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INFLUENCE OF FINANCIAL NEED ON THE VOCATIONAL DEVELOPMENT OF COLLEGE STUDENTS

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ABSTRACT

There is some evidence that financial need influences vocational development. To explore the relationship, four research issues were developed and related hypotheses were tested. The issues were as follows:

Students with financial need form earlier crystalized occupational choices than those without financial need. (Supported.)

Students with financial need persist with their early occupational choice commitment whereas those without need tend to alter their objectives and later specify more crystalized choices. (Partially supported.)

Students with financial need narrow their objectives and thus limit their participation in other curricular and extracurricular areas whereas those without need participate more actively and broadly. (Not supported.)

Students with financial need perceive their educational experience and their relationship with the institution less favorably than those without financial need. (Not supported.)

The sample, drawn from four state-supported institutions, consisted of 291 students in the second semester of their second year of college. The American College Testing Program's *Management Reporting and Analysis Service,* which provided summaries of the financial aid programs for the institutions, was used to define the two financial need groups. All students listed in these reports were financial aid applicants. The *Financial Aid Group* was defined in terms of individuals who received assistance adequate to meet their financial need. The *Unmet Need Group* were those who did not receive sufficient assistance to meet their need. The third group, individuals who had not applied for financial assistance, was defined as the group without financial need, the *Nonapplicant Group.*

The students with full financial aid tended to have a greater crystalized choice of their educational major and vocational goal than was true of students in the other two groups. Differences regarding college goal preferences among the research groups were not significant. All groups showed a strong preference toward vocationally oriented goals. The hypothesis that groups with financial need would prefer vocationally oriented goals more than those without need would prefer academic goals, was not supported. Statistical analyses failed to support the theoretical expectation that individuals with financial need participate less in extracurricular activities and have poorer college attitudes.

INFLUENCE OF FINANCIAL NEED ON THE VOCATIONAL DEVELOPMENT OF COLLEGE STUDENTS[1]

Allen R. Vander Well[2]

This paper studies the impact of financial need on vocational decision-making. Ginzberg, Ginsburg, Axelrad, and Herma (1951) have suggested that "the process of occupational determination among the lower income groups . . . with a few notable exceptions . . . can be characterized by two terms: passive and stunted."

The contention is that individuals with financial need cling tenaciously to a narrow choice perspective and devote themselves more exclusively (not necessarily beneficially) to the pursuit of this objective. In so doing they cut themselves off from much of the potential benefit of the total college experience. In the original samples used by Ginzberg et al. they did not include a college sample for the lower socioeconomic group. Their writing merely suggests divergence from the essential occupational choice theory for this group and offers some impressions explaining how and why this divergence occurs.

The determinants of vocational development according to the Ginzberg theory are not at all clear. The theory stresses the association of vocational development with biological development, at least through the tentative period. In addition, there are allusions to other factors, including emotional needs, psychological needs, characteristics of learning, and environmental influences. However, there is little to indicate the relative importance or independence of any of these factors.

The Problem

This study presupposed an influence on vocational development of a reaction to an environmental pressure of a specific nature, financial need. Holland (1962) suggested that vocational development is more dependent upon the individual's personality than upon the direct effect of financial need. Cooley (1964) noted, however, that the environmental influence may be related to choice behavior for two reasons. The reasons are that the environmental effect will, in part, determine the individual's personality because of the types of reinforcements afforded various forms of behavior, and certain environmental variables affect choice behavior directly by limiting some choices and expediting others.

There is no presumption that financial need, per se, causes vocational development. It is more likely that financial pressure leads to the creation of specific psychological need, especially when accompanied with a family life history that has stressed the importance of economic considerations in many family decisions. It is, therefore, not assumed that all individuals who may experience financial need are going to experience this psychological need, nor are those without obvious financial need necessarily going to be free of the psychological need. In spite of this, the relationship between economic pressure and vocational development may exist. Our view is consistent with the position taken by Cooley.

[1] Based on a doctoral dissertation completed in August, 1970, at The University of Iowa under the supervision of R. F. Stahmann and E. J. Maxey.

[2] The author would like to extend grateful acknowledgement and appreciation to the campus administrators who cooperated in this research project. They are A. E. Bowman, Kansas State Teachers College; John Bunnister, Memphis State University; Paul Chrisman, Wichita State University; and Greely Meyers, New Mexico State University. Nancy S. Cole and Gary R. Hanson of ACT, as well as R. F. Stahmann and E. J. Maxey, made many suggestions and were helpful in numerous ways as the study progressed.

The Research Issues

The issues around which the specific research hypotheses were developed are listed herewith. Issues one and two were developed in relation to the Ginzberg theory. Issues three and four seem to follow from the first two, and relate to areas of educational development that are somewhat analogous to vocational development.

1. Students with financial need form earlier crystalized occupational choices than those without financial need.

2. Students with financial need persist with their early occupational choice commitment whereas those without need tend to alter their objectives and later specify more crystalized choices.

3. Students with financial need narrow their objectives and thus limit their participation in other curricular and extracurricular areas whereas those without need participate more actively and broadly.

4. Students with financial need perceive their educational experience and their relationship with the institution less favorably than those without financial need.

The Theoretical Position

Early choice. According to the Ginzberg theory, college students have entered into the realistic period of their vocational development. Within this period, the individual moves from the exploration stage to crystalization and finally to the specification stage. That economic considerations affect this progression was noted by Osipow (1968): "the realistic period might have some tendency to occur earlier for the lower economic group as a function of environmental circumstances . . . ." Most students, going from high school to college, move from a cost-free to a cost-encumbered educational situation. Encountering this financial pressure, they experience a need for a choice that is definite and, in Ginzberg's terms, reality oriented.

Irreversible choice. Along with early choice, there is the irreversibility aspect of the theory. Not only does the influence of financial pressure serve to produce an earlier crystalization of vocational objectives, but it also serves to inhibit subsequent alteration of that objective. In this respect, the irreversibility aspect of the theory is taken to imply that once the individual has crystalized an occupational choice, he is not likely to regress to the exploration stage. Crites (1969) noted that "certainly every time an individual reverses his plans he incurs at least some loss of money, because of the costs involved in buying new books, forfeiting college application deposits . . . ," all of which are factors likely to inhibit future exploration. Brazziel (1961) provided evidence to support this position in a study of occupational choice in a Negro college. He found greater lateral movement among those students from the higher socioeconomic levels. Other students with preferred choices in areas other than the one they were currently considering desired to postpone any transfer until their present objective had been secured.

