

Goals, Styles, and Decisions: Changes and Interactions during the First Year of College

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First-year undergraduates participated in a short-term longitudinal study of goal setting and decision making over their first 14 months of college. First, students wrote a mission statement, listed their goals for the upcoming year, and filled out several individual difference style measures. In subsequent sessions, students were surveyed about different decisions pertaining to their choice of college major, course selection, housing, and summer plans. At the beginning of their second year, participants were shown their previously listed goals and surveyed about their progress, their satisfaction with their progress, and their retrospective view of their goals. Additionally, participants responded again to the individual difference measures. A moderate degree of stability was found in the individual difference measures, yet there were several significant changes over the year. Goal evaluation scores correlated with specific individual difference measures, and self-reported descriptions of reactions to how specific decisions were made, but not with behavioral measures of decision making. We speculate on ways in which stylistic measures become part of a construction of a more general narrative identity, shaped in significant ways by the college environment that selectively reinforces some analytic habits of mind.

First-year residential college students arrive on campus to a panoply of new beginnings: a new living situation, new friends and classmates, new responsibilities, new courses and subjects, new teachers and supervisors. During this time of fresh starts, it seems likely that students would devote energy to setting a variety of goals, some of which may prove to be life changing. In this article we report on a short-term exploratory longitudinal study of 149 first-year college students who were asked in their first term of college to describe their goals and their overall personal mission statements, along with their individual cognitive and decision-making styles. These students were followed over a 14-month period during which

they were asked about seven specific decisions, and at the end of the period they were asked to assess their progress on the goals they had first listed. We examine the ways in which students changed in their self-appraisals over the course of the year and the predictors and correlates of their goal evaluation and satisfaction.

Goals play an important role in two aspects of college students' cognition and cognitive development. First, their articulation can be said to define, at least partially, the development of a person's narrative identity (Bauer & McAdams, 2010; McAdams, 2013; McAdams & McLean, 2013). Narrative identity is said to "[reconstruct] the autobiographical past

and [imagine] the future in such a way as to provide a person's life with some degree of unity, purpose and meaning. Thus, a person's life story synthesizes episodic memories with envisioned goals, creating a coherent account of identity in time. Through narrative identity, people convey to themselves and to others who they are now, how they came to be, and where they think their lives may be going in the future" (McAdams & McLean, 2013, p. 233).

Second, goal setting has been linked in the literature quite closely to decision making. When we try to understand why a person makes one decision rather than another, it often turns out that the reasons have to do with the decision maker's goals for the decision (Bandura, 2001; Galotti, 2002, 2005). The idea in setting goals is that the decision maker takes stock of his or her plans for the future, principles and values, and priorities and applies that knowledge to the decision at hand.

However, little empirical work has explored relationships between people's goals and their decisions (Galotti, 2002, 2005). Image theory (Beach, 1998; Mitchell & Beach, 1990; Potter & Beach, 1994a, 1994b) is one exception. Image theory posits that most of the work of decision making is done during a phase known as the "pre-choice screening of options" (Beach, 1993). In this phase, decision makers typically whittle down the number of options under active consideration to a small number, sometimes one or two. They do this by asking themselves whether a new goal, plan, or alternative is compatible with three images: the value image (containing the decision maker's values, morals, principles), the trajectory image (containing the decision maker's goals and aspirations for the future), and the strategic image (the ways in which the decision maker plans to attain her or his goals). Options judged incompatible with one or more of these three images are screened out. Thus, in this model, goals are thought to frame decisions and affect the ways in which options are considered and evaluated.

Our study explored both aspects of goal setting, looking first to see how it related to various self-report measures of cognitive and intellectual styles of various sorts and how it was associated with different measures of decision-making performance. We wanted to look at goals that students set for themselves and how different aspects of their goals

correlated with, or predicted, various self-appraisals made a year later.

Goals can be thought of as aspirations for future states (Austin & Vancouver, 1996; Moskowitz, 2012), as intentions or resolutions for future behavior (Carroll, Durkin, Hattie, & Houghton, 1997; James, 1890/1950), as aims of actions or control strategies or regulators of action (Locke & Latham, 1990, 2002; Schindler & Tomasik, 2010), as mental representations (Fujita & MacGregor, 2012; Moskowitz, 2012), as plans or blueprints for actions (Dholakia & Bagozzi, 2002; Miller, Galanter, & Pribaum, 1960), as energizers or "motivation musterers" to direct implementation plans (Bagozzi, Dholakia, & Basuroy, 2003; Dholakia, Bagozzi, & Gopinath, 2007), as guides for making rational decisions (Byrnes, 1998; Galotti, 2005), or even as statements of values or principles that provide "a source of continuing personal identity" (Little, 1998, p. 194; see also Kruglanski, 1996). We believe that self-set goals are all of these things, although the specific prominence and applicability of different definitions may vary for each individual goal.

