

DOCUMENT RESUME

ED 412 824

HE 030 615

AUTHOR Lavelle, Ellen; Rickord, Bill
TITLE A Factor Analytic Model of College Student Development.
PUB DATE 1997-00-00
NOTE 36p.
PUB TYPE Reports - Research (143) -- Tests/Questionnaires (160)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Attitude Measures; Correlation; Factor Analysis; General Education; Higher Education; Likert Scales; Outcomes of Education; Predictive Measurement; Questionnaires; Regression (Statistics); Research Reports; Social Attitudes; Statistical Analysis; Student Characteristics; *Student Development; Student Evaluation; Student Surveys; Test Validity; *Undergraduate Students
IDENTIFIERS College Student Experiences (Questionnaire); Inventory of Learning Processes

ABSTRACT

This research study reports the results of an attempt to build a model of individual differences in undergraduate student development based on factor analysis of a wide range of students' beliefs and behaviors. An 127-item inventory named the Dakota Inventory of Student Orientations was administered to 738 male and female undergraduate students in general education courses at a major midwestern university. Responses were rated on a four-level Likert scale, and four factors that accounted for 45 percent of the variance were identified: achieving-social; creative-reflective; competitive, and foreclosed. Preliminary validation involved 117 students using a 52-item inventory. Regression analysis against seven scales of the College Student Experience Questionnaire and the Inventory of Learning Processes supported the initial findings. The Dakota Inventory of Student Orientations is presently being used to design supportive programs and as a teaching paradigm at the University of South Dakota. Seven tables present sample items, factor loadings, and correlations. (Contains 23 references.) (BF)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

A Factor Analytic Model of College Student Development
by
Ellen Lavelle and Bill Rickord
Department of Counseling and Psychology in Education
University of South Dakota

AE 030 615-

PERMISSION TO REPRODUCE AND
 DISSEMINATE THIS MATERIAL
 HAS BEEN GRANTED BY
 Ellen Lavelle

 TO THE EDUCATIONAL RESOURCES
 INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
 Office of Educational Research and Improvement
 EDUCATIONAL RESOURCES INFORMATION
 CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Department of Counseling and
 Psychology in Education
 University of South Dakota
 Vermillion, SD 57069

(605) 677-5845
 elavelle@charlie.usd.edu

Abstract

A model of individual differences in college student development based on factor analysis of a wide range of students' beliefs and behaviors across various domains (academic, social, personal, and career) offers a fresh perspective. The "Dakota Model," comprises four independent factors; Achieving-Social, Creative-Reflective, Competitive and Foreclosed, and accounted for 45% of the variance in college student development, with the first factor, Achieving-Social accounting for 36% alone. Regression analyses involving seven scales of the College Student Experience Questionnaire (Pace, 1984) and the Inventory of Learning Processes (Schmeck, Ribich & Ramanaiah, 1977) support the validity of each of the dimensions. Implications address student services programming to include a taxonomy for designing effective programs for a diversity of learners.

Individual Differences in College Student Development

"...For the times they are a chang'n." Fostering development for a generation faced with new value choices, a snowballing technology and a complex social/cultural melieu, is a unique challenge. Traditional models of college student development, rooted in the 60's and 70's, are stretched beyond their range of convenience (cf. Kelly, 1963) in explaining student life as a modern phenomena. In particular, the developmental heritage has not considered individual differences as a source of explanation. Thus, the goals of this research are twofold--first, to build a new model of college student development, one sensitive to individual differences, and, second, to conduct the preliminary development of an inventory to assess students' developmental paths or trajectories. By drawing on the learning styles paradigm in college learning research and the accompanying factor analytic methodology (eg. Biggs, 1987; Schmeck, Geisler-Brenstein & Cercy, 1991) it is possible to build a more meaningful framwork--one that reflects individual variation in beliefs as related to behavior.