Negative decisions. Such narrowing of perspective was suggested by Dysinger (1950) when he indicated that the individual becomes caught in a process of making negative decisions as he becomes increasingly specific in his occupational choice. This implies that the student making a specific choice of occupational objective would tend to be limiting rather than expanding his educational experiences. Bradfield's (1967) study of low-income freshman males tended to support this impression. Comparing applicants for financial assistance under the Work-Study Program with a matched group of controls, he noted that the Work-Study group showed less interest in games, athletics, and other amusements, thus implying this narrowing of perspective. Sanford (1962) perceived the university educational experience as a means of freeing impulses and encouraging impulse expression. Similarly, Osipow (1968) noted that the college environment offers much freedom, but that it is accompanied by "the expense of considerable ambiguity." If the university environment is oriented toward a type of intellectual awakening process, then those individuals in the exploration stage of vocational decision-making would be in a position to be the more responsive to it.

Institutional perception. Bradfield's (1967) study also suggested that the Work-Study group tended to be less conformist and more antagonistic

to the system and order in which it was functioning. Consequently, it was expected that students with financial need would tend to perceive the university system less favorably than those not experiencing this need.

The Need for the Study

Theoretical need. This investigation is designed to provide data relevant to the theoretical structure outlined for the study. Those specific aspects of the theory considered include the question of factors relating to occupational development and to the consistency of the theoretical structure.

Practical need. In a practical sense, the study investigates student needs and environmental influences which serve to modify those needs in terms of identifying factors which facilitate the developmental growth of students. This aspect of the study may be relevant to a broad range of student personnel services—from financial aid officers to admissions officers, to advisors and counselors. It may be possible to determine whether the problems might best be approached as directed toward individual change or whether a program of environmental enrichment might better meet the perceived needs.

Ginzberg et al. (1951) noted that, "to proffer effective guidance, the counselor must be able to differentiate between variations of a normal pattern and deviations." They identified the more serious problem as that of deviation and indicated this problem is highly suggestive of some type of emotional disturbance. It is suggested in the previous theoretical outline that financial need may be associated with a premature occupational commitment, an unrealistic narrowing of perspective, and a reaction to the environment that involves a great deal of negativism. This suggests the possibility that early crystalization may be more a deviation than simply a variation of the normal vocational development.

A related concept suggested by Herzberg and Hamlin (1961) implied that a sound vocational decision is based upon an individual's intrinsic response to a choice which is positively motivated. Less appropriate choices leading to lesser satisfaction result when the choice involves a negative, avoidance reaction to external pressure. They characterized the former as choice based upon motivation factors, the latter upon hygiene factors. Kahoe (1966), in an investigation concerning these concepts, found that groups of people with unrealistic choices were predominantly hygiene oriented. Certainly, the conclusion by Ginzberg et al. (1951) that "a clearer differentiation would help the counselor to estimate what kind of advice or guidance is necessary and how much or what kind of help can be put to constructive use by an individual who is encountering difficulty . . . ," is seen as a practical objective of this investigation.

Method

The Sample

Three groups of students from four different colleges were identified. The four institutions which participated are publicly operated. Three are state universities located in the Midwest and Southwest regions of the United States, and the fourth is a state teachers college located in the Midwest. The enrollments for the various institutions ranged from approximately 7,000 to 16,000 students (American Council on Education, 1969).[3]

There were several uniform criteria considered in the selection of all subjects:

1. Each had enrolled as a freshman for the academic year, 1968-69.
2. Each had subsequently enrolled for the 1969-70 year.
3. Each had completed The American College Testing Program Battery.

[3]The institutions participating were Kansas State Teachers College, Memphis State University, New Mexico State University, and Wichita State University.

Two groups of these students were defined as financial need groups. Prior to their first enrollment in college these students had applied for financial assistance through the facilities of The American College Testing Program (ACT).[4] The ACT *Student Need Analysis Service* evaluated their applications, calculated their financial need, and sent a report to the college. The college then distributed the financial aid to the students. In a subsequent Research Service report, the *Management Reporting and Analysis Service,* which was sent to each college, ACT summarized the total financial aid program for that institution over the preceding academic year. Among the information contained in this report was the amount of calculated financial need for each student and the total amount of financial aid each had received. An additional category considered was the unmet need which resulted when the financial aid which was given failed to meet the amount of calculated need. When the amount of aid received equalled or exceeded the calculated need, there was no unmet need.

The two financial need groups were selected on this criterion of unmet need. The third group was made up of students who did not apply for financial assistance and were assumed to be those not experiencing financial need. The three groups were defined as follows:

1. The *Financial Aid Group* consisted of students receiving financial aid equivalent to meet or exceed their calculated need.

2. The *Unmet Need Group* consisted of students not receiving adequate financial assistance to match their calculated need.

3. The *Nonapplicant Group* consisted of students not applying for financial aid.

Representative samples were drawn from each of the groups for each institution. This was done by drawing from an alphabetical listing of all students meeting the general criteria for inclusion in the sample and the specific criterion for group assignment. According to Stallings and Sushila (1968), this procedure results in obtaining samples, "which have characteristics of random samples." Lists of these students were sent to the respective institutions where the research questionnaire was administered.

The research instruments. The basic instrument used to investigate the research issues, the *Institutional Self-Study Service* (The American College Testing Program, 1968), was administered to the sample subjects during the second semester of their second year in college. This survey instrument is made up of a total of 202 standard items for which national norms have been established (The American College Testing Program, 1969).

A number of the items contained in the *Institutional Self-Study Service* are re-statements of items contained in the *Student Profile Section* (The American College Testing Program, 1966) which is part of the ACT Test Battery. These *Institutional Self-Study Service* items serve as a follow-up to the subjects' responses which were made earlier in the *Student Profile Section.*

The scoring procedures. Item 1 of the *Student Profile Section* and *Institutional Self-Study Service* asked the student to indicate his choice of college major. Item 2 for both instruments asked the student to select his choice of vocation. For each item the student made a selection from a list of 100 alternatives which were broken down as follows:

01-07 Educational Fields
08-17 Social Science and Religious Fields
18-33 Business, Political, and Persuasive Fields
34-48 Scientific Fields
49-52 Agriculture and Forestry
53-66 Health Fields
67-79 Arts and Humanities
80-89 Engineering
90-97 Trade, Industrial, and Technical
98 Not included in the fields listed above
99 Housewife
00 Undecided

Three judges, members of the professional staff at ACT, were asked to categorize independently the first 97 response alternatives, beginning with 01, into two areas—those which represented specific choice orientations and those which represented general choice orientations. The criterion for categorizing an alternative as a specific choice

[4]The financial aid service is outlined in The American College Testing Program publication, *Handbook for Financial Aid Officers,* (1970).

was defined in terms of the way the choice suggested a definite occupational objective. The criterion for the general choice was that the alternative represented a general area of interest, but pointed to no specific vocational objective. The alternatives categorized as specific were defined as crystalized choice alternatives, and those categorized as general were defined as exploration choices. Appendix A provides a list of the specific alternatives according to their classification as crystalized choice areas or exploration choice areas. Of the alternatives, 67 were classified by unanimous interjudge agreement and the remaining 31 were classified according to agreement by two of the three judges.

