Need-Supportive Advising for Undecided Students

Jennifer Kay Leach, Oregon State University
Erika A. Patall, University of Texas at Austin

To explore the relationship between need-supportive advising and students' decision making on academic majors, we conducted a longitudinal study of 145 students based on their reports of basic psychological need satisfaction and their decision-making processes. We hypothesized that need-supportive advising would positively contribute to autonomous and competent decision making. Results suggest that students who receive need-supportive advising at the beginning of the academic year report increased feelings of autonomy and competence about choosing a major toward the end of the year, implying that advising satisfies students' basic psychological needs throughout the year. Implications and future directions are discussed.

[doi: 10.12930/NACADA-15-035]

KEY WORDS: exploratory students, quantitative methodology, self-determination theory, social psychology, undecided students, undeclared students

Academic advising promises to address the problem of retaining students in college through graduation specifically by supporting their engagement in college course work (Pascarella & Terenzini, 1991). In fact, advocates assert and research supports the proposition that of all the services offered to students in U.S. 4-year public universities, academic advising exerts the greatest influence on persistence (Cuseo, 2003; Noel-Levitz, 2011).

Moreover, students deemed *undecided* or *undeclared*, those who have yet to choose a major when they enter college, show less propensity to persist to their second semester (St. John, Hu, Simmons, Carter, & Weber, 2004) or second year (Leppel, 2001) than students who have decided on a program of study. Some undecided students exhibit low efficacy toward decision making (Bullock-Yowell, McConnell, & Schedin, 2014) compared to decided students. For them, participation in academic advising may prove critical, especially when engaging in academic major decision making.

Although they vary in their levels of undecidedness, most first-year students demonstrate evolving critical-thinking and decision-making skills (Baird, 1969; Gordon, 2007; Titley & Titley, 1980). Personal and social factors likely play a role in students' undecidedness as well as levels of known information or decision-making skill competencies (Gordon, 2007). Academic advisors can prompt undecided students to initiate and navigate the major exploration process by helping them understand themselves, educational programs and curricula, occupations, and decision-making processes and outcomes. Advisors can use a number of strategies to assess and inform in these critical areas, such as formal assessments, programming events, and perhaps most directly, one-on-one advising sessions (Gordon, 2007; Slowinski & Hammock, 2003). Through personal relationships established with students, advisors show genuine interest in advisees and their needs (Fox, 2008), and because of the skills and knowledge academic advisors bring to practice, undecided students may benefit from advising sessions throughout the decision-making process.

Many have discussed the parallels between effective teaching and effective advising (e.g., Crookston, 1972/2009; Ryan, 1992). To meet the main educational goals of advising sessions, advisors teach students to increase their knowledge about academic programs and foster their academic decision-making and problem-solving skills (Hemwall & Trachte, 1999; Laff, 1994; Ryan, 1992). Because teaching practices that facilitate adaptive outcomes may prove particularly effective when applied to meeting students' basic psychological needs, advisors may turn to research on environmental support for motivation and well-being to find an applicable approach for helping students setting and reaching their goals. For example, according to self-determination theory, environmental support for basic psychological needs for autonomy, competence, and relatedness leads to a variety of psychological benefits across multiple contexts, including classrooms (e.g., deCharms, 1976; Grolnick & Ryan, 1987; Guay, Ratelle, & Chanal, 2008), parenting (e.g., Chirkov & Ryan, 2001), workplace management (Hardré & Reeve, 2009), sports coaching (e.g., Allen & Howe, 1998), and clinical therapy or counseling (Williams,

Lynch et al., 2006; Williams, McGregor et al., 2006).

Extensive literature highlights the benefits of met psychological need and the importance of support for persons in both educational and other practical contexts. Therefore, the extent to which an advisor advances a student's sense of autonomy, competence, and relatedness may affect that student's perceptions of his or her own autonomy and competence in making academic choices. In an effort to connect self-determination theory to the academic advising context, we explored the relationship between advising purported to meet the three basic psychological needs and student demonstrations of autonomous and competent decision making for an academic major.

Self-determination Theory and Supporting Psychological Needs

According to self-determination theory, human functioning is optimized when an individual's basic psychological needs for autonomy, competence, and relatedness are met (Deci & Ryan, 1985; Ryan & Deci, 2000). Therefore, when forces contribute to satisfaction of these three self-determination needs, persons experience internalized motivation toward activities in the context of the support as well as enhanced well-being (Niemiec & Ryan, 2009; Ryan & Deci, 2000). The need for autonomy is satisfied by engagement in self-initiated activities (Deci & Ryan, 1985; Ryan & Deci, 2000). Satisfaction of the need for competence reflects mastery of tasks through successful interactions with the environment (Deci & Ryan, 1985; Ryan & Deci, 2000). Relatedness is satisfied through a sense of belonging as well as feeling support or care from others (Ryan & Deci, 2000). In the present study, we focus on all three psychological needs and collectively refer to assistance in meeting them as *need-supportive advising*.

To meet the psychological needs of autonomy, competence, and relatedness, a person must feel support from others within the environment (Niemiec & Ryan, 2009; Ryan & Deci, 2000). Researchers have uncovered a number of specific strategies to support individuals' sense of autonomy and enhance motivation in the classroom (see Su & Reeve, 2011). Specifically, offering meaningful rationales and choices, allowing expression of negative feelings, and using noncontrolling language are crucial for autonomy support (see, e.g., Assor, Kaplan, & Roth, 2002; Cordova & Lepper, 1996; Gottfried, Fleming, & Gottfried, 1994; Reeve & Jang, 2006; Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005). For example, Assor et al. (2002) found that by relating the nature of a task to students' goals, providing choices, and permitting students to express dissatisfaction with the task, teachers enhanced student engagement. In addition, students in the Assor et al. study demonstrated positive feelings about tasks related to their goals as expressed by their interest in, enjoyment of, and engagement with course work.

Of particular interest to us, one longitudinal study showed that teachers' support of student autonomy positively predicted student need satisfaction and engagement over the course of a semester (Jang, Kim, & Reeve, 2012). Specifically, the researchers showed that teacher support for student autonomy at Time 1 positively predicted student need satisfaction at Time 2, which in turn fully mediated the relationship of student engagement at Time 3. We used a similar model to look at the relationship between students' perceptions of need-supportive advising and their levels of autonomous and competent decision making on a major as indicated through their reported need satisfaction over an academic year.

