion or ability would occur when others with dissimilar views were available for comparison. A distinction was made between abilities and opinions in Hypotheses IV in that there would be a unidirectional drive upward in ability evaluation but not in opinions. Also that non-social restraints could prevent change in ability but not in opinions (Hypothesis V). Derivations D, and D2 posited that

when discrepancies exist in abilities and opinions, tendencies either would be to move one's own position closer to that of the group or to change others in the group to one's own position. Hypothesis VI addressed the hostility or derogation engendered when comparisons with others ceased in-so-much that unpleasant conditions would be implied by continuing to compare (but usually only in the case of opinions - Corollary VIA). The factors which make the comparison group important to the individual increase the tendency toward uniformity with their abilities or opinions (Hypothesis VII). Hypothesis VIII stated that if an individual perceived persons who were greatly different from himself on opinion or ability as also different on attributes that were consistent with the difference, the range of comparability would tend to become narrower. The last Hypothesis (IX) maintained that the closer one felt to the mode of the group (where there was a range of abilities or opinions) the more likely they were to try to change the other's positions and less likely to either change their own position or to narrow the range of comparison.

In addition to the research cited by Festinger in the body of the theory proper, other articles appeared in the same issue of Human Relations which supported parts of the theory (Hoffman, Festinger, and Laurence, 1954; Dreyer, 1954; and Festinger, Torrey and Willerman, 1954). Further research was delayed for several years because Festinger

turned much of his attention to his theory of cognitive dissonance.

During the 1950's and 1960's several developments took place which enlarge upon the area of social comparison processes (Suls and Miller, 1977). Schacter (1959) reported that in the case of fear-affiliation relationships, people choose to compare themselves with others in the same circumstances. Further research was also done in the area of emotional states and opinions giving rise to a body of literature generally regarded as attribution theory and later to self-perception theory (Bem, 1967; Kelly, 1967). Another theory which evolved from Festinger's theory of social comparison and cognitive dissonance theory was Adams' theory of inequity in social exchange (1965). This theory addressed the individual's antecedent contributions, such as effort, as well as the consequences of the process, such as rewards.

In 1966 a special supplement of the Journal of Experimental Social Psychology was published entitled "Studies on Social Comparison" and edited by Bibb Latane (1966). The research in this publication was done by Schachter's associates and students from Columbia University and the University of Minnesota. Although all the articles in this publication bear directly on social comparison processes, five are particularly relevant to this study.

Ability evaluation was studied by Radloff (1966). In a

series of three studies, he found that subjects of either extremely high or low ability were less accurate and unstable when judging their own performances than were subjects of average ability. This was because, according to the theory, the atypical subject had fewer similar others to whom he could compare himself. In fact, Radloff did find that when non-average subjects were given information that others performed equally to them, their stability and accuracy was equivalent to average subjects.

Wheeler (1966), using the rank order paradigm, found that subjects chose to compare themselves to someone adjacent or slightly above themselves, particularly when highly motivated. This finding was consistent with Festinger's unidirectional drive hypothesis.

Hakmiller (1966a) investigated downward comparison as a result of threat. He found that when highly threatened, subjects chose to compare themselves to someone in the worst-off position (defensive social comparison), while low-threat subjects chose to compare themselves with others who were superior to them.

A study by Thornton and Arrowood (1966) investigated the positive/negative implications of comparison behavior. They found that when the trait being measured was positive, subjects chose to compare themselves to someone better off in the rank order paradigm. They argued for two motives involved in these comparisons: self-enhancement (comparison

with one worse-off) and self-evaluation (comparison with someone who best defines the trait).

Hakmiller (1966b) reported in a second study that when two out of three others disagreed with the subject, the one who agreed with the subject was chosen for comparison. No differences were noted when two or three others agreed with the subject. Hakmiller interpreted these results to show that when uncertain of their judgments (only one of three agrees), need for evaluation increased.

One of the interesting findings to come from this series of studies was that persons do not always choose to compare themselves with others who are similar to themselves. Ability, motives, threat, positive-negative scale and certainty were some of the variables which affected choice.

Gruder (1977) presents an overview of the research done since the 1966 Journal of Experimental Social Psychology, Supplement 1, concentrating on testing Festinger's original theory. Several of these research articles bear on the present study. Jones and Regan (1974) assessed motivation in choice of comparison other. In evaluating their own trait measure scores, they found that subjects were only interested in having comparison information before and not after making a decision. Wilson (1973) found that subjects who were led to believe that their score on a problem solving task was close to the mean were more confident in

assessing their ability and put more value on their score than subjects who were told that their score deviated greatly from the mean.

Gruder distinguished between the two motives or goals which direct social comparison behavior: evaluating and enhancing the self. These two motives have been defined by Thornton and Arrowood (1966) as "self-evaluation" and "self enhancement"; by Singer (1966) as "evaluation" and "validation of the self"; by Jones and Gerard (1967) as "information dependence" and "effect dependence", by Kelley (1952) as "comparison and normative functions of reference groups"; by Deutsch and Gerard (1955) as "informational and normative social influence"; and by Thibaut and Strickland (1956) as "task and group sets" (p. 24). Gruder points out that the two motives can conflict and are subject to situational and personality variables. Studies which he cites as showing a preference for self-evaluation employed fear (self-evaluation) and fear reduction (self-enhancement) as variables, as well as affiliation/isolation.

Research supporting a preference for self-enhancement included use of a specific threat to self-esteem (anxiety) rather than fear and again subjects were asked to choose between affiliation (being with others) and isolation (being alone).

Gruder also outlines the use of two of the major experimental paradigms that have been used in studying this

field: the rank-order choice paradigm and the projection of threat paradigm. The rank-order choice paradigm utilized a measure (such as a bogus personality test ostensibly measuring a trait) given to the subject, a score reported to that subject as his own, and a choice given to the subject of others to whom he could compare his score. The projection of threat paradigm sets up a state in which subjects are led to believe that they possess an undesirable personality characteristic threatening their self-esteem to a greater or lesser degree. The dependent measure then becomes the degree to which the subject projects (in the Freudian sense) this characteristic onto others.

Samuel (1973) investigated subjects with an "ability test", rather than the more common trait, fear or anxiety measures. Other variables included global similarity, and ability similarity. Subjects who were told that their performance was inferior preferred comparison to an "average" performer only from a globally dissimilar group. They showed no interest in comparing with anyone described as being similar to themselves. In general, a complicated pattern of findings emerged which he interpreted as confirming the hypothesis that "when threatened, persons avoid comparisons that might confirm the threat" (Gruder, 1977, p. 27).

Brickman and Berman (1971) investigated the effect of performance expectations and amount of information available

about their own and other's scores on the amount (rank order paradigm was not used) of further information they sought in interpretation of their performance. They found that subjects who expected to do well and then failed, sought out more information about others performances, i.e. engaged in more social comparison.

Gruder points out the important point that what these two studies (Samuel, 1973 and Brickman & Berman, 1971) indicate is that "the social comparison behavior of inferior performers was affected by other variables" (p. 27). He interpreted the results as showing that the subjects who felt a loss in self-esteem showed the greatest effects, that is, they would not compare with "superior" others, nor with "inferior" others like themselves, which might confirm their similarity to them.

Gruder reviews projection of threat paradigm literature which does not directly measure affiliation or social comparison. He concluded from these studies that when given information validating a more or less flattering interpretation, subjects will interpret the meaning in a way that will maximize self-esteem.

Wheeler, Schaver, Jones, Goethals, Cooper, Robinson, Gruder & Butzine (1969) seemed to verify at least one condition where Festinger's hypothesis of preference to compare with a similar other was true. When subjects were given the range of scores, they compared their own with a

similar other; when they were denied this information, they tried to identify the range by choosing the most extreme scores.

Investigations of other dimensions used in making comparison choices are reviewed by Gruder. Wilson (1973) differentiated self evaluation (How good should I be?) from ability evaluation (How good am I compared to others?) (p. 35). He found that ability evaluation was affected by variations on problem solving ability but not similarity in educational level. He found, however, that self evaluation was affected by both.

Sex-related abilities were investigated by Zanna, Goethals & Hill (1975) who found that (at least in 1975) when best-off group was in conflict with same-sex group, all but two of his subjects in all conditions chose to compare themselves to the same-sex. Other areas of social comparison cited by Gruder are comparison preference of the blind (Morin & Jones, 1972, Strauss, 1967) and attitude diversity/uniformity (Castore and DeNinno, 1972).

In an attempt to separately assess the effects of self-enhancement and self-evaluation, Gruder and Dichtel (1975) provided separate groups opportunities for self-enhancement (work on exercises) and for self-evaluation (others' scores and their distribution). They created nine experimental cells by leading groups to believe they were superior, average, or inferior before the task and

confirming this afterwards. They found that expectance but not feedback affected choice of comparison information and improvement of performance. Those who were led to believe that they would have inferior performances wanted to spend more time in exercise practice than the average or superior expectancy group.

