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# Understanding the Negative Effects of Legal Education on Law Students: A Longitudinal Test of Self-Determination Theory

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*Longitudinal studies suggest that law school has a corrosive effect on the well-being, values, and motivation of students, ostensibly because of its problematic institutional culture. In a 3-year study of two different law schools, the authors applied self-determination theory's (SDT) dynamic process model of thriving to explain such findings. Students at both schools declined in psychological need satisfaction and well-being over the 3 years. However, student reports of greater perceived autonomy support by faculty predicted less radical declines in need satisfaction, which in turn predicted better well-being in the 3rd year and also a higher grade point average, better bar exam results, and more self-determined motivation for the first job after graduation. Institution-level analyses showed that although students at both schools suffered, one school was perceived as more controlling than the other, predicting greater difficulties for its students. Implications for SDT and for legal education are discussed.*

**Keywords:** *self-determination theory; well-being; legal education; bar performance; psychological needs*

The popular notion that law school is an exceptionally stressful experience for many students has been substantiated by longitudinal studies (Benjamin, Kaszniak, Sales, & Shanfield, 1986; Shanfield & Benjamin, 1985; Sheldon & Krieger, 2004). Indeed, the emotional distress of law students appears to significantly exceed that of medical students and at times to approach that of psychiatric populations (Dammeyer & Nunez, 1999).

These findings have substantial human and social significance, given that the level of adjustment of graduating law students is likely to carry over into professional practice and may set the stage for the unparalleled frequency of psychological distress (Beck, Sales, & Benjamin, 1995; Eaton, Anthony, Mandel, & Garrison, 1990) and other problems seen broadly among lawyers today (Daicoff, 1997; Krieger, 1998; Schiltz, 1999).

Legal commentators have suggested several basic features of contemporary legal education that may contribute to these problems. These features include overvaluing theoretical scholarship and undervaluing the teaching function (Edwards, 1992; Elson, 1989; Floyd, 1997; Rapaport, 2002; Schuwerk, 2004), employing generally unsound teaching and testing methods (Benjamin et al., 1986; Floyd, 1997; Halpern, 1982; Hess, 2002; McKinney, 2002; Rapaport, 2002; Savoy, 1970; Shanfield & Benjamin, 1985; Sheehy & Horan, 2004), and emphasizing abstract theory rather than providing practical training (Edwards, 1992; Elson, 1989; Floyd, 1997; Granfield, 1998; Rapaport, 2002). Observers further suggest that such priorities and processes train students to ignore their own values and moral sense, undermine students' sense of identity and self-confidence, and create cynicism (Ames, 2005; Anonymous, 1998; Cramton, 1987; Elson, 1989; Glesner, 1991; Granfield, 1998; Linowitz, 1994;

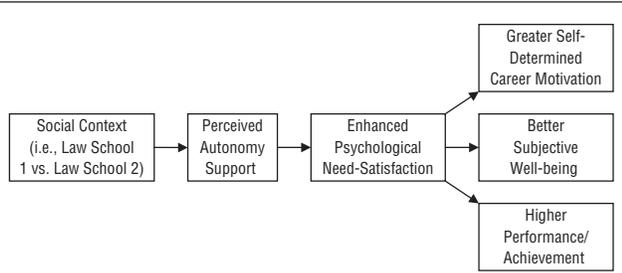
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**Figure 1** Integrated model of thriving based on self-determination theory.

Schuwerk, 2004; Sheehy & Horan, 2004). These commentaries, taken together, suggest that normative faculty and institutional practices may thwart the needs and preferences of typical law students.

In recent longitudinal studies, Sheldon and Krieger (2004) confirmed earlier findings of emotional distress among law students and deepened the inquiry to address the motivation and values of the students. They applied self-determination theory (SDT), a humanistically oriented but also rigorously empirical theory of human motivation, which has been under development for three decades (Deci, 1975; Deci & Ryan, 1985, 2000). Consistent with earlier longitudinal studies, Sheldon and Krieger demonstrated that law students experience precipitous declines in their mental health during their 1st year. More important, they showed that these declines were correlated with negative changes in motivation and valuing as defined by SDT. Specifically, students evidenced radically reduced intrinsic motivation, that is, a loss of engagement in behavior because of its interest and enjoyment potential. In addition, students showed maladaptive changes in valuing during their 1st year of law school: They shifted toward (extrinsic) image and appearance values and away from (intrinsic) community and helping values and also exhibited a general decline in the overall level of valuing (both intrinsic and extrinsic). These 1st-year effects were essentially replicated across two different samples at two different law schools and were shown to persist into the 3rd year within one of the samples, from which 2nd- and 3rd-year data were also collected.