As with autonomy support, a number of practices have been linked to positive perceptions of competence and other adaptive outcomes. Skinner and Belmont (1993) asserted that a structured classroom environment featuring clearly communicated expectations and activities tailored to students' abilities strengthened students' perceptions of their own competence. They found that students who saw their teachers as facilitating structure predicted effort and persistence during academic tasks. Similarly, Jang, Reeve, and Deci (2010) found that teachers' use of clear instructions, strong guidance, and informative feedback positively contributed to student engagement independently of specific autonomy support. Providing regular noncomparative and informative feedback also augments perceived competence as well as persistence, interest, and engagement (Anderson, Manoogian, & Reznick, 1976; Butler, 1987; Deci, 1971, 1972; Harackiewicz, 1979; Levesque, Zuehlke, Stanek, & Ryan, 2004). Zook and Herman (2011) found that students' perceptions of teacher support of student competence—in the form of clearly explained and organized materials and feedback focused on students' effort, creativity, and strategy—exerted a stronger effect than support for autonomy and relatedness on intrinsic motivation in a specific course.

Finally, the research suggests that a person experiences relatedness support when others

display interest, demonstrate involvement, and show warmth as well as when an individual develops intimate relationships with others in the environment (Baumeister & Leary, 1995; Furrer & Skinner, 2003; Kasser & Ryan, 1999; LaGuardia & Patrick, 2008). Skinner and Belmont (1993) conceptualized teacher involvement as demonstrated affection toward and expressed interest in the student as well as availability and dedication. In their study, self-reports from teachers and students on need support showed that although both teacher behavior and student views of teacher behavior were positively associated with student engagement, teacher self-reported involvement showed a greater correlation with student engagement than did students' self-reported perceptions of their teacher involvement. Another study showed that students with a sense of belonging at their school—as defined by feeling respected and comforted by peers, teachers, and other school personnel—displayed greater orientation toward tasks to gain understanding as well as enhanced perceptions of competence (Anderman & Anderman, 1999) than those who did not feel this sense of belonging. Based on these findings, practices that reinforce feelings of relatedness, including communication of positive regard with warmth and acceptance and without pressure, may help advisors develop student motivation and persistence.

Predicted Benefits of Need-Supportive Advising

In line with the literature on need support in classroom, workplace, clinical, and other applied settings, we expect that advising responsive to individuals' psychological needs will benefit students. Thus, through advisor need support, we expect to see enhanced student autonomous motivation, engagement, and performance on focal tasks in advising sessions. Therefore, in this paper we refer to need-supportive advising as practices found to meet student needs for autonomy, competence, and relatedness.

The most immediate benefits of need-supportive advising may translate to motivation and attitudes surrounding decision making for a major. Need-supportive practices that have influenced autonomous motivation and perceptions of competence through need satisfaction, as measured in several settings (e.g., teaching, parenting, coaching, counseling), may apply to advising situations. For example, Guay, Senécal, Gauthier, and Fernet (2003) found diminished feelings of autonomy and self-efficacy toward career decision-making activities among students whose parents and friends provided feedback intended to control the student's choices. The authors recommended that counselors (with similar functions as advisors in this context) engage in autonomy-supportive practices to induce feelings of student self-efficacy and autonomy toward decision-making tasks.

Because need-supportive advising may positively influence student outcomes related to major decision making, students entering college undecided about a major may benefit the most from this approach. Guay, Ratelle, Senécal, Larose, and Deschênes (2006) found that decided students reported higher levels of self-efficacy than undecided students. Additionally, decided students reported more perceived autonomy toward career decision making, experienced more autonomy support from friends, and received fewer controlling messages from or bore fewer imperious behaviors of friends and parents than chronically undecided students (i.e., those for whom experiences of indecision remain stable and moderate over time).

Moreover, advising designed to help meet students' psychological needs may effectively mitigate a host of personal and social factors that contribute to undecidedness (Gordon, 2007). Undecided students report experiencing more anxiety (e.g., Fuqua, Seaworth, & Newman, 1987; Goodstein, 1965) and exhibit low efficacy toward decision making (Taylor & Betz, 1983) compared to decided students. Some research suggests that advising approaches that support autonomy, competence, and relatedness effectively address challenges for undecided students. For example, students with mothers who encouraged independence experienced less indecision than others (Guerra & Braungart-Rieker, 1999). Also, Berrios-Allison (2005) found that those from close-knit families enjoy the encouragement of exploration and decision-making commitment. Therefore, to the extent that advising meets one's needs for autonomy, competence, and relatedness, undecided students faced with decisions may demonstrate self-initiation and competence after experiencing need-supportive practices.

Method

Through this study, we investigated the role of need-supportive advising for student decision making on majors throughout an academic year. Specifically, we hypothesized that advising experiences that support students' autonomy, competence, and relatedness will positively predict

students' basic psychological need satisfaction. Additionally, we posited that basic need satisfaction will positively predict autonomously regulated and competent decision making on a major. We expected to see evidence that need-supportive advising offered at the beginning of the semester correlates with student need satisfaction determined toward the end of the academic year. Also, as did Jang et al. (2012), we expected to find that need-supportive advising offered throughout the year will predict positive autonomous and competent decision making behaviors of students at the end of it.

We used a longitudinal design to uncover the relationship between need-supportive advising and autonomous and competent decision making on a major. We looked at the relationship as a function of basic psychological need satisfaction. Participants completed an online survey at three time points throughout either the 2012-2013 or 2013-2014 academic years. Students typically receive an assigned advisor upon enrollment and meet with that same advisor while in the department. Therefore, the participants reported on experiences with the same advisor at all assessment points.

Participants

Students of a research university in the southwestern United States made up the participants for this study. We recruited them from the School of Undergraduate Studies in which undeclared or undecided students receive advising, students in the Department of Education studying psychology, and via correspondence with professors in various other departments. Students in the education courses must participate in research such as this or complete an alternative assignment.

We examined data of 145 students in this study. Eighty-six participants (59.31%) identified as first-year students. Others reported as 39 (26.89%) sophomore, 14 (9.65%) junior, and 4 (2.76%) senior, and 2 (1.38%) transfer students of unknown year. Students' ages ranged from 18 to 35 years with an average age of 18.93 years. One hundred-three students (71.03%) were female, 40 (27.59%) were male, and 2 students did not provide gender information. A majority of students (n = 56) reported as Caucasian (38.62%); others self-reported as Asian American (n = 49, 33.79%), Latino (n = 29, 20.00%), African American (n = 5, 3.45%), Middle Eastern (n = 3, 2.07%), and other ethnicity (n = 3, 2.07%).