Development of Social Comparison

Following from Festinger's Theory, Suls and Sanders (1982) proposed a developmental analysis of the process of self-evaluation using social comparison. They were interested in delineating when children first begin to assess themselves, how the educational system uses social comparison and the differences between children and adults in comparison behavior. These authors make an important distinction between comparison preference, or the choice of individual sought out when other information is lacking and comparison effects, or the impact on self-evaluation of ability of different kinds of comparison information.

In order to understand the development of social comparison the cognitive concepts necessary for adults to adequately make similar other comparisons are noted by Suls and Sanders: 1) ability must be inferred from performance, 2) any performance is the result of ability plus practice, effort, fatigue, etc., 3) these attributes work together in different ways to effect performance and 4) the discounting principle: when two or more factors (like ability and

practice) are involved, it is impossible to attribute performance to any one of them. Young children do not possess these concepts. For instance, the discounting principle does not emerge until about age eight or nine.

The model proposed by Suls and Sanders is a four stage model of an invariant sequence comparison orientation. In the first stage, from birth to approximately three years, children rely only on physical, objective standards to gauge their progress. Their lack of cognitive skills limits their view of their performance to success and failure. Between four and five years, children acquire the concepts of more than and less than. They rely on comparisons of their present performance with prior performance (temporal comparison). Social comparisons at this stage are probably limited to physical characteristics. Guessing correctly is seen as equal to having accurate knowledge.

Interpersonal social comparison emerges at about age five to six coincident with the child's entrance into some form of schooling. This may occur because social comparisons are encouraged in this setting and because temporal comparison may be less satisfying at this age due to a leveling in the child's rapid physical and mental development. The kindergarten child is also beginning to be able to differentiate performance from effort and from ability but not completely, so that he may compare "indiscriminately" without taking similarity on relevant

attributes into consideration. This third stage, from about age six to eight, lasts until the child understands the relationships "between performance, ability and nonability factors such as practice and effort" or the discounting principle. From about age nine to adulthood social comparisons predominate over temporal or objective comparisons, and these comparisons are made with similar others. (p. 179)

Suls and Sanders cite developmental studies which give support to their model. The model implies that a child's age may determine how he bases his sense of mastery and competence, important elements in achievement strivings. A further implication addresses the close relationship between educational practices and social comparison. If achievement strivings are in some way mediated by the kinds of social comparisons the child makes, the school environment which holds immense power in structuring the social reality of the child should use this power to maximize appropriate social comparisons (or self comparisons where appropriate) and thus maximize achievement oriented goals.

The Effects of Social Comparison on Self-Efficacy and Related Variables

Some studies of this relationship have treated comparison information as an independent variable and self-efficacy as the dependent variable.

For example, Schunk (1983a) investigated the social

effects of comparative information and proximal goals on perceived efficacy and performance skill in division among low achieving 4th and 5th graders. Social comparative information was given as an average achievement for other children, age unspecified. A second condition received a goal suggested to them of the same number (as the average of the social comparative group). A third condition received both the average information and suggested goal, and a fourth group received no information but controlled for a training procedure lasting for two sessions on succeeding days, where a tally was maintained by each child recording their progress. Pre and posttest scores were obtained on measures of skill, persistence and self-efficacy. Results indicated that the most effective treatment condition for division achievement skill was that of combined goal and comparative information ($p < .01$). However, the condition which showed the greatest increase in perceived efficacy was the goal-only group ($p < .05$). There were no significant main effects nor significant interaction for the persistence measure. Unfortunately, the skill levels of the groups in pretest were numerically but not statistically different. The difference in effectiveness of treatment might be accounted for by the higher group being more intelligent and able to process the information more effectively.

It could be argued that goal setting is a form of personal comparison. Schunk makes the point that the goals

set in this study were by another person, that is, the experimenter and not the child. Self-set goals might be closer to a personal comparison since it would necessarily involve an assessment of prior performance by the individual. The social comparison information in this study is also limited to the average of other children (who completed 50%). Although it conceptually represents a social context, it does not distinguish levels of performance which might be used by the child in comparing himself to others. In some ways it seems to resemble a norm reference group more than a social reference group.

With these aspects in mind it is consistent with social cognitive theory that self-efficacy may be enhanced to a greater degree by a more individualized (in this case goal-setting) approach than by comparison to a group average or norm, particularly for these low achieving students. The significantly greater skill improvement for the social comparison plus goal group is explained by Schunk as an addition to the goal information of the fact that the goal was attainable by similar others.

In a series of two studies with self-efficacy as one of the dependent variables, Schunk (1984) investigated the effect of the type and sequence of attributional feedback on 40 third grade children in subtraction skill training over four sessions. This study could be considered as a refined examination of positive self-comparison, with distinctions

being made for non-specific (un-scored) ability and effort feedback, and its effect on self-efficacy.

Four treatment groups were formed by giving the children feedback in the following combinations: ability throughout (i.e. "you're good at this"), effort throughout (i.e. "you've been working hard"), ability-effort and effort-ability for two sessions each in their respective orders. Self-efficacy was measured pre and posttest for correctly solving problems in subtraction. Six other dependent measures were used including skill, ability, effort, task ease, luck and training progress. Results indicated that self-efficacy, as well as ability attributions and subtraction skills, were enhanced by the ability-ability and ability-effort sequence. A second study similar to the first was subsequently conducted to assess the child's perception of their training success. In this study attributions (ability, effort, task ease and luck) were assessed before and after the four training sessions instead of only after the four sessions as in Experiment 1. Results indicated that the effects shown in Experiment 1 were not the result of differential self perceptions of training successes. (p. 1162)

The effects of reference group on self-concept (a more generalized concept, as defined above) was investigated in two experiments by Strang, Smith and Rogers (1978). In the first of these experiments 50 children enrolled in classes

for the academically handicapped were pretested on the Piers-Harris Children's Self Concept Scale as well as the WISC-R and the MAT. They had been in the special class for an average of 9.47 (Comparison Group) to 11.18 (Experimental Group) months. Half of these children (Experimental Group) were then mainstreamed into regular math and reading classes for half the school day.

Post-tests showed a significant increase in self-concept for the Experimental subjects in Intellectual and School Status, Physical Appearance and Attributes, Popularity, and Happiness and Satisfaction. The groups did not differ significantly on any academic or I.Q. variable tested. The significantly augmented self-concepts of the half-day mainstreamed children was explained by Strang et al. as being due to these children having a choice of reference groups. They chose to compare themselves with their handicapped classmates (with whom they still shared a 1/2 day's interaction) rather than their non-handicapped classmates on academic relevant social comparisons and their non-handicapped classmates for other self-concept relevant comparisons. However, an alternative explanation of these results was also possible. The heightened self-concept could have been a result of an interpretation by these children that their mainstreaming was an indication of academic success. As a result, Experiment 2 was conducted one year later to eliminate this interpretation.

All children in this experiment (20 subjects) age 8 to 11 years were mainstreamed for half the school day. When the self-concept scale was administered 6 weeks after mainstreaming began, the experimental group was told that they could only compare themselves with mainstream children. The comparison group was allowed to answer the Piers-Harris questions with regard to all their classmates in both handicapped and non-handicapped classes.

Results showed a significant increase in self-concept for the comparison group of 7.30 points (multiple reference choices) and a decrease in the experimental group (non-handicapped reference) self-concept of 2.50 points. These results were limited to the Intellectual and School Status (and Anxiety) cluster of the Piers-Harris scale.

Again, the reference group was controlled by the experimenter, as an independent variable and in effect, the experimental group was limited to what was essentially an inappropriate reference group. The comparison group was allowed to choose which reference group they would use and apparently they chose to compare themselves to the group most like themselves in ability (their handicapped classmates, at least in intellectual and school-related abilities).

It should be noted that these measures were taken 6 weeks after mainstreaming began, a time in which the comparison children had learned that they had a choice of

referent groups. Strang et al., admits that the manipulation restricting the experimental group to the mainstream non-handicapped reference group cannot be considered equally with full-day mainstreaming and postulates that restricting these handicapped children to full-day mainstreaming without any reference to their handicapped classmates could have lowered their self-concept even more. The results are used to support Hyman & Singer's (1971) hypothesis "comparisons that provide useful information are selectively utilized to enhance self-esteem" and Festinger's (1954) hypothesis that "persons at the lower end of an ability scale may remain unaffected by a group situation provided they have other relevant comparison groups for self-evaluation". (p. 496)

Another way to view these results involves the social reality that schools construct when a unidimensional evaluative environment is the only one provided for the child. The low achieving child may be taught to make inappropriate comparisons (as with the experimental group) resulting in low or lowered academic self-concept.

The Effects of Cognitive Processes Related to Self-Efficacy on Social Comparison

The current research is interested in investigating the relationship between self-efficacy and social comparison with the later as the dependent variable. Although no studies to date have investigated this relationship,

independent variables related to self-efficacy have been used in prior research.

Levin and Green (1984) studied the combined effects of interpersonal and intrapersonal performances on subjects' choice of seeing their own score, other children's scores, or neither score. A two by two design was used in which the subject's score improved or regressed over a number of trials and the scores of others increased or decreased at a faster or slower rate in the same direction.

