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ABSTRACT

Previous research dealing with educational and vocational choices of college students has resulted in contradictory theories about why some students remain undecided. To determine if self-reported personality characteristics, when studied in conjunction with tested characteristics, increased the ability to discriminate between academic populations, 50 university sophomores who had declared a major were compared with 50 undecided sophomores. The declared sophomore was identified as more venturesome, conservative, self-assured and intelligent; their self-ratings indicated more sober, self-sufficient, intelligent, venturesome and practical tendencies. Undeclared students appeared to be more timid, experimenting, and less intelligent; their self-ratings yielded responses of being happy-go-lucky, less intelligent, timid, imaginative, and tense. The findings suggest that the general theme of the student profiles indicates that undeclared students have less positive feelings about themselves. (Author/JAC)

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Using the 16 PF and a Personality Self-Rating Instrument to Assess Differences between Declared and Undeclared University Sophomores

Historically, the topic of "educational-vocational choice" among students in higher education has received a great deal of attention in counseling and student personnel literature. Various philosophical, demographic, and psychological reports have been proffered to help clear-the-air on the questions, "why are some students undecided?" and "on what dimensions do decided and undecided students really differ?" (Appel, et al., 1970; Baird, 1969; Bonar & Mahler, 1976; City College of San Francisco, 1975; Galinsky & Fast, 1966; Hoffman & Rollin, 1972; Maxey, et al., 1976). A cursory review of the literature reveals that the air is, in fact, not clear, and is instead full of contradictory positions. Traditional points of view often suggest that the student's declaration of an educational-vocational goal is a welcomed sign of maturity and a statement of personal identity (Berger, 1967; Holland, 1959; Super, 1957; Tucci, 1963). Some factions in the discussion even argue that early commitment to a specific educational-vocational goal may be undesirable because, among other reasons, such commitment may have the negative influence of limiting the student's acquisition of worldy knowledge in favor of specialization (Chervenik, 1965; Cattell & Sharp, 1970; Ramsey, 1973). Dole's (1973) advice for students is to "play the field" much as in their relations with the opposite sex, stating that an "early engagement" to an educational or occupational specialty may be undesirable and personally limiting.

The purpose of this study was to determine if a composite profile could be formed of the declared and undeclared student by assessing the students' global personality from an inventoried assessment prospective in conjunction with self-ratings of personality. Previous attempts to discriminate between declared and

undeclared students have yielded abundant, yet generally equivocal findings. Harman (1973) found no personality differences between declared and undeclared females, but noted that males scored lower on various dimensions of the Omnibus Personality Inventory. His conclusion was that undeclared males may have less positive feelings about themselves than do their female counterparts in the same relative situation. Wigent (1974) found a significant relationship between the problem of career decision making and student self-concept. Baird (1969) investigated close to 60,000 college-bound students with the American College Test. He found that although there were no significant differences recorded on ACT Composite scores, undeclared students more frequently indicated their goal in attending college was to develop their minds and intellectual abilities and less frequently stated their goal as vocational or professional training. His conclusion was that undeclared students differ little from declared students and there is no evidence to support the notion that undeclared students are abnormal or maladjusted.

A study by Ashby, et al. (1966) noted that entering freshmen tend to score significantly higher on the dependence scale of the Bernreuter Personality Inventory, but that no distinction between declared and undeclared students could be made on the basis of examination of the interest scales of the Strong Vocational Interest Blank. Kafka (1975) administered the Cattell Sixteen Personality Factor Questionnaire to declared and undeclared freshmen and found that by utilizing a univariate t-test on each scale, three scales emerged as significant personality discriminators for the total sample studied: the declared student sample was shown to be more outgoing, conscientious, and controlled. Other scales suggested moderate trends, but did not approach significance. Bohn (1971) examined students in various majors as well as undecided students using the Adjective Check List as one research instrument.

Of most notable interest, law majors were found to score high on self-confidence, dominance, and exhibitionism, and low on abasement and deference. The undecided sample profile was shown to be the opposite on each of these dimensions.

