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SELF-CONCEPT AND ACHIEVEMENT: A CROSS-CULTURAL  
VALIDATION STUDY IN GERMANY AND THE UNITED STATES

by

Donald F. Depew

A Dissertation  
Submitted to the  
Faculty of The Graduate College  
in partial fulfillment  
of the  
Degree of Doctor of Philosophy

Western Michigan University  
Kalamazoo, Michigan  
April 1976

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Donald F. Depew

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CHAPTER I  
INTRODUCTION, THEORY AND LITERATURE

Introduction

This study develops and subjects to analysis the universality of the proposition that in all cultures there exists a general relationship between self-concept and the development of social skills. This proposition, which was derived from the work of George Herbert Mead (1934), Wilbur Brookover (1955), Ruth Wiley (1961), James Coleman (1966), and others states that the development of social skills is in part a function of self-conceptions of ability to learn such skills. More specifically, this study reports a cross-cultural investigation of the theory that academic achievement level is partially a function of students' self-conceptions of their academic abilities.

The development of self-concept theory, like many theories in the social sciences, has been impeded by the almost provincial or ethnocentric character of the bulk of its supportive research. North Americans doing research on the relationship between self-concept and behavior have tended to study only students in the United States and Canada, while European scientists have limited most of their work to subjects in Europe. The same can be said for self-concept studies by Asian and Near Eastern scholars.

However, it should be noted that while these studies in various parts of the world have provided some amount of construct and predictive validity in local settings for certain instruments designed to tap self-concepts, there are still problems of universal validity. See, for example, the review of literature on this problem provided by

Brookover and Erickson (1975). Prior research has not provided sufficient empirical support to establish the universality of the proposition that self-conceptions of ability and behavior are related across cultures. This in part may be due to the fact that instruments designed to measure self-conception tend not to be cross-culturally validated.

Many social science methods books point out the problems in making valid conclusions in the social sciences based on simple comparison of findings or conclusions obtained from differing studies in the same culture. It is even more difficult to make valid interpretations relating conclusions drawn from distinctly different cultures or subcultures (Przeworski and Tenue, 1970:91-113; Warwick and Osherson, 1973:1-43). Often data-gathering instruments share nothing in common but their name. For example, there are literally hundreds of differing questionnaire forms for gathering information on the so-called self-conceptions of students (Wylie, 1961:300-333). In some studies using these differing instruments, males are found to have higher self-conceptions than females, while other studies show the reverse (Kaminski, 1975:1-16). Perhaps such conflicting results are due to real differences between males and females. On the other hand, conflicting results could be caused by differences in the measurement instruments.

Given methodological equivalence, results describing specific social or psychological attributes of persons should differ among various populations, depending on cultural differences. One would expect all cultures, however, to show certain similarities. In other

words, they should all reflect those social phenomena which are known to be universal.

Hypothesized social universals usually include the asserted principles of behavior. If, for example, the Meadian principle of self-concept (as arising essentially out of interaction with others) is valid, those processes and functions should be found everywhere. Obviously, it cannot be imagined that the principles of George Herbert Mead, Piaget, Skinner and others apply only to American students.

Until this point, most of the research that has been labeled comparative on this subject has consisted of isolated studies at non-American sites. For example, in studies by Votruba (1971:34-39) and Auer (1971:67-96) of German students at three different types of schools (the gymnasium, the Hauptschule, and the Realschule), self-concept of academic ability was found to be strongly related to achievement when social class background and type of school were controlled. Sidawi (1970:60-87), in a study of Lebanese students, also found self-concept of academic ability to be related to achievement.

While such studies have been supportive of self-concept theory, the methods they incorporated do not warrant universal application of their findings. In all cases, one is unable to determine whether the positive results are due to idiosyncratic societal conditions or to a universal inherent link between the variables. The problem is that there have been no systematic, truly comparative cross-validations of the ideas generated by the self-concept school. (Warwick and Osherson, 1973:6-41). Most comparisons that have been made are of the impressionistic variety. Hence, one cannot confidently suggest that there is

universal validity in conclusions reached by typical self-concept research.

Most comparative research methods textbooks point out the dangers of implying or asserting cross-cultural generalizations and of stating general principles of behavior based upon culturally restricted samples. (Warwick and Osherson, 1970:6-41). Furthermore, investigators who use results from different studies to make impressionistic comparisons of their findings do not overcome basic methodological problems. (For a prime example of this type of comparative research, see Carnoy, 1967:339-374.) A valid comparative design as developed in recent methodology theory (see, for example, Warkwick, 1973:6-41) requires equivalence in terms of samples, data collection procedures, instrumentation and analysis. In addition, elaborate translation techniques are now considered necessary for good comparative research. Given these stringent requirements, the average impressionistic comparison of conclusions from two or three independently conducted studies is difficult to qualify as truly comparative.

In the present study, the original general academic self-concept of academic ability scale developed by Brookover and associates was subjected to the following translation process.

Initially, steps were taken to convey the intent of the original instrument in the simplest possible way. This was done by translating the original American version into the international sign language of the deaf, which has a very simple grammar and is a universal mode of symbolic communication. Then the instrument was translated back into English and German. (The translation process was conducted by Lee Joiner for the American version and Harro Kahler for

the German instrument.) Through these procedures, equivalence of grammar and meaning is maximized. A major focus of the present study is to test for equivalence of function these two versions of the same self-concept scale.

At this point, it may be appropriate to establish a distinction between studies that present a true comparative design within a "cross-validation" framework and less precise studies that merely compare findings and conclusions of similar studies in differing cultures. As described by Warwick (1973:6-41) and others, a valid comparative study includes control for equivalence of samples, designs, instrumentations and techniques of analysis. Once a measure of equivalence is established, a single cross-validation study is performed. For example, if comparisons involve Germany and the United States, the beta weights from the United States sample are substituted in the calculations for the beta weights of the German sample. In essence, one takes the formula for one set of data (which becomes the predicted pattern) and plugs it into the second sample, which is the actual pattern or correlation. Predicted and actual patterns are then correlated to see if the correlation is significant; i.e., the relationship is not reduced to insignificance or zero. However, in a two-way cross-validation, as in the case of the present investigation, the formulas for both sets of data are used. That is, in this study the German beta weights are also plugged into the American data.

Restated, this study proposes to cross-validate, within a valid comparative framework, the asserted universal relationship between self-concept of ability and academic achievement, and to assess the

equivalence of functions of the Michigan State Self-Concept of Academic Ability Scale (MSSCAA).

Three distinct cultural settings are included: 1) a system wide class of students from Giessen, a large city in the Federal Republic of Germany; 2) a system wide class of students from Lansing, Michigan, a large American midwestern city including all social classes, but with a high concentration of middle class individuals; and 3) an "inner city" class of students from Grand Rapids, Michigan, another large American midwestern city, principally industrial and containing a high proportion of minorities with relatively low socioeconomic status. The three sites were selected from a pool of locations because they were dissimilar (most different systems design) in such a way as to provide a very powerful and rigorous initial cross-validation test of self-concept theory and the MSSCAA scale.

The data used in this study were collected independently by three different groups of researchers at separate locations. As has been pointed out, true comparative cross-validation is not normally realized with independent studies such as these. The lack of comparability of research procedures and tools used in empirical research within most problem areas tends to prevent adequate cross-validations with most independently drawn studies. Fortunately, the hypotheses, methodological procedures and tools of these independent researchers were similar enough to allow for a solid cross-validation of the hypotheses. Evidence gathered by these disparate procedures was considered sufficiently valid to support cross-cultural correlations based on the similarities just mentioned, which set the stage for a

rigorous and statistically powerful cross-cultural test of the ideas.

The use of three sets of data that have been collected by three separate research teams -- each team working independently -- also negates much of the possibility that cross-validation results could be affected by experimenter bias. Pitfalls concerning the impact of bias, which must be considered whenever only one team of researchers is involved, can probably be ruled out. Such problems resulting from the subjective impact of the experimenter on his data are discussed by Rosenthal (1964:121-146).

#### Theoretical Background: Self-Concept and Achievement

There exists today a variety of theoretical constructs that purport to account for variations in individual behavioral abilities. Like self-concept theory, most of these constructs lack a comparative foundation. For example, there are genetically and environmentally based theories of human behavior. In addition to the fact that most of the work within such areas is non-comparative, often these constructs attempt to explain variations in human behavior by use of a homogenous set of explanatory variables, e.g., genetic or environmental factors. The self is usually treated as a passive entity upon which these factors operate to determine or limit behavior.<sup>1</sup>

An approach which is not as inflexible and unidimensional as these may be illustrated by certain of the self-concept theories

---

<sup>1</sup>For an example of a non-comparative approach which emphasizes genetic factors for explaining variations in the quality of behavior, the reader can review the work of Arthur Jensen (1965:1-123). Much of the work of the behaviorist in psychology falls within the environmental perspective. For a good overview of this position see Ellen Reese (1966:1-73).



associated with George Herbert Mead (1934), who considered variations in human performance or quality task performance to be defined as a function of self-concept of ability with respect to a given task. Such a definition of self, according to Brookover (1955:229-338), is viewed as functionally limiting, in that one's volitional behaviors are confined within the boundaries of one's definition of ability to carry out the behavior in question.

Kinch (1963:481-486) also provides a similar definition of self-concept in the tradition of George Herbert Mead. Kinch views self-concept as that organized set of qualities which the individual attributes to himself, and asserts that these properties emerge via social interaction. According to this view, self-concept characteristics, once developed, serve to guide and influence behavior.

#### The flexibility of self-concept

The flexibility of the behavioral phenomenon we label self-concept is one factor that distinguishes it from many other explanatory systems. To understand the nature of this flexibility, one must comprehend one of the basic tenets of symbolic interaction theory, from which the self-concept theory of this study is derived. That tenet is: definitions of objects are formed through social interactions (Blumer, 1969:2).

Within the symbolic interaction perspective, any definition a person has of an object, including one's self, emerges via social interaction (Blumer, 1969:2). That is, social intercourse functions to shape definitions of objects people encounter.

This theory holds that virtually all social interactions are defining situations. Whether the interaction involves a teacher providing a child with the formal meaning of an object in a given context or a parent informing a child of proper behavior by his own actions in given settings, definitions are central to the interaction. At times, the defining process is straightforward, as is the case when overt attempts are made to teach a person how to view and behave toward an object in his or her world. At other times the process is subtle, as is the case when the person adds to his behavioral repertoire by casually observing others or as an unintended by-product of everyday experience. Regardless of how the defining process manifests itself in social interaction, it is theorized to be always present.

