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THE STUDENT GOALS EXPLORATION: RELIABILITY AND CONCURRENT VALIDITY

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This paper reports the reliability and concurrent validity of the Student Goals Exploration, a paper and pencil inventory that measures goals students bring to college and college courses. Reliabilities demonstrating internal consistency and correlations demonstrating concurrent validity with three existing scales (LOGO II, the Need for Cognition Scale, and the Goal Instability Scale) suggest that the SGE provides good indicators for (a) general college goals, (b) general academic orientations toward courses, (c) subject-specific goals in courses, (d) specific goal attributes, and (e) levels of student confidence in course success.

COLLEGE students enroll in courses with a variety of course-specific goals that influence how they learn. Understanding these goals and closely related attitudes is important not only for fostering student motivation and assessing educational achievement, but also for identifying how goals change over time. Yet, valid and reliable measures of course-related goals have been hard to find (Stark, Shaw, and Lowther, 1989).

The Student Goals Exploration (SGE), a paper and pencil inventory, identifies course-specific goals that college students bring to

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the classroom. Most goal items in the SGE are answered on a four-point scale ranging from 1=not at all important to 4=essential. Related attitudinal items are answered from 1=not at all like me to 4=very much like me.

The SGE scales, derived by factor-analysis and retention of high-loading items in several pilot studies, include general college goals (3 scales), general academic orientations toward a course (15 scales), specific goal attributes (5 scales), and levels of confidence in course success (2 scales). The SGE also includes subject-specific goal scales that discriminate among students majoring in English, history, sociology, psychology, biology, mathematics, fine arts, Romance languages, and business. To a lesser extent, SGE subject-specific scales also discriminate among students taking introductory courses in the nine fields.

Instrument Development

A preliminary 200-item pool of intellectual, vocational, personal, and social goals was developed by reviewing faculty course goal statements, student interviews, and relevant items on existing instruments. In Fall 1988, two parallel surveys (SGE, Versions A-1 and A-2) were pilot-tested in introductory courses at three geographically diverse colleges with moderately large student enrollments. Based on distributions of responses, a revised instrument (Version B) was pilot-tested with the same pool of students later that fall. In Winter 1989, a parallel instrument (Version M) was distributed to upper-class students at two of the same four-year colleges to assess the instrument's ability to discriminate among the goals of students in various majors. It was assumed and verified, that major students would endorse even more strongly those goals typical of students in introductory courses in each field. The SGE (Version C), reported in this article, was constructed in Summer 1989 based on these earlier trials.

The SGE (Version C) consists of item statements exploring four categories of goals, each including several subscales as summarized in Table 1. For the College Goal scales, representing three broad reasons for attending college respectively, typical items are "To be able to have a successful career" (Prepare for Career and Graduate School), "To become a more cultured person" (Acquire General Education), and "To provide something to do" (Non-directed). Items on the 15 General Academic Orientation Scales range from those that have face validity in a specific discipline such as "To understand scientific principles and concepts" (Develop Scientific

Inquiry Skills), to those that could apply to diverse disciplines such as "To understand the complexity of the world" (Understand the World Around Me) and "To listen effectively to what others are saying" (Develop Human Relations Skills). Among the five scales measuring goal attributes, a distinction is made between two scales assessing different time frames for student goals such as "In this course, setting long-range goals is important" (Long-range time frame) and "I prefer to set short-range goals so that I can get a sense of satisfaction and achievement" (Short-range time frame). A second distinction in this set is based on the source of a student's goals such as "I should complete what is expected of a person of my capability" (Goal source: Expectations of others), and "I believe I should set my own goals rather than accept someone else's goals for me" (Goal source: Self). The final scale in this set, Goal Clarity, is represented by such items as "I learn best if I see a direct relation between my assignments and my long range goals." The last set of scales, representing levels of confidence, may portray a Self-confident Scholar who endorses statements such as "I'm certain that my own ability will result in my being successful" and "When I study at topic, I try to make everything fit together." Or, high scorers on a second scale, entitled Anxious Student, characteristically endorse items such as "When I take tests I think of the consequences of failing" and "I often find that I read assignments but don't know what they are all about."