Another focus of this present study was to introduce student self-assessment of personality into the analysis to determine the degree to which these assessments contribute to the understanding of the personality of declared and undeclared students. Chapman (1976) asserts that the way we perceive ourselves, whether it be self-confident, insecure, flexible, relaxed, conservative, etc., plays a role in our selection of a career direction. He asks his readers to project and evaluate the kind of personality they may have in three or five years when they are ready to enter the professional marketplace.

Much has been written on the pros and cons of trusting an individual's self-estimate of personality to be consistent with what is true for the individual. On the favorable side, Rogers (1951) feels the individual is the only one who has the potentiality for total self-knowledge. By 1953, skeptics such as Russell had noted that self-rating scales clearly established adequate test-retest reliability, but either they have little validity or individuals have no ability to evaluate their own personality development. Marshall (1980) compared the 16 PF with a self-rating instrument on the same semantically defined scales. His conclusion came in the form of a strong caution that counselors should not use self-ratings as substitutes for inventory scales in the counseling process. On the other hand, Taylor, et al. (1972) found that "example-anchored" scales for self-reporting offered a feasible alternative to selected multi-item scales on the Minnesota Multiphasic Personality Inventory. He found that for some applications, the 15-minutes-to-administer self-rating scale was as informative as the 100+ minutes-to-administer MMPI. Although findings on this topic are conflicting, it was the purpose of this study to

utilize direct self-reported data in conjunction with inventoried data. It was felt that involvement in the arguments either supporting or admonishing users of self-ratings would not be productive. The issue at hand in this study was to evaluate the discriminating power of inventoried and direct self-rated personality data, irrespective of the relative intra-individual accuracy of the self-rating scales.

Methods and Procedures

Participants. In this study comparing declared and undeclared university students using inventoried and self-rated personality scores, the sophomore class at a large university in the Rocky Mountain region was investigated. The decision to utilize a sample of sophomore students was twofold: 1) university freshmen have previously received the major focus of attention with research in this area (Baird, 1969; Bohn, 1971; Harris & Foote, 1973; Kafka, 1975; Sugarman, 1967), and 2) the pressure for declaration of a major has been documented to increase with the length of time the undecided student invests in a university education (Benjamin, 1975; Berger, 1974; Chapman, 1974). It was felt that the relative newness of this population to this type of study, along with the additional personal pressures experienced as a result of their indecisiveness would give valuable clarity to the issue of distinguishing between declared and undeclared students on the basis of the personality variables under investigation.

Fifty (50) students who had officially declared a major course of study were selected from the university sophomore population by random sampling. The resulting declared sample was representative of the larger sophomore population with regard to membership in the various schools and colleges within the university. The fifty (50) student undeclared sample was randomly selected

from a university provided list of undeclared sophomore students. The resulting study participants were individually contacted by telephone whereby arrangements were made to administer the research instruments in their homes.

Instruments used in the study. Form A of the Cattell 16 PF was selected for collection of the inventoried personality data. This instrument was particularly appealing due to its relative shortness and ease of administration, and because its results are reported in a bipolar format that was suitable for adaptation to a self-rating instrument.

A self-rating of personality instrument was developed by modifying the standard 16 PF Profile Sheet. The resulting instrument offered the study participants the opportunity to directly self-assess their personality on the sixteen dimensions inventoried on the 16 PF. Scores on the self-rating instrument were derived by working inversely through the appropriate norm table. The student-provided STEN equivalent for each self-rating scale was applied to the norm table to acquire the derived raw score equivalent for use in the statistical analysis.

Prior to utilization of the self-rating instrument for this study, it was subjected to a check to ascertain if it would produce consistent data on test-retest trials. To this end, it was administered twice at a 3-day interval to 39 undergraduate Psychology students, yielding test-retest reliability coefficients of from +.39 on the Lax vs. Controlled scale to a high of +.83 on the Group-dependent vs. Self-sufficient scale, with a mean reliability coefficient of +.69. Validity of the instrument was not statistically scrutinized in advance of the study, but was evaluated by seventeen Ph.D.-level professionals who judged the self-rating scales on their apparent relatedness to Cattell's stated intent for each 16 PF scale (IPAT, 1972).