The flexibility of self-definitions, and the variety of meanings people hold for objects are revealed by the inconsistent nature of human interaction. It is observable that, with reference to any given object or class of objects, people engage in many different interactions with many different people. Consequently, no two people will act towards (see or define) a given object, including self, in exactly the same way. Therefore, sometimes situational determinants call for different definitions of the same object. More importantly, from the present perspective, different people will view the same object in the same situational context differently. Hence, each person is confronted with different (sometimes slightly different, and at other times totally different) definitions of the same object.

A person's conception of an object is not simply a matter of selecting one definition over another. One's definition of an object

in a given context is considered to be the evolutionary product of a series of different interactions one has had with reference to that object, in that particular context (Blumer, 1969:5).

Mead explained this evolution through the concept of interpretation (Blumer, 1969:5). Through the interpretive process, a person holding a definition of a certain object, when exposed to a new or slightly different definition of that same object, may or may not alter his present position. Alteration depends on many factors, including the logical consistency of the new definition and also the credibility of its source. If a person sees some validity in the new definition, he or she may incorporate it. However, such incorporation is not simply an additive process in which various definitions are summed up; it is, rather, a synthesizing process whose product is based on both the old and new definitions -- but at the same time is unique unto itself (Blumer, 1964:5).

The fact that the defining process is an ongoing phenomenon does not mean that a person's conceptions, including those of self, are constantly in a state of flux. Even though the symbolic interactionist conceives of the self as flexible, he does not postulate cognitive chaos. To the contrary, with few exceptions, the defining process is seen as a dynamic, gradually evolving state which becomes increasingly stable as the person matures. This concept is supported by psychological and sociological research in the area of attitude and self-concept change, exemplified by Rosenthal's finding that it is significantly easier to radically alter young children's self-concepts of academic ability than it is to alter the same self-concepts in older children

(Rosenthal, 1968:121-146).

In the United States, a great deal of empirical research has been conducted on self-concept within this theoretical framework. On the whole, this research (examples of which are reported in this study) has been encouraging for proponents of the symbolic interactionist perspective. Still, while their findings are in accord, they do not definitively test the universality of the hypotheses and the propositions generated by this school of thought. The same can be said of the self-concept research conducted in other nations.

The problem, as stated previously in this chapter, is that there have been no systematic true comparative cross-validations of the ideas generated by this school. What comparisons exist tend to be of the impressionistic variety. Hence, one is unable to assure universal validity for the ideas generated by the symbolic interactionists concerned with self-concept. Researchers are unable to determine whether the shared findings of specific independent studies are truly universal or are due to idiosyncratic characteristics within each nation.

#### The diversity of the determinants of self-concept

In the discussion of various theoretical perspectives that purport to explain variations in human behavior, it was pointed out that the symbolic interaction based self-concept theory is not as unidimensional in orientation as certain other theories. For example, biological differences are conceived of as playing a role in academic performance. Organic states, skills and affective conditions may be viewed as

providing a framework for learning (Erickson and Joiner, 1967:8-11). Concomitantly, within this framework, learned cognitions of what is proper, desirable, and worthwhile for the persons are postulated to influence behavior performance (Brookover and Erickson, 1975:259-281). In the same vein, the symbolic interaction perspective does not view variations in behavior as exclusive products of forces either external or internal to the individual -- as both the extreme environmentalist and some genetic based theories tend to regard them. Conversely, behavior is postulated to be a product of definitions produced through the interaction between an individual's cognitive and affective forces and forces in his/her external environment. For a good discussion of this process, see Blumer (1969:5).

The individual, being an object in his own environment, comes to know himself (desires, abilities, etc.) like any other object he encounters. Specifically, he knows himself through his perception of actions directed toward him by others. It follows that the individual comes to know himself in the same manner that he learns about other objects -- through input from others (Blumer, 1969:10-21).

By claiming that the individual had a self or selves, George Herbert Mead meant that the person can be an object to oneself. That is, the person can conceive of self, communicate with self and act towards self. In short, the individual interacts with others in the external environment. And it is through the symbolic process that conceptions of self are formed (Blumer, 1969:10-21).

The importance of these definitions of self -- in this case definitions of self-attributes -- is their translations into behavior.

In this vein, one of the most important propositions of symbolic interaction theory is that people act towards objects on the basis of the meanings that those objects have for them (Blumer, 1969:10-11). It is from these ideas that the present theoretical and research objectives were drawn.

#### A symbolic interaction perspective on behavioral differences

From this discussion, the symbolic interactionists' explanation for variations in human performance on any given task should be apparent, i.e., people perform differently because of variations in their self-conceptions of ability with reference to given activities. Theorists have held this to be true, irrespective of biological differences in normally functioning people (Brookover and Erickson, 1975:259-281). In the same respect that the process and function of breathing is considered essentially the same regardless of individual biological differences, development of self-concepts and their functioning are held to be basically similar from one individual to another in all cultures.

Relevant to behavior in every culture is how each person views himself or herself with reference to a particular behavior. Does one believe he or she is capable of performing the activity? Although other factors, such as practice and attentiveness are involved in the determination of the quality of a performance, it is self-concept of ability that sets functional limits on what is attempted. Self-conceptions of ability may also be indicators of how well the person will perform an act when called upon to do so, since many studies have

found strong positive correlation between self-concept of ability and quality of performance. But which self-concepts are most relevant?

### The multi-dimensionality of self-concept

An important, often overlooked aspect of self-concept theory is the fact that an individual can have many self-concepts at the same time. According to some theorists, the number of self-conceptions a person will make equals the number of phenomena with which he or she interacts. While there may be a coherent set of generalized self-concepts, one or another of one's self-concepts may be more or less relevant in explaining one's behavior in any given role (Wylie, 1961: 300-333). For example, a person may view himself as intelligent in an academic setting and stupid as a father. Perhaps, as some theorists contend, that person's concept of self in an academic setting will be more predictive of his performance as a student than as a father. Unfortunately, the many types of self-concepts each person may make has been generally neglected by researchers (Wylie, 1961:300-333). Perhaps this is the reason that studies which attempt to relate relatively general measures of self-concepts (defined here as summaries of all of one's self conceptions) to performance on specific tasks have been somewhat discouraging. As Brookover and Erickson point out (1975:259-281), one of the reasons some researchers have discarded self-concept as a relevant variable in understanding behavior is the fact that most measures of self-concept are general, multifaceted devices that do not correlate well with specific behaviors. In the same vein, Ruth C. Wylie (1961:300-331) claims that the reason self-concept researchers have

not received definitive answers is that conceptualization of self-concept have been inadequate. Also supportive of this view is Piers' and Harris' (1964:91-95) work which found that multidimensional self-concept scales fail to correlate as highly with I.Q. as do single factor scales. Other studies also show a strong association between specific self-concepts and performance. It is for this reason that the present research is not designed to test directly the general proposition relating a general set of self-concepts to performance. Instead, the attempt is made to relate a relatively specific type of self-concept of academic ability to a particular type of behavior-academic achievement level.

#### Related Literature

One important non-comparative piece of research that provides support for this thesis is a study by Coleman (1966:325). Coleman and his fellow researchers specifically point to the threshold effect (the idea that a positive self-concept is a necessary prerequisite for successful behavior) of a positive self-concept of academic ability. They report that if a child's self-concept is low, if he feels that he cannot succeed, this will affect the level of effort he puts into a task. More precisely, the higher the self-concept, the greater the task effort and the greater the chance of success. Unfortunately, Coleman's work is limited by the ethnocentric nature of his research design.

Other explorations have been designed to test the direct connection between self-concept of academic ability and school performance. In a non-comparative study, Renzaglia (1952:50-66) found a



positive association between self-concept measures and measures of academic achievement. Reeder (1955:80-97) also found a positive interassociation between measures of self-concept, academic performance and classroom adjustment. There are many more specific non-comparative studies that have shown a positive association between self-concept and achievement. Walsh (1969:22 and 1968:186) found that what a subject says about himself in an interview corresponds highly with ratings from objective tests. In addition, Atkinson (1957:359-372) finds that a person's estimate of success or failure in risk-taking situations reflects his/her perceived self-conception of ability to deal with that situation. Williams and Cole (1968:478-481) discovered a positive association between academic self-concepts developed in Tennessee and scores on a reading achievement test. Epps (1969:55-70), in a national study of the variables that affect the achievements of black students, found that academic self-concept and classroom conformity are among the most powerful predictors of black students' academic achievement. These findings were consistent with those of Morse (1963:40-63) who studied both black and white eighth grade students in Michigan. In a similar vein, Gobel (1970:90-105) discovered that college plans among high school students to be significantly related to self-concept of academic ability. Very few students with low academic self-concepts reported that they had plans to attend college. Wamoff (1969) also found that indices of a person's vocational concepts of ability during the senior year of high school were significantly related to career decisions two years later.

More dramatic justification for testing hypotheses that postulate

a causal relationship between academic self-concept and school achievements comes from investigations which examine changes in academic conceptions of self and their effects on classroom performance. Lecky (1945:144), in a non-comparative study of poor spellers, found that significant improvements in the ability to spell foreign words resulted after self-concept in this particular area improved. The self-concepts of the poor speller were improved through counseling. In another experiment involving counseling, which involved improving the students' self-academic attitude and their attitudes toward learning in general, Dolan (1964:919) found that a semester of individual counseling was followed by significantly greater paragraph and word comprehension when counselees were compared to students who had not been exposed to the counseling program.

A study by Sacks (1952:354-358) provides additional, though indirect, evidence for the impact of changes in self-concept on academic achievement. In her non-comparative study she found that, by demonstrating an interest in the talents of nursery school students, she was able to realize significant gains in their I.Q. post-test. No changes in I.Q. were observed for a control group that received no special attention.

Roth (1959:265-281), in a non-comparative study of college students enrolled in a voluntary reading improvement course, administered a real self-concept Q-sort and an ideal self-concept Q-sort before and after his course. He found pre-course real self-concept had a higher correlation to post-course real self-concept among non-improvers than it had among improvers; furthermore, correlations

between pre-course ideal self-concept and post-course ideal self-concept followed the same pattern. On this basis, Roth concluded that real and ideal self-concepts of improvers changed more than those of non-improvers. However, since he failed to clarify whether that change followed, preceded, or accompanied the changes in reading achievement, the causal connection is never positively established.

Videbeck (1960:351-359) asked students to rate themselves on a task before and after being evaluated on it. The evaluators were stooges instructed to give randomly laudatory or critical evaluations. Videbeck discovered that self-ratings improved after approval and declined after disapproval. Since he controlled for initial self-ratings, the changes appear to have been a consequence of the random evaluations.

In a study of the perceptual consequences of failure, Postman and Brown (1952:213-221) found that students who experienced artificially induced failure were more prone to perceive deprivation words flashed on a screen than were students who experienced artificially induced success. Conversely, students who experienced artificially induced success perceived more success words flashed on the screen than did those who experienced artificially induced failure. (This study has been criticized because the two groups were not equivalent when the study began.)