### An Integrated Model of Thriving Based on SDT

Sheldon and Krieger's (2004) studies offered a promising extension of previous work on law student well-being by investigating the reasons students behave (i.e., the "why" of motivation) and the values toward which behavior is oriented (i.e., the "what" of motivation; Deci & Ryan, 2000; Sheldon, Ryan, Deci, & Kasser, 2004). However, they did not take full advantage of the conceptual resources of SDT because they did not take into account two other important

components of SDT—psychological need satisfaction and the nature of the social context. In addition, the earlier studies did not consider SDT's dynamic process model based on these constructs.<sup>1</sup> To illustrate, Figure 1 presents an integrated conceptual model of the causes of personal thriving over time, which is based on SDT (Baard, Deci, & Ryan, 2004; Deci & Ryan, 2000; Vallerand, 1997).

The integrated model begins with the social context. According to SDT, the development of positive motivation is importantly forwarded or impeded by the characteristics of the social environment. Specifically, when authorities provide autonomy support and acknowledge their subordinates' initiative and self-directedness, those subordinates discover, retain, and enhance their intrinsic motivations and at least internalize nonenjoyable but important extrinsic motivations. In contrast, when authorities are controlling or deny the self-agency of subordinates, intrinsic motivations are undermined and internalization is forestalled (Grolnick & Ryan, 1987; Ryan & Stiller, 1991).

Autonomy support has three prototypical features: (a) choice provision, in which the authority provides subordinates with as much choice as possible within the constraints of the task and situation; (b) meaningful rationale provision, in which the authority explains the situation in cases where no choice can be provided; and (c) perspective taking, in which the authority shows that he or she is aware of, and cares about, the point of view of the subordinate (Deci, Eghrari, Patrick, & Leone, 1994). For example, a supervisor may say, "I know that this task is not very enjoyable, and I can understand why you don't want to do it. Still, I need you to do it because it is so important to the organization. However, you can certainly choose when and how you do it, as long as it gets done." In contrast, a controlling approach would be, "Tough luck if you don't like it. You have to do it, because I say so" (Sheldon, Turban, Brown, Barrick, & Judge, 2003).

The demonstrated importance of autonomy-supportive (vs. controlling) social contexts converges with, and may provide further insight into, many of the anecdotal comments of legal scholars cited above. Indeed, based on the work of Deci and Ryan (1985, 1991, 2000) and on the commentaries cited above, Sheldon and Krieger (2004) argued that the negative motivational effects they demonstrated were likely caused by the controlling and autonomy-denying features of legal education. Although the question of supportive versus controlling social context was not empirically addressed in their initial study, it is considered in the current study.

### Needs and Outcomes Within the Thriving Model

The next step in the integrated model (see Figure 1) links autonomy support to psychological need satisfaction.

Psychological need concepts have become increasingly important in SDT because they help explain the positive versus negative effects of social context while grounding the theory within an overarching view of evolved human nature (Deci & Ryan, 2000). According to SDT, all human beings require regular experiences of autonomy, competence, and relatedness to thrive and maximize their positive motivation. In other words, people need to feel that they are good at what they do or at least can become good at it (competence); that they are doing what they choose and want to be doing, that is, what they enjoy or at least believe in (autonomy); and that they are relating meaningfully to others in the process, that is, connecting with the selves of other people (relatedness). These needs are considered so fundamental that Ryan (1995) has likened them to a plant's need for sunlight, soil, and water. Indeed, autonomy, competence, and relatedness have each been shown empirically to be uniquely important in that they have additive effects on a host of positive outcomes (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000) in both Western and non-Western cultures (Sheldon, Elliot, Kim, & Kasser, 2001).

Many of the anecdotal critiques of legal education cited above are consistent with the speculation that such education thwarts the psychological needs of students. Indeed, in their previous study, Sheldon and Krieger (2004) also suggested that reduced psychological need satisfaction ultimately could explain the negative effects of the law school experience on student motivation and well-being. The current study includes longitudinal measurement of student need satisfaction to support that proposition.

The final link in the integrated model (see Figure 1) leads from psychological need satisfaction to three positive outcomes: self-determined career motivation, well-being/psychological health, and grade performance. The prediction of the first outcome, self-determined career motivation, derives from past SDT research showing that when social contexts support autonomy, and therefore promote psychological need satisfaction, individuals gain the inner resources to develop and follow intrinsic motivations and are also able to identify with and internalize appropriate extrinsic motivations within those contexts (Sheldon, Williams, & Joiner, 2003). This proposition has been supported within a wide variety of domains, including education, sports, medicine, and organizations (Deci & Ryan, 2000). In the current study, we hoped to provide new support for this Figure 1 path, via a 3-year study of law students.

