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EGO IDENTITY STATUS, INTELLECTUAL DEVELOPMENT, AND ACADEMIC

ACHIEVEMENT IN UNIVERSITY FRESHMAN

BY

DEBORAH E. FLAMMIA

A MASTERS THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

IN

PSYCHOLOGY

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Abstract

Late adolescent development was examined through the attitudes, values, beliefs, and academic performance of 121 Freshman students, 57 male and 64 female, at the University of Rhode Island. Marcia's (1966) operationalization of Erik Erikson's psycho-social theory of late adolescence and William Perry's (1970) model of intellectual formation in the college years were instrumentally applied through two objective tests that classify students into the stages of each theory. Findings confirm the study's hypothesis of a significant relationship between academic achievement and identity status. There were significant main effects of identity status, as reported in GPA scores, before and after intelligence (SAT scores) was controlled. Significance among groups conformed to theory, in that higher identity status groups demonstrated higher GPA scores than lower status groups. Other findings confirmed hypotheses of 1) higher student frequencies in low cognitive stages than in high cognitive stages and 2) fewer low identity than high identity students classified in the high cognitive stages. Although not predicted, significant gender differences were found for females in identity achievement. Implicit in its findings, the study suggests that adolescent development is the product of ongoing interactions between one's cognitive skills and psychosocial experience during childhood. The level and quality of these "socio-cognitive" skills at late adolescence results in more or less advanced adult identities. Adult identity or global development is further reflected in achievement which, here, is measured by students' academic performance.

I wish to thank each of my committee members, especially my major Professor, Dr. Al Lott, for their generosity in accomodating my personal timetable in completing this thesis. I have learned and benefitted from their experience in their respective fields as well as their personal qualities which make them admirable role models and educators.

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INTRODUCTION

Developmental Theories

There are two prominent areas of research in adolescent development which include cognitive development models and the educational research that extend these models into applied learning areas and a set of findings from ego identity research based on Marcia's (1966) operationalization of Erik Erikson's fifth stage crisis of adolescent identity (1959, 1980).

Theoretical models on intellectual development have been illustrated in the stage theories of Jean Piaget (1972), William G. Perry (1970) and currently some ground-breaking feminist findings about women's "ways of knowing" (Belenky, Clinchy, Goldberger, & Tarule, 1986; Baxter-Magolda, 1992). Each perspective defines stages through which a young person moves in attaining higher forms of intellectual reasoning as specified by the theory. Perry's "scheme" (1970), which is used in this study, describes how a student advances in learning in terms of what the student requires from his teacher, classmates, knowledge content, learning environment, and evaluation procedures. Depending on the student's stage of reasoning, different attitudes and behaviors are exhibited. For example, in the early college years, many students are in a passive stage of learning where the duality of right and wrong is assumed and the teacher is presumed to have all the answers. Later, multiple opinions are seen as valid although there is no measure of the differential value of one position over another, i.e., all opinions are equal. Finally, there is the acknowledgment that all knowledge is relative to the situation and to the existence of

pertinent valid evidence which can be applied to the situation. When a student can argue for such a position in a committed way, he has achieved the last two stages of reasoning - relativism and committed relativism. These forms of reasoning are not usually attained until late adolescence and early adulthood, which is presumed to arrive at the end of the college years, however, many students will never arrive at the highest levels. This disparity in thought processing among students possibly accounts for much of the variance among their performance and behavior that frustrates the purposes of parents, teachers, and advising professionals.

Educators have contributed to and extended this research stream by developing training models that apply constructs from Perry's (1970) theory and research. Instructional programming for teachers (Knefelkamp, 1983), faculty advisors (King, 1978), career counsellors (Knefelkamp & Slepitz, 1976; Moore, 1983) and student affairs administrators has allowed these professionals to deliver more relevant classroom lecture, counselling and interaction with students because they now understand there are several levels from which audience members will process and interpret the material. If the wide disparity between ability and academic and social performance is understood, efforts can be made to meet student needs.

Other significant research in adolescent development is that on ego identity, in particular, those studies that use Marcia's (1966) operationalization of Erikson's (1959, 1980) fifth stage adolescent "identity crisis". Erikson's theory of psycho-social development presents ego development as the underlying process of maturation in the person's life cycle. The ego's function, as defined by Freud, is to balance one's

inner feelings and desires with the needs of external reality. Therefore, the ego must develop skills that can adapt behavior to social roles and norms. The adolescent stage adaptation is to explore and commit to a life goal. Erikson's is a stage theory that requires completion of one ego capability, or psycho-social crisis, before the next can be completed. Thus, if a stage is missed or not adequately completed, the rest of development will be unfavorably affected. The failure to meet the challenge of the ego identity crisis, therefore, implies future social ineffectiveness for the individual.

Marcia (1966) operationally defines the adolescent identity crisis in terms of achieving two important functions - to explore options in careers and cultural ideologies and then to commit to a certain career and/or ideology. This definition generated four separate ego identity statuses - the ego identity Achieved, Moratorium, Foreclosed, and Diffused groups. Each of these status groups accounts for specific levels of exploration and commitment to adult roles. In the identity Achieved status, the adolescent has successfully explored career and ideology options and has committed to one of them; the Moratorium status is when the adolescent is exploring options but has not yet arrived at a commitment; the Foreclosed status has "foreclosed" on exploration but has committed to a role that most likely has been influenced by the student's family or other authority figures, and lastly, the Diffused status is one in which the young person may or may not have previously explored some options but is not now in exploration and has no motivation to explore or commit to a future role. Each of these statuses is more or

less adaptive. Marcia (1966) suggested that the sequence of Moratorium-Achievement is healthy and perhaps could be repeated sequentially many times over the course of one's life. The Diffused and Foreclosed groups, on the other hand, are considered lower status groups because of the absence of commitment and/or exploration in them. Diffusion is seen as less harmful in middle to late adolescence but beyond that age may implicate pathology (Akhtar, 1983; Marcia, 1989), and Foreclosure is troublesome because of its inhibition of individual growth through exploration.

Over the past three decades, ego identity research and methodology has expanded to include findings related to intellectual (Protinsky, 1972; Ross, 1976; Bateman & Donald, 1987; Wagner, 1987; Wilkinson, 1990; Boyes & Chandler, 1992) and moral development (Marcia & Rowe, 1980; Podd, 1972); academic achievement (Cross & Allen, 1970); personality characteristics such as locus of control (Adams & Shea, 1978; Ginsburg & Orlofsky, 1981), stress and anxiety (Berzonsky, 1992); and parental and early childhood correlates (Josselson, 1982; Adams & Jones, 1983; Campbell, Adams & Dobson, 1984; Grotevant & Cooper, 1985; Orlofsky & Frank, 1986; Neimeyer & Raeshide, 1991). More recently, it has been acknowledged that certain cultural, gender, and personal (e.g. "adopted" children) characteristics can and do have an intimate involvement with an individual's developmental pathways (Grotevant, 1992). For example, many cultures or ethnic groups subscribe to a set of traditional values and lifestyles that are considered socially significant norms. Therefore, a rating in the "foreclosed"

status is expected and not considered a negative or unique individual characteristic. However, most findings in identity status research, to date, are predicated on domains over which Western adolescents typically have some choice. It seems clear that a re-thinking of identity terms may be warranted in multi-cultural and in "special" personal situations.

Integration of Psycho-social and Cognitive Development

Erikson suggests it is the newly acquired abstract reasoning in late adolescence that triggers the questioning and self-searching process leading the individual closer to a resolution of his identity crisis. In fact, research studies show a preponderance of identity Achieved students categorized in Piaget's formal operational level of cognitive development. Although much research has shown formal operational skills (such as those involved in critical thinking) are required for identity achievement, they are also not sufficient. For example, Rowe and Marcia (1980) demonstrate the high correlation between formal operations and identity Achieved status but other lower statuses of Foreclosure and Diffusion were also shown to have acquired formal operational skills. Consistent with other psycho-social variables Blasi and Hoefel (1974) see identity as "the experience of meaning and consistency to one's actions... that requires a change in perspective and in the formation of new attitudes more than the acquisition of entirely new cognitive skills as the explanation of formal operations would imply." Turner (as quoted in Chandler, 1975) agreed with the social aspect of identity as the "unique relationship of the self to its objective environment and is not enhanced through formal

thought..." Selman (1980) shares this social interpretation of ego identity and suggests "social perspective taking" as a mediator between cognitive development and identity development. Since Erikson's theory describes the groundplan for ego development, it would seem that a construct like "social perspective taking" and "consistency of one's actions" are ego capabilities that can help the adolescent in his movement toward resolution of his identity crisis. Abstract reasoning alone does not tell the whole story.