On the basis of such studies, Postman and Weingartner (1969:95) write that what we see is a product of what we believe to be out there, which implies that we see things not as they are but as we are. This suggests that the metaphors of the mind limit the environment, and that

it is possible a child accustomed to failure may not be able to perceive success.

Examining the effects of discouragement upon test performance, Gordon and Durea (1948:201-207) randomly assigned forty junior high school students to a control or experimental group. Each group was given form "L" of the Stanford-Binet (1937) scale as a pre-test. Two weeks later both groups took form "M" of the same test. Just prior to the form "M" exam, each student in the experimental group was told that he/she had performed poorly on form "L." As a result, students in the experimental group did significantly poorer on the post-test than did students in the control group.

Brookover, Erickson and Joiner (1967:88-90) found that changes in self-concept of academic ability were associated with changes in GPA. This finding was observed in a group of junior and senior high school students in a longitudinal study over two periods, each of two years' duration. In a related series of studies involving students whose grade point averages were below their school average, Brookover et.al. (1967:132-136) found that involving parents in discussions, designed to increase parental evaluations and expectations of their children's academic ability, yielded increased academic achievement and improved student academic self-concepts during the period of the program. However, one year after the program the students had regressed back to their former levels. This may have been a function of a lack of continued support and encouragement.

Additional non-comparative research by Brookover, Erickson for the years 1962 to 1965 concludes that self-concept of academic

ability is significantly correlated with academic performance (Brookover, et. al., 1962:34-72). Confining themselves to academic samples, and controlling for social class; measured intelligence; normative expectations for the family, friends and teachers; and past achievement levels, these researchers found that students' self-concepts of academic ability accounted for a significant proportion of academic achievement. The complete investigation, 1962-1967, followed an entire class of about 1,500 students from the seventh grade through three years after high school. Its major finding was that changes in self-concept of ability were followed by changes in academic achievement (1967:88-90).

More recent United States research has also been highly supportive of self-concept theory as it applies to academic achievement. Prendergast (1975:92-95) found that the Rosenberg and Brookover general self-concept instruments were significantly correlated with both reading and math scores. These results tend to enhance confidence in both self-concept theory and the Brookover self-concept scale. However, lack of a true comparative test, for both the theory and the instrument, restricts confidence to the local populations from which these and other successful researchers have sampled. Merrill (1975:15,44), in an impressionistic study of her own students, found that students' estimates of how well they read was strongly related to their actual reading performance. Kelley (1974:257-269), in a study of a sample of juniors and seniors in high school, found that the academic track in which a student was located was strongly correlated with self-concept. High track students had relatively good academic

self-concepts, whereas students in the bottom track had poor self-concepts. Black (1974:1137-1140), in a study of normal and reading-disabled students, found self-concept to be positively associated with reading ability. He also found that the self-concepts of reading-disabled students worsened as they progressed through school (quasi-longitudinal results). In contrast, the self-concept of normal readers remained good and stable as they advanced in school.

Even though studies such as those cited provide substantial evidence for researchers who are interested in establishing a causal connection or association between the variables academic self-concept and school achievement, it must be remembered that since they are based on provincial samples, the results cannot be generalized to the entire universe of students. Such generalization will have to await studies that incorporate samples of students from more than one society and that are also conducted within a true comparative framework.

Even with all of this previous support and even if findings for each of our independent samples proves to be in the predicted direction without a true comparative design, one still cannot appropriately draw conclusions regarding the universality of the proposition.

In a study by Erickson and Joiner (1967:24-45), limited support was generated for an intrasocietal universality proposition. To test their hypothesis, the researchers used a technique of cross-validation with deaf, blind and non-impaired student populations. Using this technique, they demonstrated that they could predict multiple correlations between I.Q., self-concept and GPA for samples

of divergent populations. This was done by taking the beta weights from the regression model of one sample and predicting the multiple correlates of a second sample from a different population. In their study, samples were drawn from populations of normal students, visually impaired students and hearing impaired students. The authors point out that this perhaps the most rigid test of validity for any self-concept instrument, and that the findings help to demonstrate the universal utility of self-concept theory.

#### Theoretical and General Research Objectives

As discussed above, the major weakness of the Meadian theoretical perspective (which is also a weakness of most behavioral perspectives) is the provincial nature of observations from which the theory is derived. Even though there is theoretical empirical support based on local investigations, the lack of cross-cultural, cross-validation research in a true comparative perspective prevents asserting its proposition as universal.

The major research objective of this study is to assess the universal validity of specific academic self-concepts as determinants of academic behavior. Our objective includes demonstrating that academic self-concepts are universally related to specific differences in academic performance levels.

#### Research objectives

1. For each cultural sample there will be a positive correlation between academic self-concepts of ability and academic achievements.

2. Given the equivalence of instruments, when cross-validation procedures are applied to correlations obtained in differing cultures, the correlations between self-concepts of ability and achievements will not be reduced to insignificance.

### Summary

In this chapter problems were discussed associated with self-concept theory due to an absence of comparative tests of ideas derived from this school of thought. The self-concept perspective of learning was discussed in some detail. Next, the theoretical and research objectives of the present investigation were outlined. Finally, a review of the literature was provided and the research objectives were stated.

In the development of the present theoretical perspective on self-concept particular attention was paid to the work of Brookover and Erickson (1975) and Blumer (1969). Much of the methodological orientation was derived from the work of Przeworski and Tenue (1970) and Warwick and Osherson (1973). The review of the literature included both American and foreign research. In addition, extensive coverage of survey works as well as quasi-experimental research on self-concept were provided.



## CHAPTER II

### RESEARCH PROCEDURES

#### Introduction

This chapter describes the major methodological and analytical techniques incorporated for data collection and manipulation. Included are discussions of the populations, samples, research sites, research designs, major variables and their measurement and methods of analysis.

#### Selection of Populations, Samples and Sample Sites

##### Base site

The base site (the location of the first sample that provided regression models for the initial cross-validation) is Lansing, Michigan, a city of 131,546 population. This location is labeled the system wide American sample. The sample population studied consisted of an entire group of more than 1500 secondary school students. Sampling began when the students were in the seventh grade and continued each succeeding year until three years after graduation from high school. This study was done by Brookover and associates (Brookover, et.al., 1962; Brookover, et.al., 1965; and Brookover et. al., 1967) specifically for self-concept research. Data on all variables to be incorporated into the present study were collected each year of the longitudinal study by the Lansing researchers.

A simple random sample of 100 from this population was drawn at the eighth grade level. A description of Lansing itself is provided in the design section.

### German site

The second sample site is Giessen, West Germany (population 70,000). This location is labeled the system wide German sample. The Giessen sample population of 756, from which a sample of 100 was drawn for this study, consists of all eighth grade students for a given year.

Giessen was selected for two reasons. First, it is a non-American site and fits our objective to make this a comparative study. Second, it has many cultural and structural characteristics that differentiate it from the other two sites; among these are language, size, and economic base. These structural and cultural differences fit the requirements of the research plans termed the most different systems design which is discussed in the design section.

The secondary schools of the Federal Republic of West Germany include Hauptchule (main school), Realschule (secondary school) and the Gymnasium (the academic secondary school giving access to higher education). The Hauptchule school, which provides a general extension of primary education, is designed for students with aptitudes for practical occupations. It is similar to vocational and technical schools in the United States (Auer, 1971:11-14). The Realschule, which falls between the main school and the Gymnasium, provides training in engineering and higher vocational studies. It prepares students for duties in practical life requiring more specialized knowledge and business skills than provided by the main school (Auer, 1971:11-14). The gymnasium is the university preparatory school. Anyone who graduates from primary school can attend the main

school, but in order to go to either of the other two schools, a student must pass a qualifying examination and several days of trial schooling (Auer, 1971:11-14). All eighth grade students in Giessen during a given year had an equal chance of being sampled.

A sample of 100 was drawn from this population of eighth graders for the present investigation.

#### Inner city site

The final site is an inner city area of Grand Rapids, Michigan, USA (population 197,649). This site is labeled the Inner City American sample. Data were collected on eighth grade students from inner city schools at this site by Erickson and associates at approximately the same time data were gathered at the other two locations (Erickson, 1967). As in both other experiments, data were collected exclusively for academic self-concept research. (In a recent discussion with Brookover, he stated that the methodologies and perspectives were highly comparable at all three locations). A simple random sample of 100 was also drawn from this Inner City sample population of over 1200 students.

Researchers with studies as ambitious as the present investigation would have to collect their own data at each site in order to realize a methodologically sound comparative study. However, economic, logistic and tactical problems make this type of research a rare phenomenon in social science. Today's economic realities alone prohibit most cross-cultural studies from getting off the drawing board. Fortunately, in the present case, data sufficiently compar-

able to allow for a true comparative design are available. In each case, the original data were collected using demonstrably comparable instruments in similar fashions.

As mentioned in the first chapter, the data situation may provide the researcher with a major methodological advantage over a single research team collecting new data. The incorporation of comparable data collected by independent researchers in separate studies may well provide a more stringent cross-validation of the hypotheses than one based on data collected by a single researcher, because it minimizes the subjective bias that a single researcher may have on the research process and helps maximize methodological objectivity (Rosenthal, 1964:79-114).

#### The Major Variables

The major variables are academic achievement, sex, and general self-concept of academic ability. Sex and academic achievement were obtained from school records for each population studied.

##### Academic achievement

Academic achievement was measured by student grade point averages (GPA) in academic subjects. GPA has a range of 0.00 to 4.00, with the higher number reflecting superior academic performance. In the Federal Republic of West Germany, the GPA is on 1.00 to 6.00 scale, where the lower numbers reflect superior academic performance. These differences in GPA scales necessitated their being translated into standard scores from raw scores in order to attain a basis for

equivalence.

### Self-concept

Self-concept of academic ability, the process by which a student refers to other pupils in his social system in comparing and evaluating his own academic ability, is termed the subject's general self-concept of academic ability. The scale that was used to tap this self-concept -- the Michigan State General Self-Concept of Academic Ability Scale -- was developed under USOE Cooperative Research Project No. 845 (Brookover, et.al., 1962:1-104). Each item has a score ranging from one to five. The higher scores indicate superior academic self-concept. The scale has realized both construct and criterion validity in many local research studies. In addition, the reliability of the scale has been established for many specific samples through Hoyt's (1941:153-160) analysis of variance. It must be noted, however, that these reliability and validity findings were functions of the idiosyncratic features of the particular populations studied. Hence, the need still exists for a cross-cultural validation of this instrument as well as the hypotheses.