During the 2012-2013 academic year, we collected survey data from participants on three separate occasions. At the first and last data collection time, we randomly selected 5 and 10 participants, respectively, to receive a $20 Amazon gift card through e-mail. Students participating in the 2013-2014 academic year received $5 at the first data collection point, $6 at the second, and $10 at the third and final time. To provide additional incentive, professors were asked to offer a point of extra credit to the students who completed the first phase of study during 2013-2014 academic year.

Design and Procedures

Data from participants who completed the survey (N = 145) were garnered at the beginning of the fall semester (t1), beginning of the spring semester (t2), and end of the spring semester (t3) for both academic years starting in 2012 and 2013. Data from the 2012-2013 and 2013-2014 academic years were combined to test two time points and thereby maximize the available data. We looked at data from t1 in t3 in both academic years; however, if corresponding t3 data were missing, we looked at data obtained at t2. In the analysis and results, we refer to the initial time for the study as *T1* and the endpoint time (in which data from both t2 and t3 are combined) in the analysis as *T2*.

We ran a series of path analyses using maximum likelihood procedures to test the hypotheses. A number of fit indices were used to assess goodness-of-fit, including LIST ALL, based on recommendations from Hu and Bentler (1999). We performed all analyses using Mplus (Version 6.12) statistical software (Muthén & Muthén, 2010).

Measures

On the survey, participants responded to demographic questions regarding ethnicity, age, year in college, and gender. Also, they could add any information about their advising experiences in an open-ended response. Participants rated the extent to which the items are true for them on a 7-point Likert-type scale (7 = *very true* and 1 = *not at all true*), unless otherwise noted.

The following measures were adapted from the classroom and teacher context to assess the students' perceptions of their advisor. We used an adapted version of the *Learning Climate Questionnaire* (Williams & Deci, 1996) to measure participants' perceptions of autonomy-

supportive academic advising (15 items). An example item is, "My advisor makes sure I really understand the goals of my degree and what I need to do." In our study, the scale demonstrated acceptable reliability at both time points T1 ($\alpha =$ .90) and T2 ($\alpha =$.92). An adapted version of the support of competence subscale (Zook & Herman, 2011) assessed participants' perceptions of competence-supportive advising (10 items). An example item is, "My advisor is always willing to provide help." Two items were reverse scored. Zook and Herman reported Cronbach's $\alpha = .91$ for this subscale; we found Cronbach's $\alpha =$.92 for the scale, and Cronbach's $\alpha = .95$ at each of the time points. An adapted version of the teacher involvement subscale, as reported by the student, in the *Teacher as Social Context Questionnaire–Short Form* (Belmont, Skinner, Wellborn, & Connell, 1988) was used to assess participants' perceptions of relatedness-supportive advising (8 items). An example item is, "My advisor really cares about me." Three items were reverse scored. Belmont et al. reported Cronbach's $\alpha =$.80 for this subscale. In our study, Cronbach's $\alpha =$.86 for the scale, and Cronbach's $\alpha = .88$ at each of the time points. All three of these measures were combined to create a single variable to represent need-supportive advising.

We employed a modified version of the *Basic Psychological Needs Satisfaction at Work Scale* (Ilardi, Leone, Kasser, & Ryan, 1993) to assess the extent to which participants' needs for autonomy, competence, and relatedness are satisfied within the advising relationship (21 items). This scale was modified from the original, which reflected a work and employer environment, to address the advising and advisor context. Example items included, "I am free to express my ideas and opinions in advising sessions" (autonomy); "My advisor tells me I am good at course work and tasks" (competence); and "My advisor cares about me" (relatedness). Eight items were reverse scored. Previous research has reported an average Cronbach $\alpha =$.83 for the overall scale (Deci et al., 2001; Gagné, 2003; Kashdan, Julian, Merritt, & Uswatte, 2006). In our study, Cronbach's $\alpha =$.89 at both time points.

An adapted version of the *Career Decision-Making Autonomy Scale* (Guay, 2005) was used to assess students' autonomy for making decisions about their academic major, instead of for assessing the career decision-making process as originally designed. The scale includes seven activities (e.g., "seeking information on academic major programs") that participants rated based on the extent to which they are engaging, or would engage, in the activities, for the following reasons: intrinsic (pleasure), identified (i.e., importance), introjected (i.e., to avoid feeling guilty and anxious), and extrinsic (i.e., for reward or by command from somebody else). In accordance with scoring procedures, we computed a perceived autonomy index (PAI) for each activity using the following formula to properly weight the score:

$$(\text{intrinsic motivation} + \text{identified regulation}) - (\text{introjected regulation} + \text{extrinsic motivation}).$$

The PAI for each activity was averaged together to create a total PAI, with higher scores indicating greater autonomous regulation of academic major decision making. Subscale values ranged between Cronbach's α values of .91 and .95 (Guay, 2005). Prior research also established the construct validity of the scale (Guay, 2005). In our study, we obtained Cronbach's α values that ranged from .90 to .96 for the subscales across both time points.

A modified version of the *Career Decision Self-Efficacy Scale–Short Form* (Betz, Hammond, & Moulton, 2005; Betz & Klein, 1996) measured students' competence toward major decision making instead of career decision making (14 items) as originally designed. An example item is, "Select one major from a list of potential majors you are considering." Participants indicated the level of confidence for completing a task on a 5-point Likert-type scale (5 = *complete confidence* and 1 = *no confidence at all*). Items were averaged together to create a score of competent major decision making; Cronbach's $\alpha =$.94 for the scale, and Cronbach's $\alpha = .96$ at both time points.

Results

Means and standard deviations for all of the variables are presented in Table 1. Simple bivariate correlations were examined among the variables within each time point (see Tables 2 and 3).

We examined the relationship between need-supportive advising and students' autonomous and competent decision making toward an academic major as explained by students' need satisfaction. To test the hypotheses, we conducted path analyses using maximum likelihood procedures. A number of fit indices were used to assess goodness-of-fit as per recommendations by Hu and Bentler (1999). In the model the following paths for initial and end

Table 1. Means (standard deviations) for variables, $N = 145$

Variable	Time 1	Time 2
Need-supportive advising	5.12 (1.02)	5.12 (1.18)
Need satisfaction	4.90 (.81)	4.98 (.84)
Autonomous decision making	3.26 (3.31)	2.45 (3.37)
Competent decision making	3.62 (.68)	3.73 (.74)

Note. All scales range from 1 to 7, except competent decision making, which ranges from 1 to 5, with higher scores indicating more agreement.

time point data (T1 and T2) were estimated: need-supportive advising to need satisfaction and advising and need satisfaction to autonomous and competent decision making. We also estimated the correlation between autonomous and competent decision making for both time points. To test the effect of advising over time, we estimated paths from each variable at T1 to the corresponding variable at T2, as well as the paths from each variable at T1 to each subsequent variable at T2 (e.g., from need satisfaction at T1 to autonomous and competent decision making at T2). All continuous predictor variables were mean centered.