The prediction for the second outcome, psychological well-being and health, derives from a prominent strand of SDT research that has focused on mood, life satisfaction, and psychological vitality (Deci & Ryan, 2000). Again, psychological need satisfaction is theorized to

provide the experiential nutrients for people to thrive and grow to the fullest extent. In terms of bottom-up models of well-being (Diener, Sandvik, & Pavot, 1990), peoples' global judgments of their overall mood and life satisfaction may depend on how many positive experiences they can bring to mind when they reflect on the recent past (Kahneman, 1997). According to SDT, autonomy, competence, and relatedness are precisely the kinds of experiences that people implicitly take into account in making well-being judgments (Sheldon & Elliot, 1999). Thus, Figure 1 contains an arrow from the three need satisfaction variables to changes in well-being.

The third positive outcome in the integrated model is law school grade point average (GPA). This reflects another strand within SDT, in which the determinants of optimal performance—that is, outcomes such as mastery, creativity, conceptual learning, and level of achievement—are investigated. GPA is perhaps the most important measure of law school performance, given the typical institutional emphasis on grades and their impact on future jobs. Because SDT postulates that psychological need satisfaction is important for positive outcomes of all types, the integrated SDT model (see Figure 1) contains a path from changes in need satisfaction to final law school GPA (although there are doubtless many other factors besides psychological need satisfaction that influence GPA). We controlled for undergraduate GPA in our analyses so that final GPA would represent performance relative to that which prior performance would indicate.

Few studies have attempted to measure all the primary SDT constructs simultaneously (but see Vallerand, *in press*, for a discussion of recent studies in the domain of exercise and sport). For example, some studies focus only on autonomy support and self-determined motivation, others on need satisfaction and well-being, and others on self-determined motivation and performance. In part, comprehensive model tests have been forestalled because of disagreements on the proper place of self-determined motivation within the dynamic model. Should self-determined motivation be located near the front of the model, as a predictor of subsequent adaptive behavior and thus need satisfaction? Or should it be located near the end of the model, as an outcome of contextually derived need satisfaction? This decision depends partly on where in the dynamic stream of behavior and events one chooses to start one's data collection and model, but it also depends on whether motivation is viewed as a reactive effect of prior events or as a proactive cause of future events. It is likely both, and thus the precise location of self-determined motivation within the model will vary depending on the nature of the study and the way and time in which self-determined motivation is measured.

As previously stated, in this research we placed self-determined motivation at the end of the model, as a

positive outcome of need satisfaction rather than as a cause of satisfaction and well-being outcomes itself. We did this because commentaries indicate that by the 3rd year of law school most students have begun disengaging from law school itself, instead focusing on their future work (Anonymous, 1998; Benjamin et al., 1986; Elson, 1989; Gulati, Sander, & Sockloskie, 2001). Thus, we decided to assess student motivation for a new, prospective activity (their first full-time job after law school) rather than for their current school work. Given this decision, it did not make sense to insert motivation into the model as a previously acting cause on concurrent well-being; instead, we viewed it as an outcome, which might then presumably serve as an initial predictor of well-being and performance in a subsequent legal career. More generally, we suggest that motivation be treated as an exogenous predictor when it is measured only at the beginning of a longitudinal study but that it can be an outcome when it is measured at the beginning and the end of the study, especially if the end-point measurement refers to motivation for a new and forthcoming activity (i.e., the upcoming law career).

#### Extending the Model to Multiple Social Contexts

We also hoped to extend the SDT model in a very different way by considering variations across different law schools. Again, SDT views autonomy-supportive versus controlling social contexts as important initial determinants of a downstream chain of causes and effects. However, social context is typically measured at an individual level, in terms of cross-individual variations in perceived autonomy supportiveness within a single social context. Also, longitudinal studies are typically conducted within only one context, showing that individuals who perceive that context as more controlling typically fare worse (Williams & Deci, 1996). Obviously, however, such effects might reflect individual dynamics as much as social dynamics, and thus it is important to manipulate or at least measure a social-level grouping factor that might correspond to objective differences in contextual autonomy support. In these studies, we addressed this problem by collecting data from students at two different law schools with institutional differences that might well result in differing levels of perceived institutional autonomy support. Thus, we located institutional differences at the very front of the Figure 1 model.