### Methodological Equivalence Procedures

As pointed out in the initial chapter, equivalence of samples, data collection procedures, instrumentation and methods of analysis are all required for valid comparative research (Warwick and Osherson, 1973:6-41). The present study achieved demonstrated equivalence in all of these areas. Each of the samples consists of subjects drawn

from the population of eighth grade students in large cities. In all cases, data were collected through survey techniques incorporating trained data gatherers familiar with this type of research. All the data were collected at approximately the same time and in each case a simple random sample of 100 students was drawn.

Procedures used for tapping the major variables were equivalent for each sample. As mentioned above, in each case sex and GPA were obtained from official school records. In addition, standard scores were incorporated to obtain equivalence of German and American GPA's. The German GPA scores are also multiplied by a negative one to convert them to the same direction as the American scores. The procedure used to develop the self-concept instrument was identical for each of the studies. Identical instruments were used at the Inner City and system wide American sites. A translated version of the instrument was used to collect data at the system wide German site. Special measures were taken to maintain the equivalence of the academic self-concept instrument in the translation process.

Specifically, steps were taken to convey the intent of the instrument in the simplest possible way. That is, each item was stated in the simplest and most concise fashion. This was done by translating the original American version of the instrument into the international sign language of the deaf which is a very simple and universal mode of symbolic communication. At this point, the instrument was translated back into English and German by a bilingualist (Erickson and Joiner, 1967:16-24). Through this elaborate method, the researcher is believed to have achieved a high degree of

equivalence of instrumentation. Finally, as will become apparent below, the method of analysis is the same for all three sites.

### Design

As mentioned above, sex and GPA data were collected through the official school records while self-concept data were collected by means of the survey instrument at each school involved in the original studies. In each case the entire sample of 100 was surveyed at the same time through the use of each school's auditorium.

The strategic design is the most different systems design (Przeworski and Tenue, 1970:31-47). This design is used to test the universal efficacy of individual level hypotheses. It maximizes cultural and structural differences operating on the various subsamples in a given study. Its rationale is that if a proposed instrument and/or idea is universally valid, it should produce similar results in diverse structural and cultural settings.

The sample sites qualify for use of the most different systems design for the following reasons. First, the inclusion of the system wide German site incorporates a sample utilizing a language with a different syntax into the study. Since it has been suggested that language plays a large role in how one conceptualizes the world, this provides an excellent means of maximizing a cultural difference in social research (Sapir, 1951:89-103). In addition to the language difference, organization of German and American schools differs. In the American public school system, the various academic and other educational programs are typically housed under a common roof, but

the German systems provide a different type of school for each major academic program (Votruba, 1971:27). Grand Rapids, the Inner City American sample, was purposely biased to incorporate a large proportion of inner city lower class students with heavy ethnic content (only inner city schools were included in the original study (Erickson, 1967). In contrast, the Lansing sample is system wide, but it includes a large proportion of middle to upper class college-bound students. This is due to the fact that the city is the state capital of Michigan. The city does have major industries, but government offices, the influence of a large university on its doorstep, and the fact that Lansing is a banking and commerce center, indicate that its social class structure is weighted toward the middle. It appears that the German site includes students from each social class in the most equal proportions when compared to the other samples in the study. The city has a mixed occupational force due to its economic base (see below). However, the city is most famous for its university.

Finally, Grand Rapids is mainly an industrial center with a relatively large concentration of factory workers. Its industries include furniture, automotive parts, hardware, electronic products, carpet sweepers, gypsum mining, etc. Lansing is strongly influenced by a large university, state government, commerce and banking, with predominantly a middle class white collar force. Nonetheless, industry is represented through automotive parts (chief industry), automobiles, trucks and trailers, tractors, tools and dies, chemicals, tents and awnings. Giessen contains a university, plus commerce and industry



which includes optics, machines, beer, rubber articles and other products. These cultural and structural differences substantially meet the criteria of the most different systems design.

### Analysis

The analysis is broken into two parts, one from each research hypothesis.

#### First research hypothesis

The first research hypothesis,

For each sample there is a positive correlation between the criterion GPA (academic achievement) and scores on the MSSCAA (general academic self-concept scale)

is tested by the multiple correlation between the variables self-concept, sex, and GPA, and by the amount of variance in GPA explained by the MSSCAA scale and sex. Multiple correlations analysis is incorporated for the test in preference to zero order correlation techniques, because it is capable of incorporating control variables in a straightforward fashion. A total of three multiple correlations were run, one for each site.

#### Second research hypothesis

The second research hypothesis is:

The positive correlation between the variables MSSCAA and GPA is universal. When idiosyncratic structural and cultural differences are controlled for (i.e., cross validation), the correlation between the variables will not be reduced to insignificance. That is, one can interchange the beta weights among samples and the positive association between the variables will remain.

This hypothesis is tested through multiple cross-validation. Cross-

validation is a mathematical procedure in which the beta weights from the regression formula from one sample are used to predict the multiple correlations between the same variables in different samples.

The researcher obtains a predicted correlations formula from the initial site through beta weights. Next, he takes this predicted formula and correlates it with the actual pattern of scores for the criterion variable at another site. If the correlation between predicted and actual scores is not reduced to zero or insignificance, the researcher considers the test successful. Cross-validation is considered by many experts to be one of the most stringent tests of universal validity when used on highly diverse groups, such as the sub-samples incorporated for the present study. Most relationships are reduced to insignificance in actual applications of the technique.<sup>1</sup>

The distinction between one-way and two-way cross-validation should be explained. In a one-way or single cross-validation the beta weights from a single base site are plugged into formulas for one or more additional but different sites. In two-way cross-validation, which is incorporated in the present investigation, each sample is used as both a predictor and recipient site. The latter approach appears most appropriate for cross-cultural research for two reasons: first, it avoids any possible ethnocentric bias in testing the hypotheses; second, it increases the number of mathematical tests, which improves the odds in the direction of rejecting the hypothesis.

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<sup>1</sup>For a more in-depth discussion of this procedure, see the "Symposium on Cross Validation," especially the article by Katzell (1951:16-22).

Thus, two-way cross validation appears to provide a stringent and culture-free method of testing hypotheses in comparative settings. The present study employed a total of six cross-validations. These were: (a) system wide American to system wide German; (b) Inner City American to system wide American; (c) Inner City American to system wide German; (d) system wide American to Inner City American; (e) system wide German to system wide American; (f) and system wide German to Inner City American.

One additional reason that both intra- and inter-cultural cross-validation were incorporated was that it provides a substantive test of the universal efficacy of self-concept theory and the Michigan State General Self-Concept Scale of Academic Ability. The MSSCAA scale has been validated repeatedly in the U.S. Thus, if intersocietal samples can be cross validated with approximately the same degree of accuracy as intrasocietal validations, substantial evidence for the universal validity of the MSSCAA scale, in particular, and self-concept, in general, will have been established.

#### Summary

In this chapter, the central methodological and statistical considerations necessary for the successful completion of the research were presented. The following topics were covered: a description of the populations, the samples and sampling procedures; definitions of the major variables; descriptions of the data collection techniques and strategic design of the study; and, finally, the analytic techniques used to test the hypotheses.

The major aim of the methodological and statistical techniques incorporated in the present investigation is to provide a true comparative test of self-concept theory and the Michigan State General Self-Concept of Academic Ability Scale. In this vein, three methodological and statistical tools geared to comparative analysis are utilized. They are: first, the true comparative approach which assures a high degree of methodological equivalence at different research site; second, the most different systems design which is an ideal approach for testing hypothesized behavioral universals; and finally, cross-validation, which is a stringent mathematical cross-sample test of any quantifiable hypothesis.

## CHAPTER III

### FINDINGS

#### Introduction

Results are presented in two parts. In the first section, the relationships between the criterion variable (GPA) and the independent variables (sex and general academic self-concept) are described for each of the three samples. In the second section, all possible three-way multiple cross-validations among the research sites are examined. In addition, data comparing the average intrasocietal cross-validations to the average intersocietal cross-validations are presented. Finally, the average cross-validations from each site are compared. A summary table of all possible cross-validations is provided at the end of the chapter.

#### Relationships Between Variables for Each Site

##### System wide American sample

The analysis begins with the system wide American sample. Results of the multiple correlation for this sample are presented in Table 3-1. (See page 37). The combined impact of the two independent variables (student grade point average) resulted in a positive multiple correlation of .57. A correlation of this magnitude yields an explained variance in the criterion variable, GPA, of 32%. A multiple correlation of .57 is significant beyond the .005 level for a sample of 100.

In analyzing each site, in addition to examining the combined impact of the independent variables on the criterion GPA, studies

Table 3-1

Multiple Correlation, Zero Order Correlation, Explained Variance and Significance Levels for Criterion Variable Grade Point Average and the Predictor Variables ( $Bsex_z + Bscsz = GPA_z$ ) for the System Wide USA Sample

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Sample Sizes - 100		Dependent Variable - GPA
Independent Variables - Sex and Self-Concept of Academic Ability		
Multiple Correlation Coefficients - .57 p. .005		
Coefficient of Determination - .32		
<u>Variable</u>	<u>r GPA</u>	<u>Probability</u>
Sex	.02	.84
Self-Concept of Academic Ability	.56	.005

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were made of the influence of each separate independent variable. For the system wide American sample, an examination of the contribution of each independent variable revealed that the correlation between sex and GPA was positive .02, an insignificant magnitude which yields virtually no explained variance. On the other hand, an examination of the impact of general academic self-concept on GPA reveals a very strong positive correlation of .56. Thus, the amount of explained variance in the criterion GPA attributable to self-concept of academic ability (independent of the variable sex) is 32%. This indicates that general self-concept of academic ability is the only relevant independent variable for the system wide American sample. The insignificance at the eighth grade level of sex as an important determinant of GPA is revealed also by its probability. The probability for the correlation between sex and GPA is .84, while the probability for general academic self-concept of ability as

measured by the Michigan State General Self-Concept of Academic Ability Scale is beyond the .005 level.

### Inner City American sample

The results for the Inner City American sample are presented in Table 3-2.

Table 3-2

Multiple Correlation, Zero Order Correlation, Explained Variance and Significance Levels for Criterion Variable Grade Point Average and the Predictor Variables ( $Bsex_z + Bscas_z = GPA_z$ ) for the Inner City USA Sample

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Sample Size - 100		Dependent Variable - GPA
Independent Variables - Sex and Self-Concept of Academic Ability		
Multiple Correlation Coefficient - .30 p. .005		
Coefficient of Determination - .09		
<u>Variable</u>	<u>r GPA</u>	<u>Probability</u>
Sex	.11	.14
Self-Concept of Academic Ability	.26	.005

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Examination of these results reveals a slightly different picture from what we saw for the system wide American site. Before these differences are discussed, it should be mentioned that they are not statistically significant. Therefore, from a strict scientific standpoint, and for all practical purposes, the interpretation of the results for both the system wide and inner city American samples are the same. The results for both are in the predicted direction and significant. Nonetheless, for the Inner City American

sample, sex is slightly related to the criterion GPA. The correlation between sex and GPA is a low positive .11. A correlation of this size is not significant at the .05 level for a sample of 100. Nonetheless, the author decided to draw three additional samples from the Inner City American population to examine this situation further. These additional tests for the significance of sex revealed that it was a constant in every case. In each case, the correlation between sex and GPA hovered around zero.