This study took a measure prior to actual data gathering of the subject's "performance expectations" after he or she had been trained in the task by asking them "how well they expected to perform on additional trials on a scale of 1 to 7". Unfortunately, this measure was not used as an independent variable but was used in an ANOVA to show that no significant differences existed between this "expectancy" score and actual performance. The authors contended that if such differences existed they might "have affected subject's desire for comparison information". Only means are reported (expectations, $M = 4.42$ and actual performance, $M = 9.87$). (p. 388)

Performance measures were subjects' estimations of amount and type of 45 W's and X's in a random pattern scatterplot appearing on a computer screen for 10 seconds. They were then given the opportunity to see their score, the score that "most other children" (in another school) had

achieved or neither. The dependent measure was "the number of times that subjects looked at their own and other's scores". (p. 388)

The authors reported that when the subject's intrapersonal performance increased, he tended to look more frequently at others' scores than when his scores declined and to look more frequently when his scores were higher than those of others. Also subjects in the negative intrapersonal condition looked more frequently at lower performing others while those in the positive intrapersonal group looked equally at lower and higher performing others. Children were not asked whose scores (high, average, low) they would like to see. However their relative performance on each trial may have been considered the independent variable for the subsequent choice of whether to see own, others, either or no scores. No data charts are given and it is unclear how choice was determined when the only indication of relative standing was post choice (and a tendency toward positive and negative comparison).

Brickman and Berman (1971) studied the effects of score expectancy level and three conditions of score information on the amount of social comparison exhibited. Subjects were 98 psychology college students who were asked to estimate the likelihood of their receiving 4 letter grades (A, B, C, D) on their actual midterm exams. These were weighted by relative points and ranged from High 3.00

to 4.00 to Low 2.00 to 3.00. Information conditions were structured so that 1) no information as to grade was given, 2) partial information was given in the form of the subject's score and 3) full information where the score was accompanied by the letter grade. The social comparison measure was the number of cards containing the scores of other class members that the subject choose to view. Subjects were also asked to estimate the average of the class and given a questionnaire assessing how confident they were of their estimate.

Results indicated that only those subjects in the full information group who expected a high score but received a low one looked at a significantly larger number of cards than did any other group ($p < .005$). Amount of information had no significant effect on the number of cards viewed. The authors point out that although the no information group did not know their scores, they did know that eventually they would receive them and in anticipation of this, viewed the cards as much as the other groups in a kind of anticipatory social comparison. They also point out that although the full information group knew their letter grade, their amount of social comparison was as great as the others, suggesting that self-evaluation may not have been this group's motive. Results also indicated that although the no information group was the most certain about the accuracy of their estimate of class average, they were also

the most inaccurate. Subjects who received low scores in full and partial information groups lowered their estimation of the class average, perhaps in an attempt to maximize the importance of their own scores.

France-Kaatrude and Smith (1985) studied 1st and 4th graders' comparison preferences in 3 conditions: other better, other same and other worse. Subjects were 30 first graders and 27 fourth graders in regular classrooms whose eye-hand coordination task was to keep a stylus on a rotating turntable target. In Phase 1 they received modeling information via a videotape peer on self-rewarding performance, plus actual practice and receiving a score. In Phase 2 they were assigned to one of the 3 conditions above with other as the videotaped peer who received a corresponding relative score. During Phase 3, two dependent measures were taken: 1) a social comparison measure or the number of times the subject pushed a button to see the peer's score on the videotape (as a percent of his trials) and 2) a self-reward measure or the number of tokens the child took as a percent of the total number of completed trials. In Phase 4 the child was given the option to stop the procedure whenever he wished thus providing a persistence measure.

Results indicated that children in the other same condition in both grade levels choose to observe the others score significantly more often ($p < .001$) than the other

other better or other worse conditions with first graders looking more often ($p < .05$) than fourth graders. The other same group also persisted longer on the trials ($p < .001$) but self-rewarded significantly less than the other two groups which did not differ from each other. The authors explained this last finding as showing the children who compared with a similar performing peer as creating a more self-critical attitude.

Suls and Tesch (1978) investigated the kind of comparison information students want when evaluating their own performance. This study was exploratory since no theoretical statement had been made at the time. They did predict however, based on studies by Gruder (1971) and Sheeler et al. (1969) and by Festinger's (1954) theory that students would want to know the highest score, how many others received their score, and an overall tendency to want to know higher and not lower scores. Based on the "defensive comparison" position taken by inferior subjects in research by Friend and Gilbert (1973) and Hakmiller (1966) they predicted that low scorers would have a downward comparison tendency. (p. 191)

Subjects for the study were 154 introductory psychology students who were given a 60 multiple choice examination. A week later the tests were returned with a score and grade equivalents were presented, A to F. Subjects were asked not to discuss their scores. The dependent

measure was a "Planning Form for Test Consultation" distributed to the subjects with 9 questions and a 7 point scale indicating "extremely interested" to "extremely disinterested", with their name, test score and test grade included. A grade (5 levels) by Question (9 levels) ANOVA was used and significant main effects for Question ($p < .0001$) and for Grade by Question interaction ($p < .009$) was found. No significant main effect was found for Grade. Results indicated that the most frequently chosen question was "What was the average test score?", with relatively high interest shown in better scores and little interest in lowest scores. Students in A, C, and D levels were most interested in knowing the average score; F students showed no preferences across questions; only B students were most interested in knowing how many had better scores than they. Students in A to D levels were least interested in knowing the lowest score on the test. The F students were least interested in knowing the most frequent grade and who had better scores. (p. 193)

Suls, Gastorf and Lawhon (1978) investigated social comparison choices when subjects were led to believe that the ability was related to age and to sex. Subjects were 134 high school seniors in social science classes who were administered bogus versions of the "Unusual Uses Test". They were given the opportunity to see their own score and the choice of the average scores of 6 other groups: Male and

female high school freshmen, seniors, and college freshmen, thus establishing older, younger and same-age female and male groups. Results indicated only one significant interaction effect of Sex X Choice for 1st choice. This resulted from the overwhelming preference for same-age, same-sex comparison choices. The second choice was also highly significant for one choice only, that of same-age, opposite sex. Suls et al. suggests that with this group, age is of more importance than sex in comparison choices. These subjects were more likely to compare within their age group with opposite sex members than to compare with others of different ages in their own sex group. It should be pointed out that these were all college bound students who may have developed this strategy of comparison along with successful grades and perhaps self-efficacy assessments although the last two variables were not studied. (p. 103)

In a study using 291 sociology students, Wilson and Benner (1971) investigated the effects of self-esteem and public versus private conditions on the choice of other group members with whom group activities would occur and the choice of seeing another's score. The first session consisted of a test of "leadership" under three conditions of "certainty" or a kind of contrived predictive validity. The second session was constructed so that the private and public conditions would be delineated. Results of the test were distributed with the subject's code number, his

meaningless score and his position in a ranking of 5 subjects as the median score (3). The private condition group was told that their group of 5 would engage in a debate-like exercise with only 2 of the group chosen to prepare and defend a topic. The other three would rate them on leadership qualities. Each subject was instructed to choose the other member of his group that he would most like to rate if he were not participating. (p. 385)

The public condition group was told that each subject would engage in 2 separate debates with two others in the group of 5 rankings on his card while the remaining three would observe and rate them. They were instructed to choose by code number the persons in their group with whom they would most want to debate. Both groups were told that they could see the score of one other person in the group at some later time and to choose that person's code. All subjects were then given Rosenberg's Self-Esteem Scale and debriefed.

It is important to note that the authors felt that the choice of who to observe and rate and who to debate with was "the appropriate equivalent to asking whose score they wanted to see" (p. 387). However, they did administer this question directly before administering the self-esteem scale. In the data analysis, the choice of observer and co-debater were used. The choice of knowledge of score differed significantly from this first choice in the public condition so that this assumption has to be considered

invalid.

The authors hypothesized that in private comparisons subjects would choose the highest ranking person in their grouping more than subjects in the public group; that test certainty, or validity, would positively effect the choice of highest rank in the public group only and that high self-esteem would positively effect the choice of highest rank in the public condition only. Sex differences were also investigated but did not appear in the hypothesis.

The results of this study indicated no significant differences for the certainty condition and none for sex in the private condition. Significant results were found for the following: 1) more males than females chose the highest rank in the public condition ($p < 0.1$); 2) more subjects of both sex chose the highest rank in the private than the public condition (males: $p < .05$, females: $p < .001$); 3) self-esteem affected female choices in the private conditions, that is, significantly more ($p < .01$) high self-esteem females than low chose to see the high rank but had no effect in the public condition where a relatively low number of high ranks were chosen by both high and low self-esteem females, a findings contrary to the hypothesis; and 4) high self-esteem for males had the predicted outcome of no effect on choice of high rank in private and a significant ($p < .01$) positive effect on high rank choice in public.