Goals vary along a number of dimensions. Most obviously, goals differ in their content: what realm of life they pertain to. In addition, goals vary in how abstract or concrete they are, how realistic or achievable they are, and how complex they are. In addition, any *set* of goals varies in its balance, that is, the degree to which different aspects of the goal-setter's life are represented.

Much existing empirical work on goal setting looks at either goals assigned by a supervisor or a researcher (e.g., Oettingen & Gollwitzer, 2001) or single goals set by a research participant and selected by a researcher (Bagozzi et al., 2003; Dholakia et al., 2007; Dholakia & Bagozzi, 2002). In this research, we are considering only goals that people explicitly set for themselves. We focus on goals that incoming first-year students at a selective, residential liberal arts college set at the beginning of their enrollment and the factors that predict their satisfaction with their accomplishment of those goals a year later.

Our objective in this exploratory research was to develop measures of how students evaluated the overall progress they made on their self-selected set of important goals. We hoped to go beyond a simple dichotomous measure of whether a specific goal had

been accomplished. We sought a more nuanced and multifaceted view of how students felt about their progress on their goals taken as a whole, the degree to which their goals motivated them on a daily basis, the degree of activity with which they pursued their goals, and their retrospective view of those goals.

We looked to see whether and how students' goal evaluations were predictable from four sets of measures: goal characteristics (including the number of total goals and the kinds of goals listed); rated aspects of their overall mission statement, describing what they want to focus on or become; various individual difference measures, which assessed self-reported styles of decision making, need for cognition, tendency to plan ahead, and generalized approaches to learning and knowledge; and behavioral measures made during and just after specific episodes of decision making.

Many models of decision making tie the rationality of the process to the degree to which the goals governing the process are being addressed or met (e.g., Baron, 2000; Beach, 1998; Byrnes, 1998; Galotti, 2002; Janis & Mann, 1977). The general idea here is that decisions that are made more thoroughly, more planfully, more intentionally, and in better alignment with one's goals will result in a better process, which, in turn, should be expressed in greater satisfaction with outcomes. We wanted to explore whether the same intentionality in goal setting produced greater satisfaction with goal progress in the long run. Extrapolating from these models of decision making to the realm of goals and mission statements, we made the following tentative predictions:

1. Students who describe themselves as more rational and more planful at the beginning of the year will later evaluate their progress toward their goals more positively 1 year later.
2. Students who show more growth in self-reported rationality and planfulness over the course of the year will later evaluate their progress toward their goals more positively.
3. Students with greater alignment between their goals and mission statements, who presumably set goals more intentionally, will later evaluate their progress toward their goals more positively.
4. Students who report making decisions in more normative rational ways will later evaluate their progress toward their goals more positively.
5. Students who evaluate their specific episodes of

decision making more positively and less negatively will later evaluate their progress toward their goals more positively.

STUDY

METHOD

Participants

Participants were first-year students from Carleton College. The first cohort, who were recruited in the fall of 2009, consisted of 101 first-year students (39 male). Students were recruited through a letter of invitation that was sent to all 520 first-year students. Of these 101 students, 94 (35 male) returned for a second session in winter of 2010, 93 (34 male) of those returned for a third session in the spring of 2010, and 88 (33 male) returned for a fourth session in the fall of 2010. Although specific racial and ethnicity data were not collected on the sample, the overall population of first-year Carleton students in the fall of 2009 included 22% who self-reported their racial group as African American, Asian American, Hispanic/Latino/Chicano, or Native American (Lawrence, 2010a).

The second cohort of participants, who were recruited in the fall of 2010, consisted of 48 first-year students (12 male). Of these, 45 (12 male) returned for Sessions 2 and 3, in the winter and spring of 2011, and 44 (12 male) returned for Session 4 in the fall of 2011. Students were recruited through a letter of invitation that was sent to 200 quasi-randomly selected first-year students.¹ The composition of the first-year class of students entering in 2010 was 22% students of color, not including international students (Lawrence, 2010b).

Participants were paid \$10 for the first two sessions, \$12.50 for the third session, and \$25.00 for the fourth session.

Materials and Procedure

Sessions were run in small groups by trained undergraduate research assistants. A number of different instruments were administered during different sessions. Here we describe only certain instruments used.²

MISSION STATEMENT (MS) (FIRST SESSION).