As is the case with the system wide American sample, general self-concept of academic ability proved to be the only relevant variable for the Inner City sample. The correlation between general self-concept of academic ability and GPA was a moderately strong positive .26. As was the case with the system wide American sample, the correlation is significant beyond the .005 level. In addition, the subsequent samples drawn from the Inner City population (which confirmed the insignificance of sex) also demonstrated the importance of general self-concept of academic ability for positive academic performance. In every sample, general self-concept of academic ability was significantly related to GPA.

The multiple correlation for the Inner City American sample between the criterion variable (GPA) and the independent variables (sex and general self-concept of academic ability) is a positive .30. As is the case with the system wide American sample, the multiple correlation is significant beyond the .005 level. The amount of explained variance in GPA explained by sex is far less than 1%.





addition, results for this sample showed virtually no variance in GPA that could be explained by sex.

An examination of the relationship between the variables general self-concept of academic ability and GPA reveals a correlation of .68. This correlation is significant beyond the .005 level for the sample of 100. In addition, the correlation yields an explained variance in the criterion variable GPA of 46%.

To this point, the analysis has reconfirmed the results of many previous studies: that general self-concept of academic ability accounts for a significant amount of variance in academic achievement. However, in previous studies, these results could not be generalized to the universe of students because of the provincial nature of the populations sampled. On the basis of these independent analyses, it still cannot be determined whether similar results are due to an inherent, universal link between the variables or whether they are a function of idiosyncratic characteristics of the populations sampled. The differences in the sizes of correlations for the various samples could be interpreted as support for the latter hypothesis.

As has been stated, the present investigation was designed to control for cultural differences through incorporation of a true comparative design and the analytic technique of cross-validation. Part two of the analysis presents the results of these efforts; however, before moving on to the second half of the analysis, some comments on the relationship between sex and GPA will be made.

Student sex has been proved to be virtually unrelated to GPA. Since for each sample the correlation between sex and GPA was

insignificant, the variable sex need not be considered in the cross-validation procedure.

Nevertheless, it is not suggested that sex is completely unrelated to academic behavior; in fact, the opposite is the case, as is pointed out in chapter four. This investigation suggests only that, for the present focus and level of analysis, sex is unrelated to both GPA and general self-concept of academic ability.

#### Cross-Validations of Results

The cross-validations presented here involve using each of the samples as a base site, from which to attempt prediction of multiple correlations for the other locations. By maximizing the number of cross-validations that can be conducted, this procedure increases the difficulty of confirming the hypothesis, since the number of times the idea can be rejected is vastly greater than the number of times it could be rejected had only a single base site been used.

#### System wide American sample

In this case the system wide American sample serves as the base site from which multiple correlations for the other two samples are predicted. Table 3-4 presents these cross-validation correlations. An examination of the results reveals that both cross-validations from the system wide American site were successful. Examination of the table reveals that it was somewhat more difficult to predict to the Inner City American sample than it was to estimate the multiple correlation for the system wide German sample. Technically this is

Table 3-4

Cross Validated Multiple Correlations, Explained Variance and Significance Levels Between Criterion Grade Point Average and the Weighted Sum of the Predictors ( $Bsex_z + Bscas_z = GPA_z$ ) from System Wide USA to Inner City USA and System German

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		<u>Inner City USA</u>	<u>System wide German</u>	<u>Average</u>
System wide USA	$r_2$	.27	.68	.50
	$r^2$	.07	.46	.25
	p	.005	.005	.005

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n = 100 (each sample)

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a function of the relatively smaller beta weights of the criterion variable for the Inner City American sample. This consideration, along with other possibilities, is discussed in the final chapter. Even though the cross-validation correlation from the system wide American site to the Inner City American site is smaller than that from the system wide American site to the system wide German sample, it is still moderately strong and statistically significant. The cross-validation correlation is a positive .27, which is significant beyond the .005 level.

The cross-validation correlation from the system wide American site to the system wide German site is very strong -- positive .68. A correlation of this size for a sample of one hundred is significant well beyond the .005 level. This correlation yields an explained variance of over 46%.

It warrants repeating that one intriguing phenomenon remains unexplained: from results derived here, it is relatively easier to

predict to the system wide German sample than it is to estimate the Inner City correlation. Not all of this difference can be attributed to Inner City sampling error. Speculation on this matter is reserved for Chapter IV, where speculative discussion is permissible.

On the whole, cross-validation correlations from the system wide American site were successful. Both cross-validation correlations were strong and significant beyond the .005 level. This situation is confirmed by an examination of the average results from the system wide American site. The average cross-validation correlation from the system wide American site to the other two locations was a positive .50. The average explained variance was 25%; and the mean correlation is significant beyond the .005 level.

#### Inner City American sample

The second set of cross-validation correlations involves the Inner City American sample as the base site from which the relationships between the variables for the two other system wide sites are predicted. Table 3-5 presents these figures.

In contrast to the system wide American site results, both cross-validation correlations from the Inner City American site are about equally strong. The cross-validation correlation from the Inner City American site to the system wide American site is a positive .51. A correlation of .51 yields an explained variance of 26%. In addition, a correlation of this size for a sample of 100 is significant beyond the .005 level. The cross-validation from the Inner City American site to the system wide German site is a positive .65. A

Table 3-5

Cross-validated Multiple Correlations, Explained Variance and Significance Levels Between Criterion Grade Point Average and the Weighted Sum of the Predictors ( $Bsex_z + Bsca_z = GPA_z$ ) from Inner City USA to System Wide USA and System Wide German

		<u>System wide USA</u>	<u>System wide German</u>	<u>Average</u>
Inner City USA	$r_2$	.51	.65	.59
	$r$	.26	.43	.34
	$p$	.005	.005	.005
n = 100 (each sample)				

correlation of .65 produces an explained variance of approximately of approximately 43%. As in the case of the system wide American result, the correlation is significant beyond the .005 level.

On the whole it can be said that the cross-validation correlations from the Inner City American site to the other two sites are strong, in the predicted direction, significant and highly consistent. In addition, the average cross-validation from the Inner City American site is .59. It will be recalled that the average cross-validation correlation from the system wide American sample was .50. A correlation of .59 yields a mean explained variance of 34%. An average correlation of this size for a sample of 100 is significant beyond the .005 level.

#### System wide German sample

The final set of multiple cross-validation correlations uses the system wide German sample as the base site from which the cross-

validation correlations are predicted for the other two locations.

Table 3-6 contains these results.

Table 3-6

Cross-Validated Multiple Correlations, Explained Variance and Significance Levels Between Criterion Grade Point Average and the Weighted Sum of the Predictors ( $Bsex_z + Bscax_z = GPA_z$ ) from System Wide German to System Wide USA and Inner City USA

		<u>System wide USA</u>	<u>Inner City USA</u>	<u>Average</u>
System wide German	$r^2$	.56	.29	.432
	$r^2$	.31	.08	.19
	p	.005	.005	.005

n = 100 (each sample)

The findings for the system wide German site are similar to those for the system wide American site. As is the case for the system wide American sample, cross-validation correlation to the Inner City American sample is somewhat smaller than it is to the system wide American sample. In fact, the correlations from both system wide sites to the Inner City American site are highly comparable. It will be recalled that the correlation from the system wide American site to the Inner City American site was .27 (Table 3-4). In the system wide German sample, the cross-validation correlation to the Inner City American site is a positive .29. This high comparability holds for the correlations to any of the sites; regardless of base site, predictions to the other sites are highly consistent. Such consistency in the size of the cross-validation correlations indicates that the observed differences in the strength of the relationships

from site to site may be due to a factor that is systematically affecting the results -- not due to the possibility that the instrument can predict to some populations better than it can to others. (Some speculative reasoning on these consistent differences is provided in Chapter IV.) Tables pointing out this consistency in prediction to particular samples are provided and discussed later in the present chapter.

Of course, the technical reason for the relatively lower cross-validation correlation from the system wide German site to the Inner City American site is the smaller beta weights for the urban sample. As pointed out above, one reason why the Inner City beta weights are somewhat smaller than the others is that the Inner City American sample is restricted. This was demonstrated by all four Inner City samples.) Nonetheless, sampling error, in the original study, could not account for all of the observed differences.

Irrespective of the fact that cross-validation correlation from the system wide German site to the Inner City American site is somewhat smaller for the other system wide American site, it is still strong in the predicted direction and statistically significant. This cross validation correlation is a positive .29. A correlation of this size for a sample of 100 is significant beyond the .005 level.

The results of the cross-validation analysis from the system wide German site to the system wide American site are also presented in Table 3-6. The cross-validation correlation from the German sample to the system wide American site is a positive .56. A correlation of this size yields an explained variance of 31%. Finally,



a correlation of this size for a sample of 100 is significant beyond the .005 level.

Table 3-6 also contains information on the average cross-validation correlation from the system wide German site to the recipient sites. The average cross-validation correlation from the system wide German site is a positive .43. A correlation of this size yields a mean explained variance of 19%. Finally, an average correlation of this size for a sample of 100 is significant beyond the .005 level.

#### Cross-Validation Comparisons

##### Comparison of averages

Table 3-7 is a summary table that provides the reader with a comparison of the average cross-validation correlations from each

Table 3-7

A comparison of the Average Cross-Validations  
and Explained Variance from Tables 4, 5, and 6

	<u>System wide USA Average</u>	<u>Inner City USA Average</u>	<u>System wide German Average</u>
$r^2$	.502	.586	.432
$r$	.25	.34	.19
p	.005	.005	.005
n = 100 (each sample)			

of the three sites studied to each of the corresponding sites. A comparison of these cross-validation correlations from site to site

gives one an idea of the consistency with which the Michigan State Self-Concept of Academic Ability Scale predicts academic achievement, in relation to self-concept, when employed at diverse locations. These results provide an indication of the reliability of the instrument and also of the hypothesis, from sample site to sample site. The results have already confirmed the ability of the Michigan State SCAAS to predict from one site to another, however, the consistency of the instrument itself remains to be examined. If the average cross-validation correlations are fairly consistent from sample to sample, it will justify confidence in the universality of self-concept theory in general and the Michigan State SCAAS in particular. A comparison of the three average cross-validation correlations in Table 3-7 reveals a high degree of consistency in the predictive power of the instrument, with a range for the average cross-validation correlations of .43 to .59. The average explained variance ranges from 19% to 34%. Finally, all the correlations are significant beyond the .005 level. Thus, even with the differences in prediction among the Inner City and system wide samples that were discussed above, there is still a high degree of consistency in the predictive ability of the Michigan State SCAAS when used in diverse locations.