In a question presented to the subjects asking "why they made their first choice (presumably the choice of observer/debater) and coded into 10 categories, subjects responded with answers coded as "maximize information" 44% in the private condition and 9% in the public condition. The difference in conditions is not surprising but the private condition percentage is not an unusually high percentage. No information is given concerning motives for the "score" choice. The number of subjects was almost the same in both conditions (15% private, 20% public) in stating their motives as "comparison" or "evaluation". The question of who is being evaluated, subject or choice of subject, is not addressed. (p. 390)

The authors note that the public condition subjects were actually given both a public choice (to debate) and a private choice (see score) and that there was a difference of 48% to 79% respectively. This suggests that two motives were present in this group that were not assessed in this experiment. They suggest that upward comparison may occur privately but not in situations engendering overt competition.

The deviation of the females in the study from the predicted results suggests that their comparison choices may be motivated by ones other than information-seeking. The public condition females only chose the highest ranking other 37% of the time, overriding both self-esteem and

certainty effects. The authors explain these results by sex-role differences in our culture (in 1971) which presume that females would avoid competitive situations. Self-esteem also affected choices in the private condition for females as it did in the public condition for males.

The use of the self-esteem measure in this study, while providing a generalized assessment of the subjects view of himself, is not a situation-specific instrument. A measure of self-efficacy in the area of leadership would have been a better choice. Festinger (1954), according to these authors, has proposed that "the extent to which ability evaluation remains as a primary motive in determining behavior may vary from situation to situation" (p.391).

Dweck's Model of Achievement

Goals and Achievement Behavior

Dweck (1986), drawing from recent research in the social-cognitive field, has proposed a model which incorporates confidence in ability under conditions of goal orientation and describes how these variables affect behavior patterns. These behaviors are described as either a mastery oriented pattern where challenge is sought and persistence is high or a helpless pattern which seeks to avoid challenge and persistence is low. According to this model, goal orientations grow out of children's theories of intelligence (M.Bandura and Dweck, 1985; Dweck and Elliott,

1983; Leggett, 1985). The theory of intelligence as part of Dweck's model was not under consideration in the present study.

Achievement Goals and Achievement Behavior

<u>Theory of Intelligence</u>	<u>Goal Orientation</u>	<u>Confidence in Present Ability</u>	<u>Behavior Pattern</u>
Fixed	Performance Goal	If High-----	>Mastery
		If Low-----	>Helpless
Malleable	Learning Goal	If High or Low----->Mastery	

This model is especially useful in helping to define the conditions under which differing levels of self-efficacy judgments affect social comparisons. The two goal orientations are defined as "(a) learning goals, in which individuals seek to increase their competence, to understand or master something new, and (b) performance goals, in which individuals seek to gain favorable judgments of their competence or avoid negative judgments of their competence" (p. 1040).

Dweck cites several studies that support aspects of the theory. Although none of these studies have measured social comparison choices, they have varied the independent conditions in ways that conform to the definitions of goal orientation proposed by Dweck. Studies have incorporated individual versus competitive rewards (Ames, 1984; Ames, Ames & Felker, 1977), public versus private performances (Brockner & Hulton, 1978; Carver, & Scheier, 1981; E. Diener

& Srull, 1979), and "test" versus "game" instructions (Entin & Raynor, 1973; Lekarczyk & Hill, 1969; McCoy, 1965; Sarason, 1962). (p. 1041)

Another aspect of the model is "confidence in present ability". This variable is not defined specifically as self-efficacy. However, it is described as a factor that may be high or low depending on the specific task. Dweck proposes that high levels of confidence in ability will lead to a student's seeking a challenging experience in any goal condition. If the student's perception of their ability is low, they would choose a challenge only in the learning goal condition (M. Bandura & Dweck, 1985, Elliott & Dweck, 1985). (p.1041)

The "behavior pattern" aspect of this model is also useful in describing the dependent variable under present consideration. A mastery oriented or challenge seeking behavior pattern should be one in which a student would make a high functioning social comparative choice. By contrast, a helpless behavior pattern where challenge is avoided should result in a low functioning social comparative choice. (1042)

The following aspects of Dweck's model were used in the present study: 1) the term "confidence in present ability" was assumed to approximate perceived self-efficacy; 2) conditions under which social comparison was measured were defined from Dweck's goal orientations; and 3) a high

functioning social comparison choice was assumed to fall into a category of mastery oriented behavior while a low functioning social comparison choice was be assumed to reflect an attempt to avoid a challenging experience.

Summary

This review of the literature has incorporated specific areas within social cognitive theory and social comparison theory. First, it has attempted to give a brief overview of social cognitive theory and the role of self-efficacy within it. This was important because no study had investigated the effects of self-efficacy on social comparison, although the effects of several related concepts, such as self-esteem and self-concept, on social comparison have been studied. To date researchers have focused on the relationship between these two constructs with self-efficacy as the dependent variable.

Secondly, the historical development of interest in social comparison has been outlined, along with studies reflecting several independent variables that effect social comparison choices. These independent variables represent various measures of the subject's confidence in ability: interpersonal performance, score expectancy, practice and score, score alone and self-esteem. Researchers varied the conditions under which the subject's confidence in his ability was operating, such as performance of others, amount of information provided, position relative to others and

public versus private conditions. The researchers used a variety of dependent measures, such as self or other's score, amount of social comparison, kind of information sought about the age and sex of other and rank.

The results of these studies, while not conforming to the definitions of the present research, suggest that what one believes about one's abilities affects the type and amount of social comparison in which he or she will engage. The conditions under which these assessments of ability become effective also seem to effect that choice. In general, these findings also support the basic premises of both social comparison theory and social cognitive theory.

Festinger and the researchers who followed him identified two principal motives for making social comparisons, a need for information and a motive for self-enhancement. More recent theorists (Rosenholtz and Rosenholtz, 1981; Rosenholtz and Simpson, 1984a, b; Rosenholtz and Wilson, 1980; and Schunk, 1983a, b) appear to treat social comparison as a negative influence in the classroom. They have proposed eliminating it as much as possible, replacing it with self-comparison. While self-comparison is a useful technique, two problems exists with the elimination of social comparison. Social comparison with someone more proficient at a skill than oneself can be the first step in identification of an appropriate model for learning something new or perfecting a skill. Secondly, as

Bandura (1986) points out, in our culture, social comparisons are probably inevitable to some extent.

The position of this study is that social comparison is not necessarily a negative process. If an environment can be created where students can compare themselves to high performing others without forming negative judgments about their ability, they can learn from that model and increase their skill.

Pilot Research

In preparation for the current project an unpublished study (Watson-Bernard, 1987) was undertaken to assess the effectiveness of the self-efficacy manipulation and the social comparison measure. Conditions were designed to vary the presence or absence of teacher observation of children from the 4th and 7th grades. Subjects were 26 nine year old and 28 twelve year old children enrolled in a parochial school in Brooklyn, New York.

The student's self-efficacy was manipulated by administering an easy and difficult list of 10 anagrams (Davies and Yates, 1982) and having them estimate their self-efficacy along a graduated line from 0 to 100. Use of the scale was explained to the subjects and their total self-efficacy scores were averaged.

A variation of the rank order choice paradigm was used to measure social comparison choice. This was done by creating 11 groups of (hypothetical) children who had tried

to work the list of 10 anagrams on which the self-efficacy judgments were made. They were described as: Group A - 10 out of 10 correct to Group K - 0 out of 10 correct. The design of this measure was an attempt to gain a clearer and more specific insight into the level of functioning of the social comparison other.

The results indicated a significant effect for self-efficacy: children high in self-efficacy made higher functioning social comparison choices than low self-efficacy children. Significant effects were also found for teacher observed versus non-observed groups: non-observed children made higher functioning choices than observed children. There was no significant difference between the two age groups.

Since the teacher observation groups differed significantly from subjects not anticipating observation, the examiner was present in both of the goal orientation conditions in the present study. The presence of the examiner more closely approximates actual classroom conditions. This procedure held constant a variable (presence or absence of an observing adult/teacher) that might have affected social comparison choice and persistence.

In view of the lack of significant differences between grades in the pilot study, subjects in the present study were all drawn from the same grade. The results from the

pilot research appear to confirm the Suls and Sanders (1982) Developmental Sequence of Self-Evaluation Processes Model which postulates that social comparisons with others based on "the discounting principal and the compensatory relationships between performance, ability and nonability factors" are acquired by age 9 and remain essentially the same into adulthood. (p. 179)

To preclude any interpretation of effects as being due to anagram task level of difficulty, rather than high or low self-efficacy, the present study investigated self-efficacy (as a controlling variable) using a three-way split technique creating high, medium and low self-efficacy groups.

CHAPTER II

THE PROPOSED STUDY

Statement of the Problem

Phase I

The present study was designed to investigate the effects of self-efficacy and goal orientation of students on their choice of a learning partner. The major independent variable under consideration was the impact of student self-efficacy on student's choice of partner. Self-efficacy has been conceptualized and operationally defined following Bandura. His methodology, called microanalysis, was used to assess this variable in the present study.