Students were asked to respond to an open-ended prompt at the top of a largely blank sheet of paper. The prompt read as follows:

A "personal mission statement" is a brief description of what you want to focus on, what

you want to accomplish and who you want to become in a particular area of your life over the next few years. It is a way to focus your energy, actions, behaviors and decisions towards the things that are most important to you. It is not cast in stone. It will continue to change and evolve as you gain insights about yourself and what you want out of each part of your life.

With this in mind, please write a brief personal mission statement in the space below.

We describe the measures derived from this instrument in the *Results* section.

GOAL LISTING WORKSHEET (GLW) (FIRST SESSION).

This was another open-ended instrument. The entire text of the instructions is given here:

Thinking of the next year of your life, please list your goals in the categories described below. Your goals may be both short- or long-term. You may list as many or as few as you wish, but please make sure that all your important goals are listed.

Academic/Education goals are related to academics both at Carleton and beyond, e.g., graduate or professional school.

Social/Romantic goals involve friends, significant others, romantic partners, and acquaintances.

Family goals involve immediate and extended family members.

Job/Work/Career goals have to do with your current job(s), future job(s) and your overall career plans.

Health/Wellness/Spirituality goals should include activities that you plan on doing to take care of yourself physically, mentally, and spiritually.

Leisure/Recreation goals have to do with your hobbies or leisure activities.

We describe the measures derived from this instrument in the *Results* section.

COURSE SCHEDULE WORKSHEET (CSW)

(FIRST, SECOND, AND THIRD SESSIONS).

Students were asked to list their options for course schedules for the next term. Options were defined as a set of planned courses; each distinct set, even if differing only by one course, was counted as a separate option. Students filled out a facsimile of a registration card for each option under active consideration.

HOUSING OPTIONS WORKSHEET (HOW)

(THIRD SESSION).

Students were asked to list their options for housing for the next year. Each option was defined by a

unique set of elements including location (e.g., Davis, Burton), room type (e.g., double, triple), and potential roommates (given by initials). Participants were instructed that any change in any of these elements defined a separate option (thus, "Burton double with A.B." would constitute a different option from "Burton double with M.E.>").

FACTORS AND OPTIONS WORKSHEET (FAOW)

(FIRST, SECOND, AND THIRD SESSIONS).

This instrument, adapted from previous research (Galotti, 1999, 2007; Galotti & Tinkelenberg, 2009) was used to provide a systematic way for participants to describe the options under active consideration and the criteria they reported using to evaluate those options for different upcoming decisions. These decisions were choosing courses for the next term (participants did an FAOW for this decision in the first three sessions), choosing a major (done twice, once in the second session and once in the fourth), choosing housing for the next year, and choosing plans for the summer (these last two decisions were surveyed both during the third session). The worksheet consisted of a grid containing 10 columns of blanks. In the second column participants were asked to list the criteria by which they were currently evaluating their options. Each criterion was rated for its importance on a 10-point scale (1 = *Not very important*, 10 = *Extremely important*), and these weights were placed in the first column. At the top of the third through tenth column, the options under active consideration were listed. Participants rated the options based on how well they fulfilled each of these criteria using a 10-point scale.

NEED FOR COGNITION (NFC) (FIRST AND FOURTH SESSIONS).

This instrument, developed by Cacioppo and Petty (1982), consists of 34 statements that measure a person's tendency to engage in and enjoy effortful cognitive activity, such as reasoning or problem solving. Example items include "I really enjoy a task that involves coming up with new solutions to problems" or "I prefer my life to be filled with puzzles that I must solve."

GENERAL DECISION-MAKING STYLES SURVEY (GDMS)

(FIRST AND FOURTH SESSIONS).

This survey, adapted from Scott and Bruce (1995),³ asked the participants to rate agreement with statements about how they make decisions in general. The 30 statements divide evenly into five different scales, each purporting to measure a distinct approach to decision making: Rational, Intuitive, Dependent, Avoidant, and Spontaneous. Example items per-

taining to these respective scales are the following: “I make decisions in a logical and systematic way,” “When I make decisions I tend to rely on my intuition,” “I often need the assistance of other people when making decisions,” “I avoid making important decisions until the pressure is on,” and “I generally make snap decisions.”

*ATTITUDES TOWARD THINKING AND LEARNING SURVEY (ATTLS)
(FIRST AND FOURTH SESSIONS).*

This instrument (Galotti, Clinchy, Ainsworth, Lavin, & Mansfield, 1999) presents 20 statements that embody either a connected knowing (henceforth CK-10 items) or separate knowing (henceforth SK-10 items) epistemological orientation. Examples of the two kinds of statements include “When I encounter people whose opinions seem alien to me, I make a deliberate effort to ‘extend’ myself into that person, to try to see how they could have those opinions (CK)” and “I like playing devil’s advocate—arguing the opposite of what someone is saying (SK).”