The model produced moderate fit: $\chi^2(7) = 15.63$, $p < .05$, CFI (comparative fit index) = .99, TLI (Tucker-Lewis index) = .95, RMSEA (root mean squared error of approximation) = .09, SRMR (standardized root mean squared residual) = .05. In considering the addition of paths to improve model fit, we looked at modification indices larger than 3.84 (3.84 is the critical value of $\chi^2[1]$, $p < .05$). We added a path from competent decision making at T1 to autonomous decision making at T2 because we surmised that students who feel more competent about their academic major decision making will feel more autonomous about their decision making in the future. The model with this added path produced acceptable fit: $\chi^2(6) = 8.57$, $p = .20$, CFI = 1.00, TLI = .98, RMSEA = .05, SRMR = .04. A chi-square difference test comparing this model to the nested model, excluding the added path, provided support for the model with the added path: $\chi^2_{diff}(1) = 7.06$, $p < .01$. Table 4 lists the standardized coefficients and standard errors for the direct effects in the full model. Figure 1 displays the tested model.

Table 2. Correlations for variables at Time 1

Variable	1	2	3
1. Need-supportive advising	—		
2. Need satisfaction	.910*	—	
3. Autonomous decision making	.330*	.405*	—
4. Competent decision making	.284*	.323*	.487*

Note. $^*p \leq .001$.

The following direct paths were not statistically significant for T1 predictors: need-supportive advising at T1 to autonomous and competent decision making at T1, need-supportive advising, need satisfaction, and competent decision making at T2; need satisfaction at T1 to need satisfaction and competent decision making at T2; autonomous decision making at T1 to autonomous decision making at T2. The path from need-supportive advising at T2 to competent decision making at T2 showed no statistical significance. A model without these nonsignificant paths was estimated. This model produced good fit: $\chi^2(12) = 415.63$, $p = .21$, CFI = 1.00, TLI = .99, RMSEA = .05, SRMR = .05. A chi-square difference test applied to this model and the fuller model that included the nonsignificant paths provided support for the trimmed model (χ^2_{diff} [6] = 7.05, $p = .32$), suggesting that the more parsimonious model should be retained. In the second, trimmed model, the path from need satisfaction at T1 to autonomous decision making at T2 was not significant ($p = .064$) and so was not retained. Figure 2 illustrates the final model with statistically significant standardized coefficients and standard errors for the direct effects.

Indirect effects were estimated by including the INDIRECT statement in Mplus. We obtained bootstrap estimates based upon 5,000 resamples

Table 3. Correlations for variables at Time 2

Variable	1	2	3
1. Need-supportive advising	—		
2. Need satisfaction	.898*	—	
3. Autonomous decision making	.191*	.313*	—
4. Competent decision making	.242*	.302*	.536*

Note. $^*p \leq .001$.

Table 4. Standardized coefficients and standard errors for direct paths and correlations for full model at Times (T) 1 and 2

Path	Standardized Coefficients	Standard Error
From Need-Supportive Advising T1		
to Need Satisfaction T1	.91*	.01
to Autonomous Decision Making T1	–.23	.18
to Competent Decision Making T1	–.06	.19
to Need-Supportive Advising T2	–.06	.09
to Need Satisfaction T2	.07	.08
to Autonomous Decision Making T2	–.40***	.17
to Competent Decision Making T2	–.16	.17
From Need Satisfaction T1		
to Autonomous Decision Making T1	.61*	.18
to Competent Decision Making T1	.38***	.19
to Need Satisfaction T2	.10	.09
to Autonomous Decision Making T2	.36***[a]	.18
to Competent Decision Making T2	.20	.17
From Autonomous Decision Making T1		
to Autonomous Decision Making T2	.12	.08
with Competent Decision Making T1	.41*	.07
From Competent Decision Making T1		
to Autonomous Decision Making T2	.23**	.08
to Competent Decision Making T2	.43*	.07
From Need-Supportive Advising T2		
to Need Satisfaction T2	.90*	.02
to Autonomous Decision Making T2	–.45**	.17
to Competent Decision Making T2	–.20	.16
From Need Satisfaction T2		
to Autonomous Decision Making T2	.67*	.16
to Competent Decision Making T2	.42**	.15
Autonomous Decision Making T2 with Competent Decision Making T2	.40*	.07

Note. $^{*}p \leq .001$. $^{**}p \leq .01$. $^{***}p < .05$.

[a]This path was not retained in the final model because in the second goodness of fit test the alpha value for this pathway did not reach the threshold level ($p \leq .05$) of significance ($p = .064$).

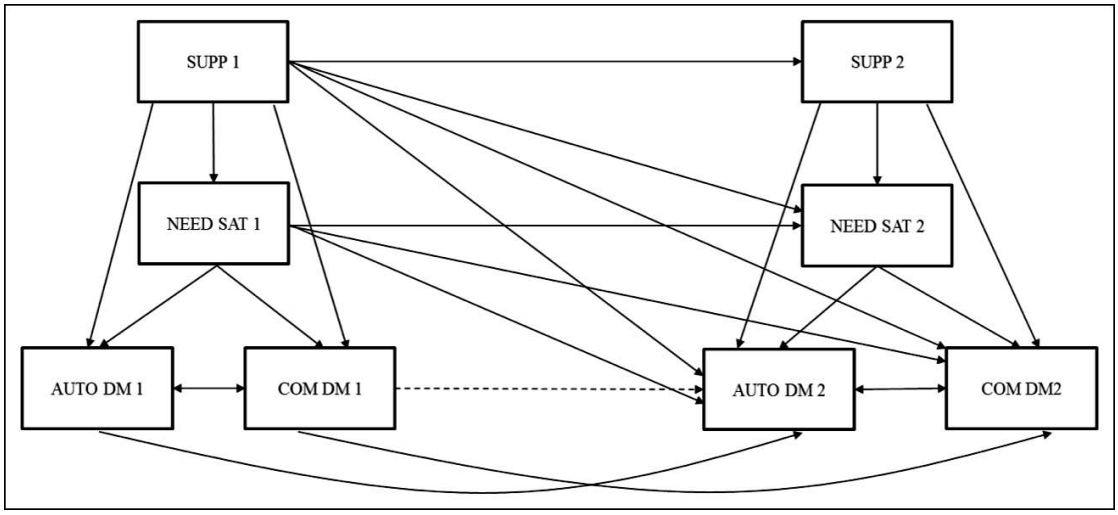
to investigate each indirect effect. Bootstrap confidence intervals suggested that all indirect effects were significant. The hypotheses for each separate time point were supported. Specifically, at T1 and T2, need satisfaction mediated the relation between need-supportive advising and autonomous and competent decision making such that more need-supportive advising significantly predicted greater need satisfaction, which in turn significantly predicted greater autonomous and competent decision making toward an academic major.