Analysis of the data. Raw scores on the 16 PF and derived scores on the self-rating instrument for both declared and undeclared sophomores were analyzed

by discriminant function analysis. The minimum Wilks' lambda for stepwise inclusion was selected for its ability to consider the presenting variables and prioritize them in order of their ability to discriminate between the groups under consideration. After the most discriminating variable is entered into the analysis, additional variables from the remaining variable list are subjected to a minimum tolerance level test and then included with the previous variable(s) if their inclusion enhances the power to discriminate between groups. Variables which do not contribute to the between groups discrimination are not entered into the analysis.

The analysis revealed that fourteen (14) inclusionary steps were performed after consideration of the 32 variables presented (16 PF scales, plus 16 self-rating scales). Table 1 presents the order of variable inclusion and the remaining list of variables that did not meet the tolerance test for inclusion. The resulting discriminant analysis yielded a Chi-squared value of 35.06 (df = 14), which is significant at the .001 level. Based on the results of the stepwise procedure, a discriminant classification results table was derived to demonstrate the ability to reclassify the known subjects into their respective groups on the basis of the analysis alone. Table 2 indicates that 74% of the declared sample and 80% of the undeclared sample was correctly classified into the proper group as a result of the discriminant analysis.

To evaluate the discriminatory power of each personality instrument for this sample, raw scores on the 16 PF and derived scores on the self-rating instrument were individually analyzed using the stepwise discriminant function analysis. Table 3 (Appendix) indicates that eight (8) inclusionary steps were performed to maximally discriminate between the two sample groups on data derived from the 16 PF. The discriminant classification results (Table 4, Appendix) reveals that the analysis of 16 PF inventoried scores could predict

Table 1

Minimum Wilks' Stepwise Discriminant Function Analysis between Declared (n=50) and Undeclared (n=50) University Sophomores on Tested and Perceived Personality Factors

Source[a]	Scale	Entered at Step	Discriminant Function Coefficients	Multivariate Wilks' Lambda
T	Shy/Venturesome	1	-.588	.965
P	Sober/Happy-go-lucky	2	.902	.932
T	Conservative/Experimenting	3	.656	.880
P	Group/Self-sufficient	4	-.540	.884
T	Expedient/Rule-bound	5	.567	.819
P	Concrete/Abstract Thinker	6	.333	.796
P	Less/More Stable	7	-.224	.775
T	Trusting/Suspicious	8	-.719	.752
P	Shy/Venturesome	9	.435	.737
T	Self-assured/Apprehensive	10	.233	.721
P	Reserved/Outgoing	11	-.353	.708
P	Practical/Imaginative	12	.270	.697
P	Relaxed/Tense	13	.264	.689
T	Concrete/Abstract Thinker	14	-.215	.680
P	Conservative/Experimenting	*		
T	Practical/Imaginative	*		
T	Less/More Stable	*		
T	Relaxed/Tense	*		
T	Sober/Happy-go-lucky	*		
P	Lax/Controlled	*		
T	Group/Self-sufficient	*		
P	Tough-/Tender-minded	*		
T	Tough-/Tender-minded	*		
P	Straightforward/Shrewd	*		
T	Humble/Assertive	*		
P	Trusting/Suspicious	*		
T	Reserved/Outgoing	*		
P	Humble/Assertive	*		
T	Straightforward/Shrewd	*		
P	Expedient/Rule-bound	*		
P	Self-assured/Apprehensive	*		
T	Lax/Controlled	*		

Canonical Discriminant Function Summary Table

Canonical Correlation	Multivariate Wilks' Lambda	df	Chi-Squared
.565	.680	14	35.06[b]

*F-level or tolerance insufficient for minimum Wilks' stepwise inclusion. Inclusion would not enhance between groups discrimination. Ordered by descending multivariate F.