Subjects

In Fall 1989, the SGE (Version C) was completed voluntarily out-of-class by students (N = 1,182) enrolled in ten selected types of introductory courses at 6 diverse doctoral and comprehensive universities. The respondents included 38.1% males and 61.9% females, slightly biased toward women respondents. The average age was 19.1 (SD 3.7). The ethnic distribution was 81.4% white, 6.6% Black (non-Hispanic), 6.6% Hispanic, and 5.4% other. Fifty-one percent of the students were freshmen, 29.1% were sophomores, and 17.3% were either juniors or seniors. Responding students were about evenly distributed among the 10 types of courses.

Measurements

To assess concurrent validity, half of the 1,182 students completing the SGE (N = 553) also completed LOGO II, a survey that

assesses students' motivation for grades and learning (Eison, 1981). LOGO II consists of four scales derived from 32 items: two scales (8 items each) assess high "learning-oriented (LO)" attitudes or behavior, respectively; and two scales (8 items each) assess high "grade-oriented (GO)" attitudes or behavior.

The other half of the sample ($N = 557$) completed both the Need for Cognition (NFC) scale and the Goal Instability (GI) scale in addition to the SGE. The short form of the NFC (18 items) was developed by Cacioppo, Petty and Kao (1984) to measure individuals' inclination to engage in and enjoy thinking. The NFC instrument produces two polar opposite scales: one measuring low need for cognition, the other high need for cognition. The Goal Instability (GI) scale is an internally consistent set of 10 items tapping a single dimension (Robbins and Patton, 1985). A high score on this scale identifies inhibition to work and lack of goal direction.

In testing concurrent validity with these three published scales, it was anticipated that correlations would be somewhat lower than would typically be acceptable. This is because the SGE is, for the most part, course specific, and responses were based on a composite sample of students, reacting to 10 different types of courses.

Results

Reliability

Cronbach's alpha reliabilities revealed good internal consistency for all but two of the SGE scales (see Table 1). The SGE factor-based scales from the Version C sample were generally consistent with those that had emerged in earlier iterations of the survey. For students in introductory courses, however, academic orientations were better represented by the 15 scales shown in Table 1 than by 9 less specific scales derived when upper-class students responded to Version M for their selected major. For clearer interpretation, the 15 course-goal dimensions were retained in the SGE. The two scales which continued to demonstrate low reliability (Goal clarity and Goal source: Self) were retained because of the theoretical importance of these goal attributes in determining course motivation and effort.

Concurrence with LOGO II

A factor analysis of the 32 LOGO II items replicated the expected structure of four scales as reported by its authors. To increase scale

TABLE 1
Scales and Reliabilities-Student Goals Exploration

Scale Category	Items	Reliability
GOALS FOR ATTENDING COLLEGE		
SCALES:		
Prepare for career and/or graduate/professional school	6	.69
Acquire a general education	9	.83
Nondirected	4	.69
GOALS FOR SPECIFIC COURSE OR MAJOR		
SCALES: GENERAL ACADEMIC ORIENTATION		
Develop creativity	7	.85
Increase self-understanding	8	.86
Improve speaking skills	3	.78
Improve reasoning skills	11	.89
Develop a life philosophy	6	.81
Understand the world around me	8	.85
Work for social causes	7	.88
Develop scientific inquiry skills	5	.89
Prepare for a career	9	.91
Gain expertise	7	.84
Develop human relations	9	.89
Improve numerical ability	3	.92
Understand cultural diversity	5	.84
Value learning for its own sake	4	.69
Improve basic skills	4	.82
SCALES: SUBJECT-SPECIFIC GOALS		
English	15	.89
History	13	.90
Sociology	15	.89
Psychology	10	.86
Biology	11	.88
Mathematics	7	.85
Fine Arts	12	.90
Romance languages	11	.86
Introductory business	11	.85
Universally endorsed	11	.85
GOAL ATTRIBUTES (Feelings About Studying in This Course)[a]		
SCALES:		
Goal time frame (long-range)	6	.75
Goal time frame (short-range)	3	.57
Goal source (expectations)	3	.59
Goal clarity	3	.42
Goal source (self)	3	.33
LEVELS OF CONFIDENCE (Expectations and study skills in this course)[a]		
SCALES:		
Self-confident scholar	11	.81
Anxious student	7	.72

[a] Wording in parentheses indicates actual title of section in student survey.

reliability, however, one item was dropped from each attitude scale. The resulting alpha reliabilities ranged between .52 and .77.