Limitations of Existing Models

Recent literature reviews have noted several theoretical and methodological problems (King, 1994; Strange, 1994; Terenzini, 1994). The preponderance of theory is based on the classic developmental model--involving a progression through various levels of maturity each marked by

certain developmental tasks (eg., Chickering, 1969; Kohlberg, 1976; Loevinger, 1976; Perry, 1968). Although these models have provided a base for practice and theory generation, their validity and relevance have been questioned from several perspectives (cf., McEwen, Roper, Bryabt, & Langa, 1990). First, the models draw primarily on the psychosocial paradigm and so offer a limited perspective--one fraught with ambiguity and falling short in terms of addressing the origins of change (Terenzini, 1994). Second, as early as 1978, Knefelkamp, Widick and Parker had cited the sheer breadth of information as problematic for practitioners, and had called for more concise synthesis of theory. Similarly, Strange (1994) cited the general ambiguity and overlap of college development models as problematic, and King (1994) noted that the very concept of student development itself is largely open to interpretation.

A core limitation of the psychosocial models involves insensitivity to individual differences. In addressing the general question of relevance, Stage (1991) argued for the need of professionals to be aware of individual differences and Terenzini (1994) called for the examination of "conditional" effects as linked to individual differences rather than to the group. Specifically, Strange (1994) cites concern for individual differences as one of fourteen core propositions for researchers and pratitioners.

"Students differ in the styles with which they approach and resolve challanges of learning, growth and development, and such differences are important for understanding how and why students function in characteristic manners. This third

proposition underscores the importance of concurrent stylistic differences among students and how such differences reveal themselves in consistent patterns with which students approach a variety of tasks." (p.403 ,1994)

Student Learning Paradigm

Nonevident differences, such as learning style, have consistently accounted for a respectable percentage of the variance in college student academic performance (eg. Biggs, 1987; Schmeck, et al., 1991). Stylistic approaches have supported students' beliefs as linked to study behaviors which, in turn, affect learning outcomes (cf. VanRossum & Schenk, 1984). Thus learning styles represent an inclusive perspective rather than describing learning beliefs, behaviors, and outcomes as isolated dimensions. Now, by "dragging" the differential learning paradigm to the arena of college student development, it is possible to begin to formulate a new, comprehensive approach.

Phase One--Model Generation

Method

Participants

The participants were 738 students enrolled in general education courses in a major midwestern university. Of the 738, 426 were males and 312 were

females and 242 were freshmen, 266 were sophomores, 149 were juniors and 81 were seniors.

Item Generation

Items for the inventory were drawn from current models of college student development to include--autonomy, interpersonal relationships, career, identity, epistemological beliefs, as well as from tasks hypothesized to be relevant for the twenty-first century--cooperation, empathy (Hatcher, Nadeau, Walsh, Reynolds, Galea & Marz, 1994) cultural sensitivity (Brown, 1994), and commitment (Niles, Sowa & Laden, 1994). "Traditional" items were developed based on the models of Astin (1984), Chickering (1969), Kohlberg (1976), Loeveniger (1976), and Perry (1968).

Procedure

The inventory, called Dakota Inventory of Student Orientations "DISO" was administered to 738 underclassmen in general education courses at a major midwestern university. Subjects were read the directions and asked to respond on a 4 level Likert format--"strongly agree," "agree," "disagree," "strongly disagree" to each of the 127 items.

Results

The initial data reduction step was to perform a principal components analysis and a scree test (Cattell, 1966). Then, based on an interpretability criterion, the number of factors was adjusted downward and analyzed using a principal factor method and rotated to the oblimin criterion. Only factors

with five or more items exceeding .30 were retained. Four factors comprising 86 items and accounting for 45% of the variance were identified and assigned the following names: **Achieving-Social, Creative-Reflective, Competitive, Foreclosed**. Table 1 presents sample items with loadings and Table 2 reflects internal consistencies and interscale correlations.

[insertTable 1]

[insertTable 2]

Discussion

Factor one, Achieving-Social is a robust factor describing assertive students who are aware of the practical implications of education, finding a career. They seem concerned with academic accomplishment particularly as it relates to getting good grades and pleasing the teacher. It is as though college is a game to be played before gaining qualifications to move on to the real world of work-- "One's personal goals are not really important to learning," "I will learn what I need to know in the real world rather than in college." Interestingly, Achieving-Social students have a high degree of social understanding--"I like to be an influence in my classes, " and "I often see that my friends have motivations that they are not aware of." The level of social knowledge is accompanied by social behaviors--preferring argumentative or opinion papers, joining in group activities, being an influence in class and participating in parties. Students scoring high on the

Achieving-Social factor are conforming and practical and seem to prefer a well-organized life style, "I keep a well-organized planner."