PLANNING SURVEY (PS) (FIRST AND FOURTH SESSIONS).

The planning survey (Simons & Galotti, 1992) presents statements about the participant’s self-reported use of planning strategies and organization of information. Example statements include “I write down appointments and meetings on a calendar” and “I have a written list of goals for each day.”

*OVERALL RATING (OVRAT)
(SECOND, THIRD, AND FOURTH SESSIONS).*

Participants were shown a typed list of the options they had listed previously for a specific decision (e.g., choosing courses, choosing a major, choosing housing, or choosing summer plans). They rated each option on a scale of 0 to 10, where higher numbers indicated greater overall goodness of the option in light of the student’s goals and objectives.

*REACTIONS TO DECISION (RTD)
(SECOND, THIRD, AND FOURTH SESSIONS).*

This 21-item survey, adapted from previous work (Galotti, 1995a; Galotti, 2007, Galotti & Tinkelenberg, 2009), asked participants to reflect on a specific decision (e.g., choosing courses, choosing housing), and rate (on a 7-point scale) their affective reactions and remembered approaches to it. Example items include the following: “How certain are you that you are making the right decision?,” “How rushed or pressured do you feel in making this decision?,” and “How much have you explored your current options for this decision?”

GOAL EVALUATION SHEET (GES) (FOURTH SESSION).

Participants were presented with a typed list of the goals they had listed in the first session. The instrument asked the participants to rate, on 20 different items, the extent to which they had actively pursued their goals, had the goals in mind, had the goals guiding their behavior, made significant progress on their goals, remembered their goals, and met deadlines with respect to their goals. Example items include the following: “Overall, this year has been highly productive with respect to my goals,” “Over the past year, I kept these goals in mind on a day-to-day basis,” “Over the past year I worked toward many of the goals I listed,” and “Reflecting on my progress toward my goals this year, I feel good about it.”

RESULTS

Individual Difference Measures

We first examined the internal reliability of the individual difference scales from the data collected in the first session, using coefficient alpha as the measure. The mean alpha was .83, and each scale showed acceptable to very good internal reliability (see the diagonal of Table 1). We next computed the correlations between these stylistic measures, finding several significant correlations, as shown in Table 1. NFC correlated significantly with almost every other measure. The correlations were of the same magnitude as those reported between NFC and various personality traits (Fleischhauer et al., 2010). Most of the other measures correlated significantly with about half of the remaining measures. None of the correlations was above .60, however, suggesting that these variables were not highly intercorrelated.

Next we examined the year-long stability of these measures. Recall that 132 of the original 149 participants returned after about 12 months and filled out a second version of all the individual difference measures. We present means for each scale for the first and second administration, as well as a measure of the correlation between scores on the two occasions, and a *t* test or overall *F* test (in the cases of instruments that had more than one scale) to assess whether scores had changed significantly over the course of the year. Table 2 presents these results.

It can be seen that almost all the scale scores showed significant correlations between the two administrations. Correlations were especially high

TABLE 1. Intercorrelation of Individual Difference Measures^a

	NFC	PS	CK	SK	R	I	D	A	S
NFC	(.89)	.18*	.20*	.33***	.24**	-.11	-.26***	-.36***	-.27***
PS		(.85)	.08	.15	.60***	-.10	.10	-.40***	-.36***
CK			(.80)	.02	.17*	.23**	.17*	.02	-.05
SK				(.75)	.31***	-.25**	-.16*	-.11	-.16*
R					(.78)	-.33***	.19*	-.23**	-.57***
I						(.87)	.04	.02	.44***
D							(.79)	.31***	-.10
A								(.89)	.10
S									(.87)

Note. A = Avoidant Decision Making; CK = Connected Knowing; D = Dependent Decision Making; I = Intuitive Decision Making; NFC = Need for Cognition; PS = Planning Score; R = Rational Decision Making; S = Spontaneous Decision Making; SK = Separate Knowing.
^aBased on data from 149 participants. Internal reliabilities for each scale, computed with coefficient alpha, are presented in the diagonal in parentheses.

* $p < .05$. ** $p < .01$. *** $p < .001$.

for PS and CK and SK scores, suggesting that these showed the strongest stability, at least in this sample. Only the Rational and Intuitive GDMS scale scores showed a low magnitude of correlation between the two administrations. The other GDMS scales, as well as NFC, showed moderate correlation over the course of the year.