Boyce and Chandler (1992) suggest another meaningful measure of one's identity status is based on epistemic thought. There are four progressive stages within epistemic thought: naive realism, defended realism, a dogmatism-skepticism axis, and postskeptical rationalism. In the last stage of epistemic thought, the person is comfortable with the interpretive nature of reality and can make judgments based on standards and methods that allow her to accept ideas and actions as more sound than others. The taxonomy is equivalent to that used in Perry's (1970) scheme of intellectual development, i.e., dualism, multiplicity, relativism, and commitment. Boyce and Chandler (1992) present epistemic thought as an underlying structure of Piaget's cognitive stages of development. Only the last two of Piaget's stages (transitional, IIIa-IIIb and full formal operations, IIIb) of cognitive development are correlated with the highest epistemic stages (Boyce & Chandler, 1992; Rowe & Marcia, 1980) and Kohlberg's (1958) post-conventional level of moral thought (Rowe & Marcia, 1980). When identity status was correlated

with intellectual and moral development only identity Achieved subjects had attained the highest moral and intellectual stages (Rowe & Marcia, 1980).

Similar to the way in which developmental stages of epistemic thought reflect increasingly complex constructions of reality, George Kelly's (1955) personal construct system describes how the person internally organizes reality as she lives it. For example, over a lifetime, the individual experiences social and personal events that can effect and change how he "construes" his world. Consequently, his decision-making style and coping mechanisms adapt to the new experiences. These incremental changes, as they occur, may further impact his developmental identity status (Berzonsky, 1992). Kelly's (1955) personal construct system is a psycho-social perspective on cognitive abilities, yet maintains the essence of structure. A personal construct is said to be complex in the extent to which it displays differentiation and integration of the attitudes, values and beliefs of the person. Bieri (1955) introduced the concept of cognitive complexity-simplicity to reflect the idea that the cognitively complex person has more construct dimensions than does the cognitively simple person. In relation to the identity statuses, studies of cognitive complexity indicate that Diffused subjects score as extremely complex; Foreclosed as cognitively simple; and high identity (Achieved and Moratorium) subjects as moderately complex (Cote, 1977; Kirby, 1977; Tzuriel & Klein, 1977). The reason for the Diffused identity's score of complexity is due to the multitude of loosely connected thought structures maintained by these individuals.

Slugoski, Marcia, and Koopman (1984) concluded from the misrepresentation of Diffused subjects as complex that a better construct than cognitive complexity to assess developmental status would be "integrative complexity," or the extent of connectedness among rules and attitudes of the internal cognitive structures. This makes intuitive sense since the person who has a tightly connected system of rules, values, and attitudes should project a stronger sense of certainty and identity in the social world than one with less internal consistency of values and attitudes. Using the construct of integrative complexity as a basis to assess identity status, the authors hypothesized that Moratorium and Achieved subjects would show more integrative complexity than lower identity Foreclosed and Diffused subjects; that Achieved subjects would attain the highest scores in integrative complexity, and that Diffused and Moratorium subjects would reflect more variability in their scores than any other group. The operationalization of this research question combined three (3) measures: identity status, cognitive complexity, and group behavior of each individual. The results of these psycho-social measurements supported the hypothesis that identity Achieved and Moratorium subjects were more integratively complex than Foreclosed and Diffused subjects. Cognitive rigidity was implied in the Foreclosed subjects' high scores of rule bound responses; and impulsive decision-making styles of Foreclosed and Diffused subjects were observed in their concrete response patterns of seeking closure quickly to reduce dissonance. In addition, integratively concrete persons were agreeable to salient norms, a quality that

research has found in low identity individuals, such as Foreclosed and Diffused, who tend to be externally controlled.

What Slugoski, Marcia, & Koopman's (1984) research contributes is an empirical demonstration that identity formation can be conceived within the context of a structured hierarchy of cognitive functioning. The person's internal structure, or personal construct system, is revealed through integrative complexity scores obtained by the identity statuses. This approach to assessing the nature of development is what researchers using Piagetian measures wanted to do but failed. Implications of the findings of this study are that subjects high in identity and integrative complexity should move smoothly through their social worlds selecting various social perspectives that are pertinent to their surroundings and interactions. On the other hand, those subjects with lower identity statuses and less integrated beliefs and values are more constrained in their modes of interaction and involvement.

Identity and Behavioral, Affective, and Cognitive Correlates

In addition to stable findings of a close alignment between intellectual and ego identity development, other related behavioral, cognitive, and emotional factors have been observed. Recent research investigated decision-making and coping styles adopted by adolescents when negotiating personal identity issues (Berzonsky, 1992). Three distinctive styles were observed and were associated with particular identity statuses. Achieved and Moratorium statuses are information-oriented, i.e., they effortlessly seek out, elaborate and evaluate information before dealing with

problems and making decisions; the Foreclosed use normative-oriented expectations of parents and other significant authority figures; and the Diffused are avoidant-oriented as they typically procrastinate and try to avoid dealing with problems and decisions. Each style exhibits certain behavioral/emotional/cognitive characteristics. The normative Foreclosed person appears self-conscious because they fear others' criticism (Berzonsky, Trudeau and Brennan, 1987; Grotevant; 1984). The avoidant/Diffused have a tendency to act in a manner consistent with their assessment of others' behavior. They generally operate on perceived personal consequences, not on personal beliefs. The informed/Achieved personally define their behavior, while informed/Moratorium are 'other-directed' in making decisions. Thus, only the Achieved's behavior is predicated on cognitively complex and personally defined content.

Stress management is related both to coping style and identity status. Information-oriented statuses see stress as manageable; avoidant-oriented procrastinate and try to escape; and the normative status relies on social authorities to help them. When under stress, people generally cope in one of two ways - an emotion-focus or a problem-focus. Adolescents who are emotion-focused try to get away from emotion while those who are problem-focused find solutions and alternatives to resolve the stress. Debilitative test anxiety is correlated with avoidant-oriented, emotion-focused coping as a Diffused identity tries to run away from the negative emotion they are experiencing. Facilitative test anxiety is correlated with problem-focused coping, an information-oriented style and an

Achieved or Moratorium identity status. It is also negatively related to an avoidant/Diffused style. A normative identity, i.e., Foreclosed, is correlated with social-support seeking and tendencies to engage in wishful thinking and detachment. Therefore, both Foreclosed and Diffused identities use an emotion-focused coping style when dealing with stress. This general pattern of 'coping by identity' style is consistent for males and females and tends to be comparable to the above descriptions (Berzonsky, 1992).

These findings clearly point out the usefulness of understanding developmental characteristics. Educational efforts can respond to potential vulnerabilities of the average developing adolescent. A revised version of the Identity Status Interview (ISI) now offers a test for information processing style since this construct is so widely related to social behaviors of adolescents. Berzonsky (1989b) reports the most well-adjusted psychological characteristics such as an information-oriented style, internal locus of control, need for cognition, openness to ideas, and introspectiveness are correlated with an identity Achieved status.

In summary, findings suggest that processing orientation cannot be considered independent from the structural aspects of identity. For example, we know that Achieved and Moratorium individuals in their information-orientation naturally seek out, process, and evaluate self-relevant information when dealing with stressors and decisions. If that information proves useful and effective, it can become crystallized and schematized over time. Such well-integrated and organized self-constructs may then tend to "drive" subsequent processing and problem-solving in a more biased

"normative" way (Hansen, 1985; Kihlstrom & Cantor, 1984). Processing orientation or preferences may also be influenced by the extent one's global self-identity is structurally integrated and consolidated. Once personal decisions and commitments have been "achieved," there may be a tendency for future information processing to become more focused and restricted. Therefore, the personality style of the Achieved individual may appear self-assured and somewhat dogmatic because she has considered all possible alternatives before coming to her conclusion. Although Achieved and Foreclosed individuals may subscribe to the same attitude and appear equally confident of their beliefs, the Foreclosed has probably obtained his through a quicker and less personally meaningful analysis.

Gender Differences

Although there are several stable findings of gender differences related to identity status, the most prominent change has evolved within women's identity over the recent past two decades. Paterson, Sochting, & Marcia (1992) describe developmental pathways before and after 1976, as reflective of women's lifestyle changes over that period of time. Before 1976, as Erikson believed, occupational and ideological issues were secondary to interpersonal issues for women. The woman seemed to leave her identity open and flexible at late adolescence in order to accommodate the man she married; her first partial resolution of identity was to settle on a sense of her own attractiveness, an image of the man she would marry and whether and/or how many children she would have. Identity, intimacy and generativity could almost happen at once for her, unlike a man. However, after

1976, lifestyle priorities shifted and many late adolescent and young female adults pursued careers in the same way as their male counterparts. Up until the eighties, women found their identity in interpersonal issues, as measured by Marcia's content areas, and men were still finding theirs in the ideological domains. By the 1980's, Bilsker, Schiedel, and Marcia, 1988, found no gender differences in occupation as a predictor of identity status. The thrust for women, however, still needed to be in balancing the interpersonal with identity issues in order for occupational identity to succeed. Women still have more difficulty in achieving a straightforward solution to their identity concerns since they define themselves in so many different ways.