The two law schools we selected were located in different regions of the country. Although both schools admit highly qualified candidates, with largely equivalent undergraduate grades and LSAT scores, the schools appear to have somewhat different educational and pedagogical philosophies. When hiring faculty, Law School 2 (LS2) places relatively greater emphasis on law practice

and public service experience and on demonstrated teaching ability, factors of vital importance for the professional training of students (Edwards, 1992; Floyd, 1997; Granfield, 1998; Halpern, 1982; Linowitz, 1994; Rapaport, 2002; Schuwerk, 2004). By contrast, Law School 1 (LS1) more strongly emphasizes previous and potential scholarly production, a fact attested to by substantially higher national rankings for reputation and scholarly production.<sup>2</sup> LS2 also differs from LS1 in that it regularly provides teaching skills seminars for its faculty, has many more faculty members devoted to practical skills training, and combines skills and theory instructors into one integrated faculty. Finally, LS2 offers a markedly larger number of practice skills courses to balance the training in legal theory and has a cocurricular requirement for students that furthers their professional development and helps with stress and mental health concerns. All of these factors suggest that there is a stronger orientation toward student interests and priorities at LS2, which we believed might translate empirically into a difference in perceived autonomy support. On the other hand, we also recognized that, if institutional-level differences in autonomy support were reported, they might be explained simply by demographic differences between the student bodies, for example, age, gender, prior work experience, and ethnicity. This possibility was considered in our analyses below.

In sum, our overall goal was to test the entire SDT model of thriving, including the basic model and also a further initial predictor reflecting group-level variations in institutional environments (see Figure 1). To date, few longitudinal studies have tested comprehensive models of this type, and the current study offered a 3-year window into these processes. The later steps in the Figure 1 model would provide one of the strongest tests of the integrated SDT causal model linking perceived autonomy support, need satisfaction, and various positive outcomes (Sheldon et al., 2004; Vallerand, *in press*), and the first step would help to empirically extend the SDT model by introducing variations in the objective social context as a predictive factor. Although some previous experimental research has manipulated autonomy-supportive versus controlling context to create grouping variables (i.e., Deci et al., 1994), no previous longitudinal research of this duration has looked at natural grouping factors to test the model.

One important feature of the Figure 1 model is that it assumes full mediation of each construct's effects on downstream variables by the next construct in the sequence. Thus, for example, the effects of institutional membership on need satisfaction are assumed to be accounted for by autonomy support, and the effects of perceived autonomy support on positive outcomes are assumed to be accounted for by need satisfaction. If these restricted assumptions can be validated, the model

becomes considerably cleaner and more parsimonious. Of course, an important applied benefit of validating the Figure 1 and Figure 2 models would be to gain new understanding of the problems within the legal profession's educational culture. If confirmed, our hypotheses might locate those problems within an intelligible sequence of causes and consequences, perhaps suggesting targets for amelioration of negative effects.

## METHOD

### Overview of Study Design

LS1 was first assessed in the fall of 2001 and last assessed in fall 2003; LS2 was first assessed in the fall of 2002 and last assessed in spring 2005. The final assessments were timed to capture data as close to graduation as possible while avoiding the particularly stressful times near and during exam periods. This necessitated the earlier final survey at one of the schools, which graduates a significant number of students after the fall semester.

We note that the LS2 sample presented here was also employed in Study 2 of Sheldon and Krieger (2004). That study examined motivation and well-being changes during that sample's 1st year of law school. Sheldon and Krieger did not report any of the LS2 Year 3 data (which had not yet been collected), nor did they report psychological need satisfaction or perceived autonomy support data. In addition, students from LS1 were employed in Study 1 of Sheldon and Krieger (2004). However, that sample matriculated in fall 2000, whereas the current LS1 sample matriculated in fall 2001. Thus, none of the longitudinal data in this article have been previously published.

The initial assessment collected information on demographics, undergraduate GPA, LSAT score, initial well-being, and initial need satisfaction and occurred during a presemester orientation session at LS1 and during the first week of classes at LS2. Both samples were reassessed toward the end of their 1st year so that perceived institutional autonomy support at that time could be measured. For this second assessment, the questionnaires were distributed to students in classes or via their mailboxes and then collected within 1 to 4 days as they were completed. In addition, both samples were assessed during the 3rd year using the same procedure at LS1 and using an Internet survey at LS2. The third assessment collected information on 3rd-year well-being, need satisfaction, and law school GPA and also on the participants' motivation for pursuing after-graduation jobs. Participants were offered modest lottery incentives—the chance for one of a few \$100 awards at each school—in exchange for their participation.