There were 12 items on both the *Student Profile Section* and *Institutional Self-Study Service* questionnaires relating to college goals. These items were adapted from the four goal scales developed by Trow (Hoyt & Munday, 1968) and represented measures of students' attitudes concerning four different goal areas. These areas include Academic Goals, Vocational Goals, Social Goals, and Non-conventional Goals. The *Institutional Self-Study Service* instrument contains the same three items for each of the four goal areas. Students' responses to the items were weighted in the direction of the most favorable attitude. The response alternatives, along with their assigned weightings, are as follows:

Response	Weight
Essential	4
Very Important	3
Desirable	2
Not Important	1

Individual scores for each of the college goal areas ranged from 3-12. The intercorrelations for the four goal scores reported by ACT (The American College Testing Program, 1970b), based on *Institutional Self-Study Service* records for 15,000 students, are given in Appendix B.

Affirmative responses from 11 sections of the *Institutional Self-Study Service* instrument were totaled to obtain an overall extracurricular participation score for each student. The sections of the questionnaire from which the items were taken and the number of items included in that section are as follows:

Section	Items
Leisure Time Activities	30
Leadership Accomplishments	10
Social Participation Accomplishments	10
Artistic Accomplishments	10
Social Service Accomplishments	10
Scientific Accomplishments	10
Humanistic-Cultural Accomplishments	10
Religious Service Accomplishments	10
Music Accomplishments	10
Writing Accomplishments	10
Speech and Drama Accomplishments	10

With a total of 130 items the possible range for extracurricular participation scores is 0-130. The intercorrelation matrix reported by ACT (The American College Testing Program, 1970b) for the 10 accomplishment areas is shown in Appendix C. Institutional attitude scores were taken from four sections of the *Institutional Self-Study Service* questionnaire. The first section was an 18-item group dealing with reactions to college policies, practices, or facilities. The second section contained nine items and dealt with attitudes concerning the value of a variety of college services. The third section, containing 12 items, measured students' responses to college outcome. The 14 items for the fourth section concerned students' attitudes toward their instructors. Responses to the items in each section were assigned weights in the direction of the most favorable attitude. The total for all the items included in this scoring procedure resulted in an institutional perception score with a possible range of 53-186.

The statistical procedures. Chi-square analysis and analysis of variance (ANOVA), depending upon the nature of the data, were used to compare the responses for the three sample groups. Where appropriate, the hypotheses were stated in the direction of expected outcome based on the theoretical model outlined and were tested using one-tailed tests. A .05 level of significance was selected to establish support for the research hypotheses.

Since the Ginzberg et al. (1951) theory of vocational choice with regard to women was developed from small samples of female subjects resulting in very inconclusive generalizations, separate analyses were run for the male and female subjects. The assumption, similar to that made by Ginzberg et al., was that the vocational development for women would parallel the procedure outlined for men.

TABLE 1

Population Sizes, Sample Sizes, and Response Rates by Group for Each Institution

	Population size	*Sample size*	*Ratio of sample size to population size*	*Size of sample return*	*Response rate*
Institution A					
Group 1[a]	94	94	100	34	36.2
Group 2[b]	113	113	100	30	26.5
Group 3[c]	531	120	22.6	33	27.5
Total		327		97	29.7
Institution B					
Group 1[a]	237	120	50.6	61	50.8
Group 2[b]	59	59	100	22	37.3
Group 3[c]	739	150	20.3	38	25.3
Total		329		121	36.7
Institution C					
Group 1[a]	26	26	100	6	23.1
Group 2[b]	36	36	100	9	25.0
Group 3[c]	724	150	20.7	31	20.1
Total		212		46	21.7
Institution D					
Group 1[a]	11	11	100	0	0.0
Group 2[b]	32	32	100	5	15.6
Group 3[c]	612	130	21.2	22	16.9
Total		173		27	15.6

[a] Group 1: Financial Aid Group
[b] Group 2: Unmet Need Group
[c] Group 3: Nonapplicant Group

Results

Sample Return

Students who met the criteria for sample selection were listed for each college, and the lists were sent to the financial aid officer for the respective institution. He in turn mailed the questionnaires to the students whose names appeared on the list. In every case the initial response rate was very low, and follow-up telephone contacts were made with the students encouraging early completion and return of the questionnaire. Many students had changed their addresses or left school at the end of the first semester and could not, therefore, be located and included in the sample return. Table 1 summarizes the size of each research population, the size of the representative samples for each research group, and response rates for each institution. The total sample return for the research groups with distribution by sex is given in Table 2.

TABLE 2

Sample Totals and Sex Distributions for the Research Groups

	Financial aid group	*Unmet need group*	*Nonapplicant group*	*Total*
Males	41	29	71	141
Females	60	37	53	150
Total	101	66	124	291

Note.—The *Financial Need Groups* consist of Group 1 and Group 2. The Group without Financial Need is Group 3. Both the Total Sample and the Research Groups consist of Group 1, Group 2, and Group 3.

References to the sample will be made in terms of the following definitions:

Group 1: *Financial Aid Group*
Group 2: *Unmet Need Group*
Group 3: *Nonapplicant Group*

We realized that students in the two groups awarded financial aid (i.e., Groups 1 and 2) might differ from each other in family income. If such were the case, socioeconomic status might confound the results, and findings we would have attributed to the amount of aid awarded might instead have been due to correlates of the different student socioeconomic levels at the beginning. The mean family income for the *Financial Aid Group* was $6,435 and for the *Unmet Need Group*, $7,522. This was the opposite of what we had anticipated. We expected the *Unmet Need Group* to have a lower mean family income than the *Financial Aid Group* because the former group would have much greater need (including many students with total need) and greater resources would be necessary to meet these requirements. However, this was not borne out by the means. We conclude there is little difference in family income between the two groups awarded financial aid. Socioeconomic status differences between the two groups awarded aid, on the one hand, and the *Nonapplicant Group,* on the other hand, would be expected because relatively low family income level is a characteristic of college students who apply for financial aid.