However, in addition to the pattern of moderate to strong correlations, we also see a significant change in overall scores for many of the measures over the course of a year. CK and Dependent GDMS were the only two measures to show no significant change over time. Planning as well as Rational, Intuitive, Avoidant, and Spontaneous GDMS scale scores showed small to moderate increases over time. Conversely, SK showed a small but significant decline over time, whereas NFC showed a significant moderate drop over the course of the year.

Goal Evaluation Measure

Using the data from the GES, we performed an analysis of internal reliability, dropping 6 of the original 20 items one at a time. The remaining 14 items showed an overall internal reliability, computed with coefficient alpha, of .80. We use the resulting Goal Evaluation Score, the sum of the ratings to each of the 14 items, as a dependent measure in the analyses to follow.

Predicting Goal Evaluation Scores

From Goal Characteristics

The two authors independently counted the total number of goals listed by each participant, with an overall interrater reliability (computed by correlation) of .94. Recall that participants were asked to list their goals for each of six categories but were free to list as few or as many as they wanted for each. We computed the percentage of total goals listed that fell into each category and correlated these and the total number of goals with the goal evaluation scores. None of these correlations approached statistical significance.

Predicting Goal Evaluation Scores From Mission

Statement Ratings

Undergraduate research assistants (between four and seven, depending on the cohort of participants) and the two authors coded all the mission statements for the presence of various attributes or themes, which are described in Table 3. Attributes were coded on a scale from 0 to 10, where 0 indicated that there was no evidence of the attribute, 10 meant the attribute was maximally present (could not be stronger in the particular mission statement), and intermediate values corresponded to intermediate strengths of the attributes. Interrater reliabilities were computed by

TABLE 2. Stability of Individual Difference Measures Over a 1-Year Period

Scale score	Mean, 1st year	Mean, 2nd year	Correlation, 1st to 2nd year	t or F value
Need for cognition	51.89	43.98	.44 <i>p</i> < .001	<i>t</i> (131) = -3.41 <i>p</i> < .001
Planning score	147.83	151.07	.73 <i>p</i> < .001	<i>t</i> (131) = 2.39 <i>p</i> < .05
ATTLS Connected knowing	55.41	54.56	.64 <i>p</i> < .001	<i>F</i> (1, 130) = .48, <i>n.s.</i> [ATTLS scale × time] <i>t</i> (131) = 1.52, <i>n.s.</i>
ATTLS Separate knowing	44.55	42.84	.67 <i>p</i> < .001	<i>F</i> (1, 130) = .48, <i>n.s.</i> [ATTLS scale × time] <i>t</i> (131) = 2.63, <i>p</i> < .01
GDMS Rational Style score	32.91	45.92	.17 <i>p</i> < .05	<i>F</i> (4, 520) = 43.59 <i>p</i> < .001 [GDMS scale × time] <i>t</i> (131) = 12.98, <i>p</i> < .001
GDMS Intuitive Style score	27.82	30.89	.16 <i>n.s.</i>	<i>F</i> (4, 520) = 43.59 <i>p</i> < .001 [GDMS scale × time] <i>t</i> (131) = 4.13, <i>p</i> < .001
GDMS Dependent Style score	28.73	27.98	.27 <i>p</i> < .01	<i>F</i> (4, 520) = 43.59 <i>p</i> < .001 [GDMS scale × time] <i>t</i> (131) = -1.11, <i>n.s.</i>
GDMS Avoidant Style score	23.33	26.05	.40 <i>p</i> < .001	<i>F</i> (4, 520) = 43.59 <i>p</i> < .001 [GDMS scale × time] <i>t</i> (131) = 3.49, <i>p</i> < .001
GDMS Spontaneous Style score	16.92	19.58	.37 <i>p</i> < .001	<i>F</i> (4, 520) = 43.59 <i>p</i> < .001 [GDMS scale × time] <i>t</i> (131) = 4.02, <i>p</i> < .001

Note. ATTLS = Attitudes Toward Thinking and Learning Survey; GDMS = General Decision-Making Styles Survey.

coefficient alpha over all raters. The mean ratings for each attribute for each mission statement were used in subsequent analyses.

The two authors and four or five undergraduate research assistants also independently rated the alignment between a participant's mission statement

and the set of goals they listed, again on a 10-point scale where 0 indicated no alignment or similarity and 10 indicated maximal alignment or similarity. Interrater reliability, computed with coefficient alpha across the four or five raters (depending on cohort), was .79 or .82.