### Participants

LS1 is located in a small city. It is medium sized (average class of 230 students), is publicly supported, and accepts only full-time students. Of the 216 incoming class students, 157 participants completed the first assessment, and 79 participants (35 men and 44 women) completed both follow-up assessments. Of these 79 final participants, 79% were Caucasian, 9% were Hispanic, 5% were African American, 1% were Asian, and 6% were "other." LS2 is located in a major metropolitan area in a different region of the United States than LS1. It is a large private school (average class size of 300 or more) with a significant part-time/evening program for working students. Of the 330 incoming students, 250 participants completed the first assessment; 119 participants (58 men and 61 women) completed both follow-up assessments. Of these 119 final participants, 90% were Caucasian, 4% were Asian, 3% were Hispanic, and 2% were "other." We address sample attrition issues in the Results section.

There were some initial demographic differences between the two samples, which were expected given the different settings and program offerings at the two schools. LS2 students were significantly older than LS1 students at the time of matriculation (mean age = 28 vs. 25) and were more likely to have had work experience before entering law school. They were also significantly more likely to be Caucasian. Finally, students at LS2 graduated with significantly higher loan balances (approximately \$70,000 vs. \$50,000 at LS1), a fact that might potentially influence their well-being and motivation for their career choices. All of these differences will be controlled for in the appropriate analyses below. Notably, there were no significant differences in gender composition, self-reported LSAT scores, or self-reported undergraduate GPA between the two schools. The latter two facts in particular suggest that students at the two schools begin with similar levels of academic ability and aptitude.

### Measures

*Grades.* At the first assessment, participants were asked to self-report their undergraduate GPA using the typical 4-point scale (i.e., 2.9, 3.6). In the final assessment, participants were asked "what is your cumulative GPA so far in law school?" They checked one out of eight options, including F, D, C, C+, B, B+, A-, and A. We converted these reports to the typical 4-point scale.

*Subjective well-being.* Subjective well-being (SWB) was assessed at the beginning and end of law school via the positive affect scale of the Positive Affect/Negative Affect Scale (Watson, Tellegen, & Clark, 1988), the

Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), and the six-item depression scale of the Brief Symptom Inventory (Derogatis & Melisaratos, 1983). The positive affect scale contains items such as “inspired,” “active,” and “proud.” The life-satisfaction scale contains items such as “I am satisfied with my life” and “The conditions of my life are excellent.” The depression scale contains items such as “feeling lonely” and “feeling no interest in things.” All items were administered with 1 (*not at all*) to 5 (*very much*) scales, with reference to participants’ experience of “the last two months.” We chose the 2-month time frame because we wanted to assess participants’ general state of mind leading up to the assessment.

Because principal components analyses revealed that these three measures formed a single factor at each time of administration (after depression was recoded), we computed Year 1 and Year 3 SWB (Diener, 1994; Sheldon & Elliot, 1999) composites by subtracting depression from the sum of positive affect and life satisfaction (see Sheldon & Krieger, 2004, for a similar procedure). These variables ranged from 1.2 to 9 at Year 1 and from 2.4 to 9 at Year 3.

*Need satisfaction.* To assess psychological need satisfaction, we used the nine items employed by Sheldon et al. (2001) to assess autonomy, competence, and relatedness need satisfaction in their study of “most satisfying events” (three items per need). In the current study, these items were worded with respect to “the last two months” and made no special reference to the law school experience or environment. They were administered with a 1 (*rarely*) to 5 (*very frequently*) scale. A representative autonomy need satisfaction item was, “During the last two months, I felt that my choices were based on my true interests and values.” A representative competence item was, “During the last two months, I felt very capable in what I did.” A representative relatedness item was, “During the last two months, I felt close and connected with other people who are important to me.” We summed each set of three items to create Year 1 and Year 3 autonomy, competence, and relatedness satisfaction scores (six variables in all).