The Research Issues

Early Crystalization

Students with financial need form earlier crystalized occupational choices than those without financial need.

Two approaches were taken to investigate whether students with financial need form earlier crystalized occupational choices than those without financial need. The first involved investigating the students' choices of majors and vocational objectives. The second involved an investigation of the college goal scores.

Choice. Chi-square tests for independence were conducted on students' choices for major and vocational objectives over the research groups for both the *Student Profile Section* and *Institutional Self-Study Service* instruments. Since the vocational development theory suggested earlier crystalization of vocational choice for individuals with financial need, the outcome for the *Student Profile Section* data (taken prior to college admission) should produce results indicating greater crystalization for the financial need groups than for the groups without financial need. The expected outcome for the chi-square analyses on these results was that the choices would not be independent for the research groups. However, since the results for the *Institutional Self-Study Service* were obtained when the students had reached the second semester of their second year of college, it was anticipated that many more would have reached the crystalization stage of their vocational development. The outcome for the chi-square test for independence on these results should indicate choice to be independent for the research groups.

To conduct the chi-square analyses for these results, alternative choice 99, "Housewife," was included in the crystalized choice category, Category 1. Alternative 98, "Not included in the fields listed above," was included in the exploration choice category, Category 2. The final alternative, 00, "Undecided," was maintained as a separate category, Category 3. The following statistical hypotheses were then tested.

Hypothesis 1:
The frequency of responses to choice of major on the *Student Profile Section* is not independent for the research groups.

Hypothesis 2:
The frequency of responses to choice of vocation on the *Student Profile Section* is not independent for the research groups.

Hypothesis 3:
The frequency of responses to choice of major on the *Institutional Self-Study Service* is independent for the research groups.

Hypothesis 4:
The frequency of responses to choice of vocation on the *Institutional Self-Study Service* is independent for the research groups.

Table 3 summarizes the chi-square test for independence for the total sample and for each sex for the *Student Profile Section* choice of major. Table 4 summarizes the results for *Student Profile Section* choice of vocation. Table 5 summarizes the results for the *Institutional Self-Study Service* choice of major, and Table 6, the results for the *Institutional Self-Study Service* choice of vocation. Because of the low response frequencies in the "Undecided" category, Table 5 shows only the first two categories; the "Undecided" category was combined with the "Exploration Choice" category.

The results of the chi-square tests for independence indicate the following for each hypothesis:

Hypothesis 1:	total	$p < .025$	Supported
	males	N.S.	Not Supported
	females	N.S.	Not Supported
Hypothesis 2:	total	$p < .025$	Supported
	males	$p < .05$	Supported
	females	$p < .025$	Supported
Hypothesis 3:	total	N.S.	Supported
	males	N.S.	Supported
	females	N.S.	Supported
Hypothesis 4:	total	N.S.	Supported
	males	N.S.	Supported
	females	N.S.	Supported

Obtaining support for Hypothesis 1 for the total sample but not in the analyses by sex indicated the possibility of significant differences in frequencies of responses to choices of college major for males and females. A post hoc analysis for each research group was conducted to determine whether the sex differences were significant. Table 7 summarizes the chi-square tests for independence by sex for the choice categories for each of the research groups. The results fail to support the impression concerning significant sex differences for all the research groups.

College goals. A Type I design analysis of variance (Lindquist, 1953) was used to compare the mean goal scores for the research groups and also to investigate differences among the four goal areas. Even though it is doubtful that the scoring

TABLE 3

Column Percentages and Totals for Response Frequencies in the Chi-Square Test for Independence on SPS-Major-Choice Categories

	Research groups[a]		
	1	*2*	*3*
TOTAL			
Crystalized Choice	56.4	69.6	43.5
Exploration Choice	27.7	22.7	34.6
Undecided	15.8	7.5	21.7
Total N	101	66	124
$X^2 = 13.20$, df = 4, $p < .025$			
MALES			
Crystalized Choice	51.2	72.4	45.0
Exploration Choice	31.7	20.6	28.1
Undecided	17.0	06.8	26.7
Total N	41	29	71
$X^2 = 8.03$, df = 4, N.S.			
FEMALES			
Crystalized Choice	60.0	67.5	41.5
Exploration Choice	25.0	24.3	43.3
Undecided	15.0	08.1	15.0
Total N	60	37	53
$X^2 = 7.88$, df = 4, N.S.			

[a] Group 1: Financial Aid Group
Group 2: Unmet Need Group
Group 3: Nonapplicant Group

TABLE 4

Column Percentages and Totals for Response Frequencies in the Chi-Square Test for Independence on SPS-Vocation-Choice Categories

	Research groups[a]		
	1	*2*	*3*
TOTAL			
Crystalized Choice	57.4	71.2	44.3
Exploration Choice	19.8	22.7	33.0
Undecided	22.7	6.0	22.5
Total N	101	66	124
$X^2 = 17.39$, df = 4, $p < .025$			
MALES			
Crystalized Choice	43.9	72.4	42.2
Exploration Choice	29.2	24.1	29.5
Undecided	26.8	3.4	28.1
Total N	41	29	71
$X^2 = 10.34$, df = 4, $p < .05$			
FEMALES			
Crystalized Choice	66.6	70.2	47.1
Exploration Choice	13.3	21.6	37.7
Undecided	20.0	08.1	15.0
Total N	60	37	53
$X^2 = 11.72$, df = 4, $p < .025$			

[a] Group 1: Financial Aid Group
Group 2: Unmet Need Group
Group 3: Nonapplicant Group

TABLE 5

Column Percentages and Totals for Response Frequencies in the Chi-Square Test for Independence on ISS-Major-Choice Categories

	Research groups[a]		
	1	*2*	*3*
TOTAL			
Crystalized Choice	57.4	53.0	54.8
Exploration Choice	42.5	46.9	45.1
Total N	101	66	124
X^2 = .33, df = 2, N.S.			
MALES			
Crystalized Choice	51.2	44.8	43.6
Exploration Choice	48.7	55.1	56.3
Total N	41	29	71
X^2 = .62, df = 2, N.S.			
FEMALES			
Crystalized Choice	61.6	59.4	69.8
Exploration Choice	38.3	40.5	30.1
Total N	60	37	53
X^2 = 5.65, df = 2, N.S.			