[a]T=tested scale; P=perceived scale [b]$p = .001$

Table 2

Discriminant Classification Results: Blind Classification of Subjects into Groups on Tested and Perceived Personality Factors Identified by Minimum Wilks' Stepwise Procedure

	Predicted Group Membership[a]	
Actual Group	Declared	Undeclared
Declared n=50	n=37 74%	n=13 26%
Undeclared n=50	n=10 20%	n=40 80%

[a]Percent of grouped cases correctly classified = 77%

accurate group membership for 58% of the declared sample and 70% of the undeclared sample. Table 5 (Appendix) shows the identical statistical operation performed on the self-rating instrument, where only five (5) scales contributed to the discrimination between the two groups. The discriminant classification results (Table 6, Appendix) was able to classify 66% of the declared sample and 60% of the undeclared sample into their respective groups based on the self-rating data alone.

Discussion

It was apparent that discriminant analysis employing both inventoried personality scores as well as self-rated scores yielded a considerably sharper image of the differences between declared and undeclared sophomores than did either inventoried or self-rated scales alone. The univariate data (Tables 7 and 8, Appendix) and resulting discriminant function coefficients (Table 1) were utilized to assemble the resulting personality profiles of the two groups under investigation: the declared sophomore was inventoried to be more venturesome, conservative, expedient, suspicious, self-assured, and intelligent while maintaining a self-rating of being more sober, self-sufficient, intelligent, emotionally stable, venturesome, outgoing, practical, and relaxed. The undeclared sample tested to be more timid, experimenting, conscientious, trusting, apprehensive, and less intelligent while concurrently self-rating themselves to be more happy-go-lucky, group-dependent, less intelligent, less emotionally stable, more timid, reserved, imaginative, and tense.

These findings contradict those of Kafka (1975) who found that declared and undeclared students differed significantly on only three 16 PF scales. His study revealed the declared student to be more outgoing, conscientious, and controlled. In this present study, the declared student was found to be

more expedient rather than conscientious, and the two additional scales cited by Kafka were registered below the minimum tolerance level for inclusion into the analysis. There was, however, agreement with Bohn (1971) who found that in contrast to students who had selected majors in specific areas, his undeclared sample tested to be lacking in self-confidence. Findings also tend to support those cited by Harman (1973) who found some undeclared students to feel "less positive about self." Although discriminant analysis provided a lengthy multivariate list of inventoried and self-rated personality factors that contributed to the discrimination between groups, the general theme of the derived profiles indicated the undeclared student to have less positive feelings about self.

It was particularly interesting to note that while the self-rating scale was least able to discriminate between declared and undeclared students on its own merits (Table 5, Appendix), when viewed in conjunction with the inventoried scales, it contributed eight (8) of the fourteen (14) scales to the Wilks' stepwise inclusion procedure. This finding suggested that while there are cautions to be observed (Marshall, 1980) regarding the validity of self-ratings when compared to inventoried scales, it was apparent that self-ratings did contribute to our understanding of the differences between declared and undeclared students (see correlation matrix, Table 9, Appendix). Among other ratings, the undeclared group rated themselves as less intelligent, less stable, and more tense than did the declared students. One could well imagine the reality of these feelings if the pressure to declare a major was increasing in intensity in the absence of internal commitment.

The original query of whether or not a composite profile could be formed that differentiates between declared and undeclared sophomores must receive an affirmative response. Although statistically different in some respects, the

statement by Baird (1969) suggesting there is no evidence that undeclared students are abnormal or maladjusted, must be supported.

If any proactive counseling approach could be recommended in light of these findings, it would be for small group counseling for undeclared students to enhance self-concept, foster independent thinking, and focus on inventoried timidity and perceived tenseness. It would be hoped, however, that such an activity would not be construed by undeclared students as an additional message for them to "hurry up and declare a major!"