TABLE 3. Coding for Mission Statements

Attribute and description	Median interrater reliability ^a
Balance	
The degree to which the statement mentions many of life's realms (e.g., academic/education, job/career/work, family, social/romantic relationships, wellness/spirituality, leisure/recreation)	.87
Complexity	
The degree to which the mission statement has different parts and a complicated structure to the way the parts interrelate	.76
Realism	
The degree to which the mission statement seems achievable by a typical adolescent	.70
Abstractness	
The degree to which the student's mission statement focuses on a nonmaterial accomplishment or implements a particular set of values, principles, or philosophy	.86
Concreteness	
The degree to which the student's mission statement revolves around concrete accomplishments or achievements or the acquisition of specific material goods	.89

^aEach mission statement was coded by 6 to 8 independent raters; interrater reliabilities were calculated with coefficient alpha.

We correlated the GES scores with the mean ratings of mission statements and mean rating of mission statement-goals alignment. None of these were statistically significant.

Predicting Goal Evaluation Scores From Individual Difference Measures

We correlated the goal evaluation scores with the nine individual difference measures and present these correlations in the first column of Table 4.

The Planning and Rational GDMS scores both showed significant positive correlations with the Goal Evaluation measure, whereas the Avoidant GDMS score showed a significant negative correlation with it.

The second column of Table 4 shows the correlations between Goal Evaluation scores and the positive changes in the various individual difference measures over the course of the year. Growth in both the Planning and Rational GDMS scores showed significant positive correlation with the Goal Evaluation measure. Growth in the Spontaneous GDMS score showed a negative correlation with Goal Evaluation, and growth in the Avoidant GDMS score showed a positive correlation with Goal Evaluation.

Predicting Goal Evaluation Scores From Behavioral Decision-Making Measures

For each of the seven decisions studied, we counted the number of options the participant reported under active consideration, the number of criteria they reported using to decide between these options, and the calibration of the participants' holistic ratings of the overall goodness of options with the predicted ratings of various linear models (described in more detail later). We computed the average decision map size as the number of options multiplied by the number of criteria, to index the amount of information the participant actively reported considering in making a specific decision.

We then tallied the mean number of options, number of factors, and decision map size across the seven specific decisions for each participant. None of these measures were significantly correlated with Goal Evaluation scores, as shown in Table 5.

A second set of behavioral measures assessed how participants integrated information about a decision. To do this, we used so-called calibration coefficients, correlations of participants' overall ratings of options (from the OVRAT instrument) and the predicted values of those options by various linear

TABLE 4. Correlations of Individual Difference Measures With Goal Evaluation Scores

Individual difference measure	Goal evaluation score	Change (growth) in individual difference measure and goal evaluation score
Need for cognition	.13	-.02
Planning	.26**	.22*
ATTLS Connected Knowing	.00	.10
ATTLS Separate Knowing	-.01	.14
GDMS Rational	.26**	.24**
GDMS Intuitive	.12	.09
GDMS Dependent	.11	.09
GDMS Avoidant	-.22*	.25**
GDMS Spontaneous	-.07	-.24**

Note. ATTLS = Attitudes Toward Thinking and Learning Survey; GDMS = General Decision-Making Styles Survey.
* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 5. Correlation of Information Use Measures and Goal Evaluation Measures

Measure	Goal evaluation score
Average number of options	.06
Average number of factors	.10
Average decision map size	.07
Average rTC	.04
Average rEW	.13
Average rMAUT	.08

Note. rMAUT = multiattribute utility theory; rEW = equally weighted criteria model; rTC = top criterion model.

models of decision making (Dawes, 1982; Dawes & Corrigan, 1974), based on how participants rated each option on the criteria on the corresponding FAOW measure. Three linear models, which we have used extensively in previous research (e.g., Galotti 1995a, 1995b, 1999, 2007; Galotti et al., 2006; Galotti, Pierce, Reimer, & Luckner, 2000; Galotti & Tinkelenberg, 2009), were considered:

Top criterion model (rTC). Predicted values under this very simple model were calculated by using only the ratings on the criterion to which a participant had given the highest importance weighting. If she or he had given more than one

criterion the highest weight, then the ratings on all these criteria were averaged to calculate the predicted value of that potential option.

Equally weighted criteria model (rEW). Here, the predicted value for each option was computed by giving each criterion equal weight (i.e., ignoring the participant's own importance weights). The subjective ratings of each option on each criterion were summed and correlated with the participants' overall holistic ratings of each option.