One way analysis of variance was used to compare responses on each of the four LOGO II scales for students studying different subjects. There was no reason to expect that students enrolled in particular introductory subjects would be either more learning-oriented or more grade-oriented than students in other introductory subjects. The expected lack of significant difference among fields was confirmed for three of the four LOGO II scales. One LOGO II scale revealed a statistically significant difference ($p < .01$) among the students responding for different fields.

Essentially, the two LO scales tap intrinsic motivation for learning, while the two GO scales tap extrinsic motivation based on grades. As expected, both the learning-oriented attitude and behavior scales correlated positively with the SGE scales tapping the college goal of wanting to acquire a general education (.32 and .33) (see Table 2).

From the list of 15 general academic orientation scales, 6 were selected as tapping varied intellectual orientations in coursework: (a) Develop creativity, (b) Improve reasoning skills, (c) Develop a life philosophy, (d) Understand the world around me, (e) Work for social causes, and (f) Value learning for its own sake. As seen in Table 2, the correlations of these scales with the LO scales were positive and ranged from .17 to .36. Additional expected correlations include those with the SGE scale measuring preference for long-range goal time frames for learning (.26 and .32), and feelings of being a self-confident scholar (.32 and .33). Furthermore, the LO scales correlated negatively, as expected, with SGE scales tapping student preferences for short-range goal time frames (−.12 and −.17) and being an anxious student (−.07 and −.17).

In contrast, as also displayed in Table 2, the grade-oriented (GO) attitude and behavior scales correlated positively with holding college goals for career preparation (.17 and .16), and not having a clear academic college goal (non-directed scale) (.22 and .29). For most of the 6 selected general academic orientation scales, correlations with GO attitude and behavior scales were negative or close to zero (−.18 to −.01). This indicates that the SGE course-level academic orientation scales for courses are not closely related to grade-oriented attitudes and behavior. As expected, the GO scales correlated negatively (but minimally) with the SGE scales tapping long-range goals for learning (−.20 and −.01) and being a self-confident scholar (−.19 and −.01). These same GO scales correlated positively with appropriate SGE scales, such as student preferences for short-range goals (.35 and .26), clear goals (.18 and .23) and being an anxious student (.34 and .36).

TABLE 2
Correlations of SGE Scales with Learning-oriented (LO) and Grade-oriented (GO) Scales, Need for Cognition Scales, and the Goal Instability Scale

	LOGO II				Need for Cognition		
	Attitudes		Behaviors				Goal
Scale Category	LO	GO	LO	GO	High	Low	Instability
College Goals							
Acquire general education	.32	−.08	.33	.04	.31	−.13	−.05
Prepare for career	−.06	.17	−.13	.16	.07	.07	−.03
Non directed	.02	.22	−.05	.29	−.04	.19	.27
General Academic Orientation							
Develop creativity	.19	−.01	.19	.11	.12	.07	.10
Improve reasoning skills	.19	−.13	.25	.01	.29	.03	.02
Develop a life philosophy	.20	−.10	.26	.02	.23	.09	.08
Understand the world around me	.20	−.06	.28	.05	.26	.04	−.00
Work for social causes	.17	−.05	.28	.09	.20	.06	.03
Value learning for its own sake	.28	−.18	.36	−.09	.36	−.15	−.06
Goal Attributes							
Goal time frame (long-range)	.26	−.20	.32	−.01	.39	−.19	−.15
Goal time frame (short-range)	−.12	.35	−.17	.26	−.23	.35	.29
Goal clarity	.09	.18	−.05	.23	−.02	.25	.17
Goal source (expectations)	.07	−.13	.06	−.04	.22	−.09	−.19
Goal source (self)	.09	.00	.03	.02	.27	−.09	−.15
Levels of Confidence							
Self-confident scholar	.32	−.19	.33	−.01	.27	−.09	−.21
Anxious student	−.07	.34	−.17	.37	−.12	.38	.40

To verify that the correlations of the LOGO II scales with the SGE scales were modest due to the composite sample of students responding to the SGE for different courses, correlations were checked for subsamples of approximately 50 students in each discipline. Correlations of the LO-behavior scale with the SGE "Learning for its own sake" scale ranged from .18 for students in history and biology to .53 for students in English composition. The SGE "Understand the world around me" scale correlations with the LO-behavior scales, ranged from .14 in English composition to .46 in business.