We also found partial affirmation for the hypothesis about need-supportive advising at T1 predicting autonomous and competent decision making at T2. Specifically, need-supportive advising at T1 positively predicted autonomous and competent decision making at T2 indirectly through need satisfaction and competent decision making at T1; however, we found a negative, direct relationship between need-supportive advising at T1 and autonomous decision making at T2. This relationship is maintained when the mediators are included in the analysis. Table 5 lists standardized coefficients, standard errors, and confidence intervals for the indirect paths.

Discussion

We examined the relationships between need-supportive advising and academic major decision making as expressed through basic need satisfaction. Because of the parallel between advising and teaching (e.g., Hemwall & Trachte, 2005; Ryan,

Figure 1. Full model of supportive advising need satisfaction and autonomous and competent decision making at Times 1 and 2

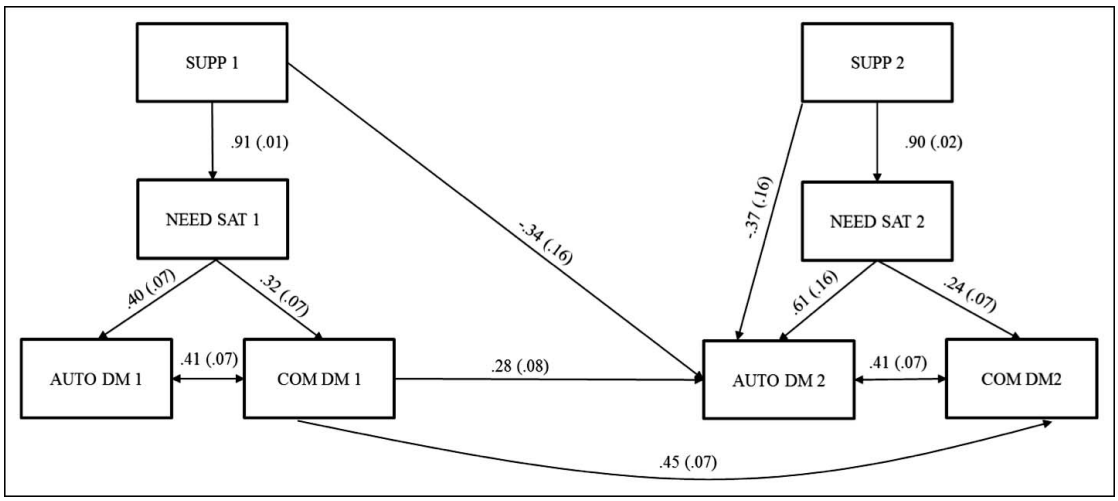


Note. SUPP = Need-supportive advising, NEED SAT = need satisfaction, AUTO DM = autonomous decision making, COM DM = competent decision making. The dotted line represents the added path.

1992), we sought to answer questions typically explored in classroom settings (e.g., Jang et al., 2010). Overall, the results suggest that advising that addresses students' needs for autonomy, competence, and relatedness predicts students' enhanced feelings of competence and autonomy toward decision making about their academic major because of the increased feelings of autonomy, competence, and relatedness they experience through advising.

Results from the model indicate that need-supportive advising significantly predicts satisfaction

Figure 2. Final model with standardized coefficients (and standard errors) at Times 1 and 2



Note. SUPP = Need-supportive advising, NEED SAT = need satisfaction, AUTO DM = autonomous decision making, COM DM = competent decision making. All paths significant at $p \leq .001$, except the paths from need-support advising at T1 and T2 to autonomous decision making at T2, which are significant at $p < .05$.

Table 5. Standardized coefficients and standard errors for indirect effects at Times (T) 1 and 2

Indirect Pathway	Standardized Coefficient	Standard Error	95% CI
Need-Supportive Advising T1 → Need Satisfaction T1 →Autonomous Decision Making T1	.36*	.07	.25, .53
Need-Supportive Advising T1 → Need Satisfaction T1 → Competent Decision Making T1	.29*	.07	.19, .46
Need-Supportive Advising T1 → Need Satisfaction T1 → Competent Decision Making T1 → Autonomous Decision Making T2	.09**	.03	.04, .17
Need-Supportive Advising T1 → Need Satisfaction T1 → Competent Decision Making T1 → Competent Decision Making T2	.13*	.04	.07, .23
Need-Supportive Advising T2 → Need Satisfaction T2 → Autonomous Decision Making T2	.56*	.16	.30, .98
Need-Supportive Advising T2 → Need Satisfaction T2 → Competent Decision Making T2	.21**	.07	.09, .40

Note. $^{*}p \leq .001$. $^{**}p \leq .01$.

of the three basic psychological needs for autonomy, competence, and relatedness. Specifically, at both time points, students felt greater need satisfaction during advising that was personally relevant and academically beneficial as well as when the advisor demonstrated care toward the student. This finding aligns with a long history of research demonstrating the benefits of need-supportive environments (e.g., Chirkov & Ryan, 2001; Guay et al., 2008; Hardré & Reeve, 2009). At both time points, need satisfaction predicted both autonomous and competent decision making, which corresponds with long-standing motivation research (e.g., Deci, Nezlek, & Sheinman, 1981).

Results also show that need-supportive advising received at the beginning of the year significantly predicted autonomous and competent advisee decision making toward the end of the year, and this effect manifested through multiple pathways. Specifically, when students perceive that advising sessions augment their feelings of autonomy, competence, and relatedness, their initial increased feelings of autonomy and competence toward decision making may translate into positive feelings of autonomy and competence toward making a decision on a major at a later time point. This finding correlates with the hypothesis that students who gain confidence about decisions may continue to feel confident, which may contribute to self-initiated decisions on a major.