Multiattribute utility theory (rMAUT). This model incorporated all the information a participant provided on an FAOW. The importance weight of a given criterion was multiplied by the subjective rating of each option on each criterion, and these products were summed over all criteria listed.

Thus, each potential option received a summary score, a predicted value of its goodness of fit with the decision maker's criteria and appraisal of options with respect to each criterion. These scores were then correlated with the participants' overall impression (holistic) ratings of each option, as given on the OVRAT instruments. Positive correlations indicate better calibration with the predictions of the different linear models. Once again, none of these measures was significantly correlated with Goal Evaluation scores, as shown in Table 5.

Predicting Goal Evaluation Scores From Reactions to Decisions

For these analyses we focused on the seven RTD surveys, each of which was administered after a specific decision. Recall that the instrument asked participants to rate their affective reactions and remembered approaches to the process of making a specific decision. We began with some exploratory factor analyses of the RTD measures (conducted separately for each of the seven different decisions) and from those created three different scales of items that seemed to go together across different decisions. We then ran psychometric analyses of each scale for each decision, looking to maximize internal reliabilities of the scales across decisions.

We identified three scales using this process. Scale 1, which we titled Positive Reactions to Decisions, includes four of the 21 RTD items, specifically, “How comfortable are you with the way you are making this decision?,” “How much are you enjoying making this decision?,” “How much is your decision guided by your overall values, principles, goals and/or objectives?,” and “How certain are you that you are making the right decision?” Internal reliabilities for this scale were computed separately for each of the seven decisions and ranged from .49 to .80, with a median of .71.

Scale 2 consists of five items and is titled Negative Reactions to Decisions. The specific items are “How difficult is this decision, relative to other decisions you have previously made?,” “How stressful is it to make this decision?,” “How likely are you to make this decision at the last minute or on the spur of the moment?,” “How rushed or pressured do you feel in making this decision?,” and “How much are you avoiding or putting off making this decision?” Internal reliabilities for this scale were computed separately for each of the seven decisions and ranged from .46 to .78, with a median of .71.

Finally, Scale 3 also consists of five items, and is titled Information Gathering. Items include the following: “How much are you using specific criteria to make this decision?,” “How satisfied do you feel with the amount of information you are obtaining while making this decision?,” “How final is your current list of options for this decision?,” “How well informed are you about each of your options?,” and “How much have you explored your current options for

this decision?” Internal reliabilities for this scale were computed separately for each of the seven decisions and ranged from .64 to .74, with a median of .65.

We correlated these three scale scores with the Goal Evaluation measure and found that all three correlated significantly. The correlations were, for Positive Reactions to Decision, $r = .53$ ($p < .001$); for Negative Reactions to Decision, $r = -.28$ ($p < .001$); and for Information Gathering, $r = .36$, ($p < .001$).

DISCUSSION

What determines students’ retrospective views of and progress made toward the set of goals they set at the beginning of their college experience? We discuss our findings with reference to the five predictions made in the first section of this article.

Prediction 1

Students who describe themselves as more rational and more planful at the beginning of the year will later evaluate their progress toward their goals more positively. This prediction was supported, as shown by the positive correlations between Rational GDMS score and Goal Evaluation and between the Planning score and Goal Evaluation. As Table 4 (column 1) indicates, these were the only positive correlations between any of the individual difference measures and Goal Evaluation. However, the correlation between Avoidant GDMS score and Goal Evaluation was significant although negative in sign. Notice that it is not simply valuing intellectual activity that predicts eventual satisfaction with goal progress. Were this the case, then Need for Cognition should also have been a significant predictor of Goal Evaluation scores.

Prediction 2

Students who show more growth in self-reported rationality and planfulness over the course of the year will later evaluate their progress toward their goals more positively. This prediction was also supported (see data in Table 4, column 2). Seeing oneself as growing in rationality or planfulness is correlated with Goal Evaluation scores. Not surprisingly, students who grew in self-reported spontaneity in decision-making style were less likely to evaluate their goal completion in positive ways. Inexplicably, growth in Avoidant GDMS scores was also correlated

positively with Goal Evaluation. One possibility is the students who describe themselves as having an avoidant style might experience a rush of satisfaction when they eventually do make a decision, and that satisfaction might be what they have in mind when they evaluate their goal progress.

Prediction 3

Students with greater alignment between their goals and mission statements, who presumably set goals more intentionally, will later evaluate their progress toward their goals more positively. Our results provided no support for this prediction; alignment between the set of goals and the mission statement did not predict subsequent goal evaluation. Moreover, neither the number of goals nor the type of goals nor the rated aspects of mission statements correlated with eventual goal evaluation.