Before 1976, women's status as Foreclosed was adaptive and offered them high self-esteem; and, after 1976, it protected them from the conflict between achievement motivation and fear of success (Orlofsky, 1978). There remains a societal conflict between expectations and support systems for traditional values and those for self-actualization and achievement values of women. Serious repercussions during these societal transitions have left some women without the strength of interpersonal connection and a lack of commitment to pursue self-oriented goals. These women are experiencing diffusion that can become psychologically overwhelming and dangerous, as Josselson noted in her longitudinal study (Josselson, 1988). Therefore, Paterson et. al. (1992), suggest there are probably two different times a woman may face developmental challenges in an adaptive way - once when she is in her 20's and forecloses on traditional values of family and motherhood as priorities and, another time, when she has

completed her family responsibilities and can accept a psychosocial challenge for herself. A healthy adaptation at this point may be characteristic of Moratorium since she now has time to explore her next phase. Of course, there are women who successfully become Achieved in their twenties and either forego or balance family responsibilities.

Identity status research has shown Foreclosed and Achieved women have the highest self-esteem and are more achievement oriented during late adolescence. They also score higher on academic achievement tests. Achieved and Foreclosed women show higher field independence on perception tasks (Schenkel, 1975) and conform less in peer pressure situations. It is the women in committed statuses, i.e., Foreclosed and Achieved, who have a base of security that frees them from external controls. Moratorium women and men have higher anxiety than their Achieved counterparts due to their on-going crisis (Marcia & Friedman, 1970; Schenkel & Marcia, 1972; Romano, 1975). Foreclosed men and women have the lowest anxiety because they are socially supported.

Parental Antecedents of Identity

Parental antecedents that correlate with a successfully "Achieved" identity are a moderate degree of parent-child connectedness reflected through shared affection and an acceptance of individuality (Grotevant, 1983). In contrast, weak affectionate bonding with parents and poor communication levels, observed through parental

rejection and psychological withdrawal, are thought to provide an insecure or constricted psychological base for self-exploration. These latter symptoms are seen in Diffused individuals. Another possible outcome is when there is extreme affection (enmeshment) between adolescents and their parents but limited family tolerance for individuality. This condition encourages a Foreclosed identity. Grotevant & Cooper (1985) suggest that the promotion of both individuality and connectedness in the family system provides bases for adolescent exploration in identity, as opposed to either too little or too much cohesion and affection.

Several past studies have identified significant differences among identity statuses in perceived parent-adolescent child-rearing experiences. Markstrom (1992), however, cautiously points to the fact that the research on this topic is correlational in nature and so cannot unequivocally assert that particular socialization styles create a certain effect on adolescent identity formation. But, she also says, the findings are compelling and warrant further attention. In particular, warm and supportive parent-child relations; democratic paternal parenting; minimal to moderate restrictiveness, with freedom to discuss issues with parents, have been shown to be correlated with more advanced identity formation. Orlofsky & Frank (1986) and Josselson (1982) examine early childhood memories as a key to maturation levels at an earlier time of development. Both studies found that higher level identities of College men and women exhibited more developmentally advanced concerns in their early memories than did Foreclosed and Diffused individuals. Identity Achieved subjects of both sexes were found to blend less

mature themes of nurturance and security with more mature themes of mastery, competition, and independent activity in their early memories. The use of early memories provides insight into the organization of the individual's internal character and its concerns; in both these studies, the memories relate to interpersonal relations and achievement, the two cornerstones of a mature identity status.

HYPOTHESES

This study investigates adolescent developmental issues through focusing on specific advances in psycho-social attitudes, intellectual stages, and academic performance. Although it is not hypothesized, gender differences on both developmental and academic levels are also examined and reported. The following hypotheses were proposed:

- 1) Developmental Hypothesis - Fewer Freshman students are classified in the identity Achieved group than in the Moratorium, Foreclosed and Diffused groups.
- 2) Cognitive Development Hypotheses - Fewer Freshman students are classified in the higher stages of intellectual development, i.e., relativism and commitment, than in the lower stages of dualism and multiplicity.

A third hypothesis is that fewer low identity students (Foreclosed and Diffused) than high identity students (Achieved and Moratorium) are classified in the high intellectual stages.

- 3) Academic Performance Hypothesis - Significant differences are expected in academic achievement, i.e., GPA scores, among the four identity statuses after

controlling for intelligence, i.e., SAT scores. In particular, Achieved students exhibit significantly higher GPA scores than students in other identity status groups.

METHOD

Subjects

Subjects were 121 University of Rhode Island Freshman students, 64 female and 57 male, who were campus dormitory residents. Incentives of cash contests, free candy and pizza were offered for their participation. The dormitories selected were the largest Freshman residences on campus. Selection criteria were an equivalent number of each sex; Freshman class membership; and age of eighteen years or older. No other demographic data was collected, mainly due to University restrictions.

Procedures

200 Surveys were distributed during the Spring (mid-April to mid-May) of 1995 in Freshman dormitories by Resident Dormitory Assistants. Of these, 100 surveys were completed and returned. Another 40 surveys were distributed by the study's Investigator during on-site dormitory visits as well as through the mail.

Each participant was administered the two objective tests (LEP and EOM-EIS2) and asked to return them when completed. The majority of students completed and returned the tests within one week. Average testing time of students who directly took the test was 30 to 45 minutes. GPA scores for the end of the second semester

and SAT scores were obtained through the University Registrar's Office by the Investigator after submission of signed consent forms from each participating student, granting permission to use these scores during the study. The EOM-EIS2 was scored by the Investigator; LEP answer sheets were sent to the test author for standardized test processing and scores were returned within one week. Both sets of results were used to categorize students into the appropriate stages of each developmental theory, as assessed by the tests. All further computations and statistical analyses were run on the University's mainframe computer by the study Investigator.

Measures

Extended Objective Measurement of Ego Identity Status.

The EOM-EIS2 (Adams, Bennion, & Huh, 1989) is an objective paper and pen measurement of ego identity status as originated in Marcia's (1966) operationalization of Erikson's adolescent identity crisis. The EOM-EIS2 assesses ego identity status through Likert-type statements designed to classify an equal number of items in ideological and interpersonal life domains. Ideological domains reflect the student's attitudes on occupation, politics, religion, and life philosophy. Similarly, a set of interpersonal domain statements are designed to assess student attitudes on sexroles, friendships, dating, and recreation. The test is structured in sets of eight items, i.e., two items are associated with each of the interpersonal and ideological domains (cited above). Students are asked to rate each item on a six-point likert scale. The summated ratings for each set represents the student's

summary score on identity subscales of Achievement, Moratorium, Foreclosure and Diffusion. Subscale items are written to reflect how a particular status would view each of the domains. For example, a statement in the occupation domain contributing to the Diffusion subscale summary score is "I haven't chosen the occupation I really want to get into and I'm just working at what is available until something better comes along." Subscale scores for interpersonal, ideological and total identity are calculated by summing all Achieved-oriented, Foreclosed-oriented items, etc., separately. Overall identity is obtained by comparing the four subscale score totals with the appropriate identity status cut-off marks to determine which overall identity status appropriately fits the individual. If none of the scores reach a cutoff mark the student is categorized as a "low-profile" Moratorium. If more than one cutoff is met, the subject is in transition and the lower status is accepted.

Parallel samples of 317 University of Texas and 274 University of Utah students were used to test the reliabilities of the EOM-EIS2. Alpha co-efficient estimates were .67 and .77, and split-half reliabilities were .37 and .64 for the two samples. Test-retest reliabilities over a four week period were .63 and .83. Face validity was established by ten graduate students who mapped the identity status items into the appropriate status categories with 96.5% agreement.

The Learning Environment Preferences

The LEP (Moore, 1987) is an objective paper and pen measure of cognitive stage development as defined by William G. Perry's scheme of intellectual development in the college years (1970). The test consists of 65 Likert-type items that are the basis

for classifying the individual into one of four Perry intellectual positions - dualism, multiplicity, relativism or committed relativism. The student is asked to rate statements on their contribution to the learning process using a four point scale. The statements are grouped into five separate learning domains of course content, role of instructor, role of student peers, classroom activities, and evaluation procedures. These domains, in combination, provide a more reliable assessment of the student's learning style than measures that focus on a single area. A sample item in the instructor's domain is "In my ideal learning environment, the teacher would teach me all the facts and information I am supposed to learn." This item was developed to measure dualism in the instructor domain. The author of the test provided an overall cognitive complexity score (CCI) for each participant, ranging 200 - 500. The Investigator then applied cutoff marks to each score in assigning an appropriate Perry intellectual stage to each student.