[a] Group 1: Financial Aid Group
Group 2: Unmet Need Group
Group 3: Nonapplicant Group

TABLE 6

Column Percentages and Totals for Response Frequencies in the Chi-Square Test for Independence on the ISS-Vocation-Choice Categories

	Research groups[a]		
	1	*2*	*3*
TOTAL			
Crystalized Choice	72.2	66.6	60.4
Exploration Choice	16.8	30.3	28.2
Undecided	10.8	03.0	11.2
Total N	101	66	124
X^2 = 8.77, df = 4, N.S.			
MALES			
Crystalized Choice	65.8	65.5	52.1
Exploration Choice	21.9	34.4	33.8
Undecided	12.1	00.0	14.0
Total N	41	29	71
X^2 = 6.47, df = 4, N.S.			
FEMALES			
Crystalized Choice	76.6	67.5	71.6
Exploration Choice	13.3	27.0	20.7
Undecided	10.0	05.4	07.5
Total N	60	37	53
X^2 = 3.20, df = 4, N.S.			

[a] Group 1: Financial Aid Group
Group 2: Unmet Need Group
Group 3: Nonapplicant Group

TABLE 7

Column Percentages and Totals for Response Frequencies in the Chi-Square Tests for Independence on Sex Differences for SPS-Major-Choice Categories for Each of the Research Groups

	Males	*Females*
FINANCIAL AID GROUP		
Crystalized Choice	51.2	60.0
Exploration Choice	31.7	25.0
Undecided	17.1	15.0
Total N	41	66
X^2 = .79, df = 2, N.S.		
UNMET NEED GROUP		
Crystalized Choice	72.4	67.6
Exploration Choice	20.7	24.3
Undecided	6.8	8.1
Total N	29	37
X^2 = .18, df = 2, N.S.		
NONAPPLICANT GROUP		
Crystalized Choice	45.1	41.5
Exploration Choice	28.2	43.4
Undecided	26.7	15.1
Total N	71	53
X^2 = 4.01, df = 2, N.S.		

TABLE 8

Summary for the Type I Design Analysis of Variance on SPS College Goals Scores

	df	*ms*	*F*	
TOTAL				
Subjects	288	5.7550		
B (Groups)	2	4.6955	.8148	
Error (B)	286	5.7624		
Within	867	2.8492		
A (Goals)	3	263.6848	134.8806	
AB	6	0.3082	.1576	N.S.
Interaction	858	1.9549		
Total	1155	3.5738		
MALES				
Subjects	137	6.8027		
B (Groups)	2	9.0872	1.3425	
Error (B)	135	6.7689		
Within	414	2.9372		
A (Goals)	3	126.0821	61.5599	
AB	6	1.3775	.6726	N.S.
Interaction	405	2.0481		
Total	551	3.8983		
FEMALES				
Subjects	150	4.7312		
B (Groups)	2	.0165	.0034	
Error (B)	148	4.7949		
Within	453	2.7688		
A (Goals)	3	138.7081	73.7455	
AB	6	.5010	0.2663	N.S.
Interaction	444	1.8809		
Total	603	3.2569		

procedure would produce normal distributions, Hays (1953) notes that, ". . . when each population is supposed to have the same, nonnormal, form, the *F* test is relatively unaffected."

It was anticipated that the financial need groups would be more vocationally oriented and score higher on this scale while the group without financial need was expected to score higher for the academic goals area. These results were expected to be apparent in the *F* ratio for interaction in the Type I design analysis.

Hypothesis 5:

There is a significant difference in the mean scores for the research groups on *Student Profile Section* college goals scores.

Hypothesis 6:

There is a significant difference in the mean scores for the research groups on the *Institutional Self-Study Service* college goals scores.

Table 8 provides a summary of the Type I design analysis for the *Student Profile Section* scores. Table 9 summarizes the results for the *Institutional Self-Study Service* scores.

On both analyses, the nonsignificant *F* for the simple effect B indicated there were no differences in the mean scores for the research groups on the overall mean scores for the four goals areas. The simple effect A was significant, indicating differences for the mean scores for the four goal scales for the total sample. The nonsignificant interaction indicated there were no significant differences among groups for the individual goal areas. These results indicate the following for each hypothesis:

Hypothesis 5:	total	N.S.	Not Supported
	males	N.S.	Not Supported
	females	N.S.	Not Supported
Hypothesis 6:	total	N.S.	Not Supported
	males	N.S.	Not Supported
	females	N.S.	Not Supported

Irreversible Choice

Students with financial need persist with their early occupational choice commitment whereas those without need tend to alter their objectives and later specify more crystalized choices.

According to the Ginzberg theory (Ginzberg et al., 1951) the process of vocational choice is largely irreversible. Once the individual has made a crystalized choice he is unlikely to reverse the process to make a subsequent, exploratory choice. On the other hand, it is likely that individuals who make exploration choices are eventually going to alter their choices to crystalized areas.

To investigate this contention each individual's choices of major and vocation on the *Student Profile Section* were matched with his subsequent choices on the *Institutional Self-Study Service.*

In this instance the alternative, "Undecided," was included in the "Exploration Choice" category. All individuals then fell into one of the four comparison possibilities outlined in Table 10.

A chi-square test of independence on these possible comparisons was run on the research groups. The research hypotheses are as follows:

Hypothesis 7:

The measure of change for choice of major is not independent of the research groups.

Hypothesis 8:

The measure of change for choice of vocation is not independent of the research groups.

Table 11 summarizes the chi-square test for independence on change of major. Table 12 summarizes the analysis for change of vocation. These are the results of the chi-square tests for independence:

Hypothesis 7:	total	$p < .05$	Supported
	males	N.S.	Not Supported
	females	N.S.	Not Supported
Hypothesis 8:	total	$p < .025$	Supported
	males	$p < .025$	Supported
	females	$p < .05$	Supported

The crystalized choice appears the more stable. However, the financial need groups seem to be more likely to change from the crystalized choice to the exploration choice, particularly where choice involves vocational commitment. As was anticipated from previous results, the group without financial need tends to be the strongest in the area of change from the exploration to the crystalized choice.