Conditions were designed to elicit either learning or performance goals (Dweck, 1986). The former was elicited using a cooperative task where each child helped the other to increase their competence and the latter goal by using a competitive task where each child tried to avoid negative judgments of their competence.

The literature of social cognitive theory has produced a wealth of information on the effects of self-efficacy on such behaviors as task avoidance, effort expenditure, persistence, thought patterns, causal thinking, etc. Social comparison has been addressed in social cognitive theory by Bandura (1986, p.347) who stated: "Positive self-appraisal is enhanced by comparison to the lesser

attainments of others and diminished by using the accomplishments of the more talented as the relative standard of adequacy", and by Schunk (1983a, p.80)) among others, who used a social comparative condition "average number of problems solved by other children" as an independent variable to assess its effect on self-efficacy. No study to date had addressed the question of how perceived self-efficacy, under varying conditions of goal orientation affects the choice of comparison other.

The conditions under which levels of self-efficacy were studied were derived from Dweck's (1986, p. 1040) Achievement Goals and Achievement Behavior Model in which goal orientation is assumed to affect whether a child will seek or avoid a challenging experience and exhibit high or low persistence. She describes the performance goal orientation as one "in which individuals seek to gain favorable judgments of their competence or avoid negative judgments of their competence" and the learning goal orientation as one "in which individuals seek to increase their competence, to understand or master something new". In this model a high or low self-efficacious child will seek a challenge or persist on a task under a learning goal orientation in which effort is stressed and only children with high self-efficacy would seek a challenge or persist on a task under a performance goal orientation in which ability is stressed. In fact Dweck questioned whether even children

with high self-efficacy will make choices that involve risk under performance goal conditions (Dweck, 1986; p. 1042). More importantly, children low in self-efficacy under conditions where ability is stressed should avoid challenging experiences where they may encounter negative judgments of their ability.

The dependent variable in the present study, choice of rank of another student, falls into the theoretical realm of social comparative processes, parts of which have been incorporated into social cognitive theory by Bandura. It should be noted that the "comparison" in the present research is implicit in the hypothetical working together of two students, one of which, the subject, has made a self-efficacy judgment of his ability to perform a specific task. This self-efficacy judgment is compared with the rank of the hypothetical partner who has supposedly achieved a definite score on that same task. The comparison of interest then is between the perceived ability of the subject and the known ability of his partner, when working together on forthcoming motivated tasks. When formulated in terms of the model proposed by Dweck, student's selection of the achievement level of their learning partner would indicate their motivation to learn.

It was assumed that students' perception of his or her future success would be a function of the achievement level of their learning partner. A student's failure to select an

optimal learning partner was assumed to indicate their defensiveness. According to Bandura (1986, p. 347) a "defensive overevaluation" may occur when "individuals boost their self-appraisals by selecting social referents whom they can easily surpass". From social comparison theory, Hakmiller studied the comparison phenomena and found that when individuals are highly threatened, they choose to compare with someone worse off than themselves and low threat subjects compared with superior others.

Phase II

A persistence measure was desirable to determine how children's perceived self-efficacy under learning and performance goal conditions affect the length of time children would be willing to pursue a task.

Since it was not possible to pair subjects with their actual choices based on performance (the partner is hypothetical) nor to pair the subjects based on efficacy (since this would involve pairing subjects in different cells and thereby change their condition), a modified research design was used during Phase II.

Subjects were told that they could not be paired with their choice of partners because time constraints prevented giving the actual tests. This information did not obviate the investigation of the effects of student efficacy and goals on actual paired learning experiences, however. The main independent variables of self-efficacy and condition

(performance goal and learning goal) was preserved during Phase II: students having the same self-efficacy and under the same goal condition were paired together.

Dweck's model predicts that persistence should be highest for those who have been given a learning goal, i.e., they will display mastery oriented or challenge seeking behavior patterns regardless of their level of self-efficacy. However, only high self-efficacy subjects in the performance goal orientation will display these behavior patterns.

Objectives

This study:

1. Explored the relationship between self-efficacy as an independent variable and social comparison as a dependent variable, and specifically, attempted to find out if high and low levels of self-efficacy affected social comparison choices or task persistence.

2. Attempted to find out if differences in goal orientation affected a social comparison choice or task persistence.

3. Attempted to find out if self-efficacy judgments interacted with goal orientation in children's social comparison choice or task persistence.

Experimental Hypotheses

Phase I

1. Children high in self-efficacy will make social comparison choices higher in rank than low self-efficacy children.

2. Children in the learning goal orientation condition will make social comparison choices higher in rank than children in the performance goal orientation condition.

3. Children in the performance goal orientation condition with high self-efficacy will make social comparison choices higher in rank than children in the same condition with low self-efficacy.

4. Children in the learning goal orientation condition will show no differences in social comparison choices as a function of self-efficacy.

Phase II

5. Children high in self-efficacy will persist longer on the anagram task than low self-efficacy children.

6. Children in the learning goal orientation condition will persist longer on the anagram task than children in the performance goal orientation condition.

7. Children in the performance goal orientation condition with high self-efficacy will persist longer on the anagram task than children in the same condition with low self-efficacy.

8. Children in the learning goal orientation condition will show no differences in persistence as a function of self-efficacy.

CHAPTER III

METHOD

The study was conducted in two phases. The first phase included the assessment of self-efficacy, giving goal instructions concerning the task and administering the social comparison measure. Phase two took place approximately one week later with two subjects from the same experimental condition in phase one paired together. The dependent measure in this phase was the length of time the subjects persisted together in solving a series of anagrams. The decision to stop was made by consensus of the pair. The anagram was referred to as a word puzzle to avoid confusion about or explanations of the word "anagram".

Phase I

Method

Subjects. The sample was composed of 88 fifth grade students (48 female and 40 male) from three parochial schools and one public school in New York City. The subjects were drawn from a lower middle class neighborhood and included approximately equal numbers of Black, White and Hispanic children. Parental permission for subject participation was obtained (see Appendix A). Subjects were randomly assigned by sex to the two conditions of the study. Average age for this grade was approximately 10 years.

Materials. A set of 10 anagrams (Tresselt and Mayzner,

1966) (see Appendix B) was printed on 4" x 6" unlined index cards. Each subject was presented with a sheet of unlined paper containing identifying and coded condition/self-efficacy cell information (which was filled in post administration) at the top and a series of 10 numbered scales on the page (see Appendix C). The scales ranged from 0 to 100 in increments of 10 and corresponded to the 10 anagram cards shown to the subject. A cover sheet with a cutout window was used to mask all scales except the one in use (see Appendix B).

Procedure. The following instructions were given:

Experimenter: I am doing a study on how well children can solve word puzzles. The puzzle is that the words have their letters mixed up and to solve them you put the letters in the right order so that they spell a real word. Here is an example.

A five letter anagram was shown to all subjects for 10 seconds.

Experimenter: This is how you could solve this word puzzle.

The Experimenter solved the word puzzle in front of the subject by printing the solution on a separate sheet of paper.

Experimenter: See, all the letters are the same but these (solution card) have been arranged to make a real word.

The example and solution card were put away.

Self Efficacy Measurement/Manipulation. Instructions:

Experimenter: Now I'm going to show you some other word puzzles. As I show them to you I want you to tell me how sure you are that you can solve them by placing a check along this line.

Subjects were shown the first efficacy scale by placing the window of the cover sheet over the scale revealing only that scale.

Experimenter: This is a sureness scale and I'll show you how it works. It goes from 0 to 100. Zero means that you are not sure at all that you can solve the word puzzle and 100 means that you are absolutely sure that you can solve it. As the numbers get bigger it means that you are more and more sure that you can solve the word puzzle. Remember you will not have enough time to really work the puzzle. Just tell me how sure you are, if you had time, that you could solve it. Give me your very best estimate.

Subjects were shown anagram #1 for 10 seconds.

Experimenter: This is the first word puzzle. How sure are you that you could solve it?

This procedure was repeated for the 9 remaining anagrams with instructions:

Examiner: Here is the next word puzzle. How sure are you that you could solve it?

All subjects were administered the self-efficacy measurement in exactly the same way. This variable was studied using a three-way split technique at the 33rd and

66th percentile dividing subjects into high, medium, and low self-efficacy groups. For each subject his self-efficacy score was the average of the 10 self-efficacy judgments.

Goal Orientation Manipulation. After the completion of the 10 anagram self-efficacy judgments the examiner gave the following instructions to all subjects:

Examiner: I will be coming back to your school next week and at that time you will be working with one other student on solving anagrams. In a minute you will have a chance to choose the person you would like to work with, but first I want to tell you how you will be working.

Performance Goal Condition. Examiner: You and your partner will have a list of word puzzles which you will try to solve. I will watch and keep track to see which of you solves each word puzzle first and who has solved the most at the end of the session. It is important that I find out who is best at solving word puzzles.