Alpha reliability coefficient estimates for Perry's (1970) four intellectual positions that are measured in LEP items reflect internal consistency for each position, i.e., position two (dualism) is .81; position three (multiplicity) is .72; position four (relativism) is .84; and position five (committed relativism) is .84. Construct validity was measured through a factor analysis using 725 students from several different types of institutions, and resulted in four separate factors that reflected learning preferences related to the four Perry positions measured in the LEP.

RESULTS

Survey Data

Some student surveys were discarded due to poor interpretability of Survey responses. According to the EOM-EIS2 scoring manual, if a student obtains more than two identity subscale scores above their respective cutoff marks, the survey should be discarded. There were five surveys that were discarded for this reason.

Missing Data

Approximately five (5) subjects refused to respond to item #50 about church-attendance and had indicated (in writing) some negative bias in the question or in the wording of the statement. This piece of missing data was replaced by a score equivalent to the average of the other three ideological statements in that grouping.

There were no University records of SAT scores available for 5 students in this sample. Average SAT scores for their assigned group identity status were used to fill in the missing data.

Test Scores

The LEP test produces a Cognitive Complexity Index (CCI) score for each student which relates to a specific Perry intellectual stage. The range for all CCI scores in the sample was 200 - 439. Most students, 60%, were rated in the dualism and multiplicity stages, and the remaining 40% were rated as relativistic. No student was rated as committed intellectually. Mean CCI score was 322.81. According to

Perry's model, the pattern of a multiplicity average stage within this sample is normal for the Freshman College year. See TABLE 1 for CCI summary data.

The EOM-EIS2 (Adams, Bennion, and Huh, 1989) provides each subject with several scores of interest. For example, for each of the four identity subscales, there are two subscores, one for interpersonal domain statements (related to issues like dating, sexroles, friends), and one for ideological statements (related to occupation, religion, and politics); and then a total identity score that combines ideological and interpersonal subscores. Average "total" scores for identity subscales and related data are computed across the entire sample and shown in TABLE 1. After cutoff marks were applied, there were 10.7% Achieved ($n=13$), 9.9% Foreclosed ($n=12$); 57.8% Moratorium ($n=70$) and 21.2% Diffused ($n=26$) students.

Insert Table 1

Each of the identity statuses reveals its personality through intercorelations with its other subscores. For example, as a group, the Achieved students' interpersonal and ideological concerns (scores) were significantly correlated with their total identity, .87 and .64. However, this is not true for the Diffused, whose interpersonal subscores were not related to total identity scores. The implications of these intercorrelations among the identity groups are explored in the Discussion section. See TABLE 2.

Insert Table 2

Identity Status Characteristics

The distribution of scores, means, correlations and other important statistics for the EOM-EIS2, GPA, CCI, and SAT are provided for each identity status separately in TABLE 2. Average age for all students was 18.4 years. The Foreclosed status was the youngest, 18.2 years, and was comprised of 75% males. The Achieved Status was similarly skewed by sex but in the opposite direction, i.e., 69% were females versus 31% males. The Moratorium and Diffused status groups were each equally composed of male and female students. The identity Achieved and Foreclosed status memberships were the smallest, 13 and 12 students, respectively.

The Moratorium status group was the largest and problematic in the extent of surveys classified as "low profile moratorium." This issue is discussed in the next section. 57.8% of the entire sample was rated a Moratorium status. Since Moratorium is considered a high status identity, along with Achieved, this Freshman sample projects an image of well-developed students, perhaps quite dubiously. The Diffused status group was idiosyncratic in that its average combined SAT score of 1017 was higher than all other statuses while, also in contrast, they scored the lowest average cognitive complexity score (306) of the four identity groups. See TABLE 3 for summary statistics on each identity status group.

Insert Table 3

Evaluation of Hypotheses

1) Distribution of Identity Status

A developmental hypothesis predicted significantly fewer students would be rated identity Achieved than any other status. A comparison of proportions between the Achieved status group and each of the other status groups' proportionate share of the sample showed significant differences between the number of Achieved ($n = 13$) and Moratorium ($n = 70$) students, $z = 7.85$, $p < .05$; and Achieved ($n = 13$) and Diffused (26) students, $z = 1.98$, $p < .05$. However, no significant difference between the Achieved ($n = 13$) and Foreclosed ($n = 12$) groups were observed, $z = .1538$, $p > .05$. Therefore, although the Achieved group did not have a significantly lower number of students than the Foreclosed identity group, it was not significantly higher either. Nevertheless, the hypothesis that the Achieved status would be smaller in size than each of the other identity groups was not confirmed.

Although gender differences were not predicted, a chi square analysis examined differences among identity statuses by gender. No significant main effects were found, $\chi^2(3) = 5.451$, $p > .05$. However, two significant differences were found when testing observations of more females in the Achieved status and more male Foreclosed students. A crossbreak analysis, $\chi^2(1) = 6.08$, $p < .05$, using these two

identity statuses, revealed significantly more female than male Achieved students and more male than female Foreclosed students . See TABLE 4.

Insert Table 4

2) Distribution of Intellectual Stages

A cognitive development hypothesis predicted a larger proportion of students in the lower level stages of dualism and multiplicity than in the higher levels of relativism and commitment. A comparison of proportions between the combined higher status groups of relativism ($\underline{n} = 49$) and commitment ($\underline{n} = 0$) and combined lower status groups of dualism ($\underline{n} = 15$) and multiplicity ($\underline{n} = 57$) was made which identified a significant difference between High cognitive stages (40%) and Low cognitive stages (60%), $z = 14.5$, $p < .05$. Thus, more Freshman students were classified in the lower cognitive development stages of dualism and multiplicity than in the higher stages of relativism and commitment.

A second cognitive hypothesis predicted fewer low identity students than high Identity students would be classified in the higher cognitive stages. A chi square analysis, $\chi^2 (1) = 4.381$, $p < .05$ revealed a significant difference in occurrence of low identity status in the higher cognitive status levels. See TABLE 5.

No significant gender differences were found by cognitive stages, $\chi^2 (3) = 6.02$, $p > .05$.

Insert Table 5

3) Identity and Academic Achievement

A developmental hypothesis predicted significant differences in identity status, as measured by adjusted grade point averages (GPA). Both an analysis of variance (ANOVA) and covariance (ANCOVA) were performed since it is believed intelligence may confound the results observed in GPA scores which measure academic achievement. Therefore, academic achievement, the dependent variable, was adjusted for intelligence by using SAT (scholastic aptitude test) scores as a covariate in the ANCOVA. SAT scores are known to provide some predictive measure of academic success in college coursework. ANCOVA requires that covariates are substantially related, usually greater than .50, to the dependent variable to effectively neutralize the unwanted influence of a variable such as intelligence on academic achievement scores. To examine the strength of the relationship between GPA and SAT scores, a regression analysis was performed. A correlation (r) of .284 was the computed relationship between aptitude and academic achievement. Therefore, approximately 8.1% (r -square is .081) of the variance in GPA can be explained by knowing SAT scores. Although this is not a substantial amount of explained variance, SAT was selected because of its traditional use in higher education and because it is the only accessible measure of its kind.

The ANCOVA utilized four levels of the independent variable i.e. the identity Achieved, Foreclosed, Moratorium, and Diffused statuses; one dependent measure of GPA; and one covariate of SAT. Results show significant main effects of identity Status, $F(3,116) = 3.36, p < .05$. See TABLE 6. Simple effects testing produced t-values and probabilities between pairs of groups that showed significant differences. The identity Achieved group had the highest adjusted GPA average of 3.07, but was not significantly different from the Moratorium's adjusted GPA of 2.93 and the Diffused 's 2.77. The Achieved and Foreclosed differences were significant at $p < .009$ and Foreclosed and Moratorium were significantly different at $p < .006$. Other probability measures were $p = .118$ for differences between the Achieved and Diffused statuses and $p = .145$ for differences between Diffused and Moratorium groups. The Moratorium and Achieved groups, which are considered high identity statuses, were not different from each other, $p = .65$, as would be expected.

Insert Table 6

The ANOVA also found significant main effects of identity status on GPA scores, $F(3,117) = 2.96, p < .05$. The results changed very little between the two analyses.

Although not predicted, gender differences were evaluated using ANCOVA. GPA mean scores were not significantly different between men and women, i.e. 2.94 (women) vs 2.77 (men), $F(1,118), p = .09$. See TABLE 7.