*Self-determined career motivation.* To assess prospective career motivation, we modified the approach of Sheldon and Krieger (2004), which was based on previous goal research by Sheldon and colleagues (Sheldon & Elliot, 1999; Sheldon et al., 2004). At the Time 3 assessment, participants were presented with four prototypical statements representing the four basic types of motivation, according to SDT. These motivations (external: because someone else wants you to or thinks you should; introjected: because you would feel ashamed, guilty, or anxious if you didn’t; identified: because you really

believe it is an important thing to do; and intrinsic: because of the enjoyment or stimulation it provides you) have been shown to range, from low to high, along a continuum of internalization (Deci & Ryan, 2000). Participants rated their “reasons why you will be choosing to do this job,” where “this job” referred to “the kind of job you will be seeking after graduation (or the position you have already secured, if that is the case),” in terms of each of these four statements, using a 1 (*not at all for this reason*) to 5 (*very much for this reason*) scale. Consistent with past research and with the procedures of Sheldon and Krieger (2004), we computed an aggregate self-determined motivation index by summing the identified and intrinsic ratings and subtracting the external and introjected ratings (coefficient alpha = .72 for the four-item job motivation variable).<sup>3</sup>

*Perceived autonomy support.* We assessed autonomy support in the spring of the 1st year after students had had time to get accustomed to their new context. The 15-item Learning Climate Questionnaire was used (Black & Deci, 2000; Williams & Deci, 1996). This scale contains items such as, “Most of my instructors provide me choices and options,” “I feel able to share my feelings with most of my instructors,” and “My instructors generally listen to how I would like to do things.” The items were prefaced by the question, “What has been your impression of the instructors in your program?” We averaged across the 15 items after appropriate recoding (alpha = .91).

## RESULTS

### Analysis Plan

As preliminary analyses, we first present descriptive statistics and zero-order correlations for the whole sample and also present simple mean differences between the two law schools. We also consider the effects of sample attrition. Then, we begin our hypothesis testing by evaluating mean differences in perceived autonomy support between the two law schools, controlling for several demographic variables. This is important to verify that the two schools indeed differ on this crucial social-contextual variable. Next, we conduct a series of regression analyses to test the various parts of the Figure 1 model, to evaluate the extent to which institution effects on need-satisfaction are mediated by perceived autonomy support, and to evaluate the extent to which perceived autonomy support effects on the three final outcomes are mediated by changes in need-satisfaction. Finally, we test the entire model simultaneously using structural equation modeling (SEM) techniques, including a multigroup analysis to evaluate the model’s invariance across the two schools.

**TABLE 1:** Means, Standard Deviations, and Intercorrelations of Major Study Variables

	Mean	Standard Deviation	1	2	3	4	5	6	7	8	9	10
1. Year 1 subjective well-being	5.76	1.52										
2. Year 1 autonomy	3.77	.71	.54									
3. Year 1 competence	3.60	.83	.49	.39								
4. Year 1 relatedness	4.05	.84	.46	.32	.23							
5. Autonomy support	3.30	.64	.25	.24	.16	.11						
6. Year 3 autonomy	3.39	.92	.30	.28	.18	.17	.43					
7. Year 3 competence	3.51	.86	.24	.23	.25	.15	.35	.48				
8. Year 3 relatedness	3.77	.96	.32	.15	.16	.44	.21	.55	.41			
9. Year 3 subjective well-being	4.89	2.19	.40	.16	.18	.28	.40	.68	.64	.58		
10. Self-determined job motivation	4.15	2.82	.17	.19	.23	.10	.15	.35	.24	.17	.29	
11. Year 3 grade point average	2.92	.47	.01	.04	.01	.03	.16	.13	.25	.05	.15	-.01

NOTE: For correlations  $\geq .18$ ,  $p < .01$ . For correlations  $\geq .14$ ,  $p < .05$ .

### Preliminary Analyses

*Samplewide statistics.* Table 1 presents the means, standard deviations, and intercorrelations of the major study variables, aggregated across the two schools. The means show that SWB declined over the law school period, a conclusion that was formally supported by a paired  $t$  test,  $t(199) = 5.83$ ,  $p < .01$ . These results replicate past findings of declining well-being in law students (Benjamin et al., 1986; Shanfield & Benjamin, 1985; Sheldon & Krieger, 2004), supporting our baseline assumptions prior to hypothesis testing. Autonomy and relatedness need-satisfaction also declined over the period, for the combined sample (both  $ps < .01$ ). Within the two separate samples, autonomy, relatedness, and SWB declined significantly as well, and competence did not decline significantly in either sample (see Table 2 for these means).