Achieving-Social students appear to have a high degree of autonomy accompanied by social competence--core developmental notions. There is an openness to collaboration and social interaction reflective of well-developed social skills. However, Achieving-Social students are not particularly concerned with deeper meanings or self-discovery in education--career interest is paramount. Achieving-Social is similar to Loevinger's Conscience Stage in that values seem to be internalized and there is a capacity for detachment "I cannot always be there for my friends," (cf. Loevinger, 1976). These students need to be challenged to examine their beliefs across a variety of academic domains and to become aware of themselves as citizens of the global village.

The second factor, Creative-Reflective, describes a student orientation based on connection and creativity. Students scoring high on this factor have a high degree of self-knowledge, "I know who I am," and thus invest "all" of themselves in their activities. Indeed, creativity involves "treading in new waters" and positive self-concept, as accepting and liking the self that one knows, is essential to undertaking frightening tasks. Creative-Reflective orientation indicates a willingness to be open to experience as based on self-knowledge and reflection "I really connect with certain authors," and "I explore different ways of thinking about a topic". It is a deep meaning

orientation reflecting a quest for personal growth and self-expression. Supportive programming might include providing opportunities for self-expression as well as encouraging Creative-Reflective students to seek social recognition.

Creative-Reflective students are functioning at Loevinger's Individualistic Level--there is a "heightened sense of individuality" and selfhood (cf. Loevinger, 1976). Tolerance has grown and complexity and differences are no longer threatening. College programming might consider nurturing Creative-Reflective thought rather than discouraging it. Too often academic tasks involve depersonalization--objective tests and objective writing tasks where students are expected to divorce themselves from the material and "spew" back factual information (cf. Lavelle, in press). Relevance becomes questionable, if not nonexistent, and learners are disempowered when instruction becomes too remote.

Competitive, the third factor, describes student motivation as driven by social comparison. The Competitive view of learning is superficial--"Getting good grades is the primary goal," "The best instructors are well organized and stick to their lesson plans" (because I need to know the rules to compete). Competitive students are dualistic or concrete in their notions about knowledge--"Successful students learn things quickly" "Teachers just know more than students." Interestingly, Competitive students feel responsible to society for successfully completing their education. Perhaps

they see themselves as team players in the "world game." Apparently friendships are not a primary concern, although romantic relationships are cited as important. To competitiveness having a significant other maybe somewhat like getting a trophy. Competitive is reflective of Loevinger's Conformist stage in that the need for approval and acceptance are high (cf., Loevinger, 1976). Student programming for Competitive types might include supportive strategies based on fostering self-discovery and self-acceptance.

The final scale, Foreclosure, was named after Marcia's (1987) notion of foreclosure as accepting a path that is chosen by others rather than one that the adolescent has personally selected--a premature resolution of the crisis over identity. Students scoring high on Foreclosure are not permeable to new information--"censors" rather than "sensors." They are closed in terms of what should and should not be--"Some topics should never be discussed in class," "I have just the right amount of energy" "There is only one person that I could ever love." They consider themselves religious and seem to rely on their parents' judgment. Foreclosed students may resist education--"My friends are more important than my education," "Much of the information learned in college is irrelevant." Strategies for student services programming would include providing these students with moderately socially challenging situations so that they can begin to shift to a more relativistic position (cf., Perry, 1968).

Phase Two--Preliminary Validation

Method

Participants

The participants were 117 students enrolled in general education and upper level educational psychology classes at a major midwestern university. Of the 117, 74 were female and 43 were male and 35 were freshmen, 29 were sophomores, 33 were juniors and 20 were seniors.

Instrumentation

DISO-R, a research version based on the factor analytic model was constructed comprised of 52 questions reflecting the highest loading variables on each of the four factors with .35 serving as a cutoff criteria. Due to the existing computerized scoring program available, the DISO-R was scored inversely with high scores reflecting a strong disagreement and low scores reflecting a high level of agreement.