Insert Table 7

DISCUSSION

This sample of Freshman students generally conformed to expectations of the Marcia-and Perry- operationalizations of psycho-social and intellectual development. That is, there were fewer students categorized in the higher intellectual stages than in the lower ones of dualism and multiplicity. Predictions in status distribution, however, were not confirmed, i.e., there were not significantly fewer Achieved than Foreclosed students. However, this distinction may have been due to the timing of the study, i.e., during second semester rather than first semester. A larger number of Foreclosed than Achieved students may have resulted during an earlier timing of the surveys causing a larger and significant size difference between the Foreclosed (12) and Achieved (13) status groups. It is worth noting that the largest gains in intellectual growth during the college years has been found to occur during the Freshman year, therefore, it is likely that many students were rated in lower identity statuses as well as in academic performance during their first semester. In particular, the Foreclosed status which is seen as reliant on authority figures may have experienced a more significant growth opportunity from the first to the second semester. Furthermore, this particular sample of Foreclosed students are younger than the students in the other identity groups, making this occurrence of growth more likely. Thus, the non-significant differences in size and also in GPA scores

between the Achieved group and the others could likely have been significant during first semester due to a downward pressure on already lower average second semester GPA scores in these lower status groups.

A more important concern in this sample's distribution of identity status groups is the 57.8% contribution from the Moratorium status. In particular, it is the very large sub-set (62 out of 70) of Moratorium students classified as "low profile" moratorium that is problematic. The rating of "low profile" Moratorium occurs when students use very low ratings (for example, 1,2,3 versus 4,5,6) across all subscale items. The total scores for each of the identity subscales, therefore, are also low and do not reach cutoff marks for any of the statuses. Total scores are also not differentiated from one another in a meaningful way. Since Moratorium is categorized as a high identity status, along with the Achieved status, the distribution of high versus low identity status dubiously increases by the number of "low profile" Moratorium students present in the sample. In fact, the student who is rated as a 'low profile' Moratorium is presumably at the beginning stages of exploration and crisis (as reflected in the low scores). When examining the sub-scale scores of this group of "low profile" students, there were two detected trends - one was consistently low scores across all subscales, and the other displayed stronger (not far from cut-off) scores in the Achieved and/or Diffused subscales. The latter pattern seemed to reflect either an imminent transition from one stage to the other or an on-going conflict between the two. Disregarding the observed patterns in this sample, the EOM-EIS2 is not differentiating this stage of "low profile" moratorium development

well enough from the others. Survey data must be systematically analyzed to understand differences within the Moratorium status and how to discriminate these students more appropriately.

Status characteristics of the individual identity groups, outlined in the Results Section, demonstrate theoretical construct systems observed in past identity research. For example, the Diffused group's scores of intelligence, achievement and intellectual growth are inconsistent. Although these students showed an unusually high intelligence index as a group, they do not perform at a level consistent with this ability. Their overall intellectual growth, as measured by their average cognitive complexity index (CCI) is lower than other less competent groups. In order to move forward intellectually, one must actively construct the world around him. Kelly (1955) explained his "personal construct system" by equating the individual to a scientist who observes and begins to learn how certain events and people work. As he observes, he internally changes his construction of people or situations, by adding new material and/or altering old information. Over time, his constructions become so well-defined and integrated he can quickly understand other related new and unusual information. Both Kelly (1955) and Bieri (1958) would call this ability that each of us has as cognitive simplicity-complexity. In contrast, although the Diffused group may possess many abilities and knowledge, they have not used them to construct a functionally complex internal world. Their knowledge is not interconnected with the outer world of people and situations, therefore, they have little success in attaining external goals e.g. their low academic

achievement and their diffused identity type. Slugoski et al., 1984, would assess them as "integratively simple" because, although they have multiple dimensions from which to draw and attain certain goals or make decisions, they choose not to integrate these abilities. Bieri (1958) would probably still see them as cognitively complex even though this does not help in understanding why their overall performance is low when compared with other identity groups.

In a sense, Marcia's designation of a Diffused group addresses the integrative aspect of functionally successful individuals such as those found in the identity Achieved group. Diffusion in terms of an identity crisis is the inability to experience ambiguity in order to make sense of it, while Achievement is the willingness to experience the disorder only to "achieve" a systematic perspective on it. These students are also Diffused because they choose not to explore or make commitments (Marcia, 1989). It is interesting that both psycho-social and intellectual growth are equally low. The interaction of these two variables describe the ego capabilities that Freud deems necessary to adapt to life crises at each maturational stage. It appears that some of these students have not achieved requisite abilities in earlier developmental stages to master the adolescent transition to adulthood. However, many of these students may be internally readying themselves for changes that are not yet demonstrated in this measurement. Marcia (1989) has identified at least three sub groups of Diffused adolescents. One of them is based on normal developmental transitions.

Another indication of differences between Diffused and Achieved students, related to adaptive socio-cognitive skills, is their interpersonal subscores on the EOM-EIS2. The identity Achieved students' scores on both interpersonal and ideological domain statements were significantly related to their total Achieved identity scores. Their average scores were 40.23 and 38.84, respectively. The Diffused students, on the other hand, scored much lower on their interpersonal subscores, i.e., 25.92 versus 30.38 on their ideological subscores. Furthermore, their ideological score correlated significantly with their total Diffused identity at .79 ($t = 6.39, p < .01$) while their interpersonal subscore was not significantly correlated at .20 ($t = .998, p > .05$) with their total Diffused identity. As reported in the Results Section, Achieved students' interpersonal subscore was significantly correlated, .87 ($t = 5.89, p < .01$), with their total identity Achieved score, as was their ideological subscore correlation of .65 ($t = 2.80, p < .02$). In comparison with the Achieved status, both Moratorium and Foreclosed subscores were low. However, the Foreclosed interpersonal and ideological subscores significantly intercorrelated .71 ($t = 3.16, p < .05$) and .67 ($t = 2.89, p < .05$), respectively, with their total identity. See TABLE 2.

An interesting phenomenon is presented in this high interpersonal score correlation of Foreclosed identity students. Berzonsky (1992) describes the coping and decision style of Foreclosed individuals as "normative." This means they depend on externals in times of need and all information is derived in a "shorthand" fashion because it is based on social norms and rules that may change and so are

not worth thinking about. When a crisis comes along, the Foreclosed are known to become detached or seek the help of authority figures. They are prone to wishful thinking perhaps because they often find themselves 'saved' from negative circumstances by more powerful people. Their average CCI score of 324 is moderate but closer to dualism than relativism. Dualism reflects simplistic thought processes which are concretely defined, e.g., black versus white. Their GPA (performance) score, 2.39, and SAT (intelligence), 978, are lower than the other groups. Furthermore, both Foreclosed and Diffused groups are considered lower identity statuses that have been observed to use an emotion-focused coping style under stress. The two groups are also known to experience debilitating test anxiety more than Achieved and Moratorium students, who seem to experience facilitative test anxiety. (Berzonsky, 1992) This anxiety, especially in the self-conscious Foreclosed group, may have contributed to the very low performance in SAT and GPA scores. Nevertheless, the Foreclosed demonstrate lower capability in both psycho-social and cognitive challenges, and it is the interaction of personal and cognitive skills that produces functional achievement. A closer examination is needed to understand the Foreclosed student.

The Foreclosed is a lower identity status because there has been no exploration from which informed decisions and commitments can be made. Decisions are made by significant others for these students. Any of the stress involved in the process of decision-making is eliminated as well as the diverse experiences and interpersonal and other skills that come when one is seeking out information through new jobs,

recreation activities and acquaintances. Berzonsky (1992) remarks that the Foreclosed have a tendency to cut off core aspects of the self such as beliefs and value systems. The idea of a person's identity as an internal system of beliefs and values is related to the personal construct system Kelly (1955) suggests defines the person over time. However, some people have simple identities and others have more complex ones. If one is not an "intuitive scientist" (Kelly, 1955), one cannot adapt effectively within environmental and social contexts to self-relevant problems than are encountered (Berzonsky, 1989b). Each event and situation cannot be compared or reasoned from other preceding ones. It takes longer and is more anxiety provoking when making changes and new commitments. Foreclosed people who rely on others for help are less open to new ideas, are rigid (Slugoski, Marcia, & Koopman, 1984), and are externally controlled as opposed to Achieved individuals who have an internal locus of control (Adams & Shea, 1979). Interpersonal skills for Foreclosed individuals do not involve mutuality through which each individual benefits.

Therefore, although the data from this study suggests that Foreclosed students are interpersonally defined, via their high intercorrelation of interpersonal scores with total identity, it is on a level (their scores were very low) which is not enriching to the person's internal cognitive structure of attitudes, beliefs, and values. Their relationships with others and the external world are based on socially defined structures, not mutual or empowering experiences. Their personal construct system remains simple and restrictive.