Learning Goal Condition. Examiner: You and your partner will have a list of word puzzles which you will try to solve. I will watch to see how many word puzzles the two of you can solve together by the end of the session. It is important that I find out how much the two of you can help the other learn to solve these puzzles.

Social Comparison Measure. This measure was administered immediately after the goal orientation manipulation.

Examiner: Now I want you to choose a partner that you would like to work with from several groups of children who will be working these same word puzzles.

Social Comparison Scale. The back of the sheet containing the self-efficacy scales was arranged with 11 descending groups of children from A to K. Beside each group letter was the performance of that group:

Group A: 10 out of 10 correct

Group B: 9 out of 10 correct, etc.,

(see Appendix D).

The Examiner turned the sheet over to show the social comparison scale and gave the following instructions:

Examiner: This is how the children will score on the word puzzles. Put a circle around the group you would like your partner to come from.

After subjects circled the group letter to indicate their social comparison choice the examiner asked them not to discuss the word puzzle task with the children in their class. It was made clear to them, however, that they were free to discuss the task with their parents or teachers.

Phase II

Method

Subjects. Children from Phase I were randomly assigned to form pairs within each cell. These pairs participated together during the second phase of the study.

Procedure. The following instructions were given:

Examiner: You both remember that last week I told you we would be working together in pairs on solving word puzzles. I didn't have time to test either of you or any of the other children on the word puzzles. Therefore, I couldn't assign you to work with the person you chose. I do want the two of you to work together in just the way we talked about. When both of you decide together to stop and go back to your class, just tell me and we will stop. Here is the list of word puzzles which you will try to solve.

Performance Goal Orientation Condition. The Examiner presented a list of 25 anagrams (Tresselt and Mayzner, 1966) (see Appendix E) with the following instructions: Examiner: Remember, I will be watching to see which of you solves the word puzzle first and who has solved the most at the end of the session. It is important that I find out who is best at solving word puzzles. Remember, both of you must decide together when to stop.

Learning Goal Orientation Condition. The Examiner presented the same list of 25 anagrams as above with the following instructions: Examiner: Remember, I will be watching to see how many word puzzles the two of you can solve by the end of the session. It is important that I find out how much the two of you can help each other learn to solve these puzzles. Remember, both of you must decide together when to stop.

Persistence Measure. A stop watch was used to measure

the time from the last word of the instructions to the time when consensus was reached by the pair and they agreed to stop. This time, in seconds, was recorded on the front of the page. A second list of anagrams was prepared if any subject pair wished to continue past the original 25.

CHAPTER IV

RESULTS

The data were analyzed using a 2 x 3 analysis of variance for each dependent measure with a priori comparisons calculated as stipulated by the hypotheses. The experimental independent variables were goal orientation (learning and performance) and the controlling variable was self-efficacy (high, medium and low). Self-efficacy levels were defined by the 33rd and 66th percentiles. In order to check on the randomization procedures within the controlling self-efficacy variable, statistical comparisons were conducted between the cell means of the low self-efficacy subjects in the learning condition ($M = 26.85$) versus the performance condition ($M = 26.59$) and between the high self-efficacy subjects in the learning condition ($M = 75.50$) and the performance condition ($M = 75.07$). These means were found to be statistically comparable. The two dependent variables were social comparison and task persistence. The results will be presented by Phase.

Phase 1: Hypotheses and Research Findings

A priori t tests (Kirk, 1968) were carried out on the four planned comparisons of means as stipulated by the four hypotheses of Phase 1. These hypotheses regarded the effects of self-efficacy and goal-orientation on the

subject's choice of a learning partner. The means and standard deviations for all groups are presented in Table 2. The n of all comparison means were equal. The degrees of freedom for each a priori contrast were 78. The results of the a priori t tests are listed below.

1. Children high in self-efficacy ($M = 9.00$) were predicted to choose higher ranking partners than children low in self-efficacy ($M = 7.36$). This hypothesis was confirmed, $t(78) = 3.41$, $p < .001$.

2. Children in the learning goal orientation condition ($M = 8.86$) were predicted to choose higher ranking partners than children in the performance goal orientation condition ($M = 7.69$). This hypothesis was confirmed, $t(78) = 2.98$, $p < .01$.

3. Children in the performance goal orientation condition with high self-efficacy ($M = 9.29$) were predicted to choose higher ranking partners than children in the same group with low self-efficacy ($M = 6.29$). This hypothesis was confirmed, $t(78) = 4.41$, $p < .0001$.

4. Children in the learning goal orientation condition were expected not to differ in their choice of a learning partner regardless of whether they were high in self-efficacy ($M = 8.71$) or low in self-efficacy ($M = 8.43$). As expected, the results of this comparison showed no significant differences between these two means, $t(78) = .41$, $p < 1.00$.

A 2 (goal orientation: learning and performance) by 3 (levels of self-efficacy: high, medium and low) analysis of variance was conducted on the data from Phase 1. In order to facilitate the statistical analysis four subjects from three cells were dropped to equalize cell means. However, an analysis of variance computed with unequal cell means yielded virtually identical results. The first four hypotheses concerning differences in social comparison choice were supported as shown in Table 1 and Table 2.

Table 1

Phase 1: Analysis of Variance of Rank of Partner Choice
(Goal Orientation by Self-Efficacy)

<u>Source of Variation</u>	<u>Sum of Squares</u>	<u>Degrees of Freedom</u>	<u>Mean Square</u>	<u>F</u>	<u>Sign. of F</u>
Goal Orientation (GO)	28.583	1	28.583	8.815	.004**
Self-Efficacy (SE)	39.310	2	19.655	6.061	.004**
GO x SE	31.881	2	15.940	4.916	.01**
Residual	252.929	78	3.243		
Total	352.702	83			

Table 2

Phase 1: Means and Standard Deviations of Children's Partner Choice Rank as a Function of Their Self-Efficacy and Goal Orientation.

<u>Condition</u>	<u>n</u>	<u>Mean</u>	<u>SD</u>
Learning Goal Orientation			
Total Sample	42	8.86	1.65
High SE	14	8.71	1.49
Medium SE	14	9.43	1.09
Low SE	14	8.43	2.14
Performance Goal Orientation			
Total Sample	42	7.69	2.28
High SE	14	9.29	.99
Medium SE	14	7.50	1.99
Low SE	14	6.29	2.55
High Self-Efficacy			
Total Sample	28	9.00	1.28
Medium Self-Efficacy			
Total Sample	28	8.46	1.86
Low Self-Efficacy			
Total Sample	28	7.36	2.56

A significant main effect was found for self-efficacy, $F(2, 78) = 6.061$, $p < .01$ (see Table 1). Post hoc comparisons using Newman-Keuls procedures (Kirk, 1968) determined that significant differences occurred only between the high ($M = 9.00$) and low ($M = 7.36$) self-efficacy groups. Medium level self-efficacy children ($M = 8.46$) were not significantly different from either the high or low self-efficacy groups (see Table 2).

A significant main effect was found for goal orientation, $F(1, 78) = 8.815$, $p < .01$ (see Table 1). Learning goal orientation subjects ($M = 8.86$) chose significantly higher ranking potential partners than performance orientation subjects ($M = 7.69$) (see Table 2).

A significant 2-way interaction effect was found between goal orientation and self-efficacy, $F(2, 78) = 4.916$, $p < .01$ (see Table 1). Newman-Keuls post hoc analyses showed that only children high in self-efficacy who were in the performance orientation condition ($M = 9.29$) chose significantly higher partner ranks than children in the same condition with low self-efficacy ($M = 6.28$).

No significant differences occurred between high self-efficacy children ($M = 8.71$) and low self-efficacy children ($M = 8.42$) in the learning goal orientation group. Nor was there a significant difference in partner choice between either of these groups and the middle self-efficacy children in this condition ($M = 9.43$).

Phase 2: Hypotheses and Research Findings

In the second phase of the study, 84 children from Phase 1 were grouped into 42 pairs ($N = 42$). The subjects were paired with a partner in the same self-efficacy group and goal orientation condition. One persistence score was obtained for each pair by measuring the time in seconds they worked together on the anagram task until they agreed to stop. Hypotheses 5 through 8 concerned the persistence of these pairs of children.

A priori t tests were performed on the four major comparisons of interest in Phase 2 as stipulated by the last four hypotheses. These hypotheses concerned the persistence on the anagram task of each pair as a function of their self-efficacy and goal orientation. The means and standard deviations for all groups are presented in Table 4. The t tests performed on these means were adjusted for unequal n . The degrees of freedom for each a priori contrast were 36. The results of the t tests are presented below. Means are given in seconds.

1. Pairs low in self-efficacy ($M = 1413$), contrary to prediction, persisted significantly longer than pairs high in self-efficacy ($M = 1060$), $t(36) = -1.96$, $p < .05$.

2. Pairs in the learning goal orientation condition were predicted to persist longer than pairs in the performance goal orientation condition. Although pairs given a learning goal ($M = 1270$) persisted longer than pairs

given a performance goal ($M = 1089$), this difference did not reach statistical significance, $t(36) = 1.26$, $p < .10$.