The *College Student Experience Questionnaire--CSEQ*, (Pace, 1984) measures student behaviors and the quality of students' perceived experiences regarding academic, social and extracurricular activities. Scale reliabilities range from .79 to .90 and validity has been well supported (Pace, 1984). With the permission of the authors, seven scales were chosen which were thought to be most reflective of the DISO model in terms of content--Course Learning, Experience in Writing, Personal Experiences,

Student Acquaintances, Topics of Conversation, Information in Conversations, and Experiences with Faculty.

The *Inventory of Learning Processes* (Schmeck, et al., 1977) defines four scales as describing basic student learning styles. Deep Learning is an analytic orientation concerned with seeking meaning in learning. Study Methods reflects a rigid approach to studying involving tactics such as having daily set times for studying and focusing on doing exactly what is required. Fact Retention refers to reliance on memorization as a primary learning strategy. Elaborative Processing reflects relating new information to personal images and examples. Reliability and validity of the scales have been well supported and the scales have been used extensively in college learning research (cf., Schmeck, et al., 1991)

Procedure

Testing was conducted during regular class periods. Students responded to each of the instruments on computerized answer sheets. Mean time for completion of the inventories was 28 minutes.

Results and Discussion

Means, standard deviations, reliability and interscale correlations for the DISO-R were determined and are presented in Table 3.

[insertTable 3]

Establishing relationships between the DISO scale scores and the CSEQ and ILP scale scores serves to begin to validate the DISO model. Table 4

presents the predictive relationship between the Achieving-Social scores and the CSEQ and DISO scales as predictor variables.

[Insert Table 4]

The strong predictive relationship between the CSEQ's Course Learning Scale and Achieving-Social scores ($B = .41$, $t = .00$) supports that Achieving-Social students engage in a variety of "appropriate" traditional academic behaviors. The predictive relationship between Achieving-Social and CSEQ Student Acquaintances scale scores ($B = .26$, $t = .02$) suggests that Achieving-Social students are likely to interact with a wide range of students who vary in academic and career interests. However, the negative relationship between Achieving-Social and the CSEQ's Topics of Conversation ($B = -.29$, $t = .01$) suggests that students scoring high on that scale, although social, are not likely to engage in indepth conversations regarding major events, social and ethical issues, views of authorities etc. Perhaps late night "bull" sessions are a thing of the past. Conclusions based on the final predictor, ILP's Deep learning scale, are limited due to the rather weak relationship of that scale to the Achieving-Social factor.

Achieving-Social students should be encouraged to reflect and to take a more meaningful approach. Here, the role of liberal arts cannot be underestimated because it is through the exploration of a variety of approaches to knowledge that students are compelled to consider and define themselves in context of the world at large. Along the same line,

exposure to diverse instructional methodologies encourages flexibility and perspective-taking as related to adaptability--essential goals for the 21 century. In terms of student services programming, encouraging activities that promote self-knowledge, reflection and meaning are paramount. These might include encouraging students to reflect on reasons for behaviors, values clarification opportunities, and role play activities.

Similarly, Creative-Reflective students, in their quest for relevance and personal meaning, also employ a wide range of study and learning strategies as evidenced by the strong predictive relationship between the CSEQ's Course Learning scale and Creative-Reflective scale scores ($B = .29$, $t = .00$) (see Table 5.)

[Insert Table 5]

This suggests that Creative-Reflectives behaviors do indeed match their intentions although, unlike Achieving-Social students, Creative-Reflectives are motivated by self-expression rather than by career orientation as supported by the relationship between Creative-Reflective and Elaborative scale scores from the ILP ($B = -.26$, $t = .00$). Elaborative learners tend to use more personal learning strategies such as visualization and expressing new concepts in their own words (Schmeck et al., 1977). Thus, personalization and connection are key markers of Creative-Reflective orientation. The relationship of Creative-reflective to the Deep scale ($B = -.19$, $t = .02$), suggests that Creative-Reflectives seek more than just personal relevance,

they are adept at the traditional higher level thinking skills--analysis and synthesis.