TABLE 9

Summary for the Type I Design Analysis of Variance on ISS College Goals Scores				
	df	*ms*	*F*	
TOTAL				
Subjects	290	5.7972		
B (Groups)	2	.3269	.0560	
Error (B)	288	5.8352		
Within	873	3.3078		
A (Goals)	3	183.4808	68.1058	
AB	6	1.6070	.5965	N.S.
Interaction	864	2.6941		
Total	1163	3.9286		
MALES				
Subjects	.140	6.6274		
B (Groups)	2	.3839	.0571	
Error (B)	138	6.7179		
Within	423	3.1903		
A (Goals)	3	82.8038	31.6067	
AB	6	2.7475	1.0488	N.S.
Interaction	414	2.6198		
Total	563	4.0450		
FEMALES				
Subjects	149	4.8327		
B (Groups)	2	4.6682	.9655	
Error (B)	147	4.8349		
Within	450	3.4183		
A (Goals)	3	101.9528	36.8853	
AB	6	2.2410	.8108	N.S.
Interaction	441	2.7640		
Total	599	3.7701		

TABLE 10

Comparison Possibilities for *Student Profile Section* and *Institutional Self-Study Service* Choice of Major and Vocation		
	SPS	*ISS*
1.	Crystalized Choice (Category 1)	Crystalized Choice (Category 1)
2.	Exploration Choice (Category 2)	Exploration Choice (Category 2)
3.	Exploration Choice (Category 2)	Crystalized Choice (Category 1)
4.	Crystalized Choice (Category 1)	Exploration Choice (Category 2)

TABLE 11

Column Percentages and Totals for the Chi-Square Test of Independence on Change of College Major Choice

SPS Choice	*ISS Choice*	*Groups*[a] 1	2	3
TOTAL				
Crystalized	Crystalized	39.6	42.4	30.6
Exploration	Exploration	25.7	19.7	32.2
Exploration	Crystalized	17.8	10.6	24.2
Crystalized	Exploration	16.8	27.3	12.9
Total N		101	66	124
$X^2 = 14.11$, df = 6, $p < .05$				
MALES				
Crystalized	Crystalized	31.7	34.4	25.3
Exploration	Exploration	31.7	17.2	36.6
Exploration	Crystalized	19.5	10.3	18.3
Crystalized	Exploration	17.0	37.9	19.7
Total N		41	29	71
$X^2 = 8.00$, df = 6, N.S.				
FEMALES				
Crystalized	Crystalized	45.0	48.2	37.7
Exploration	Exploration	21.6	21.6	26.4
Exploration	Crystalized	16.7	10.8	32.1
Crystalized	Exploration	16.7	18.9	3.8
Total N		60	37	53
$X^2 = 11.75$, df = 6, N.S.				

[a] Group 1: Financial Aid Group
Group 2: Unmet Need Group
Group 3: Nonapplicant Group

TABLE 12

Column Percentages and Totals for the Chi-Square Test of Independence on Change of Vocational Choice

SPS Choice	*ISS Choice*	*Groups*[a] 1	2	3
TOTAL				
Crystalized	Crystalized	40.6	53.0	33.9
Exploration	Exploration	10.9	15.1	29.0
Exploration	Crystalized	31.7	13.8	26.6
Crystalized	Exploration	16.8	18.2	10.5
Total N		101	66	124
$X^2 = 21.72$, df = 6, $p < .025$				
MALES				
Crystalized	Crystalized	24.4	55.2	26.7
Exploration	Exploration	17.1	17.2	32.4
Exploration	Crystalized	41.4	10.3	25.3
Crystalized	Exploration	17.1	17.2	15.5
Total N		41	29	71
$X^2 = 15.83$, df = 6, $p < .025$				
FEMALES				
Crystalized	Crystalized	51.6	51.3	43.4
Exploration	Exploration	6.7	13.5	24.5
Exploration	Crystalized	25.0	16.2	28.3
Crystalized	Exploration	16.6	18.9	3.8
Total N		60	37	53
$X^2 = 13.21$, df = 6, $p < .025$				

[a] Group 1: Financial Aid Group
Group 2: Unmet Need Group
Group 3: Nonapplicant Group

The significant chi square in the analysis for the total sample on choice of college major indicated that choice is not independent for the research groups. However, neither of the analyses for males or females indicated independence for the research groups, thus suggesting the possibility of significant sex differences. Post hoc analyses for each of the research groups were conducted to investigate sex differences. Table 13 summarizes the chi-square test for independence by sex in responses to changes in college major.

The sex differences for the *Financial Aid Group* and *Unmet Need Group* are not significant. However, there is evidence to support a significant sex difference for the *Nonapplicant Group.* This difference appears most prominent in the two change categories. While the percentage of response in the change category "Exploration to Crystalized" is approximately three times greater for females than for males, the proportion in the change category "Crystalized to Exploration" is approximately six times greater for males than for females.

Extracurricular Participation

Students with financial need narrow their objectives and thus limit their participation in other curricular and extracurricular areas whereas those without need participate more actively and broadly.

To investigate this issue, the mean extracurricular participation scores were compared for the research groups. A simple random design analysis of variance was used to determine whether there were significant differences among the means for the research groups. It was anticipated that the means for the financial need groups would be significantly lower than the mean for the group without financial need. The following research hypothesis was stated.

Hypothesis 9:

> The mean score for the extracurricular participation for the *Nonapplicant Group* is significantly greater than the means for the *Financial Aid Group* and the *Unmet Need Group.*

Table 14 is a summary of the analysis of variance conducted on the means for the research groups.

In addition to the fact that the *F* ratios were not significant, the means on the totals for the research groups generally were higher than for the nonapplicant need groups (see Table 15), contrary to our expectations:

Hypothesis 9:	total	N.S.	Not Supported
	males	N.S.	Not Supported
	females	N.S.	Not Supported

Institutional Perception

Students with financial need perceive their educational experience and their relationship with the institution less favorably than those without financial need.

The mean scores for the research groups were compared through a simple random design analysis of variance. The mean score for the group without financial need was expected to be higher than the mean for the financial need groups. The following research hypothesis was tested in the analysis.

Hypothesis 10:

> The mean scores for college attitudes for the *Nonapplicant Group* is significantly higher than the means for the *Financial Aid Group* and the *Unmet Need Group.*

Table 16 provides a summary of the analysis of variance conducted to compare the mean scores for the research groups.

The trend in the means for the research groups was generally away from the direction predicted for the *Financial Aid Group*, but not for the *Unmet Need Group.* It was interesting to note that the mean for the *Unmet Need Group* was consistently lower, and the mean for the *Financial Aid Group* was higher (see Table 17). These results lead to the following conclusions regarding the research hypothesis.