3. Pairs in the performance goal orientation condition with high self-efficacy were predicted to persist longer than low self-efficacy pairs in the same condition. The mean of the high self-efficacy pairs ($M = 1106$) was nearly identical to that of the low self-efficacy pairs ($M = 1112$) and thus this hypothesis was not confirmed, $t(36) = 2.19$, $p < 1.00$.

4. Pairs in the learning goal orientation condition were expected not to differ in their persistence as a function of their self-efficacy. Contrary to expectation, within the learning goal orientation condition, pairs low in self-efficacy ($M = 1601$) persisted significantly longer than pairs high in self-efficacy ($M = 1015$), $t(36) = -2.42$, $p < .01$.

A 2 (condition: learning and performance) by 3 (levels of self-efficacy: high, medium and low) analysis of variance was conducted on the data from Phase 2. The results summarized in Table 3 show no significant main effects for self-efficacy (Hypothesis 5) or goal orientation (Hypothesis 6). Neither do they show significant interaction effects (Hypothesis 7 and 8).

Table 3

Phase 2 Analysis of Variance of Persistence in Seconds
(Goal Orientation by Self-Efficacy)

Source of Variation	Sum of Squares	Deg. of Freedom	Mean Square	F	Sign. of F
Goal Orientation (GO)	219224.96	1	219224.96	1.003	.323
Self-Efficacy (SE)	880394.96	2	440197.48	2.013	.148
GO x SE	572754.45	2	286377.23	1.310	.282
Residual	7870681.66	36	218630.05		
Total	9664546.57	41	235720.65		

Table 4

Phase 2: Pair Persistence in Seconds: Means and Standard Deviations as a Function of Their Goal Orientation and Self-Efficacy.

<u>Condition</u>	<u>n</u>	<u>Mean</u>	<u>SD</u>
Learning Goal Orientation			
Total Sample	22	1269.59	525.03
High SE	7	1015.00	370.90
Medium SE	7	1145.14	536.40
Low SE	8	1601.25	506.39
Performance Goal Orientation			
Total Sample	20	1089.25	431.34
High SE	7	1105.71	376.68
Medium SE	8	1060.63	464.68
Low SE	5	1112.00	538.77
High Self-Efficacy			
Total Sample	14	1060.36	362.21
Medium Self-Efficacy			
Total Sample	15	1100.07	482.89
Low Self-Efficacy			
Total Sample	13	1413.08	554.72

CHAPTER V

DISCUSSION

The present study was a first attempt to determine the effects of self-efficacy and goal orientation on social comparison and persistence among children. The first phase of the study lends strong support to 1) social cognitive theory regarding the bi-directional effect of self-efficacy on behavior, 2) the theory of social comparison processes in regard to defensive comparison as a result of threat, and 3) the model proposed by Dweck regarding the interaction of the perception of one's ability and the goal orientation of the subject on behavior patterns. The results of the second phase of the study did not support the specific hypotheses regarding persistence. However, support was found for the beneficial effects of a learning goal orientation for low self-efficacy subjects. The results will be discussed by Phase.

Phase 1

The significant difference between high and low self-efficacy subjects in their choice of a potential learning partner adds to the growing body of knowledge concerning the strong influence of self-efficacy on behavior. While social cognitive theory has proposed that social comparison exerts an influence on self-efficacy (Bandura, 1986; Schunk 1983,

1984), the present study provides the first support for the assumption that the effect is bi-directional. Overall, the results support the position that high self-efficacy children choose higher ranking partners than low self-efficacy youngsters. This creates a situation in which they can be compared to and to possibly learn from that higher functioning child.

Conversely, children low in self-efficacy overall, choose significantly lower functioning partners than chosen by their high self-efficacy counterparts. This reduces the possibility of an unfavorable comparison between their perceived lack of skill on a task and that of a high performing child and precludes an opportunity to learn through contact with that child.

Strong support was found for overall significant differences between goal orientation groups in their selection of a partner's rank. If children anticipate working in a cooperative situation, they will choose significantly higher ranked partners than if they anticipate working in a competitive situation. This finding lends support to the research found in social comparison literature, particularly to the predictions by Hakmiller (1966a) and Samuel (1973) that threat of evaluation can produce a defensive posture. The anticipation of working in a competitive situation engendered enough of a "threat" that significant numbers of children chose lower ranking partners

than did their counterparts in the cooperative or learning goal orientation group.

However, the data also revealed which specific children were most severely affected by competitive threats. Dweck's model predicts that only children with high confidence in their ability will choose mastery oriented behavior patterns when they are in a performance goal orientation. Their low ability confidence counterparts in the same goal orientation condition should choose helpless behavior patterns. The present study found strong support for this prediction. Children in the performance condition whose self-efficacy score was high for anagram solving chose significantly higher ranking partners than children with low self-efficacy.

The second part of Dweck's model predicts that all children in a learning goal orientation will choose mastery oriented behavior. Phase 1 data again offers strong support for this prediction. All groups in the learning goal orientation in all three levels of self-efficacy choose high ranking partners with whom to participate in the anagram solving task. There were no significant differences between any of the three self-efficacy groups.

The results of Phase 1 lend strong support to the prediction that more children overall, regardless of their perceived ability on a given task, will risk having their ability compared to a high functioning other when the

emphasis is on cooperative versus competitive learning. These children will then have the opportunity to work closely with a high functioning partner from whom they then have an opportunity to learn more.

Phase 2

Overall, children with low self-efficacy persisted significantly longer on the anagram task than did children with high self-efficacy. This outcome is contrary to the prediction of Hypothesis 5. The significant difference between the two groups can be attributed almost entirely to the significant differences between the low self-efficacy subjects in the learning versus the performance conditions. Low self-efficacy students in the performance group persisted only 6 seconds longer than their high self-efficacy counterparts compared to a difference of 586 seconds (or 9.77 minutes) between high and low self-efficacy groups in the learning goal orientation condition.

Children high in self-efficacy appear not to be influenced by a learning versus a performance goal orientation as far as their willingness to persist on this task (anagrams) is concerned. Dweck's model predicts that children who have high confidence in their present ability (high in self-efficacy) will have equally high persistence in either a learning or performance goal orientation. What Dweck does not predict is that children low in self-efficacy will surpass their high self-efficacy counterparts in

persistence in the learning goal orientation condition. Clearly, some aspect of the joint (paired) learning experience motivates children low in self-efficacy to persist longer. The same phenomenon cannot be said to motivate the high self-efficacious pair.

The reason for the lower persistence time overall of the high self-efficacy pairs is unclear. The possibility that these students had a high learning rate and high accuracy and therefore finished sooner was one possibility. However, all students had the opportunity to continue with a second list of anagrams, if they finished the first list of 25 and none choose to do so. Only two pairs of students completed all the anagrams. Therefore, even if some students did learn more efficiently, this did not limit their persistence time in this study because no student completed all the available tasks. Persistence time was selected as a primary dependent measure because the emphasis of this study was explaining motivation. The issue of the impact of learning efficiency is important in its own right and needs to be addressed in future research.

In examining the means of the four cells under consideration, three of these cells are within 97 seconds of each other in persistence time; they are the high and low self-efficacy students in the performance condition and the high self-efficacy students in the learning condition. The students low in self-efficacy in the learning condition

persisted over eight minutes longer than those in the next closest cell.

Existing literature on persistence has not dealt directly with paired learning (or peer tutoring) and self-efficacy. Clear evidence does exist for longer persistence times for individual subjects high in self-efficacy on a number of tasks (Bandura, 1986; Dweck, 1986; Zimmerman, 1985). The present study suggests that with the addition of a partner, particularly under a learning goal orientation condition, a variable may be present which causes the low self-efficacious child to continue with the task longer than a high self-efficacious child.

A possible explanation of the results may involve the potency of the partner as a helper for the low self-efficacious child. If one can assume that a child high in self-efficacy has a greater reliance on his own ability than a low self-efficacious child, the presence of a partner as a helper in a learning goal orientation group would not be expected to affect his willingness to persist. The results of the present study indicate that, in fact, paired children high in self-efficacy showed no significant differences in persistence whether in the performance or learning orientation group. A child low in self-efficacy, on the other hand, may see his partner as a possible source of help long after he would ordinarily have given up using only his own resources. Again, the results indicate that the child

low in self-efficacy persisted significantly longer when he perceived his partner as a cooperative learning source than when he perceived him as a competitor (performance group).

Recall that these children were not told the rank (or even the self-efficacy scores) of their partner at the time of the Phase 2 experience. They were told that they could not be paired with the partner they had chosen in Phase 1 because of time limitations. Therefore none of the students could assume that their partner was not of an ability to help them succeed. According to the above interpretation, the power of the learning goal orientation is clearly to the benefit of the low self-efficacious child.

Implications of the study

The present research has shown that perceptions of self-efficacy affect many aspects of a child's learning. One aspect of learning experiences is how the child acquires knowledge and skill from other children (modeling). This may be through a planned intervention from a teacher, such as peer tutoring, or through a more informal "pairing", initiated by the child himself.