Traditional colleges and universities have not nourished Creative-Reflection particularly in terms of encouraging self-reference. "What does it mean?" is not a common question nor, more importantly, is "What does it mean to YOU?" Too often knowledge is construed as isolated from the individual. Activities to promote this valuable and holistic approach include encouraging self-reference through journals and including more experiential activities. Student affairs might focus on establishing programming geared toward developing a sense of community as linked to creative activities. This might include support for the arts and for related discussion groups.

In Table 6, Competitive scale scores were linked to the ILP's Methodological study scale ($B = -.32, t = .00$) suggesting that Competitive students were likely to take a very organized but not necessarily meaningful approach to learning. This is not surprising, given the Competitive students' concrete conception of learning--"Teachers just know more than students." The CSEQ's Personal Experience which includes items such as seeking help from a friend, considering why some groups get along and others don't, or asking a friend what they really think of you, reflects a straightforward approach to personal relationships scale was predictive of Competitive Scale scores ($B = .21, t = .02$).

[Insert Table 6]

Competitive students need to adopt more complex and sensitive notions about learning as a personal undertaking rather than as a rivalry against peers (see Table 6.) By using diverse collaborative groups, instructors can expose Competitives to a range of learning styles and encourage them to participate in cooperative projects. In terms of programming, it seems likely that Competitives might prosper from self-exploration or value clarification types of activities.

Finally, Foreclosed scale scores were linked to two primary predictors; CSEQ's Experiences with Faculty ($B = .31$, $t = .00$) and Course Learning ($B = -.23$, $t = .04$) (see Table 7).

[Insert Table 7]

Foreclosed students frequently engage faculty members to ask questions or discuss ideas. It seems that just as they rely on their parents' judgment, they depend heavily on faculty for guidance or perhaps fall short in terms of independent decision-making. The inverse relationship with the CSEQ's Course Learning scale suggests that Foreclosed students were not likely to engage in a wide range of learning tactics which reflects their closed attitude toward education. Perhaps considering new ideas is too threatening of a process. Instructional suggestions involve presenting information that is challenging but not too overwhelming or discordant. Foreclosed students need to be gradually coaxed to consider alternative interpretations. Similarly, student affairs programming might focus on exposure to diversity within

traditional programs and activities that involve subtle challenge to existing paradigms. For example, programs which encourage community action or apprenticeship might serve to link learners with a range of human experience.

Conclusion

When designing student programs, the first question is-- Programs for whom? The Dakota model offers a comprehensive and integrated paradigm. By understanding the constellations of beliefs and behaviors as related to particular developmental paths, it is possible to design more effective social and instructional programs geared toward fostering meaning, reflection, self-discovery, perspective-taking and collaboration.

Too often classroom learning is viewed as a discrete phenomenon and social learning is deemed less important or as incidental. The DISO Model supports the interrelationship of both as linked to students motives and interests. Thus, college student development is a broad and comprehensive undertaking--one that is best encouraged by a wide range of voices and tactics united by shared objectives. Working together fosters integration, the process that is key to all development (practitioners as well as "clients.") Since college student development is complex, involving beliefs, skills and behaviors in a range of areas, it is important for academic, student services, and administration to work together. Collaboration would involve defining mutual objectives, implementation strategies and program evaluations.

The DISO Model implies that college should be a more meaningful experience in the full sense. How can this happen? In addition to adopting a comprehensive approach, tailoring programming to specific student needs and working together, it is possible to employ a simple paradigm to make programming effective. By considering the interplay of program content and structure, it is possible to design a range of programs and to integrate existing programs to meet diverse needs. A typology such as *content* (academic, social, personal, career) X *structure* (tight-loose, short-term long-term, task-oriented or supportive, theory-focused or experiential) would assist in effective planning for a wide range of students.

Presently, the DISO model serves as a model for designing supportive programs and as a teaching paradigm for College Student Personnel at the University of South Dakota. Future directions involve continued validation of the model and development of the DISO inventory as a manageable and accurate instrument to measure individual differences in college student development.

With the cooperation of the Center for Postsecondary Research and Planning at the University of Indiana.