In conclusion, socio-cognitive skills, that are developed through interpersonal experiences, are the source of one's sense of identity (including skills and achievements) that is continuous over time and contexts. That identity can be self- or other controlled and can lead to high achievement that builds self-esteem or can box people into lives that are controlled by powerful "others." It has been found in prior research that identity Achieved individuals are more open to new ideas, internally controlled and achievement oriented. They also value interpersonal experiences which help them in their sense of empowerment and self-mastery. The examination of this sample of Freshman students has produced evidence for these findings.

Summary & Conclusions

The present study examined relationships among adult identity (as theorized in Erikson's adolescent identity crisis), cognitive development, and achievement in late adolescence. Significant relationships were observed wherein a high identity status was significantly related to a high cognitive status and high academic achievement (GPA). Theory suggests that cognitive complexity, a construct first defined by Kelly (1955) and Bieri (1958), is at the core of advanced levels of adult identity in that individuals with complex value and belief systems are able to negotiate diverse challenges and, so, 'achieve' a more distinct identity than those with a restricted range of internal constructs. Furthermore, more recent research has shown evidence that parental antecedents which encourage individuality and self-mastery during childhood are significantly related to advanced identity statuses at late

adolescence. Therefore, at late adolescence, adult identity is the level of “socio-cognitive” skills, i.e. the integration of cognitive skills and psycho-social experience, which were nurtured throughout childhood.

The findings resulting from this investigation are limited in their generalization to other populations for several methodological reasons: subjects were not randomly sampled; sample size is too small for the number of variables analyzed - 4 stages of cognitive development, 4 stages of psycho-social development, GPA , and SAT scores; and lastly, analyses of group differences were not based on equal size groups. However, this latter issue of group size equality was not possible or even reasonable considering the developmental issues being studied. It is also not advisable to use methods that are designed to compensate for this feature (of unequal cell size) because the groups were experimentally formed. Since assumptions for ANCOVA were not violated, a replication of this study using a larger, randomly selected sample would help resolve the reliability of these findings.

Table 1.

Summary Statistics and Descriptive Data on the LEP and EOM-EIS2 Measures for

Entire Student Sample

LEP

CCI - Cognitive Complexity Index

<u>Stage</u>	<u>Score Range</u>	<u>#Students</u>
Dualism	200 - 284	15
Multiplicity	285 - 372	57
Relativism	373 - 460	49
Commitment	461 - 500	0

Sample Mean = 322.81, s.e. 4.37.

Sample Median = 320.00, s.e. 4.90.

Standard Deviation = 46.96.

EOM-EIS2

Ego Identity Status Scores

<u>Status</u>	<u>Mean/ Standard Deviation</u>	<u>Cut-off Mark</u>	<u>#Students</u>
Achieved	62.63, SD 10.2	73	13
Moratorium	51.75, SD 10.3	63	70 _a
Foreclosed	37.26, SD 12.8	53	12
<u>Diffused</u>	<u>44.53, SD 9.6</u>	<u>53</u>	<u>26</u>

n_a includes "low profile" Moratoriums who do not reach any stated cutoff mark.

Table 2.

Intercorrelations between Subscales and Identity Status Group Scores

	Achieved	Foreclosed	Moratorium	Diffused
Subscale	(<i>n</i> = 13)	(<i>n</i> = 12)	(<i>n</i> = 70)	(<i>n</i> = 26)
Achieved	--	-.123	.233	-.374
Foreclosed	-.260	--	.023	-.227
Moratorium	.109	-.433	--	.273
Diffused	-.100	.060	.206	--
Interpersonal	.871**	.708*	.130	.201
Ideological	.645*	.675*	.366**	.794**
Friendship	.160	.389	.087	-.086
Dating	.474	.549	.061	-.097
Sexroles	.378	.373	.039	.446*
Recreation	.471	-.049	.152	-.102
Politics	.311	.791**	.264*	-.183
Religion	.559*	.437	.130	.537**
Philosophy	.281	.508	.305*	.481*
Occupation	.223	-.174	.289*	.212

Note. Correlation co-efficients compute relationships for each group's subscale scores with that group's "total identity" scores, e.g. interpersonal subscale scores for Achieved students correlate at .871 with their "total identity" scores.

***p* < .01, **p* < .05.

Table 3.

Means and Intercorrelations of Test Scores by Identity Status

Identity Status	Means			Intercorrelations				
	GPA	CCI	SAT	Inter	Ideo	Total	Inter/Total	Ideo/Total
Achieved	3.07	347	993	40.23	38.84	79.07	.871**	.645*
Moratorium	2.93	324	979	26.71	28.03	50.01	.129	.367**
Foreclosed	2.39	324	978	29.83	29.50	59.33	.708*	.675*
<u>Diffused</u>	<u>2.77</u>	<u>306</u>	<u>1017</u>	<u>25.92</u>	<u>30.38</u>	<u>55.88</u>	<u>.200</u>	<u>.794**</u>

** $p < .01$, * $p < .05$.

Table 4.

Chi Square Analysis of Gender Frequencies in Identity Status Groups

<u>Identity Status</u>	<u>Gender</u>		<u>Total N</u>
	<u>Males</u>	<u>Females</u>	
Achieved	4*	9	13
Foreclosed	8	4*	12
Moratorium	31	39	70
Diffused	13	13	26
<u>Total N</u>	<u>57</u>	<u>64</u>	<u>121</u>

* $p < .05$.

Table 5.

Chi Square Analysis of Identity Status Frequencies in Cognitive Stages

<u>Identity Status</u>	<u>Cognitive Stage</u>		Total N
	High Cognitive	Low Cognitive	
High Identity	36	47	83
Low Identity	13 _a *	25	38
Total N	49	72 _b *	121

n_a significant interaction. N_b significant main effect.

*p < .05.

Table 6.

Analysis of Co-variance for Academic Achievement by Identity Status

Identity Status Group Differences (with SAT co-varied)

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>Adj. Mean</u>			
Achieved	13	3.070	3.065			
Moratorium	70	2.930	2.941			
Foreclosed	12	2.390	2.412			
Diffused	26	2.770	2.734			
				<u>df</u>	<u>SS</u>	<u>MS</u>
				<u>F</u>	<u>Prob</u>	
Equality of Adj. Means				3	3.84	1.28
All groups						
Error				113	42.36	.37

*p < .05.

Table 7.

Analysis of Co-variance for Academic Achievement by Gender.

ANCOVA Gender Differences

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>Adj. Mean</u>
Males	57	2.77	2.76
Females	64	2.94	2.95

	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>Prob</u>
Equality of Adj. Means	1	1.11	1.11	2.80	.097 _a

All groups

Error	117	46.22	.40
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_a n.s.

APPENDIX A-1

LEP Sampling and Scoring Procedures

Sampling Procedures

The sample employed by Moore(1987)consisted of 725 students from several different kinds of institutions; a medium sized regional public research university (n=46); a small selective public university (n=275); a small public, comprehensive college (n=177);two similar medium-sized comprehensive state universities (n=68); a public community college(n=36);an honors program at a small liberal arts college(n=57); and an honors program at a large public research university (n=66). The total sample reflected a sex and classification breakdown as follows: 47% men 53% women; 38% freshmen, 34% sophomores, 10% juniors, and 18% seniors.

The entire sample was only used for the item factor analysis. The factor analysis of the LEP items was to determine whether, and to what extent, the LEP seems to be measuring underlying constructs corresponding to the Perry positions 2 through 5. Other aspects of validation used only one or more of the specific sub-samples noted above.

Samples were not drawn randomly but were taken instead from intact groups, classroom-based in all cases except one sample of Freshmen tested during orientation.

Scoring Procedures

Respondents were asked to rate on a 4-point Likert scale all of the items within each domain or content category. The major scoring index, the Cognitive

Complexity Index (CCI), incorporates all of the individual's most significant responses into its score, so as to reflect a more complex composite of the person's reasoning. Thus, from the 65 items on the test only 15 are actually rated and contribute to the individual's final score, i.e., the three top choices within each of the five domains.

To convert the ratings into Perry positions 2,3,4 or 5, a certain number of points are attributed to first, second, and third choices in each domain. First choice equals 3 points; second choice is 2 points and third choice equals 1 point. Using an Answer Key, each test item the student rates in the top 15 items is translated into a Perry position and a score of 1, 2, or 3 is associated with it. To tally the total number of points for each Perry position, a sub-score for each Perry position is computed. An arbitrary example follows in Table 1:

Table 1

$$\text{Pos. 2} = 0$$

$$\text{Pos. 3} = 3+3+1= 7$$

$$\text{Pos. 4} = 3+3+2+2+2+1+1= 14$$

$$\text{Pos. 5} = 3+2+2+1+1= 9 \text{ Total Points} = 30 \text{ points}$$

Percentages are then calculated for each position based on its proportion of the total number of points of the test. These proportion are 0%, 23%, 46.7% and 30%, respectively for positions 2, 3, 4, and 5. Therefore, in computing the final

score for this example, using the CCI Index formula below, position 2 contributes no points; position 3 contributes 69.9 points; position 4 provides 186.8 points and position 4 is equal to 150 points. This computation generates a total of 407 points.