Hypothesis 10:	total	N.S.	Not Supported
	males	N.S.	Not Supported
	females	N.S.	Not Supported

TABLE 13

Column Percentages and Totals in the Chi-Square Tests of Independence on Change of College Major Choice by Sex for Each Research Group

SPS Choice	*ISS Choice*	*Males*	*Females*
FINANCIAL AID GROUP			
Crystalized	Crystalized	31.7	45.0
Exploration	Exploration	31.7	21.7
Exploration	Crystalized	19.5	16.7
Crystalized	Exploration	17.1	16.7
Total N		41	60
X^2 = 2.15, df = 3, N.S.			
UNMET NEED GROUP			
Crystalized	Crystalized	34.5	48.6
Exploration	Exploration	17.2	21.6
Exploration	Crystalized	10.3	10.8
Crystalized	Exploration	37.9	18.9
Total N		29	37
X^2 = 3.09, df = 3, N.S.			
NONAPPLICANT GROUP			
Crystalized	Crystalized	25.4	37.7
Exploration	Exploration	36.6	26.4
Exploration	Crystalized	18.3	56.6
Crystalized	Exploration	19.7	3.8
Total N		71	53
X^2 = 10.85, df = 3, $p < .01$			

TABLE 14

Summary of the Simple Random Design Analysis of Variance on Extracurricular Participation Means for the Research Groups

	df	*ms*	*F*	
TOTAL				
Groups	2	105.0419	.8666	N.S.
Within	288	121.2154		
Total	290	121.1039		
MALES				
Groups	2	4.3362	.0321	N.S.
Within	138	135.0815		
Total	140	133.2137		
FEMALES				
Groups	2	258.7327	2.3874	N.S.
Within	147	108.3726		
Total	149	110.3909		

TABLE 15

Groups, Means, and Sample N's from the Analysis of Variance on Extracurricular Participation

	Total		*Males*		*Females*	
Group[a]	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*
1	25.2	101	23.9	41	26.1	60
2	25.2	66	24.0	29	26.1	37
3	23.5	124	24.4	71	22.2	53

[a] Group 1: Financial Aid Group
Group 2: Unmet Need Group
Group 3: Nonapplicant Group

TABLE 16

Summary of the Simple Random Design Analysis of Variance on College Attitude Means for the Research Groups				
	df	*ms*	*F*	
TOTAL				
Columns	2	465.1644	2.2113	N.S.
Within	288	210.3542		
Total	290	212.1115		
MALES				
Columns	2	277.0998	1.0591	N.S.
Within	138	214.4263		
Total	140	214.6074		
FEMALES				
Columns	2	269.9725	1.2834	N.S.
Within	147	210.3614		
Total	149	211.1616		

TABLE 17

Groups, Means, and Sample N's from the Analysis of Variance on College Attitudes

	Total		*Males*		*Females*	
Group[a]	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*
1	135.6	101	135.3	41	135.7	60
2	130.7	66	130.4	29	131.0	37
3	133.7	124	134.3	71	132.9	53

[a] Group 1: Financial Aid Group
Group 2: Unmet Need Group
Group 3: Nonapplicant Group

Discussion

Limitations of the Research

There are several limitations imposed in the selection of the research questionnaire. The assessments of educational and vocational choice and the measure of change were intentionally kept very broad. The Ginzberg statement concerning irreversibility was interpreted as process irreversibility rather than simply change of plans from one area to another. Thus there was no quantitative measure to indicate how many times a given individual altered his college major or vocational objective. Also reliance was placed on the judges' selections of categories for the choice alternatives. The validity of their placement for each alternative rests with their agreement on how each should be categorized.

The measure for extracurricular participation was determined quantitatively rather than qualitatively. A person participating in a single extracurricular activity requiring 10 hours of his time each week will have a greater commitment than another person involved five hours each week in a total of three different activities. It was expected that the nature of the sampling might serve to randomize the qualitative differences, but there is no assurance that this happened.

The fact that self-support instruments were employed to assess the variables indicates the possibility for distortion and falsification of information. However, research results reported by Walsh (1967), Kirk and Sereda (1969), and others have indicated that considerable reliance may be placed upon these types of data.

There was no qualitative assessment of financial need used in the investigation. What might be experienced as economic privation by one person might not be perceived as hardship by another. Therefore, the strength of the environmental effect could not be completely considered. At present there is no adequate statement concerning the validity of the instrument employed to differentiate the two groups representing financial need. And finally, the *Nonapplicant Group* was not

clearly made up only of individuals without economic problems.

An additional sampling limitation occurs because potentially significant qualities were not controlled. Confounding for any of the groups could result from the quality of preadmission or postadmission counseling received by individuals. Other influences, such as parental pressure versus parental freedom, were not taken into consideration. Similarly, peer-group pressures toward meeting specific standards of conformity were not evaluated. Other potentially confounding factors not controlled included ethnic differences and demographic differences such as size of the hometown, rural versus urban students, etc.

Results

It is very difficult to generalize on the results obtained simply because of the consistently low response rates to the *Institutional Self-Study Service* questionnaire. The limited responses prevented analyses across institutions which might have been quite valuable since there may be institutional factors which could potentially influence the results. The sample is probably adequate for the investigation if the interpretation of the results is limited to the exploration of the theoretical issues. Even then the results must be interpreted cautiously—do they support or fail to support the issues?

The financial need group was split into two separate categories of need because the financial aid factor might conceivably serve to influence the outcome. In several instances this did appear to be an influencing condition.

The results were interpreted to support the theoretical issue concerning early crystalization of vocational choices. The differences tended to be much more predominant in choice of vocation than in choice of college major. The results show rather striking differences between the *Financial Aid Group* and the *Unmet Need Group.* This might indicate that other differences existed between these two groups since the *Student Profile Section* instrument was completed before the individuals in either group knew whether or not they would be granted financial assistance.

The results on college goal scales analyses for both the *Student Profile Section* and *Institutional Self-Study Service* questionnaires indicated that all groups scored consistently higher on the vocational goal area. Since the two largest samplings of students came from vocationally oriented institutions—a state teachers' college and a state university which was until recently a predominantly engineering and agricultural institution—possibly the expectations of students applying to these institutions might already have been influenced. The same pattern of results for the *Institutional Self-Study Service* college goals scales suggests that the institution effect does not alter the students' basic goal orientations.

The investigation produced results which generally support the theory of choice irreversibility. As might be expected, the evidence tends to be stronger for choice of vocation than for choice of college major. Differences in the two financial need groups were quite apparent, the *Financial Aid Group* appearing more similar to the *Nonapplicant Group* than to the *Unmet Need Group.* The lowest change frequencies in the "Crystalized Choice" to "Exploration Choice" categories support the theoretical contention of choice process irreversibility. However, this same category contained higher percentages of responses for the financial need groups than for the group without financial need. Where the normal process involves going from general to specific, these groups have a higher frequency of change from specific to general. This seems to be the type of situation that is described in the Ginzberg theory as pseudocrystalization. It would be interesting to know if this type of change decision is more difficult to make than the change from general to specific. Are these the people who seek vocational counseling?