It has been shown that in a classroom where the teacher emphasizes a performance motive, the child with low self-efficacy will make a learning partner choice that is less than optimal. However, when a teacher emphasizes a learning motive, children with low self-efficacy will choose a partner from whom they can learn more.

Classrooms organized around a performance goal orientation have aspects in common with the unidimensional classroom described by Rosenholtz (1982). The high level of peer competition emphasized in these classrooms engenders defensive behaviors that prevent students from risking displays of ignorance. Instead of seeking a challenging experience, such as studying with a high functioning partner, the child chooses to avoid these experiences because they call his or her ability into question.

A classroom organized around a learning goal orientation would de-emphasize this competitive aspect and encourage cooperation between students to learn from each other. Since it is probably not possible or perhaps profitable to structure a classroom setting where social comparison is totally absent, skillful management of peer tutoring between students of differing ability levels can be accomplished to both students' advantage. The low self-efficacious student is more willing to risk having his perceived inability known to his partner, if a learning/cooperative goal is emphasized.

The results from Phase 2 suggest that the paired, cooperative learning experience is particularly beneficial for the low self-efficacious child in his or her willingness to persist. There may be several strategies that can engage the persistence on study time for the student high in self-efficacy. It is important, however, for the teacher of the

low self-efficacious child to be aware of the benefits for this child in paired learning experiences where the emphasis is on cooperation rather than competition. This child appears to be willing to persist on a task far longer in the presence of a "helping other" than his classmate with high self-efficacy.

Future Research

The proposed explanation needs to be tested in future research. Possible differences in persistence should be determined between high and low self-efficacy students learning independently versus those learning in cooperative pairs. If the explanation offered above is correct, the highly self-efficacious child may not benefit from paired learning experiences in longer persistence time.

Additional dependent measures should be incorporated into the design of the present study such as a measure of effort. A measure of effort might include the number of anagrams attempted and a persistence measure per attempt. This measure would clarify just what is taking place in the joint learning experience rather than a total time spent on task. An additional achievement measure or the number of correctly solved anagrams could be established. Students' perceptions of their paired learning experience should be determined by a rating scale administered after the joint learning experience. This scale should gauge how helpful each subject found his partner.

No effort was made in this study to match subjects on the basis of sex. Possible differences in the way males and females choose the rank of their learning partners as well as sex differences in paired persistence time should be explored in future studies.

Finally, a self-efficacy measure could be administered before and after a paired learning experience in both performance and learning orientation conditions to determine what effects the goal orientation has on the child's perception of his skill.

APPENDIX A

Letter for Parental Permission

Dear Parent,

This is a letter to request your permission for your child to participate in a study conducted by Janice Watson-Bernard, a graduate student in the Educational Psychology Department of the City University of New York, Graduate School. This study is part of the requirements for the awarding of the doctoral degree.

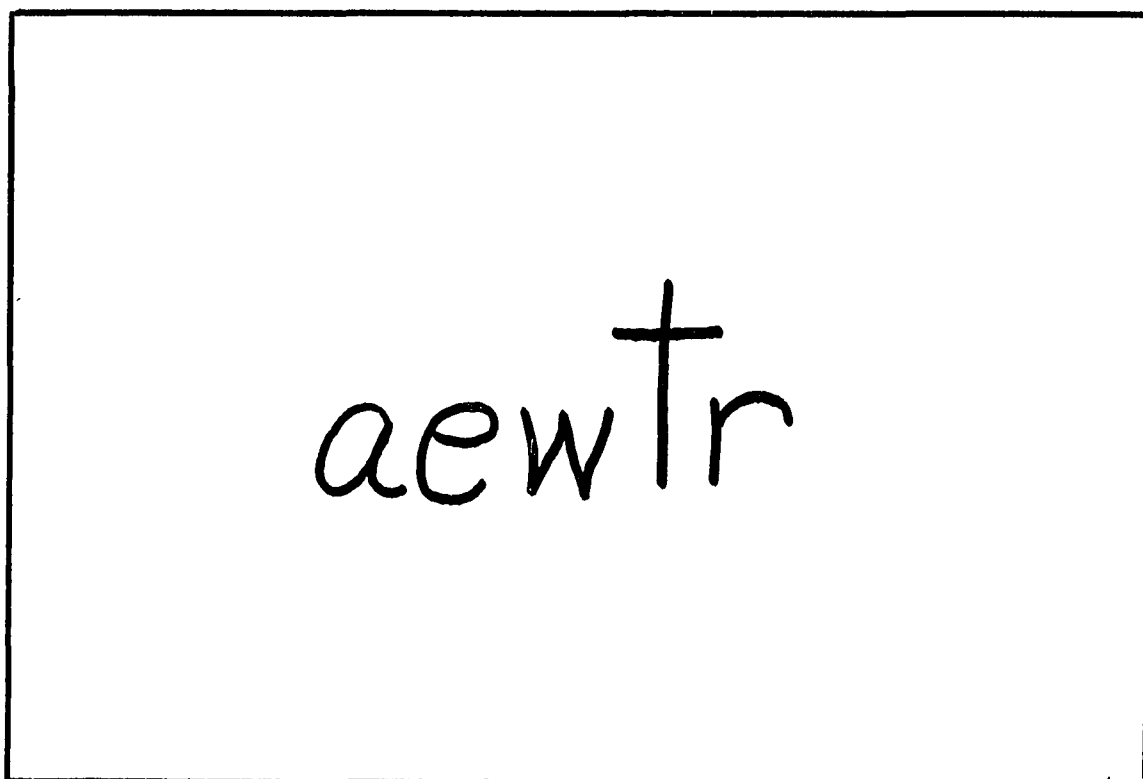
This study will investigate the effects of self-efficacy (or an estimate of one's skill) and goal orientation on the choice of another child to work with. Each child will be seen individually and again in pairs about a week later. Participation is voluntary and any child may withdraw from the study at any time. The responses of all participants will be kept strictly confidential. The purpose of the study will be explained to all the children who participate at the conclusion of the second meeting.

If you consent to your child's participation in the study outlined above, please return this form to your child's teacher. Thank you for your consideration.

I give my permission for my child _____
to participate in the study outlined above. I understand
that participation is voluntary and that I may withdraw my
child at any time.

Parent's Signature

APPENDIX B

**EXAMPLE**

Ten anagrams used of Phase 1 self-efficacy scale. All were printed on 4 X 6 unlined index cards (see above).

- | | |
|----------|-----------|
| 1. nrdki | 6. iptna |
| 2. iuegd | 7. rtypa |
| 3. ihrca | 8. iuftr |
| 4. ugars | 9. mhnua |
| 5. ohtnm | 10. uodnp |

APPENDIX C

Self-Efficacy Measure

Name: _____ Ident. No. _____

Sureness Scale

Word Puzzle No. 1.

0---10---20---30---40---50---60---70---80---90---100

Word Puzzle No. 2.

0---10---20---30---40---50---60---70---80---90---100

Word Puzzle No. 3.

0---10---20---30---40---50---60---70---80---90---100

Word Puzzle No. 4.

0---10---20---30---40---50---60---70---80---90---100

Word Puzzle No. 5.

0---10---20---30---40---50---60---70---80---90---100

Word Puzzle No. 6.

0---10---20---30---40---50---60---70---80---90---100

Word Puzzle No. 7.

0---10---20---30---40---50---60---70---80---90---100

Word Puzzle No. 8.

0---10---20---30---40---50---60---70---80---90---100

Word Puzzle No. 9.

0---10---20---30---40---50---60---70---80---90---100

Word Puzzle No. 10.

0---10---20---30---40---50---60---70---80---90---100

APPENDIX D

Social Comparison ScaleGroups of children who try to solve the 10 word puzzles.

Group A 10 out of 10 correct.

Group B 9 out of 10 correct.

Group C 8 out of 10 correct.

Group D 7 out of 10 correct.

Group E 6 out of 10 correct.

Group F 5 out of 10 correct.

Group G 4 out of 10 correct.

Group H 3 out of 10 correct.

Group I 2 out of 10 correct.

Group J 1 out of 10 correct.

Group K 0 out of 10 correct.

APPENDIX E

NAMES _____ And _____

WORD PUZZLES:

eguid

irtna

euohs

cihra

ohytu

oewrp

iumcs

aeuvl

oeshr

hntgi

bwloe

rshbu

APPENDIX E (Continued)

WORD PUZZLES:

dorba

ognrw

rhacm

hslfe

oetrw

ietdr

augdr

ecsua

aecrt

adter

vderi

alebt

aephs

APPENDIX F

Design for 2 X 3 Analysis of Variance

ANOVA

Goal Orientation

Self-Efficacy	Learning	Performance	
High	High Soc. Comp. High Persist.	High Soc. Comp. High Persist.	High SC High Per
Medium			
Low	High Soc. Comp. High Persist.	Low Soc. Comp. Low Persist.	Low SC Low Per
	High Soc. Comp. High Persist.	Low Soc. Comp. Low Persist.	

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