REFERENCES

- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. Journal of College Student Personnel, 25, 297-307.
- Biggs, J. B. (1987). Student approaches to learning and studying. Melbourne: Council for Educational Research.
- Brown, D. (1995). Higher Education Exchange 1994. (ERIC Document Reproduction Service No. ED 399 883)
- Cattell, R. (1966). The scree test for the number of factors. Multivariate Behavioral Research, 1, 245-276.
- Chickering, A. W. (1969). Education and identity. San Francisco: Jossey-Bass.
- Hatcher, S. L., Nadeau, M. S., Walsh, L. K., Reynolds, M., Galea, J. and Marz, K. (1994). The teaching of empathy for high school and college students : Testing Rogerian methods with the Interpersonal Reactivity Index. Adolescence, 29, 961-974.
- Kelly, G. (1963). A Theory of Personality. New York: Norton.
- Knefelkamp, L. L., Widick, C., & Parker, C. A. (1978). Applying new developmental findings (New directions in student services, no. 4). San Francisco: Jossey-Bass.
- King, P. M. (1994). Theories of college student development: sequences and consequences. Journal of College Student Development, 35, 413-421.

Kohlberg, L. (1976). Moral stages and moralization: The cognitive-developmental approach. In T. Lickona (Ed.), Moral development and moral behavior. New York: Holt, Rinehart and Winston.

Lavelle, E. (in press). Writing styles and the narrative essay. British Journal of Educational Psychology.

Loevinger, J. (1976). Ego development. San Francisco: Jossey-Bass.

Marcia, J. E. (1987). The identity status approach to the study of ego identity development. In T. Honess & K. Yardley (Eds.), Self and identity: Perspectives across the lifespan. London: Routledge & Kegan Paul.

McEwen M. K., Roper, L. D., Bryabt, D. R. & Langa, M. J. (1990). Incorporating the development of African-American students into psychosocial theories of student development. Journal of College Student Development, 31, 429- 436.

Niles, S., Sowa, C.J. & Laden, J. (1994). Life role participation and committment as predictors of college student development. Journal of College Student Development, 35, 159-163.

Pace, C. R. (1984). Measuring the quality of college student experiences University of California: Higher Education Research Institute. (ERIC Document Reproduction Service No. ED 255 099)

Perry, W. B. (1968). Forms of intellectual and ethical development in the college years: A scheme. New York: Holt, Rinehart and Winston.

Schmeck, R. R., Geisler-Brenstein, E. & Cercy, S. P. (1991). Self-concept and learning: the revised inventory of learning processes.

Educational Psychology, 11, 343-362.

Schmeck, R. R., Ribich, F. D. & Ramanaiah, N. (1977). Development of a self-report inventory for assessing individual differences in learning processes. Applied Psychological Measurement, 1, 413-431.

Stage, F. K. (1991). Common elements of theory: A framework for college student development. Journal of College Student Development, 32, 56-61.

Strange, C. (1994). Student development: The evolution and status of an essential idea. Journal of College Student Development, 35, 399-412.

Terenzini, P. T. (1994). Good news and bad news: The implications of Strange's proposition for research. Journal of College Student Development, 35, 422-427.

VanRossum, E. J. & Schenk, S. M. (1984). The relationship between learning conception, study strategy and learning outcome. British Journal of Educational Psychology, 54, 73-83.

TABLE 1
Sample Items and Factor Loadings for the Dakota Inventory of Student Orientations