Prediction 4

Students who report making decisions in more normative rational ways will later evaluate their progress toward their goals more positively. This prediction was not supported, as evidenced by the lack of significant correlations between calibration coefficients and the Goal Evaluation measure. Moreover, the lack of correlation between the Goal Evaluation measure and any of the measures of amount of information considered in making decisions (number of options, number of criteria, decision map size) suggests that being more thorough in decision making, considered to be a normative desideratum, does not forecast greater eventual goal satisfaction.

Prediction 5

Students who evaluate their specific episodes of decision making more positively and less negatively will later evaluate their progress toward goals more positively. This prediction was supported, as shown by the significant correlations, in the predicted directions, between Goal Evaluation scores and the Positive and Negative Reactions to Decisions. In addition, the correlation between Information Gathering and Goal Evaluation was also significant.

Taken together, the results suggest that the strongest predictors of Goal Evaluation are not actual decision-making behaviors, nor are they aspects or features of the goals initially set. Instead, what pre-

dicts eventual satisfaction with the progress a student has made on the set of goals she enumerated are a number of specific self-report measures of intellectual style. To consider that pattern further, it bears reflecting on the patterns of change and stability in these self-report measures over the course of the first year of college.

Consider in particular the results presented in Table 2. What can be made of this pattern of changes? Although no definitively causal claim can be defended with these data, we can offer some plausible interpretations that must await further definitive test. College (or at least this selective liberal arts college) fosters and reinforces some habits of mind more than it does others. So, for example, Planning and Rational GDMS show increases because college encourages analytic or “System 2” kinds of thinking (Evans & Stanovich, 2013; Kahneman, 2011; Stanovich & West, 2000). But only certain aspects of analyticity improve, as the decline in SK scores (which measure a tendency to remain objective and detached and to play devil’s advocate) demonstrates. The college environment thus selectively reinforces certain habits of mind, and students who show the most growth in these also report themselves to have made the most progress on their goals.

Students’ self-reported reliance on intuitive approaches to decision making (Intuitive GDMS scores) rises over time along with their Avoidant and Spontaneous (GDMC) scores. These latter two are commonly seen as less adaptive approaches to important decision making; the first one might be seen in some contexts as lacking in rigor. Taken together, these significant increases suggest that over the first year of college, changes are not always unambiguous improvements in abilities.

Lastly, the counterintuitive significant decline in NFC over the first year requires explanation. It may simply be that the stress of the first year of college leaves students mentally fatigued from all the learning and reflecting they have confronted both in and out of the classroom. They may be finding their thirst for intellectual challenge and puzzle to have been quenched by their academic experiences. Or they may find themselves with much less time than before to engage in puzzles and other recreational intellectual pursuits.

Self-reported styles of intellectual functioning probably become more aligned with one’s personal

narrative, the story one tells of how one approaches challenges and processes information (McAdams & McLean, 2013), as the first college year unfolds. Feeling good about goal progress may make up part of one's own personal narrative, which in turn may direct and constrain one's responses to self-report measures. Put in terms of image theory (Beach, 1998), Goal Evaluation may be accessing one's value image—one's self-view of one's identity—composed in part of one's values, principles, and enduring characteristics. The point is that Goal Evaluation is less affected by one's actual behaviors and more by one's self-view.

Of course, the specifics of the sample must be kept in mind. Our college students were all attending a selective college, and this in turn may have constrained the results in various ways. For example, these students may have had more goals, more difficult goals, or more academic goals than the typical adult. As always, extension of this study to a more diverse group of participants is an excellent idea.

However, if anything this group should have been the most articulate and reflective of their goals than just about any other population. And their describing of goals and mission statements as they make an important life transition ought to have made the goal-setting process all the more salient. Thus, this sample ought to have given us an especially clear set of relationships between the various measures we used.

Additional work is needed to explore goals as guides for everyday activities and decisions. It is likely that different people experience the guidance of their goals to differing extents, and finding a way to capture the power of personal goals in everyday life is an area that remains unexplored. A broader range of settings and sample participants will also round out the picture of the role of goals and goal setting in everyday experience.

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1. Students who opted to remove their names from the college's public directory were not sent invitations. Moreover, international students were excluded from invitations because their visa status made compensation an issue. Of the remaining students, invitations were sent randomly.

2. A complete list of instruments used and the schedule of which surveys were administered during which sessions can be obtained from the first author.

3. One item was added to their rational scale because it appeared to be missing from their published article. In addition, we added one additional item to each of the five scales to improve internal reliabilities. Thus, the scale we used contained 30 items, including the 24 items Scott and Bruce (1995) published.

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