Table 2

Cognitive Complexity Index

$$CCI = 100 ((2 \times 0) + 3(.23) + (4 \times .467) + 5(.300))$$

Scores of 200, 300, 400, and 500 are cutoff marks for Perry's 2,3,4 and 5 positions, respectively. If a student scores at or above a particular cutting score, he/she is categorized within a specific Perry position. This student is above 400 points, the breaking point for relativism.

APPENDIX A-2

EOM-EIS2 (Bennion&Adams,1986)

Sampling and Scoring Procedures

The following cut-off marks, for the Bennion and Adams(1986) EOMEIS2 for College age subjects, will be used to categorize students into appropriate ego identity statuses as indicated by their test scores. The researcher can utilize raw subscale scores,as listed below under Ideological and Interpersonal Identity, and/or the Total Identity obtained by the individual,as listed after the subscale scores.

Means and Standard Deviations are included from the Utah University validation sample obtained by Bennion and Adams, 1986,when testing this revised version of the EOM-EIS. These scores are not significantly different from the earlier test.

CUTOFF MARKS

IDEOLOGY IDENTITY

	Mean	SD
Achievement	38.0 33	6.0
Moratorium	33.0 26	6.0
Foreclosure	26.0 21	6.0
Diffusion	28.0 22	6.0

INTERPERSONAL IDENTITY

Achievement	38.0	32	4.0
Moratorium	33.0	27	5.0
Foreclosure	26.0	23	5.0
Diffusion	27.0	22	5.0

TOTAL IDENTITY

Achievement	73.0
Moratorium	63.0
Foreclosure	53.0
Diffusion	53.0**

Reported in Objective Measure of Ego Identity Status: A Reference Manual(Adams, Bennion, & Huh, 1989).

**Guidance for deciding which total identity applies is offered by Adams, Bennion, & Kuh, 1989, p.24.

APPENDIX B1

LEARNING ENVIRONMENT PREFERENCES

DOMAIN ONE: COURSE CONTENT/VIEW OF LEARNING

MY IDEAL LEARNING ENVIRONMENT WOULD:

1. Emphasize basic facts and definitions.
2. Focus on having the right answers than on discussing methods or how to solve problems.
3. Insure that I get all the course knowledge from the professor.
4. Provide me with an opportunity to learn methods and solve problems.
5. Allow me a chance to think and reason, applying facts to support my opinions.
6. Emphasize learning simply for the sake of learning or gaining new expertise.
7. Let me decide for myself whether issues discussed in class are right or wrong, based on my own interpretations and ideas.
8. Stress the practical applications of the material.
9. Focus on the socio-psycho, cultural and historical implications and ramifications of the material.
10. Serve primarily as a catalyst for research and learning on my own, integrating the knowledge gained into my thinking.
11. Stress learning and thinking on my own, not being spoonfed learning by the instructor.
12. Provide me with appropriate learning situations for thinking about and seeking personal truths.

13. Emphasize a good positive relationship among the students and between students and teacher.

Please be sure to Review the above List and Mark Your Three Most Significant Items (By Item Number) in the Lines Provided on the Answer Sheet.

Rating Scale:

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Not at all	Somewhat	Moderately	Very
significant	significant	significant	significant

ROLE OF INSTRUCTOR

IN MY IDEAL LEARNING ENVIRONMENT, THE TEACHER WOULD:

- 1) Use up-to-date textbooks and materials and teach from them, not ignore them.
- 2) Teach me all the facts and information I am supposed to learn.
- 3) Give clear directions and guidance for all course activities and assignments.
- 4) Have only a minimal role in the class, turning much of the control of course content and class discussions over to the students.
- 5) Be not just an instructor, but more an explainer, entertainer and friend.
- 6) Recognize that learning is mutual; individual class members contribute to the teaching and learning in the class.
- 7) Provide a model for conceptualizing living as learning rather than solving problems.
- 8) Utilize his/her expertise to provide me with a critique of my work.
- 9) Demonstrate a way to think about the subject matter and then help me explore the issues and come to my own conclusion.
- 10) Offer extensive comments and reactions about my performance in class (papers, exams, etc.).
- 11) Challenge students to present their own ideas, argue with positions taken, and demand evidence for their beliefs.
- 12) Put a lot of effort into class, making it interesting and worthwhile.

13) Present arguments on course issues based on his/her expertise to stimulate active debate among class members.

Please be sure to Review the above List and Mark Your Three Most Significant Items (By Item Number) in the Lines Provided on the Answer Sheet.

Rating Scale:

1	2	3	4
Not at all	Somewhat	Moderately	Very
significant	significant	significant	significant

ROLE OF STUDENT/PEERS

IN MY IDEAL LEARNING ENVIRONMENT, AS A STUDENT I WOULD:

- 1) Study and memorize the subject matter—the teacher is there to teach it.
- 2) Take good notes on what's presented in class and reproduce that information on the tests.
- 3) Enjoy having my friends in the class, but other than that classmates don't add much to what I would get from the class.
- 4) Hope to develop my ability to reason and judge based on standards defined by the subject.
- 5) Prefer to do independent research allowing me to produce my own ideas and arguments.
- 6) Expect to be challenged to work hard in the class.
- 7) Prefer that my classmates be concerned with increasing their awareness of themselves to others in relation to the world.
- 8) Anticipate that my classmates would contribute significantly to the course learning through their own expertise in the content.
- 9) Want opportunities to think on my own, making connections between the issues discussed in class.
- 10) Take some leadership, along with my classmates, in deciding how the class will be run.
- 11) Participate actively with my peers in class discussions and ask as many questions as necessary to fully understand the topic.

12) Expect to take learning seriously and be personally motivated to learn the subject.

13) Want to learn methods and procedures related to the subject.

Please be sure to Review the above List and Mark Your Three Most Significant Items (By Item Number) in the Lines Provided on the Answer Sheet.

Rating Scale:

1	2	3	4
Not at all	Somewhat	Moderately	Very
significant	significant	significant	significant

CLASSROOM ATMOSPHERE/ACTIVITIES

IN MY IDEAL LEARNING ENVIRONMENT, THE CLASSROOM ATMOSPHERE AND ACTIVITIES WOULD:

- 1) Be organized and well-structured—there should be clear expectations set (like a structured syllabus that's followed).
- 2) Consist of lectures(with a chance to ask questions) because I can get all the facts I need to know more efficiently that way.
- 3) Include specific, detailed instructions for all activities and assignments.
- 4) Focus on step by step procedures so that if you did the procedure correctly each time your answer would be correct.
- 5) Provide opportunities for me to pull together connections among various subject areas and then construct an adequate argument.
- 6) Be only loosely structures, with the students themselves taking most of the responsibility for what structure there is.
- 7) Include research papers, since they demand that I consult sources and the offer my own interpretation and thinking.
- 8) Have enough variety in content areas and learning experiences to keep me interested.
- 9) Be practiced and internalized but be balanced by group experimentation, intuition, comprehension, and imagination.
- 10) Consist of a seminar format, providing an exchange of ideas so that I can critique my own perspectives on the subject matter.

11) Emphasize discussions of personal answers based on relevant evidence rather than just right and wrong answers.

12) Be an intellectual dialogue and debate among a small group of peers motivated to learn for the sake of learning.

13) Include lots of projects and assignments with practical, everyday applications.

Please be sure to Review the above List and Mark Your Three Most Significant Items (By Item Number) in the Lines Provided on the Answer Sheet.

Rating Scale:

1	2	3	4
Not at all significant	Somewhat significant	Moderately significant	Very significant

EVALUATION PROCEDURES

EVALUATION PROCEDURES IN MY IDEAL LEARNING ENVIRONMENT WOULD:

- 1) Include straightforward, not “tricky,” tests, covering what has been taught and nothing else.
- 2) Be up to the teacher, since she knows the material best.
- 3) Consist of objective-style tests because they have clearcut right or wrong answers.
- 4) Be based on how much students have improved in the class and on how hard they have worked in class.
- 5) Provide an opportunity for me to judge my own work along with the teacher and learn from the critique at the same time.
- 6) Not include grades, since there aren’t really any objective standards teachers can use to evaluate students’ thinking.
- 7) Include grading by a prearranged point system (homework, participation, tests, etc.), since I think it seems the most fair.
- 8) Represent a synthesis of internal and external opportunities for judgment and learning enhancing the quality of the class.
- 9) Consistent of thoughtful criticism of my work by someone with appropriate expertise.
- 10) Emphasize essay exams, papers, etc. rather than objective-style tests so that I can show how much I’ve learned.