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APPENDIX

RELATED TABULAR DATA

Table 3

Minimum Wilks' Stepwise Discriminant Function Analysis between Declared (n=50) and Undeclared (n=50) University Sophomores on Sixteen Tested Personality Factors (16 PF)

Scale (tested factors)	Entered at Step	Discriminant Function Coefficients	Multivariate Wilks' Lambda
Shy/Venturesome	1	.572	.965
Conservative/Experimenting	2	-.756	.938
Humble/Assertive	3	.074	.911
Sober/Happy-go-lucky	4	-.702	.880
Expedient/Rule-bound	5	-.409	.864
Trusting/Suspicious	6	.727	.845
Self-assured/Apprehensive	7	-.487	.817
Practical/Imaginative	8	.299	.805
Lax/Controlled	*		
Group/Self-sufficient	*		
Less/More Stable	*		
Relaxed/Tense	*		
Concrete/Abstract Thinker	*		
Straightforward/Shrewd	*		
Reserved/Outgoing	*		
Tough-/Tender-minded	*		

Canonical Discriminant Function Summary Table

Canonical Correlation	Multivariate Wilks' Lambda	df	Chi-Squared
.441	.805	8	20.38

*F-level or tolerance insufficient for minimum Wilks' stepwise inclusion. Inclusion would not enhance between groups discrimination.

Table 4

Discriminant Classification Results: Blind Classification of Subjects into Groups on Tested Personality Factors Identified by Minimum Wilks' Stepwise Procedure

	Predicted Group Membership[a]	
Actual Group	Declared	Undeclared
Declared n=50	n=29 58%	n=21 42%
Undeclared n=50	n=15 30%	n=35 70%

[a]Percent of grouped cases correctly classified = 64%

Table 5

Minimum Wilks' Stepwise Discriminant Function Analysis between Declared (n=50) and Undeclared (n=50) University Sophomores on Sixteen Perceived Personality Factors

Scale (perceived factors)	Entered at Step	Discriminant Function Coefficients	Mulitvariate Wilks' Lambda
Tough-/Tender-minded	1	-.507	.973
Reserved/Outgoing	2	.862	.943
Group/Self-sufficient	3	.629	.925
Sober/happy-go-lucky	4	-.685	.906
Concrete/Abstract Thinker	5	-.376	.895
Straightforward/Shrewd	*		
Less/More Stable	*		
Shy/Venturesome	*		
Expedient/Rule-bound	*		
Relaxed/Tense	*		
Practical/Imaginative	*		
Trusting/Suspicious	*		
Self-assured/Apprehensive	*		
Lax/Controlled	*		
Humble/Assertive	*		
Conservative/Experimenting	*		

Canonical Discriminant Function Summary Table

Canonical Correlation	Multivariate Wilks' Lambda	df	Chi-Squared
.324	.895	5	10.59

*F-level or tolerance insufficient for minimum Wilks' stepwise inclusion. Inclusion would not enhance between groups discrimination.

Table 6

Discriminant Classification Results: Blind Classification of Subjects into Groups on Perceived Personality Factors Identified by Minimum Wilks' Stepwise Procedure

	Predicted Group Membership[a]	
Actual Group	Declared	Undeclared
Declared n=50	n=33 66%	n=17 34%
Undeclared n=50	n=20 40%	n=30 60%

[a]Percent of grouped cases correctly classified = 63%

Table 7

Scale-by-Scale Univariate Statistics between Declared and Undeclared University Sophomore Sample on the Sixteen Personality Factor Questionnaire (16 PF)