*Attrition.* We next examined the effects of attrition because only half (approximately) of the original samples in both law schools completed all three parts of the study. To do this, we compared the Time 1 variables, separately within each law school, of those who did not complete the study ( $n = 76$  in LS1,  $n = 133$  in LS2) with those who completed it ( $n = 79$  in LS1,  $n = 119$  in LS2). In LS1, there was no difference between the two groups in Year 1 competence, relatedness, autonomy, age, race, undergraduate GPA, LSAT score, or prior job experience. However, those who dropped out of the study were significantly lower in Year 1 SWB,  $M = 5.69$  versus  $6.20$ ,  $t(153) = 2.08$ ,  $p < .05$ , and were significantly more likely to be men (35/83 men continued, 44/72 women continued),  $t(153) = 2.22$ ,  $p < .05$ . In LS2, there was no difference between the two groups on Year 1 autonomy, competence, SWB, age, undergraduate GPA, LSAT score, gender, race, or prior job experience. However, those who discontinued the study were lower on Time 1 relatedness need satisfaction,  $Ms = 4.09$  versus  $3.68$ ,  $t(250) = 3.79$ ,  $p < .01$ , and had

lower LSAT scores,  $Ms$  154.5 versus 156.4,  $t(250) = 2.03$ ,  $p < .05$ . In short, there were significant attrition effects within only 4 of the 20 tests we conducted and for different variables across the samples. Thus, we were cautiously optimistic that the final samples well represented the initial samples.

We also examined the effects of attrition on the autonomy-support variable, which was measured at the end of Year 1. This analysis compared those who completed the first two assessments but not the third ( $n = 68$ ) to those who completed all three assessments ( $N = 198$ ). There was no difference within the whole sample,  $Ms = 3.29$  versus  $3.32$ ,  $t(264) = 0.347$ ,  $ns$ , and also no difference within either sample separately (both  $ps > .25$ ). This suggests that study dropouts did not bias the perceived autonomy support distribution.

*Mean differences by school.* Table 2 contains mean differences between the two law schools on the major study variables. As can be seen, the two schools did not differ on any beginning Year 1 variables. However, at the end of the first year, autonomy support was perceived to be greater at LS2 than at LS1. Furthermore, LS2 was higher than LS1 on Year 3 SWB and Year 3 competence need satisfaction. Notably, the Year 3 differences in this table are not readily interpretable because these simple  $t$  tests controlled neither for baseline SWB and satisfaction nor for demographic factors known to differ between the two schools (see below for more focused analyses).

Two somewhat anomalous effects within Table 2 are worthy of mention. First, LS2 was significantly higher in Year 1 competence satisfaction, perhaps corresponding to the greater age and work experience of this sample. However, this is not a problem for our hypothesis tests, which control for Year 1. Second, LS2 was higher than LS1 on final GPA. Because this may represent a mere scaling difference between the two schools, we standardized final GPA within school to test our regression

**TABLE 2:** Mean Differences Between Law School 1 (LS1) and Law School 2 (LS2) on Major Study Variables

	Year 1		Year 3	
	LS1	LS2	LS1	LS2
Year 1 variables				
Undergraduate grade point average	3.43	3.40		
LSAT score	155.72	156.37		
Autonomy support	3.17	3.39*		
Repeated variables				
Subjective well-being	5.68	5.81	4.24	5.32**
Autonomy	3.77	3.76	3.27	3.47
Competence	3.44	3.71*	3.22	3.70*
Relatedness	4.03	4.05	3.69	3.83
Year 3 only variables				
Final grade point average			2.83	2.98*
Self-determined job motivation			3.57	4.53*

NOTE: The two school means within Year 1 or Year 3 are significantly different from each other as follows:

\* $p < .05$ . \*\* $p < .01$ .

and SEM models; this ruled out institution as a possible predictor of final GPA in these models. However, in a later section we will consider the possibility that this school-level grade difference reflects greater learning at LS2 compared to LS1.

### Primary Analyses

*Institution effects on autonomy support.* To formally test our hypothesis that the faculty at LS2 provide more autonomy support than the faculty at LS1, we regressed perceived autonomy support on a dummy variable representing school attended (coded 0 = LS1, 1 = LS2) and the five demographic variables of age, gender, race (White/non-White), loan balances, and prior job experience (recall from above that LS1 and LS2 differed on age, race, loan balances, and prior jobs). Law school was significant in this analysis ( $\beta = .19, p = .01$ ), as hypothesized. Gender and age were also significant, such that women and older participants perceived law school to be less autonomy supportive ( $\beta_s = -.17$  and  $-.23$  and  $p_s < .05$  and  $.01$ , respectively). These results suggest that the differences in institutional climate found at the two schools represent more than demographic self-selection biases and also suggest that younger men find law school to be less controlling and more autonomy supportive.