#### Comparisons of independent cross-validations

Table 3-8 provides the reader with a comparison of all the independent cross-validation correlations produced by the present investigation. The table is included for two reasons. First, it

presents the reader with an overall summary of the results of the investigation. Second, the table further illustrates the consistency of the results which were summarized in Table 3-7.

Table 3-8

Comparison of All Possible Cross-Validated Multiple Correlations Plus Overall Average Cross-Validation Between Criterion Grade Point Average and the Weighted Sum of the Predictors ( $Bsex_z + Bscsz = GPA_z$ )

Cross-validations:	<u>ICUSA</u>	<u>SWUSA</u>	<u>SWG</u>	<u>Overall Average</u>
ICUSA		$r_2$ .509 $r^2$ .26 $p$ .005	$r_2$ .654 $r^2$ .43 $p$ .005	
SWUSA	$r_2$ .267 $r^2$ .07 $p$ .005		$r_2$ .679 $r^2$ .46 $p$ .005	
SWG	$r_2$ .285 $r^2$ .08 $p$ .005	$r_2$ .559 $r^2$ .31 $p$ .005		
Overall Average				$r_2$ .509 $r^2$ .26 $p$ .005

An examination of Table 3-8 reveals that the cross-validation correlations to each site from all other locations are highly consistent. The cross-validation correlations to the system wide American site from each of the other samples are .51 and .56. The cross-validation correlations to the system wide German site from each of the other samples are .65 and .68. Finally, the cross-validation correlations to the Inner City American site from the

other two samples are .27 and .29. These results, like the findings presented in Table 3-7, demonstrate the reliability of self-concept theory and also the reliability of the Michigan State Self-Concept of Academic Ability Scale for students' self-prediction of school achievement. The consistency of these results also minimizes, in a substantive manner, the plausibility of any suggestion that these findings could be due to chance or to idiosyncratic cultural phenomena.

As mentioned above, there are differences in the findings. The predictions to the system wide samples are somewhat stronger than is the case for the cross-validation correlations to the Inner City American sample. That is, it is somewhat more difficult to predict to the Inner City site from either of the other two samples than it is to one system wide sample from the other. The differences are patterned and point to the possibility of a factor or factors systematically affecting the results. One can predict from one system wide site to the other with approximately the same degree of strength; and the predictions from each system wide site to the Inner City American site reveal approximately the same relative drop in association when compared to the correlation for the other recipient location in the respective cross-validations. This consistency indicates that the observed differences are not due to a situation in which the instrument is able to predict to some populations better than others. Such a hypothesis is inconsistent with the findings presented in this chapter. The results as presented here do not reveal what is causing the differences to occur. They do indicate

the systematic nature of the differences. What remains to be discovered, then, are the factors that are systematically affecting the results. Some speculation on this subject, derived from the self-concept theory of Brookover and Erickson, is provided in the next chapter. It deserves to be mentioned again that even though there are some differences, they are very minor. Further, all of the cross-validations were strong, in the predicted direction and statistically significant. In addition, when the author mentions discovering the factor that is causing these minor but consistent differences, he is not postulating a radical new hypothesis. Instead, he is searching for a factor that is both consistent with the results and with self-concept theory.

Table 3-8 also provides the reader with correlations from each cross-validation, as well as the overall multiple cross-validation correlation. The table reveals that the cross-validation correlations range in strength from a moderately strong .27 between the system wide American site and the Inner City American site to a strong .68 between the system wide American site and the system wide German site. All the cross-validation correlations are significant beyond the .005 level and the overall average cross-validation correlation is a very strong .51. The overall average explained variance is 26%. Finally, the overall average cross-validation correlation for the present sample is significant beyond the .005 level.

The final table, Table 3-9, provides comparison of the average intra- and inter-cultural multiple cross-validation correlations.

Table 3-9

A Comparison of the Average Intra-  
and Inter-Societal Cross-Validations\*

	<u>Average Inter-Cultural</u>	<u>Average Intra-Cultural</u>
$r^2$	.570	.393
$r^2$	.33	.15
p	.005	.005
	n = 100 (each sample)	

\*The average inter-societal cross-validation is based upon all possible correlations between the United States and Germany (total 4). The intra-cultural average is based upon the two-way validations between Inner City USA and system wide USA.

In Chapter I it was hypothesized that the universal relevance of self-concept theory (in general) and the MSGSCAAS (in particular) would be substantively validated, in part, if inter-cultural validations proved to be approximately as strong as intrasocietal correlations. That hypothesis, which was advanced to supplement the more traditional statistical test for validity, was dependent on the premise that the validity of the MSGSCAAS had been established in the American context. Many American tests of this scale support this premise.

Table 3-9 indicates that expectations based on the above premise were far exceeded. The average inter-cultural cross-validation correlation is a positive .57 and is substantially stronger than the average intra-societal cross-validation correlation of .39. This finding further supports the contention of the universality of

self-concept theory and the MSGSCAAS.

### Summary

In this chapter the results of the study were presented. Results were presented in two parts. In the first section, multiple correlations between the variables GPA, sex and general self-concept of academic ability and the zero order correlations between each independent variable and GPA were described for each research location separately. Sex was found to be a constant in each location. Other than that, the results for each of the sites were seen to be strong, significant and in the predicted direction.

The multiple correlation between the three variables and the zero order correlation between MSGSCAAS and GPA were as follows: system wide American -- multiple correlation .57 and zero order MSGSCAAS to GPA .56; Inner City American -- multiple correlation .30 and zero order MSGSCAAS to GPA .26; system wide German -- multiple correlation .69 and zero order MSGSCAAS to GPA .68.

The second section of the results consisted of all possible multiple cross-validations among the research sites, plus certain summary comparisons derived from the inter-site analyses. The analysis supported the hypothesis.

All cross-validations were strong, significant and in the predicted directions. There were some minor differences in predictive ability in relation to sites. However, the results indicate that these differences appear to be due to an untapped factor or factors affecting the observed relationships. The results indicate

that the differences probably are not due to any irregularities in the predictive ability of the self-concept instrument. Some speculation on possible causes for minor differences derived from self-concept theory is presented in the next chapter. The cross-validation correlations from each site to each of the other sites are as follows: the system wide American to Inner City American .27 and to the system wide German .68; the Inner City American to the system wide German .65 and to the system wide American .51; and the system wide German to the Inner City American .29 and to the system wide American .56. It was also found that the average inter-cultural cross-validation correlation was larger than the average intra-American cross-validation correlation, .57 vs. .39. Under the assumption that American validity for the MSGSCAAS had been established, this result was suggested as providing substantial support for the international validity of the instrument and self-concept theory.



## CHAPTER IV

### REVIEW AND CONCLUSIONS

#### Introduction

This chapter includes an outline of all theoretical and methodological concerns of this investigation, and presents its results in abbreviated form. In the conclusion section speculative reasoning, based on the observed patterns of relationships at each individual site and among research locations, is provided. Finally, the relevance of the research for educational planning is discussed.

#### Theoretical Background

In this thesis, findings for cross-cultural validations relevant to universal propositions derived from G.H. Mead, Wilbur T. Brookover (1955), Ruth Wiley (1961), James Coleman (1966), and others were presented. These findings assert that the development of social skills are, in part, a function of self-conceptions of ability to learn such skills. This research provided support for a derived general hypothesis appropriate to all cultures. The hypothesis states that academic achievements are functions, in part, of self-conceptions of academic ability (Brookover and Erickson, 1975:259-281). To the researcher's knowledge, the universality of this hypothesis had never been tested before in a true comparative format. However, research had been conducted in the USA and in other nations to provide local construct and predictive validity for key instruments

to test the relationship between self-concept of academic ability and achievement (Brookover and Erickson, 1975: 259-281). This prior research has been highly supportive of both the hypotheses derived from self-concept theory and of the particular instruments developed by Brookover and his associates. Nevertheless, little in the way of cross-validation research has been done to test either the universality of the thesis or the cross-cultural validity of related self-concept instruments. In other words, a situation existed in which researchers were unable to determine whether or not the apparent similar findings (with reference to both thesis and instruments) from these different studies had universal application. The shared findings may simply have reflected local idiosyncratic population or sample features.

Through the use of sophisticated comparative methodological techniques, this cross-cultural study attempted to cross-validate the assumed universal relationship between self-concept of ability and academic achievement. It also sought to demonstrate the equivalence of functions of the MSGSCAAS in three distinct cultural settings.

The present study was conducted within the framework of a true comparative design utilizing cross-validation. All true comparative studies begin with equivalence of samples, design, instrumentation and techniques of analysis. Once equivalence is established, in a single cross-validation study, using Germany and the USA (as is the case in this study), the beta weights from the USA sample are substituted in the calculations for the beta weights of the German sample.

In essence, one takes the formula for one set of data (which becomes the predicted pattern) and plugs it into a second sample, which is the actual pattern or correlation. Next the researcher correlates the predicted scores and actual scores to see if the correlation remains significant, i.e. the relationship is not reduced to insignificance or zero. One final distinction in a two-way cross-validation -- the process is then reversed. That is, in this research, the German beta weights were also plugged into the USA data.

Theoretical statements and non-comparative and non-true comparative empirical studies from which the researcher derived the hypotheses for the present study include: Coleman, (1966); Walsh, (1967) and (1968); Renzoglia, (1952); Reeder, (1955); Atkinson, (1957); Williams and Cole, (1968); Epps, (1969); Moore, (1963); Goebel, (1970); Wamhoff, (1969); Lecky, (1965); Straines, (1959); Vortruba, (1971); Auer, (1971); and Sidani, (1970). The provincial nature of these and other investigations cited in Chapter I both set the stage for and necessitated this first true comparative (to our knowledge) empirical test of self-concept theory.

#### Research Objectives

The research hypotheses were as follows:

1. For each sample there is a positive correlation between the criterion GPA (academic achievement) and scores on the MSGSCAAS (general academic self-concept scale).
2. The positive correlation between the variables MSGSCAAS and GPA is universal. When idiosyncratic structural and cultural differences are controlled for (i.e., cross-validation), the correlation between the variables will not be

reduced to insignificance. That is, one can interchange the beta weights among samples and the positive association between the variables will remain.