The investigation of extracurricular participation did not support the theoretical expectation that individuals with financial need participate less than those without need. Though the results were not statistically significant, the trend was actually in the direction opposite to that predicted. It is possible that the sample group as a whole are more active participants than those who did not return the questionnaire. If so, these results may simply be reflecting a sampling bias. On the other hand, the institutions representing individuals with the same kind of college goal orientation may be adequately meeting the needs of individuals through the available extracurricular offerings. At any rate, the evidence here indicated that the

element of financial need did not influence participation in extracurricular activities.

Results of the investigation regarding students' perceptions and attitudes toward the institution failed to support the theoretical statement that the financial need groups would express poorer attitudes than the group without financial need. Again, the types of attitudes expressed might well be related to the probability for completing and returning the research questionnaire; or it may mean that the institutions are meeting the needs of the students in a uniform way, thus influencing this kind of consistent attitude response.

Since the results suggest a type of consistency for the college goal scores and for the extracurricular participation and perceptual attitude score, an ad hoc investigation was made of the interrelationships among these variables. These results are given in an intercorrelation matrix in Appendix D. Since data were missing for two of the individuals in the sample, these results are based on the remaining 289.

In summary, these results are more descriptive than explanatory. The research evidence supports the first two theoretical issues, but not the last two. As a result, the differences in early crystalization appeared to be more a variation than deviation in the vocational choice process for the individuals with financial need. The patterns of performance for males and females were generally very similar. A notable exception occurred in the analysis of change of college major where frequencies of response in the two change categories produced marked differences between the sexes.

APPENDIXES

APPENDIX A

JUDGES' RATINGS OF EDUCATIONAL AND VOCATIONAL OBJECTIVES*

CRYSTALIZED CHOICE AREAS	EXPLORATION CHOICE AREAS
EDUCATIONAL FIELDS	
Counseling and Guidance	Education, Other Specialties
Education Administration	
Elementary Education*	
Physical Education	
Secondary Education*	
Special Education	
SOCIAL SCIENCE AND RELIGIOUS FIELDS	
Home Economics	History
Library and Archival Science	Psychology
Social Work	Sociology*
	Theology and Religion*
	Social Science—
	Area Studies
	American Civilization
	American Studies
BUSINESS, POLITICAL, AND PERSUASIVE FIELDS	
Accounting	Business Administration— (4 years)*
Advertising*	Business and Commerce— (2 years)*
Data Processing*	Economics
Finance*	Political Science, Government, or Public Administration*
Industrial Relations	
Law	
Merchandising and Sales*	
Military*	
Foreign Services	
International Relations*	
Public Relations	
Secretarial Science	

*All areas obtained unanimous interjudge agreement except those marked with an asterisk. These were categorized on the criterion of agreement by two of the three judges.

CRYSTALIZED CHOICE AREAS	EXPLORATION CHOICE AREAS
SCIENTIFIC FIELDS	
	Anatomy* Anthropology Archaeology Astronomy* Biology or Genetics Botany Chemistry Geography Geology or Geophysics Mathematics or Statistics* Meteorology* Oceanography* Physics Physiology* Zoology or Entomology*
AGRICULTURE AND FORESTRY	
Fish and Game Management Forestry Soil Conservation	Agriculture*
HEALTH FIELDS	
Dental Hygiene Dentistry Dietetics Medicine* Medical Technology Mortuary Science Nursing Occupational Therapy Optometry Osteopathy Pharmacy Physical Therapy Veterinary Medicine X-Ray Technology	
ARTS AND HUMANITIES	
Architecture Creative Writing* Journalism Radio-TV-Communications	Arts and Sculpture* Drama and Theater* English and English Literature Foreign Language and Literature Music* Philosophy Speech General Education or Liberal Arts (2 years) Other Arts and Humanities

CRYSTALIZED CHOICE AREAS	EXPLORATION CHOICE AREAS
ENGINEERING	
Aeronautical	Other
Agricultural	
Architectural	
Automotive	
Chemical or Nuclear	
Civil	
Electrical or Electronic	
Industrial	
Mechanical	
TRADE, INDUSTRIAL, AND TECHNICAL	
Aviation*	Other Trade
Construction*	
Drafting	
Electricity and Electronics	
Industrial Arts*	
Metal and Machine*	
Mechanical*	
OTHER	
Housewife	Not Included

APPENDIX B

ACT (The American College Testing Program 1970b) reported an intercorrelation matrix for college goal scores based on a sample of 15,000 *Institutional Self-Study Service* records.

	1	*2*	*3*	*4*
1	—			
2	01	—		
3	24	30	—	
4	32	22	49	—

1. Academic Goals
2. Vocational Goals
3. Social Goals
4. Nonconvential Goals

APPENDIX C

ACT (The American College Testing Program, 1970b) reported an intercorrelation matrix for the extracurricular accomplishments scales based on a sample of 15,000 *Insitutional Self-Study Service* records.

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1	–									
2	12	–								
3	13	29	–							
4	10	14	23	–						
5	13	14	18	13	–					
6	10	20	32	21	25	–				
7	12	22	32	43	13	26	–			
8	12	18	23	42	15	20	38	–		
9	10	30	45	17	14	27	34	26	–	
10	08	10	15	17	23	20	15	28	15	–

1. Scientific Accomplishments
2. Artistic Accomplishments
3. Writing Accomplishments
z. Leadership Accomplishments
5. Music Accomplishments
6. Speech and Drama Accomplishments
7. Social Participation Accomplishments
8. Social Service Accomplishments
9. Humanistic-Cultural Accomplishments
10. Religious Service Accomplishments

APPENDIX D

Intercorrelation matrix for the *Institutional Self-Study Service* institutional attitude scores, extracurricular participation scores, and *Institutional Self-Study Service* and *Student Profile Section* college goal scores based on 289 students from the research sample.

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1	–									
2	07	–								
3	16	25	–							
4	13	-09	02	–						
5	19	24	25	10	–					
6	12	19	37	07	49	–				
7	15	13	31	-002	18	22	–			
8	13	-05	-01	32	09	09	23	–		
9	12	12	21	04	32	25	36	23	–	
10	03	07	25	10	28	35	34	24	54	–

1. Extracurricular Participation
2. Institutional Perception (Attitude)
3. *Institutional Self-Study Service* Academic Goal
4. *Institutional Self-Study Service* Vocational Goal
5. *Institutional Self-Study Service* Social Goal
6. *Institutional Self-Study Service* Nonconventional Goal
7. *Student Profile Section* Academic Goal
8. *Student Profile Section* Vocational Goal
9. *Student Profile Section* Social Goal
10. *Student Profile Section* Nonconventional Goal

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