Contrary to our hypotheses, the direct effect of need-supportive advising at each time point negatively predicted autonomous decision making at T2. This finding suggests that when they perceive that advising helps meet basic psychological needs, students may feel less enjoyment about decision making. However, because it reflects the direct effect of need-supportive advising after accounting for the role of need satisfaction, this finding potentially reflects undecided students' anxiety or frustration, which advisors may pique when focusing on them extensively through directed choice, feedback, and care. In fact, research suggests that many undecided students feel anxiety (Gordon, 2007), which may inhibit them from enjoying and or taking interest in tasks related to the major decision-making process.

Implications

Overall, this research provides additional insight into advising practices for and decision-making behaviors of college students. Advisors may look to self-determination theory and robustly researched need-supportive practices as means to provide beneficial advising for students making academic major decisions. However, we caution that intervention research is needed to establish the benefits of these advising practices and inform the professional development of advisors who use them. While current best practices in advising align with most of the need-supportive practices described herein, the results of this study add to a larger picture.

To satisfy students' need for autonomy, advisors may explain relevant choices and rationales. A need-supportive advisor can also

help a student develop interests during the exploration process by asking questions and providing choices based on accumulated knowledge of degrees and other resources. For example, if a student expresses interest in health care, the advisor may point out areas of study such as healthcare administration, biology, pathology, and other options in the field. Advisors should be knowledgeable about degree programs and requirements as well as additional resources for exploration and support (Nutt, 2000).

In addition, the findings suggest that advisors refrain from using imperatives or otherwise invoking controlling behaviors associated with choosing a major. By avoiding language such as *should, must*, and *ought,* advisors may offer messages less likely to be perceived as authoritative. For example, an advisor may suggest that "your academic career will likely benefit if you select a major before your sophomore year of college" rather than decree: "You must choose a major by the end of this year."

When discussing academic majors, advisors can help students make connections between their interests and available programs, allow them to express opinions and negative feelings appropriately about the degree programs and process of academic decision making, and encourage their engagement in course work related to interests and goals. For example, when a business major refers to calculus as an extraneous and unwarranted burden, the advisor provides explanations for the importance of the class or helps the student find alternative courses (or majors) that more closely relate to her or his interests.

To support the students' need for competence, advisors state clear expectations and informative feedback. More specifically, they may consider providing an advising syllabus that includes explanations of a student's responsibilities in and intended outcomes for the advising experience (Appleby, 2008; Trabant, 2006). In the syllabus, advisors explain the typical flow of advising sessions and ask students to compile a list of questions they wish to address during the meeting (McKamey, 2007). Additionally, advisors may specify student learning outcomes for advising and the methods by which they are measured (Appleby, 2008).

Advisors can refer to students' previous successes as prompts to engage students in activities that create additional mastery experiences. For example, an undecided student with difficulty choosing a major shares enjoyment of high school debate and describes winning several awards. In response, the advisor points to opportunities to continue in competitive forensics and other similar endeavors so the student can put the decision-making process in a current context that may inform choosing a major.

Furthermore, advisors taking a supportive role guide students through the academic major selection process by supplying informative feedback. In particular, advisors praise students' efforts to decide, such as attending career fairs or taking an online career assessment, and encourage other decision-making activities to reinforce appropriate choosing behaviors.

Additionally, to support feelings of relatedness, advisors can demonstrate interest and warmth toward advisees. For example, by providing their contact information and genuinely encouraging them to use it, advisors may inspire students to reach out to them when necessary. However, advisors also must set healthy boundaries regarding the timing and expectations for such interactions. By sending students' e-mails personally addressed to them and using first names, instead of mass e-mails and impersonal messages, advisors can foster a one-on-one relationship. When students seek guidance, advisors must listen to students' stories without judgment and not proffer advice based on personal biases.

Limitations and Future Directions

Despite the useful results on need supportive advising, this study has several limitations. Notably, the time between assessment time points, while crucial during students' exploration process, created attrition in the dataset through the course of the study; whether these missing data reflected attrition in the university remains unknown (one student specifically stated that she had left the university). Based on the published information on undecided students, stop out, drop out, or transfer seems a reasonable explanation for missing data in the terminal points of the study. Future study designs could include exploration on academic advising impacts on matriculation and degree completion.

In the study, we included only students undecided and undeclared; however, a critical distinction between these two categories may confound the results. Undeclared students may have made a decision about their major but have not officially declared it by choice or by design. For example, at the university hosting this study,

many colleges or departments limit the number of students they admit each year. Therefore, some students gain acceptance to the university and are placed into the School of Undergraduate Studies, which serves undecided and exploratory students. Future research into levels of indecision and a specific defined categorization of students would expand this study on the effects of need-supportive advising based on specific characteristics of personal decidedness.

In this study, we explored students' perceptions of their advisors, but not the advisors' behaviors. Skinner and Belmont (1993) found a positive relationship between students' perceptions and teachers' reports of need support over time as well as a positive association between students' reports of engagement and teachers' perceptions of student engagement throughout the school year. Further research designed to find advisors' perceptions of their ability to meet their students' basic psychology needs or measures of advisor practices and student outcomes may contribute useful empirical findings.

In this study, we did not observe advising sessions and cannot determine the extent (if any) discussion of major decision making was undertaken. Instead of discussing program of study selections, students and advisors may have addressed issues with course work, grades, adjusting to college, or finding specific resources on campus. Although discussions on many typical advising topics may feature need-supportive practices, the context in which they were applied may not result in direct motivation for decision making on a major.

Also, the findings are based on practice conducted through a model in which students meet with the same advisor repeatedly over time. Perhaps other delivery models, such as those based on access to any advisor on a walk-in basis instead of an assigned advisor, would enhance need-supportive advising programs.

The proposed study included no assessment on student relationships with influential people other than advisors, such as relatives, peers, and faculty members (Beggs, Bantham, & Taylor, 2008; Guay et al., 2003; Walmsley, Wilson, & Morgan, 2010). Future research could examine the effects of nonadvising influences on academic decision making.

Conclusion

We investigated the relationship between perceived need support, need satisfaction, and major decision making in the context of advising. Results support the hypothesis that undecided students who perceive receiving supportive advising that satisfied their needs for autonomy, competence, and relatedness may experience enhanced motivation toward major decision making over time. Although the hypotheses need further testing through well-designed intervention studies, these results indicate that advisor–student relationships may benefit from advisor cultivation of practices that support the psychological needs of autonomy and competence especially in terms of decision making.

References

Allen, J. B., & Howe, B. L. (1998). Player ability, coach feedback, and female adolescent athletes' perceived competence and satisfaction. *Journal of Sport and Exercise Psychology, 20*, 280–299.