Factor	Scale	n=50 Declared Sophomores	n=50 Undeclared Sophomores	Univariate Wilks' Lambda	Univariate F-Ratio
A	Reserved vs Outgoing	10.26[a] 3.40[b]	9.68 2.62	.990	0.91[c]
B	Concrete vs Abstract Thinking	8.76 2.00	8.54 2.28	.997	0.26
C	Less vs More Emotional Stability	16.72 3.55	16.26 3.66	.995	0.41
E	Humble vs Assertive	13.54 4.53	12.24 4.10	.977	2.61
F	Sober vs Happy-go-lucky	17.46 4.50	17.38 4.00	.999	0.01
G	Expedient vs Rule-bound	11.88 3.35	12.64 2.73	.984	1.54
H	Shy vs Venturesome	15.72 5.29	13.52 6.33	.965	3.55
I	Tough- vs Tender-minded	12.60 3.48	12.72 3.41	.999	0.03
L	Trusting vs Suspicious	8.86 3.58	7.90 3.52	.981	1.82
M	Practical vs Imaginative	13.10 3.34	12.78 3.07	.997	0.24
N	Straightforward vs Shrewd	8.48 2.62	8.74 2.95	.998	0.18
O	Self-assured vs Apprehensive	9.76 3.77	11.04 3.20	.966	3.34
Q1	Conservative vs Experimenting	7.52 2.78	8.52 3.39	.974	2.59
Q2	Group-dependent vs Self-sufficient	9.80 3.06	9.98 3.13	.999	0.08
Q3	Lax vs Controlled	12.50 3.24	12.28 3.11	.998	0.12
Q4	Relaxed vs Tense	12.46 4.87	13.42 4.61	.989	1.02

[a] sample mean

[b] sample standard deviation

[c] F-Ratio needed for significance at .05 (df = 1, 98) = 3.94

Table 8

Scale-by-Scale Univariate Statistics between Declared and Undeclared University Sophomore Sample on Sixteen Self-Perceived Personality Factors

Factor	Self-Perception Scales	n=50 Declared Sophomores	n=50 Undeclared Sophomores	Univariate Wilks' Lambda	Univariate F-Ratio
A (p)	Reserved vs Outgoing	13.91[a] 2.42[b]	11.20 3.05	.983	1.65[c]
B (p)	Concrete vs Abstract Thinking	10.28 1.51	10.24 1.24	.999	0.02
C (p)	Less vs More Emotional Stability	18.84 2.72	17.85 3.55	.975	2.45
E (p)	Humble vs Assertive	14.74 4.34	13.50 4.83	.981	1.82
F (p)	Sober vs Happy-go-lucky	18.59 3.95	19.24 4.20	.993	0.63
G (p)	Expedient vs Rule-bound	15.09 3.44	15.39 3.00	.997	0.21
H (p)	Shy vs Venturesome	16.02 5.84	15.62 5.69	.998	0.12
I (p)	Tough- vs Tender-minded	11.50 3.03	12.57 3.51	.973	2.66
L (p)	Trusting vs Suspicious	5.79 2.86	6.11 2.92	.996	0.30
M (p)	Practical vs Imaginative	10.75 3.08	10.88 3.33	.999	0.04
N (p)	Straightforward vs Shrewd	8.77 2.65	8.13 2.52	.984	1.52
O (p)	Self-assured vs Apprehensive	8.56 3.35	9.41 3.92	.986	1.35
Q1(p)	Conservative vs Experimenting	9.18 3.93	8.96 3.99	.999	0.07
Q2(p)	Group-dependent vs Self-sufficient	12.63 3.66	11.53 3.54	.976	2.33
Q3(p)	Lax vs Controlled	11.92 2.69	11.81 3.01	.999	0.04
Q4(p)	Relaxed vs Tense	11.62 5.81	12.55 5.39	.993	0.69

[a] sample mean

[b] sample standard deviation

[c] F-Ratio needed for significance at .05 (df = 1, 98) = 3.94

Table 9

Pearson Product-Moment Correlations[a] of Tested 16 PF Personality Factors with Perceived Personality Factors for Declared (n=50) and Undeclared (n=50) University Sophomores