Factor 1 Achieving-Social	Factor Loadings
1. One's personal goals are not really important to learning.	94
2. I think about my own learning process.	92
3. I apply what I learn to my life.	92
4. I often see that my friends have motivations that they are not aware of.	91
5. I like to be an influence in my college classes.	91
6. I have attended career fairs or career counseling to help me with career decisions.	91
7. My friendships are based primarily on having similar interests.	90
8. I expect to have more than one career.	90
9. I find it difficult to accept my shortcomings.	89
10. I will learn what I need to know in the real world rather than in college.	88
 Factor 2 Creative-Reflective	
1. Nature nourishes my soul.	49
2. I am a creative person.	48
3. I really connect with certain authors.	45
4. I know how to make unique and creative things.	45
5. I participate in the arts--drawing, painting, music and crafts.	45
6. I often explore different ways of thinking about a topic.	40
7. I have given a good deal of thought to my religious beliefs.	38
8. I learn from other cultures.	36
9. I know who I am.	35
10. I have identified persons who will be helpful to my future career success.	34
 Factor 3 Competitive	
1. It is important to me to do better than other students.	51
2. Successful students learn things quickly.	48
3. I feel responsible to society for successfully completing college.	48
4. Teachers just know more than students.	48
5. I compare myself now to how I was before I came to college.	43
6. Getting good grades is the primary goal.	41
7. Having a boyfriend or girlfriend is very important to me.	39
8. I feel like part of the university.	37
9. Being a good student means memorizing facts.	37
10. The best instructors are well-organized and stick to their plan.	35
 Factor 4 Foreclosed	
1. My friends are more important than my education.	57
2. Much of the information learned in college is irrelevant.	54
3. I learn more out of class than in class.	51
4. Some topics should never be discussed in class.	46
5. When it comes to major decisions, I trust my parents judgment.	41
6. I sometimes think that relationships are a game.	40
7. I consider myself religious.	40

8. I have just the right amount of energy.	40
9. There is only one person that I could ever love.	37
10. I usually feel sexually satisfied.	33

TABLE 2
Chronbach alphas and interscale correlations for the DISO Factors

Scale	Alpha	A.S.	C.R.	Com.	For.
Achieving-Social	.89				
Creative-reflective	.63	.02			
Competitive	.63	.00	.08		
Foreclosed	.64	.07	.11	.07	

TABLE 3

Means, standard deviations and interscale correlations for the DISO-R

Scale	Alpha	X	Sd.	A.S	C.R	Com.	For.
Achieving-Social	.88	37	4.0				
Creative-reflective	.68	27	5.0	.51			
Competitive	.63	32	3.7	.45	.18		
Foreclosed	.66	25	2.9	.25	-.02	.29	

TABLE 4
Backward Regression Analysis of Achieving Social Scale Scores with CSEQ and ILP
Scale Scores as Predictors

R squared	d.f	F	Signif F.	
.24	4,112	8.9	.0000	
		Beta	T	Sig. T
CSEQ Course Learning		.41	4.4	.0000
ILP Deep		-.15	-1.8	.0828
CSEQ Student Acquaintances		.26	2.4	.0175
CSEQ Topics of Conversation		-.29	-2.6	.0103

TABLE 5

Backward Regression Analysis of Creative-Reflective Scale Scores with CSEQ and
ILP Scale Scores as Predictors

R squared	d.f	F	Signif F.	
.35	4,112	14.9	.0000	
		Beta	T	Sig. T
CSEQ Course Learning		.29	3.4	.0010
ILP Deep		-.19	-2.3	.0229
ILP Elaborative		-.26	-3.2	.0025
CSEQ Student Acquaintances		.15	1.8	.0763

TABLE 6

Backward Regression Analysis of Competitive Scale Scores with CSEQ and ILP
Scale Scores as Predictors

R squared	d.f	F	Signif F.	
.14	2,114	9.9	.0001	
		Beta	T	Sig. T
ILP Methodological Study		-.32	-3.6	.0004
CSEQ Personal Experience		.21	2.4	.0169

TABLE 7
Backward Regression Analysis of Foreclosed Scale Scores with CSEQ and ILP Scale Scores as Predictors

R squared	d.f	F	Signif F.	
.07	2,114	4.3	.0156	
		Beta	T	Sig. T
CSEQ Course Learning		-.23	-2.1	.0377
CSEQ Faculty		.31	2.9	.0050

TABLE 2
Chronbach alphas and interscale correlations for the DISO Factors

Scale	Alpha	A.S.	C.R.	Com.	For.
Achieving-Social	.89				
Creative-reflective	.63	.02			
Competitive	.63	.00	.08		
Foreclosed	.64	.07	.11	.07	