Anderman, L. H., & Anderman, E. M. (1999). Social predictors of changes in students' achievement goal orientations. *Contemporary Educational Psychology, 24*(1), 21–37.

Anderson, R., Manoogian, S. T., & Reznick, J. S. (1976). The undermining and enhancing of intrinsic motivation of preschool children. *Journal of Personality and Social Psychology, 34*(5), 915–922.

Appleby, D. C. (2008). Advising as teaching and learning. In V. N. Gordon, W. R. Habley, & T. J. Grites (Eds.), *Academic advising: A comprehensive handbook* (2nd ed., pp. 267–278). San Francisco, CA: Jossey-Bass.

Assor, A., Kaplan, H., & Roth, G. (2002). Choice is good but relevance is excellent: Autonomy affecting teacher behaviors that predict students' engagement in learning. *British Journal of Educational Psychology, 72*, 261–278.

Baird, L. L. (1969). The undecided student: How different is he? *The Personnel and Guidance Journal, 47*(5), 429–434.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529.

Beggs, J. M., Bantham, J., & Taylor, S. (2008). Distinguishing the factors influencing college students' choice of major. *College Student Journal, 42*(2), 381–394.

Belmont, M., Skinner, E., Wellborn, J., & Connell, J. (1988). *Teacher as social context: A measure of student perceptions of teacher provision of involvement, structure, and*

autonomy support (Technical Report No. 102). Rochester, NY: University of Rochester.

Berrios-Allison, A. C. (2005). Family influences on college students' occupational identity. *Journal of Career Assessment, 13*(2), 233–247.

Betz, N. E., Hammond, M., & Moulton, K. (2005). Reliability and validity of response continua for the career decision self-efficacy scale. *Journal of Career Assessment, 13*, 131–149.

Betz, N. E., & Klein, K. (1996). Relationships among measure of career self-efficacy, generalized self-efficacy, and global self-esteem. *Journal of Career Assessment, 4,* 285–298.

Bullock-Yowell, E., McConnell, A. E., & Schedin, E. A. (2014). Decided and undecided students: Career self-efficacy, negative thinking, decision-making difficulties. *NACADA Journal, 34*(1), 22–34.

Butler, R. (1987). Task-involving and ego-involving properties of evaluation: Effects of different feedback conditions on motivational perceptions, interest, and performance. *Journal of Educational Psychology, 79*, 474–482.

Chirkov, V. I., & Ryan, R. M. (2001). Parent and teacher autonomy-support in Russian and U.S. adolescents: Common effects on well-being and academic motivation. *Journal of Cross-Cultural Psychology, 32*, 618–635.

Cordova, D. I., & Lepper, M. R. (1996). Intrinsic motivation and process of learning: Beneficial effects of contextualization, personalization, and choice. *Journal of Educational Psychology, 88*, 715–730.

Crookston, B. B. (2009). 1994 (1972): A developmental advising view of academic advising as teaching. *NACADA Journal, 29*(1), 78–82. (Reprinted from *Journal of College Student Personnel, 13*, 1972, 12–17)

Cuseo, J. (2003). *Academic advisement and student retention: Empirical connections and systematic interventions*. Retrieved from http://www.uwc.edu/administration/academic-affairs/esfy/cuseo/

deCharms, R. (1976). *Enhancing motivation: Change in the classroom*. New York, NY: Irvington.

Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology, 18*, 105–115.

Deci, E. L. (1972). Intrinsic motivation, extrinsic reinforcement, and inequity. *Journal of Personality and Social Psychology, 22*, 113–120.

Deci, E. L., Nezlek, J., & Sheinman, L. (1981). Characteristics of the rewarder and intrinsic motivation of the rewardee. *Journal of Personality and Social Psychology, 40*, 1–10.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.

Deci, E. L., Ryan, R. M., Gagné, M., Leone, D. R., Usunov, J., & Kornazkeva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former eastern bloc country: A cross-cultural study of self-determination. *Personality and Social Psychology Bulletin, 27*, 930–942.

Fox, R. (2008). Delivering one-to-one advising: Skills and competencies. In V. N. Gordon, W. R. Habley, & T. J. Grites (Eds.), *Academic advising: A comprehensive handbook* (2nd ed., pp. 267–278). San Francisco, CA: Jossey-Bass.

Fuqua, D. R., Seaworth, T. B., & Newman, J. L. (1987). The relationship of career indecision and anxiety: A multivariate examination. *Journal of Vocational Behavior, 30*, 175–186.

Furrer, C., & Skinner, E. A. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology, 95*, 148–162.

Gagné, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion, 27*, 199–223.

Goodstein, L. (1965). Behavior theoretical views of counseling. In B. Steffre (Ed.), *Theories of counseling* (pp. 140–192). New York, NY: McGraw Hill.

Gordon, V. N. (2007). *The undecided college student: An academic and career advising challenge* (3rd ed.). Springfield, IL: Charles C Thomas.

Gottfried, A. E., Fleming, J. S., & Gottfried, A. W. (1994). Role of parental motivational practices in children's academic intrinsic motivation and achievement. *Journal of Educational Psychology, 86*, 104–113.

Grolnick, W., & Ryan, R. M. (1987). Autonomy in children's learning: An experimental and individual difference investigation. *Journal of Personality and Social Psychology, 52*, 890–898.

Guay, F. (2005). Motivations underlying career decision-making activities: The career decision-making autonomy scale (CDMAS). *Journal of Career Assessment, 13*(1), 77–97.

Guay, F., Ratelle, C. F., & Chanal, J. (2008). Optimal learning in optimal contexts: The role of self-determination in education. *Canadian Psychology, 49*(3), 233–240.

Guay, F., Ratelle, C. F., Senécal, C., Larose, S., & Deschênes, A. (2006). Distinguishing developmental from chronic career indecision: Self-efficacy, autonomy, and social support. *Journal of Career Assessment, 14*(2), 235–251.

Guay, F., Senécal, C., Gauthier, L., & Fernet, C. (2003). Predicting career indecision: A self-determination theory perspective. *Journal of Counseling Psychology, 50*(2), 165–177.

Guerra, A. L, & Braungart-Rieker, J. (1999). Predicting career indecision in college students: The roles of identity formation and parental relationship factors. *Career Development Quarterly, 47*(3), 255–266.

Harackiewicz, J. M. (1979). The effects of reward contingency and performance feedback on intrinsic motivation. *Journal of Personality and Social Psychology, 32*, 1352–1361.