Perceived Personality Factors	Tested Personality Factors: A RES	B CONC	C STAB	E HUMB	F SOBR	G RULE	H SHY	I TUF	L TRST	M PRAC	N SFWD	O CONF	Q1 CONS	Q2 GRP	Q3 LAX	Q4 REX
RESP[b]	10	01	07	-18	23	-09	49*	08	-09	-26	-12	-15	-25	-61*	-13	-09
A(p)	38*[c]	-13	04	01	30	26	54*	21	-05	-30	11	-29	-12	-33*	20	-16
CONCP	-03	17	27	27	07	-18	01	08	-02	28	-09	-06	27	08	-06	-10
B(p)	-13	28	-07	31	-01	-11	18	-08	-01	09	09	-17	15	-07	04	-14
STABP	-01	-14	41*	-22	-01	-16	14	-19	-24	-25	02	-19	-14	-39*	-08	-36*
C(p)	19	-01	10	01	03	14	24	-05	-09	-08	07	-30	17	-30	38*	-36*
HUMBP	09	04	07	42*	32	-12	31	03	39*	-03	-08	-21	18	-20	-30	09
E(p)	-09	-18	-22	56*	31	13	44*	-37*	35*	-30	-06	-20	38*	-04	01	-01
SOBRP	00	-23	08	-33*	37*	-19	33*	-09	-09	-35*	-08	-20	-37*	-39*	-16	-24
F(p)	42*	07	12	13	65*	-11	57*	25	07	-14	-14	-09	-20	-37*	-07	-01
RULEP	35*	01	18	-11	-06	43*	-05	18	-24	09	32	-16	-18	-19	31	02
G(p)	00	07	-29	-08	-28	19	-05	06	-05	05	06	09	-04	08	13	14
SHYP	21	-18	14	20	32	-03	50*	-01	16	01	-01	-29	-12	-48*	-23	-09
H(p)	18	-16	-27	57*	50*	07	66*	-12	40*	-24	-16	-19	18	-23	-19	-13
TUFP	00	-06	-09	-20	-09	-04	-13	26	-16	-03	-06	07	-22	05	01	-12
I(p)	31	-03	23	-07	16	17	22	21	-07	-05	11	-01	-31	-08	06	06
TRSTP	-11	-11	-26	26	-06	-15	-02	03	31	-05	-19	14	31	28	-23	12
L(p)	-34*	07	-11	28	-07	-14	-11	-35*	32	09	-38*	01	35*	38*	-03	12
PRACP	-02	01	08	16	19	-30	20	24	14	14	-13	-14	13	01	-27	-04
M(p)	-05	21	-06	26	28	-21	-09	04	25	04	-15	26	-07	19	-35*	25
SFWDP	23	-18	-15	18	13	12	31	14	25	12	26	00	16	-25	-17	29
N(p)	22	01	21	-11	38*	-02	39*	00	-11	11	-16	-30	-20	-21	13	-10
CONFP	09	-01	-38*	06	-14	13	-18	23	20	02	-07	30	13	30	13	39*
O(p)	-25	33*	03	-13	-20	-21	-38*	11	-12	14	-05	34*	-24	41*	19	30
CONSP	-16	-01	05	03	13	01	04	23	-04	26	13	-07	13	-02	-24	00
Q1(p)	-11	-06	10	24	11	-09	14	-07	06	12	-43*	-04	16	-06	02	-25
GRPP	-10	07	10	23	14	-08	10	-08	04	13	-11	-14	09	06	-20	00
Q2(p)	-14	07	-07	32	-03	-04	08	-27	13	01	-17	-10	33*	04	-03	03
LAXP	17	-06	-15	22	13	09	05	04	14	-10	17	-27	-03	-06	13	-16
Q3(p)	-07	13	02	-25	-18	23	16	-12	-06	-01	00	-31	08	00	44*	-21
REXP	09	-03	-34*	43*	-17	-11	08	18	51*	21	02	28	49*	27	-20	56*
Q4(p)	-09	12	-30	28	12	-04	-04	09	26	14	05	21	-01	10	-18	39*

[a]Decimal points have been omitted

[b]Declared sophomore sample

[c]Undeclared sophomore sample

*$p \leq .01$