## Methods

### Population and sample

Fortunately for the investigator, three sets of data, two of which are local populations of eighth grade American public school students and an equivalent German population, were available for sampling. Each site is situated in a basically unique cultural and structural setting. A simple random sample of one hundred students was drawn from each population. The sample populations are eighth grade public school children or their equivalents for a single year from a restricted inner city site (USA), a school system wide site (USA), and a school system wide site (Germany).

### Major variables

The major variables were self-concept of academic ability, academic achievement, and sex. Sex and academic achievement data were obtained from school records for each population studied. Academic achievement was tapped through the grade point averages of the sampled students. GPA is on a 4.00 scale in the USA and 6.00 in Germany. For this reason, the researcher used standard scores as opposed to raw scores in the analyses. Self-concept of school ability was tapped by the MSGSCAAS. Many successful local reliability and validity studies have been conducted on the MSGSCAAS, however, the findings could be functions of the idiosyncratic

features of the particular populations studied. Hence, the need still existed for a cross-validation of this instrument.

The variables and methods of tapping the concepts were equivalent. Academic achievement was tapped in the same manner at each site. There was a minor difference in the range of the scales at the American and German sites, but this was overcome through the incorporation of standard scores. The instrument used to tap self-concept was the same for each site, the MSGSCAAS. A translated version of the scale was used for the West German sample. Special steps were taken in the development of the original instrument (as well as the German translation) to facilitate equivalence for any location. Each item is stated in the simplest and most concise possible fashion. This was accomplished by translating the original version of the MSGSCAAS into the international sign language of the deaf, a very simple and universal mode of communication. The instrument was then translated back into English and German. In previous tests, the reliability and validity of the MSGSCAAS were checked by equivalent techniques at the various locations. For each site, Hoyt's analysis of variance was used to ascertain reliability and criterion and construct methods were incorporated for validity. In short, the researcher has taken every reasonable precaution to assure the equivalence of the intent of the MSGSCAAS. A major aim of the present study was to test for the functional equivalence of this instrument in differing cultures.

## Design

The design of the study was the most different systems design (Przeworski and Tenue, 1970:31-47). This design provides a rigorous test of the efficacy of individual level hypotheses through the incorporation of diverse cultural settings. The sites selected embody significant structural and cultural differences. The German site provides a language with a different syntax and grammar. Since syntax may play a large role in how we conceptualize the world, it provides an optimal difference (Sapir, 1951:89-103). In addition, the structure of the German school system is substantially different from its American counterpart. In the American system, various academic and vocational programs are typically housed under one roof. Conversely, the German systems provide a different type of school for each major school program. The Inner City American sample was purposely biased to incorporate a large proportion of lower class students with a heavy ethnic content. In contrast, the system wide samples include a large proportion of middle to upper middle class college bound white students. Other differences are discussed in Chapter II.

## Analysis and Findings

The analysis was broken into two parts, one for each research hypothesis. The first research hypothesis was tested by the multiple correlation between the variables and the amount of GPA variance explained by the MSGSCAAS. Multiple correlation analysis is incorporated for the test. It was chosen over zero order correlation

techniques because it is capable of incorporating control variables in a straightforward fashion. A total of three multiple correlations were run, one for each site. For each site the multiple correlations were strong, significant and in the predicted direction. A breakdown of the multiple correlations to determine the relative impact of each independent variable on the criterion GPA revealed that sex was not significantly related to academic achievement. Since the impact of sex was nil, it was determined that its impact on the cross-validation correlation would be virtually non-existent and, therefore, it could be dropped from consideration in the second part of the analysis. The multiple correlations between the variables and the zero order correlations between the MSGSCAAS and GPA are as follows: system wide American -- multiple correlation .57 and zero order MSGSCAAS to GPA .56; Inner City American -- multiple correlation .30 and zero order MSGSCAAS to GPA .26; system wide German -- multiple correlation .69 and zero order MSGSCAAS to GPA .68.

The second research hypothesis was tested through cross-validation. Cross-validation is a mathematical procedure in which the beta weights from the regression formula from one sample are used to predict correlations between the same variables in different samples. In essence, one obtains a predicted correlation formula from the initial site through the beta weights. Next, the researcher takes this predicted formula and correlates it with the actual scores on the criterion variable at any second site. If the correlation between predicted and actual scores is not reduced to zero or

insignificance, the test is considered successful. Cross-validation is considered by many experts to be a most stringent test of universal validity when used on highly diverse groups such as the present sub-samples.

All together, there were six cross-validations for the present study: system wide USA to system wide Germany; Inner City USA to system wide USA; Inner City USA to system wide German; system wide USA to Inner City USA; system wide German to system wide USA; and system wide German to Inner City USA. An additional reason for the incorporation of both intra- and inter-cultural cross-validations was that it provided a substantive test of the universal efficacy of self-concept. The MSGSCAAS has been validated repeatedly in the USA; it follows that, if the cross-validated intersocietal correlations are approximately the same as (or stronger than) the intra-societal cross-validations, very substantial evidence for the universal validity of the MSGSCAAS, in particular, and self-concept theory, in general, will have been established. Finally, the double or two-way cross-validation approach incorporated here provided a more rigorous test of hypothesis two, in that it maximized the number of tests and also avoided any possible ethnocentric bias that could develop as a result of cross-validation from a single site.

The cross-validation results for each of the sites supported the second hypothesis. In each case, the cross-validation correlations were strong, significant and in the predicted direction. Further support was generated for the hypothesis by the fact that the cross-validation correlations proved to be highly consistent from



site to site. The cross-validation correlation from each site to each of the other sites are as follows: system wide USA to Inner City USA .27 and to system wide German .68; Inner City USA to system wide German .65 and to the system wide USA .51; and system wide German to the Inner City USA .29 and to system wide USA .56. Finally, the more substantive hypothesis, which concerned the comparison of the intra- and intersocietal correlations, was supported by the results. The average intersocietal cross-validation correlation proved to be substantially stronger than its intrasocietal counterpart (.57 and .39 respectively). Since intrasocietal validity is well established for the MSGSCAAS, the researcher believes this result provides additional strong tentative support for the international relevance of this particular instrument and also the self-concept theory.

#### Conclusions

As predicted, the findings provide substantial support for both hypotheses. For each sample it was predicted that self-concept of academic ability would account for a large portion of the variance in academic achievement. The results of the analysis confirmed this assertion. In the initial part of the analysis, self-concept of academic ability was found to be the only relevant variable, with reference to academic achievement, in the analysis. Sex was found to be a constant for each of the samples. For each sample, the relationship between sex and GPA hovered near zero. For this reason it was deemed inappropriate to assign any weight to sex in

subsequent sections of the analysis.

### Sex

Even though sex among eighth graders proved to be a constant function in the present analysis, the author does not consider sex to be unrelated to academic behavior. Research has demonstrated that sex is significantly related to academic behavior, e.g. to type of academic major and, hence, at least, to kinds of achievements and careers (Kaminski, 1975:1-28). Further, it is likely that this situation would have implications for the academic self-concepts of males and females in subjects culturally alien to them. It has been found, for example, that math is a male-dominated academic major, which is considered (in U.S. culture) to be an intellectually inappropriate major for females; consequently, there are very few female math majors in American schools. It has also been found that females do less well in math than males. This is all in accordance with cultural expectations (Kaminski, 1975:4-9 and 16-23). However, such subtleties would not reveal themselves in the present analysis. Poor female math students, like poor male math students, would have self-concepts that correspond to their achievements. Hence, the analysis would simply reveal that academic self-concept is related to school and achievements for both sexes.

In addition to not focusing upon the subtle ways in which sex is related to achievement through academic self-concept, the present analysis did focus on academic achievement at a very general level, i.e. overall GPA. In this study, one can only conclude that sex

among eighth graders is constant in function to overall academic achievement. If the researchers had broken the analysis down into particular academic fields or measured sex at different age levels, perhaps it would have been shown to be variant in effect. Therefore, sex is viewed as a constant in effect on academic behavior only for the present sample focus and level of analysis.

### Systematic differences

As was the case with the provincial studies reviewed in Chapter I, the initial part of the present analysis (which confirmed the connection between self-concept and achievement for each sample) did not warrant universal generalization of the findings. The methodologies incorporated were not sufficient to preclude the possibility that the correlations between the variables could be due to idiosyncratic features of the particular populations studied. To partially overcome this problem, the second part of the analysis was based on a true comparative design utilizing cross-validation. The results from this part of the analysis can be generalized on a more universal basis.

All the cross-validations in the second part of the analysis were in the predicted direction. In addition, all of the cross-validation correlations were strong and statistically significant. The findings provide strong tentative support for the universal validity of self-concept theory and the general academic self-concept instrument developed by Brookover and his associates. These findings add weight to the assertion that a positive self-con-

ception of ability is as necessary to achievement as air is to breathing.

Even though all the cross-validation correlations were strong and statistically significant, there were some differences in prediction to particular locations. It was found that it was easier to predict from one system wide sample to the other and from the Inner City site to either system wide location than it was to cross-validate from either system wide site to the Inner City sample. Further, it was found that the size of the cross-validation correlations were highly comparable to each site. That is, the correlations to each site from any other location were almost identical. Also, cross-validations to both system wide sites were comparable. Further, the relative drop in the size of correlations from each system wide site to the Inner City sample, although small, was approximately the same as the relative drop incurred from the other recipient site from both system wide locations. These systematic differences suggested that some unrecognized variable or variables were systematically affecting the results. The analysis itself could not reveal what the factor was. However, the self-concept theory of Brookover and Erickson (1975:259-281) does provide a rationale consistent with the observations.

The present study incorporated only one dimension of the self-concept process: self-concept of academic ability. This is a key dimension of the self-concept process, but measures of the two other dimensions, self-concept of instrumental role value and self-concept of intrinsic role value were not incorporated. These two

dimensions have been shown in limited pilot studies to contribute significantly to the determination of behavior. That is, if a person obtains very little personal enjoyment or satisfaction (intrinsic value) or little or no personal profit (instrumental value) in a given behavior, he or she probably will not perform well in that behavior regardless of how high his/her self-concept of ability is. That is, even though such individuals are capable of performing the behavior at a higher level of quality, as indicated by their self-concept, their effort does not correspond to their ability because of an intrinsic or instrumental alienation from the behavior in question.