Hardré, P., & Reeve, J. (2009). Benefits of training corporate managers to adopt a more autonomy-supportive style toward employees: An intervention study. *International Journal of Training and Development, 13*(3), 165–184.

Hemwall, M. K., & Trachte, K. (1999). Learning at the core: Toward a new understanding of academic advising. *NACADA Journal, 19*(1), 5–11.

Hemwall, M. K., & Trachte, K. (2005). Academic advising as learning: 10 organizing principles. *NACADA Journal, 25*(2), 74–83.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternative. *Structural Equation Modeling*, 6, 1–55.

Ilardi, B.C., Leone, D., Kasser, R., & Ryan, R. M. (1993). Employee and supervisor ratings of motivation: Main effects and discrepancies associated with job satisfaction and adjustment in factory setting. *Journal of Applied Social Psychology, 23*, 1789–1805.

Jang, H., Kim, A., & Reeve, J. (2012). Longitudinal test of self-determination theory's motivation mediation model in a naturally occurring classroom context. *Journal of Educational Psychology*, *104*(2), 1175–1188.

Jang, H., Reeve, J., & Deci, E. L. (2010). Engaging students in learning activities: It is not autonomy support or structure but autonomy support and structure. *Journal of Educational Psychology*, *102*(3), 588–600.

Kashdan, T. B., Julian, T., Merritt, K., & Uswatte, G. (2006). Social anxiety and posttraumatic stress in combat veterans: Relations to well-being and character strengths. *Behavior Research and Therapy, 44*, 561–583.

Kasser, V. M., & Ryan, R. M. (1999). The relation of psychological needs for autonomy and relatedness to health, vitality, well-being and morality in a nursing home. *Journal of Applied Social Psychology*, *29*, 935–954.

Laff, N. S. (1994). Reconsidering the developmental view of advising: Have we come a long way? *NACADA Journal, 14*(2), 46–49.

LaGuardia, J. G., & Patrick, H. (2008). Self-determination theory as a fundamental theory of close relationships. *Canadian Psychology, 49*, 201–209.

Leppel, K. (2001). The impact of major on college persistence among freshman. *Higher Education, 41*, 327–342.

Levesque, C., Zuehlke, A. N., Stanek, L. R., & Ryan, R. M. (2004). Autonomy and competence in German and American university students: A comparative study based on self-determination theory. *Journal of Educational Psychology, 96*, 68–84.

McKamey, J. N. (2007). An advising syllabus: A tool to increase advising effectiveness. *The Mentor: An Academic Advising Journal, 9*(1). Retrieved from http://www.psu.edu/dus/mentor/073021jm.htm

Muthén, L. K., & Muthén, B. O. (2010). *Mplus user's guide* (7th ed.). Los Angeles, CA: Author.

Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education, 7*(2), 133–144.

Noel-Levitz. (2011). *Annual national student satisfaction report*. Retrieved from https://www.ruffalonl.com/documents/shared/Papers_and_Research/2011/National-SSI-Reports/SSI_public%20report%20A-2_0711%20indd.pdf

Nutt, C. L. (2000). One-to-one advising. In V. N. Gordon & W. R. Habley (Eds.), *Academic advising: A comprehensive handbook* (1st ed.,

pp. 220–227). San Francisco, CA: Jossey-Bass.

Pascarella, E. T., & Terenzini, P. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco, CA: Jossey-Bass.

Reeve, J., & Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity. *Journal of Educational Psychology, 98*, 209–218.

Ryan, C. C. (1992). Advising as teaching. *NACADA Journal, 12*(1), 3–8.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54–67.

Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85*, 571–581.

Slowinski, P. T., & Hammock, W. K. (2003). *Undecided/open students*. Retrieved from http://www.nacada.ksu.edu/Clearinghouse/AdvisingIssues/adv_undeclared.htm

St. John, E. P., Hu, S., Simmons, A., Carter, D. F., & Weber, J. (2004). What difference does a major make? The influence of college major field on persistence by African American and White students. *Research in Higher Education, 45*(3), 209–232.

Su, Y., & Reeve, J. (2011). A meta-analysis of the effectiveness of intervention programs designed to support autonomy. *Educational Psychology Review, 23*, 159–188.

Taylor, K. M., & Betz, N. E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior, 22*(1), 63–81.

Titley, R. W., & Titley, B. S. (1980). Initial choice of college major: Are only the "undecided" undecided? *Journal of College Student Personnel, 21*(4), 293–294.

Trabant, T. D. (2006). *Advising Syllabus 101*. Retrieved from http://www.nacada.ksu.edu/Clearinghouse/AdvisingIssues/syllabus101.htm

Vansteenkiste, M., Simons, J., Lens, W., Soenens, B., & Matos, L. (2005). Examining the motivational impact of intrinsic versus extrinsic goal framing and autonomy-supportive versus internally-controlling communication style on early adolescents' academic achievement. *Child Development, 76*, 483–501.

Walmsley, A., Wilson, T., & Morgan, C. (2010). Influences on a college student's major: A developmental perspective. *Journal for Liberal Arts and Sciences, 14*(2), 25–46.

Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students: A test of self-determination theory. *Journal of Personality and Social Psychology, 70*, 767–779.

Williams, G. C., Lynch, M. F., McGregor, H. A., Ryan, R. M., Sharp, D., & Deci, E. L. (2006). Validation of the "important other" climate questionnaire: Assessing autonomy support for health-related change. *Families, Systems, & Health, 24*(2), 179–194.

Williams, G. C., McGregor, H., Sharp, D., Levesque, C. S., Kouides, R. W., Ryan, R. M., & Deci, E. L. (2006). Testing a self-determination theory intervention for motivating tobacco cessation: Supporting autonomy and competence in a clinical trial. *Health Psychology, 25*, 91–101.

Zook, J. M., & Herman, A. P. (2011). Course-specific intrinsic motivation: Effects of instructor support and global academic motivation. *Journal on Excellence in College Teaching, 22*(4), 83–103.

Authors' Notes

This study was approved by the Internal Review Board at The University of Texas at Austin and supported by a NACADA Research Grant.

Dr. Jennifer Kay Leach is an academic advisor in the University Exploratory Studies Program (UESP) at Oregon State University. She also is the Coordinator of Career and Major Decision Making in the UESP. She completed her doctorate in Educational Psychology at The University of Texas at Austin. Her research areas include major decision making, exploratory students, and self-determination theory. Correspondence concerning this article should be addressed to her at jennifer.leach@oregonstate.edu.

Erika A. Patall is an associate professor in Educational Psychology at The University of Texas at Austin. She served as dissertation chair on this project.