TABLE 3

Means, standard deviations and interscale correlations for the DISO-R

Scale	Alpha	X	Sd.	A.S	C.R	Com.	For.
Achieving-Social	.88	37	4.0				
Creative-reflective	.68	27	5.0	.51			
Competitive	.63	32	3.7	.45	.18		
Foreclosed	.66	25	2.9	.25	-.02	.29	

TABLE 4
Backward Regression Analysis of Achieving Social Scale Scores with CSEQ and ILP
Scale Scores as Predictors

R squared	d.f	F	Signif F.	
.24	4,112	8.9	.0000	
		Beta	T	Sig. T
CSEQ Course Learning		.41	4.4	.0000
ILP Deep		-.15	-1.8	.0828
CSEQ Student Acquaintances		.26	2.4	.0175
CSEQ Topics of Conversation		-.29	-2.6	.0103

TABLE 5

Backward Regression Analysis of Creative-Reflective Scale Scores with CSEQ and ILP Scale Scores as Predictors

R squared	d.f	F	Signif F.	
.35	4,112	14.9	.0000	
		Beta	T	Sig. T
CSEQ Course Learning		.29	3.4	.0010
ILP Deep		-.19	-2.3	.0229
ILP Elaborative		-.26	-3.2	.0025
CSEQ Student Acquaintances		.15	1.8	.0763

TABLE 6

Backward Regression Analysis of Competitive Scale Scores with CSEQ and ILP
Scale Scores as Predictors

R squared	d.f	F	Signif F.	
.14	2,114	9.9	.0001	
		Beta	T	Sig. T
ILP Methodological Study		-32	-3.6	.0004
CSEQ Personal Experience		.21	2.4	.0169

TABLE 7
Backward Regression Analysis of Foreclosed Scale Scores with CSEQ and ILP Scale Scores as Predictors

R squared	d.f	F	Signif F.	
.07	2,114	4.3	.0156	
		Beta	T	Sig. T
CSEQ Course Learning		-.23	-2.1	.0377
CSEQ Faculty		.31	2.9	.0050



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)



REPRODUCTION RELEASE
(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: A Factor Analytic Model of College Student Development	
Author(s): Ellen Lavelle and Bill Rickord	
Corporate Source:	Publication Date: September 15, 1997

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic/optical media, and sold through the ERIC Document Reproduction Service (EDRS) or other ERIC vendors. Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce the identified document, please CHECK ONE of the following options and sign the release below.

<input type="checkbox"/>	← Sample sticker to be affixed to document	Sample sticker to be affixed to document →	<input type="checkbox"/>
<p>Check here</p> <p>Permitting microfiche (4"x 6" film), paper copy, electronic, and optical media reproduction</p>	<p>"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY</p> <p>_____</p> <p style="font-size: 2em; color: red; opacity: 0.5;">Sample</p> <p>_____</p> <p>TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."</p> <p style="text-align: center;">Level 1</p>	<p>"PERMISSION TO REPRODUCE THIS MATERIAL IN OTHER THAN PAPER COPY HAS BEEN GRANTED BY</p> <p>_____</p> <p style="font-size: 2em; color: red; opacity: 0.5;">Sample</p> <p>_____</p> <p>TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."</p> <p style="text-align: center;">Level 2</p>	<p>or here</p> <p>Permitting reproduction in other than paper copy.</p>

Sign Here, Please

Documents will be processed as indicated provided reproduction quality permits. If permission to reproduce is granted, but neither box is checked, documents will be processed at Level 1.

"I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce this document as indicated above. Reproduction from the ERIC microfiche or electronic/optical media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries."	
Signature: <i>Ellen Lavelle</i>	Position: Professor
Printed Name: Ellen Lavelle	Organization: University of South Dakota
Address: Vermillion, South Dakota	Telephone Number: (605) 677-5845
	Date: Sept. 15, 1997

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of this document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents which cannot be made available through EDRS).

Publisher/Distributor:	
Address:	
Price Per Copy:	Quantity Price:

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name and address of current copyright/reproduction rights holder:
Name:
Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:

If you are making an unsolicited contribution to ERIC, you may return this form (and the document being contributed) to:

ERIC Facility
 1301 Piccard Drive, Suite 300
 Rockville, Maryland 20850-4305
 Telephone: (301) 258-5500