11) Allow students to demonstrate that they can think on their own and make connections not made in class.

12) Include judgments of the quality of my oral and written work as a way to enhance my learning in the class.

13) Emphasize independent thinking by each student, but, include some focus on the quality of one's arguments and evidence.

Please be sure to Review the above List and Mark Your Three Most Significant Items (By Item Number) in the Lines Provided on the Answer Sheet.

Rating Scale:

1	2	3	4
Not at all	Somewhat	Moderately	Very
significant	significant	significant	significant

THE LEARNING ENVIRONMENT PREFERENCES INVENTORY

ANSWER SHEET

Domain: Course Content/View of Learning (Indicate Rating, 1-4).

1.____ 2____ 3____ 4____ 5____ 6____

7____ 8____ 9____ 10____ 11____ 12____ 13____

Domain: Role of Instructor (Indicate Rating, 1-4).

1.____ 2____ 3____ 4____ 5____ 6____

7____ 8____ 9____ 10____ 11____ 12____ 13____

Domain: Role of Student/Peers Instructor (Indicate Rating, 1-4).

1.____ 2____ 3____ 4____ 5____ 6____

7____ 8____ 9____ 10____ 11____ 12____ 13____

Domain: Classroom Atmosphere (Indicate Rating, 1-4).

1.____ 2____ 3____ 4____ 5____ 6____

7_____ 8_____ 9_____ 10_____ 11_____ 12_____ 13_____

Domain: Evaluation Procedures (Indicate Rating, 1-4).

1._____ 2_____ 3_____ 4_____ 5_____ 6_____

7_____ 8_____ 9_____ 10_____ 11_____ 12_____ 13_____

INDICATE TOP THREE CHOICES IN EACH AREA MARK ITEM NUMBER)

Course Role Role Classroom Evaluation

Content Instructor Peers Atmosphere Procedures

1st_____ 1st_____ 1st_____ 1st_____ 1st_____

2nd_____ 2nd_____ 2nd_____ 2nd_____ 2nd_____

3rd_____ 3rd_____ 3rd_____ 3rd_____ 3rd_____

APPENDIX B2

The Revised, Extended Version of the Objective Measure of Ego Identity Status - EOM-EIS2

Instructions: Read each item and indicate to what degree

it reflects your own thoughts and feelings. If a statement has more than one part, please indicate your reaction to the statement as a whole. Indicate your answer on the line preceding the question number.

1=strongly agree	4=disagree
2=moderately agree	5=moderately disagree
3=agree	6=strongly disagree

___ 1. I haven't chosen the occupation I really want to get into, and I'm just working at whatever is available until something better comes along.

___ 2. When it comes to religion, I just haven't found anything that appeals and I don't really feel the need to look.

___ 3. My ideas about men's and women's roles are identical to my parents'. What has worked for them will obviously work for me.

___ 4. There's no single 'life style' which appeals to me more than another.

___ 5. There's a lot of different kinds of people. I'm still exploring the many possibilities to find the right friends for me.

___ 6. Sometimes I join in recreational activities when asked, but I rarely try anything on my own.

___ 7. I haven't really thought about a "dating style". I'm not too concerned whether I date or not.

___ 8. Politics is something I can never be too sure about because things change too fast. But I do think it's important to know what I can politically stand for and believe in.

___ 9. I'm still trying to decide how capable I am as a person and what jobs will be right for me.

___ 10. I don't give religion much thought and it doesn't bother me one way or the other.

___ 11. There are so many ways to divide responsibilities I marriage, I'm trying to decide what will work for me for me.

___ 12. I'm looking for an acceptable perspective for my own "lifestyle" view, but I haven't found it yet.

___ 13. There are many reasons for friendship, but I choose my close friends on the basis of certain values and similarities that I've personally decided on.

___ 14. While I don't have one recreational activity I'm really committed to, I'm experiencing numerous possibilities in marriage, I'm trying to decide what will work for me.

___ 15. Based on past experiences, I've chosen the type of dating relations I want now.

- ___ 16. I haven't really considered politics. It just doesn't excite me much.
- ___ 17. I might have thought about a lot of different jobs, but there's never been any question since my parents said what they wanted.
- ___ 18. A person's faith is unique to each individual. I've considered and reconsidered it myself and know what I can believe.
- ___ 20. After considerable thought I've developed my own individual viewpoint of what is for me an ideal "lifestyle" and don't believe anyone will be likely to change my perspective.
- ___ 21. My parents know what's best for me in terms of how to choose my friends.
- ___ 22. I've chosen one or more recreational activities to engage in regularly from lots of things and I'm satisfied with those choices.
- ___ 23. I don't think about dating much. I just kind of take it as it comes.
- ___ 24. I guess I'm pretty much like my folks when it comes to politics. I follow what they do in terms of voting and such.
- ___ 25. I'm really not interested in finding the right job, any job will do. I just seem to flow with what is available.
- ___ 26. I'm not so sure what religion means to me. I'd like to make up my mind but I'm not done looking yet.
- ___ 27. My ideas about men's and women's roles came right from my parents and family. I haven't seen any need to look further.
- ___ 28. My own views on a desirable life style are taught to me by my parents and I don't see any need to question what they taught me.

___ 29. I don't have any real close friends, and I don't think I'm looking for one right now.

___ 30. Sometimes I join in leisure activities, but I really don't see a need to look for a particular activity to do regularly.

___ 31. I'm trying out different types of relationships. I just haven't decided what is best for me.

___ 32. There are so many different political parties and ideals. I can't decide which to follow until I figure it all out.

___ 33. It took me awhile to figure it out, but now I really know what I want for a career.

___ 34. Religion is confusing to me right now. I keep changing my views on what is right and wrong for me.

___ 35. I've spent some time thinking about men's and women's roles in marriage and I've decided what will work best for me.

___ 36. In finding an acceptable viewpoint to life itself, I find myself engaging in a lot of discussions with others and some self-exploration.

___ 37. I only pick friends my parents would approve of.

___ 38. I've always liked doing the same recreational activities my parents do and haven't seriously considered anything else.

___ 39. I only go out with the type of people my parents expect me to date.

___ 40. I've thought my political beliefs through and realize I can agree with some and not other aspects of what my parents believe.

___ 41. My parents decided a long time ago what I should go into for employment and I'm following through their plans.

___ 42. I've gone through a period of serious questions about faith and can now say I understand what I believe in as an individual.

___ 43. I've been thinking about the roles that husbands and wives play these days and I'm trying to make a final decision.

___ 44. My parents' views on life are good enough for me, I don't need anything else.

___ 45. I've tried many different friendships and now I have a clear idea of what I look for in a friend.

___ 46. After trying a lot of different recreational activities I've found one or more I really enjoy doing by myself or with friends.

___ 47. My preferences about dating are still in the process of developing. I haven't fully decided yet.

___ 48. I'm not sure about my political beliefs, but I'm trying to figure out what I can rule believe in.

___ 49. It took me a long time to decide but now I know for sure what direction to move in for a career.

___ 50. I attend the same church my family has always attended. I've never really questioned why.

- ___ 51. There are many ways that married couples can divide up family responsibilities. I've thought about lots of ways and now I know exactly how I want it to happen for me.
- ___ 52. I guess I just kind of enjoy life in general, and I don't see myself living by any particular viewpoint.
- ___ 53. I don't have any close friends. I just like to hang around with the crowd.
- ___ 54. I've been experiencing variety of recreational activities in hopes of finding one or more I can enjoy for some time to come.
- ___ 55. I've dated different types of people and now know what my own "unwritten rules" for dating are and who I will date.
- ___ 56. I really have never been involved in politics enough to have made a firm stand one way or the other.
- ___ 57. I just can't decide what to do for an occupation. There are so many that have possibilities.
- ___ 58. I've never really questioned my religion. If it's right for my parents it must be right for me.
- ___ 59. Opinions on men's and women's roles seem so varied that I don't think much about it.
- ___ 60. After a lot of self-examination I have established a very definite view on what my own lifestyle will be.
- ___ 61. I really don't know what kind of friend is best for me. I'm trying to figure out exactly what friendship means to me.

___ 62. All of my recreational preferences I got from my parents and I haven't really tried anything else.

___ 63. I date only people my parents would approve of.

___ 64. My folks have always had their own political and moral beliefs bout issues like abortion and mercy killing and I've always gone along accepting what they have.

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