The correlations of all LOGO II scales with the two SGE scales measuring goal source (self or external expectations) were, surprisingly, close to zero (−.13 to .09). This finding may reflect either extremely diverse responses for different disciplines or the low internal consistency of these two SGE scales.

Concurrence with Need for Cognition

The Need for Cognition (NFC) scale items factored as the authors reported they would (Cacioppo and Petty, 1982; Cacioppo, Petty,

and Kao, 1984), and the internal consistency of each scale was high (alpha = .81 and .83, respectively).

One way analysis of variance was used for each NFC scale to compare differences by academic fields. As with LOGO II, no differences were expected by discipline in the measured level of cognition, and none were found for the students enrolled in the 10 introductory course subjects.

The high NFC scale was expected to be positively correlated with SGE scales measuring the more intellectually-oriented college and course goals, as well as those that tapped long-range learning goals and feelings of self-confidence as a scholar. The opposite correlation patterns were expected with the low NFC scale, including negative correlations of low NFC with the intellectually-oriented general academic orientation scales.

As shown in Table 2, students with high NFC were more interested in acquiring general education as a college goal (.31), but were not different from others on their interest in career preparation (.07). Similarly, low NFC students displayed less interest in acquiring a general education (−.13) but were not distinguished from high NFC students on their interest in career preparation (.07). Nondirected students, with no clear academic college goals, had low needs for cognition (.19).

Students scoring high on Need for Cognition also scored high on the 6 selected scales measuring varied intellectual orientations toward a specific course (.12 to .36). Single discipline subsamples showed correlations between high NFC and the SGE "Learning for its own sake" scale ranging from .18 for mathematics courses and .57 for literature courses. Similarly, correlations between high NFC and the SGE scale "Understand the world around me" ranged from .16 for mathematics to .37 in history. The correlations of these intellectual orientation scales with the low NFC scale were close to zero.

Among the goal attributes, as expected, high need for cognition correlated positively with the SGE's long-range goals for learning scale (.39) while the low NFC scale correlated negatively (−.19) with this SGE scale. Also as expected, the reverse pattern held for short-range goals (−.23 and .35). Students who scored high on NFC were likely to prefer both setting their own goals (.27) and accepting goal expectations from others (.22) than low NFC students (−.09 and −.09). High NFC students were more often self-confident scholars (.48) rather than anxious students (−.12), while the reverse pattern held for low NFC.

Concurrence with Goal Instability

The Goal Instability scale constituted a single factor, as expected, containing 10 items of high internal consistency (alpha = .87). A high score indicates unstable goals. Again, one way analysis of variance by academic fields was used to compare responses of students in various subjects to the GI scale. As expected, there were no significant differences across the 10 introductory course subjects. The non-directed student scale, characterizing students with lack of clear academic goals for college, correlated positively with the GI scale (.27) (see Table 2). The relationship between GI scores and scores on the selected SGE general academic orientation scales were close to zero (−.06 to .10).

The modest correlations expected between the GI scale and the five SGE goal attributes scales were confirmed. The GI correlated positively with the SGE's preference for short-range goals scale (.29), and negatively with an emphasis on long-range goals for learning (−.15). Desire for goal clarity in courses was positively related to goal instability (.17), whereas having one's own goals, whether self-generated or accepted as the expectations of others, was negatively related to GI (−.19 and −.15). Finally, anxious students tended to have unstable goals (.40) compared to confident scholars (−.21).

Discussion

Covariation of SGE scales with other measures has been examined but the related means and standard deviations for the SGE scales have not been presented. This is because there are no "correct" goals for students in each course; means vary by discipline and locally. Although norms are eschewed, the SGE scales are sufficiently reliable and valid to provide goal measures that may be related to student effort and achievement. SGE scale scores can be used as covariates, along with measures of aptitude and prior achievement, when assessing learning outcomes. The scores for groups of students in a specific discipline can help faculty members to foster class discussion about goals and observe changes in them over time. The SGE should not be used for individual advising nor should the results be aggregated beyond the discipline level to describe the goals of college students generally. Two types of SGE inventories and accompanying user guides are being finalized: a full-length version for institutional and educational research, and a

briefer "classroom research" version for college instructors seeking understanding of student goals in their classes.

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