There is no reason to suggest that the samples differ significantly on the dimension self-concept of intrinsic value of the role. The operation of this variable should not hamper the attempt at cross-validation. However, there may be reason to believe that the samples differ with reference to the dimension self-concept of instrumental value of the role. Most of the students from two of our sites, the system wide American and German sites, are from the middle and upper middle classes, whereas most students from the Inner City site have ethnic and lower class and working class origins. It is suggested that students from the Grand Rapids sample see less instrumental value in the academic role than their counterparts in Lansing and West Germany. If this is the case, they might assign lower relevance to the academic role and may tend to invest less energy in it than middle or upper class students with equivalent

self-concepts. This thesis is consistent with studies that demonstrate that the adult productive lives of lower class youth (especially ethnic youth) are much less related to academic background and school achievements than is the case for middle and upper class students. Hence, one could expect a lower correlation between self-concept and GPA for any Inner City site and may also find it more difficult to cross-validate to such a location from a sample containing students mainly from the middle class. This interpretation is consistent with the results of the present study. Even though the differences were not large, not only was it consistently more difficult to cross-validate to the Inner City sample than it was to any other sample, but also the zero order correlation between the measures of self-concept and academic achievement was lowest for the urban sample.

Since the present investigation provides no direct data to warrant this conclusion, it is advanced only on a tentative basis. However, it is very consistent with the present investigation. The systematic nature of the differences discovered here point to some factor or factors influencing the results, and even though there may be alternative explanations, the speculation provided here is worth considering.

It is suggested that once valid measures of these other dimensions of self-concept are developed, they should be incorporated in universal tests of relevant hypotheses. The researcher believes that the minor but consistent differences in prediction revealed by the present study would disappear in future studies

if they incorporated these variables.

Finally, it should be noted that a subsequent analysis of three additional samples drawn from the Inner City American population revealed that the actual self-concept beta weights are slightly larger than those used in this investigation. This situation alone, if accurate, accounts for a substantial portion of the minor differences between the Inner City American sample and the two system wide sites.

### Cross-validation

With these suggestions out of the way, the researcher wants to reassert the success of the study. The predictions of strong positive correlations between the MSGSCAAS and GPA plus the predicted cross-validations were successfully carried out. This study, to the researcher's knowledge, comprised the first true comparative test of symbolic interaction theory in general, and the self-concept work of Brookover and associates in particular (Brookover and Erickson, 1975:259-281). The analysis provides strong tentative support for a thesis of the universal validity of academic self-concept as measured by the MSGSCAAS. Nonetheless, further validation studies are in order.

Additional cross-validation investigations are necessary before more definite acceptance of the thesis that the self-concept of academic ability is crucial universally to an adequate social psychology of learning. However, the research is clearly supportive of the tentative hypothesis that one can take any one student sample

from any time and place and cross-validate it with any other student sample and find that self-concept of ability is universally relevant for academic achievement.

This study has demonstrated that cross-validation is a viable technique for testing the efficacy of universal hypotheses in social psychology. The cross-validation technique is not only relevant for testing the relationship between self-concept and academic performance, but also for testing other hypotheses that have been advanced on a universal basis in the fields of sociology and social psychology. Additional cross-validations are needed not only for the present hypothesis, but also for other variables that have been suggested as universally relevant, such as social class and IQ. Until such studies materialize, in a true comparative format, any acceptance of the universal efficacy of such concepts is inappropriate.

#### Applied significance of the research

Perhaps the applied importance of the present research lies with its implications for educational learning programs. Static and unidimensional theories of behavior, be they biological or psychological, often lead to fixed conceptions of intelligence and ability. A number of researchers have concluded that the conception of a relatively fixed intelligence has contributed to the development and maintenance of tracking or streaming programs for students, and the acceptance of the idea that student track placement is usually permanent (Brookover and Erickson, 1975: 259-281). The so-called "gifted" children are placed in higher



streams and those with lower IQ's are placed in the lower streams.

Douglas (1963:115) found that children, once they were allocated to different ability groups, began to take on the characteristics expected of them. This situation serves to reinforce the ideology of those people that believe track placement to be relatively permanent because of fixed intelligence. Douglas suggests that poor academic work is the result of tracking and streaming rather than a product of intelligence. Yet, teachers tend to accept the idea of tracking. For example, Daniels (1961:69-78) found that 72% of his sample of primary school teachers believed that anecdotal information and test scores which accompany children were adequate evidence for streaming.

Some of the more flexible proponents of tracking and streaming claim it is a vehicle for students' progress. Yet, there is evidence suggesting that once a student is placed in a particular track, he/she tends to remain there. The research of Jackson (1964:14-120) demonstrates the permanent effects of tracking. He found that once a child enters a stream, he'll stay there. Given normal shifts in IQ scores, forty per cent of the children should move one way or the other, yet only one to five per cent do move. Other research indicates that tracking and streaming, at best, have no positive effect on school performance and may even have a negative impact on achievement.

Eash (1961:429-434) reviewed 26 studies on tracking. He concluded that ability grouping was ineffective in increasing learning unless accompanied by many additional adaptations and methods. Finally,

an interesting study by Husen and Svenson (1960:36-51) pre-tested 2,755 Swedish fourth grade students on IQ and other academic criteria just prior to the introduction of a tracking program. A large number of these students remained undifferentiated. Post-test information revealed that, whereas one could not distinguish between members of the undifferentiated group in terms of gains in IQ, this was not the case with the tracked students. With tracked students, those in the lower track revealed only minor IQ gains, but members of the higher track showed appreciable gains.

Proponents of symbolic interaction theory take a more flexible and dynamic view of both intelligence and academic performance by not considering them to be a fixed phenomena (for a review of this perspective see Brookover and Erickson, 1975:259-281). Progressive change is seen as natural and is expected in both of these inter-related areas. To some theorists, students who have failed to progress are viewed as having been blocked in some way. Tracking and other techniques of ability grouping become suspect within this perspective, as they can be viewed as factors that may well impede the intellectual development of students. Students in lower tracks, given proper attention, are expected to progress. If they do not progress academically, the efficacy of the educational programs themselves is questioned. Conversely, with the more static conception of human behavior, lack of progress or slowness in improvement is viewed as natural; consequently the value of ability grouping and related techniques is never questioned regardless of student progress

in such programs. The researcher hopes that the present study will serve to place one more nail in the coffin of such a static conception of human potential.

This study successfully cross-validated (in an international setting) an important principle of behavior derived from symbolic interaction theory. That principle -- the behavior of a person is, in part, a function of his/her conceptions of self -- has received a great deal of theoretical attention and has been well researched in local settings. To the researcher's knowledge, until the present study it had not been subjected to a true comparative test of its asserted universality. As a consequence, this research has helped to achieve something that has been realized for only a very few of the so-called universal principles of behavior.

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## APPENDIX A

## GENERAL SELF-CONCEPT OF ABILITY SCALE IN ENGLISH

(Form A)

Circle the letter in front of the statement which best answers each question.

1. How do you rate yourself in school ability compared with your close friends?
  - a. I am the best
  - b. I am above average
  - c. I am average
  - d. I am below average
  - e. I am the poorest
2. How do you rate yourself in school ability compared with those in your class at school?
  - a. I am among the best
  - b. I am above average
  - c. I am average
  - d. I am below average
  - e. I am among the poorest
3. Where do you think you would rank in your class in high school?
  - a. among the best
  - b. above average
  - c. average
  - d. below average
  - e. among the poorest
4. Do you think you have the ability to complete college?
  - a. yes, definitely
  - b. yes, probably
  - c. not sure either way
  - d. probably not
  - e. no
5. Where do you think you would rank in your class in college?
  - a. among the best
  - b. above average
  - c. average
  - d. below average
  - e. among the poorest

6. In order to become a doctor, lawyer or university professor, work beyond four years of college is necessary. How likely do you think it is that you could complete such advanced work?
  - a. very likely
  - b. somewhat likely
  - c. not sure either way
  - d. unlikely
  - e. most unlikely
7. Forget for a moment how others grade your work. In your own opinion, how good do you think your work is?
  - a. my work is excellent
  - b. my work is good
  - c. my work is average
  - d. my work is below average
  - e. my work is much below average
8. What kind of grades do you think you are capable of getting?
  - a. mostly A's
  - b. mostly B's
  - c. mostly C's
  - d. mostly D's
  - e. mostly E's

## APPENDIX B

## GENERAL SELF-CONCEPT OF ABILITY SCALE IN GERMAN

(Form B)

Für jede der folgenden Fragen kreise bitte den Buchstaben vor der Antwort ein, die am besten Deine Meinung wiedergibt. Gib immer nur jeweils eine Antwort.

1. Wie schätzt Du Dich ein, wenn Du Deine Fähigkeit, in der Schule zu lernen, mit der Deiner besten Freunde vergleichst?
  - a. als der Beste
  - b. als über dem Durchschnitt stehend
  - c. als durchschnittlich
  - d. als unter dem Durchschnitt stehend
  - e. als der Schlechteste
2. Wie schätzt Du Dich ein, wenn Du Deine Fähigkeit, in der Schule zu lernen, mit der Deiner Klassenkameraden vergleichst?
  - a. als der Beste
  - b. als über dem Durchschnitt stehend
  - c. als durchschnittlich
  - d. als unter dem Durchschnitt stehend
  - e. als der Schlechteste
3. Wenn Du an die Abgangsklasse denkst -- wie Du Deiner Meinung nach abschniddest?
  - a. als der Beste
  - b. als über dem Durchschnitt stehend
  - c. als durchschnittlich
  - d. als unter dem Durchschnitt stehend
  - e. als der Schlechteste
4. Glaubst Du, dass Du mit Erfolg bis zum Abschluss zum Gymnasium gehen, also das Abitur bestehen kannst?
  - a. ja, bestimmt
  - b. wahrscheinlich ja
  - c. bin mir nicht sicher
  - d. wahrscheinlich nicht
  - e. nein
5. Wie würdest Du dabei abschneiden, verglichen mit den Leistungen Deiner Klassenkameraden?
  - a. als der Beste

- b. als über dem Durchschnitt stehend
  - c. als durchschnittlich
  - d. als unter dem Durchschnitt stehend
  - e. als der Schlechteste
6. Um Doktor, Rechtsanwalt oder Professor zu werden, muss man mindestens vier Jahre an einer Universität studieren. Glaubst Du, dass Du das schaffen kannst?
- a. höchstwahrscheinlich ja
  - b. ich denke schon
  - c. bin mir nicht sicher
  - d. ich glaube nicht
  - e. bestimmt nicht
7. Denke bitte für einen Augenblick nicht daran, wie andere Menschen Deine Leistungen einschätzen. Wie schätzt Du selber Deine Leistungen ein?
- a. als sehr gut
  - b. als gut
  - c. als durchschnittlich
  - d. als unter dem Durchschnitt stehend
  - e. als erheblich unter dem Durchschnitt
8. Welche Zensuren glaubst Du bekommen zu können, wenn Du nur wöltest?
- a. vor allem Einsen
  - b. vor allem Zweien
  - c. vor allem Dreien
  - d. vor allem Vieren
  - e. vor allem Fünfen