*Regression analyses.* Recall that we postulated a fully mediated model in which key variables affect downstream variables only through the next step in the sequence (see Figure 1). To test these mediational hypotheses, we created a set of residualized variables in which the influence

of the five demographic variables and Year 1 were removed (where appropriate). As a first set of analyses, we examined whether perceived autonomy support mediates any institution effects on changes in need satisfaction. Following the procedures of Baron and Kenny (1986), we conducted preparatory regressions to evaluate whether institution (i.e., LS1 vs. LS2) predicts changes in need satisfaction and whether perceived autonomy support predicts changes in need satisfaction (i.e., we tested the A-to-C links and the B-to-C links; the analysis reported above established the A-to-B link by showing that institution predicted perceived autonomy support). Institution indeed predicted greater autonomy, competence, and relatedness need satisfaction controlling for Year 1 need satisfaction ( $\beta_s = .18, .12$ , and  $.31, p_s < .05, .10$ , and  $.01$ , respectively), and perceived autonomy support also predicted greater autonomy, competence, and relatedness need satisfaction ( $\beta_s = .41, .19$ , and  $.33$ , all  $p_s < .01$ ). We then reran the A-to-C models, entering perceived autonomy support at the second step, and found that the institution effect dropped from  $.18$  to  $.10$  for autonomy, from  $.12$  to  $.09$  for relatedness, and from  $.31$  to  $.26$  for competence. Sobel's (1982) test for mediation revealed that despite their modest size, these decrements were significant for autonomy and competence ( $z_s = 2.33$  and  $2.19, p_s < .05$ ) and marginally significant for relatedness ( $z = 1.86, p < .10$ ).

Next, we evaluated whether changes in the three need satisfaction variables could account for associations between perceived autonomy support and the three final outcomes. Again following the procedures of Baron and Kenny (1986), we first conducted three regressions to evaluate whether autonomy support predicted the three final outcomes (i.e., we tested the A-to-C links; the A-to-B links were already established, above). Perceived autonomy support was indeed associated with greater self-determined career motivation ( $\beta = .20, p < .01$ ), higher GPA ( $\beta = .13, p = .05$ ), and greater SWB ( $\beta = .36, p < .01$ ). We then conducted nine regressions to evaluate whether the three need satisfaction variables predicted the three final outcomes (i.e., we tested the B-to-C links). This was true in six of the nine analyses (all  $p_s < .05$ ); however, change in relatedness need satisfaction was unrelated to self-determined career motivation and Year 3 GPA, and change in autonomy need satisfaction was unrelated to Year 3 GPA. Thus, we conducted six Sobel tests, corresponding to the six models in which all subsidiary links had been established. We found that the relevant need satisfaction variable significantly mediated the perceived autonomy support effect in all six cases ( $z_s$  ranging from 2.03 to 5.23; drops in the autonomy support coefficient ranging from  $.06$  to  $.21$ ).

As a way of summarizing the foregoing results, Table 3 presents the results of three hierarchical analyses in which each of the three final outcome variables was regressed on

**TABLE 3:** Results of Hierarchical Regressions Predicting the Three Primary Outcomes

	Year 3 Subjective Well-Being	Self-Determined Career Motivation	Final Grade Point Average (standardized)
Step 1			
School membership	.300**	.168*	.050
Year 1 version of dependent variable	.365**	—	.313**
Amount of loans	-.129*	-.110	-.220**
White	-.027	.029	.157*
Sex	.073	.178*	-.156*
Age	-.111	.025	-.116
Prior career	-.030	.158	.088
Step 2			
School membership	.245**	.133	.026
Autonomy support	.323**	.180*	.125
Step 3			
School membership	.096	.081	-.023
Autonomy support	.081	.011	.060
Change in autonomy	.367**	.334**	.062
Change in competence	.350**	.059	.241**
Change in relatedness	.151*	-.125	-.150

NOTE: Coefficients for Year 1 need satisfaction variables omitted. Also, nonessential variables omitted from Steps 1 and 2.  
\* $p < .05$ . \*\* $p < .01$ .

institution and the demographic variables at Step 1, perceived autonomy support at Step 2, and changes in need satisfaction at Step 3. As can be seen, these effects are essentially consistent with the results just reported; the effects of school membership and autonomy support are reduced at each step with changes in psychological need satisfaction serving as the most proximal mediator of the institution and autonomy support effects.

*Explaining the final GPA differences between the two schools.* The finding that students at LS2 earned a higher final GPA than students at LS1, despite equal undergraduate GPAs and LSAT scores, is open to interpretation. The result may simply be an artifact of the different grading systems at the two schools; LS1 has a mandatory curve, whereas LS2 only has a suggested curve. However, another interpretation is that students at LS2 actually learned more. Such an interpretation would be consistent with past SDT experimental findings that autonomy-supportive educational contexts produce greater cognitive flexibility and conceptual learning (Grolnick, 2003).

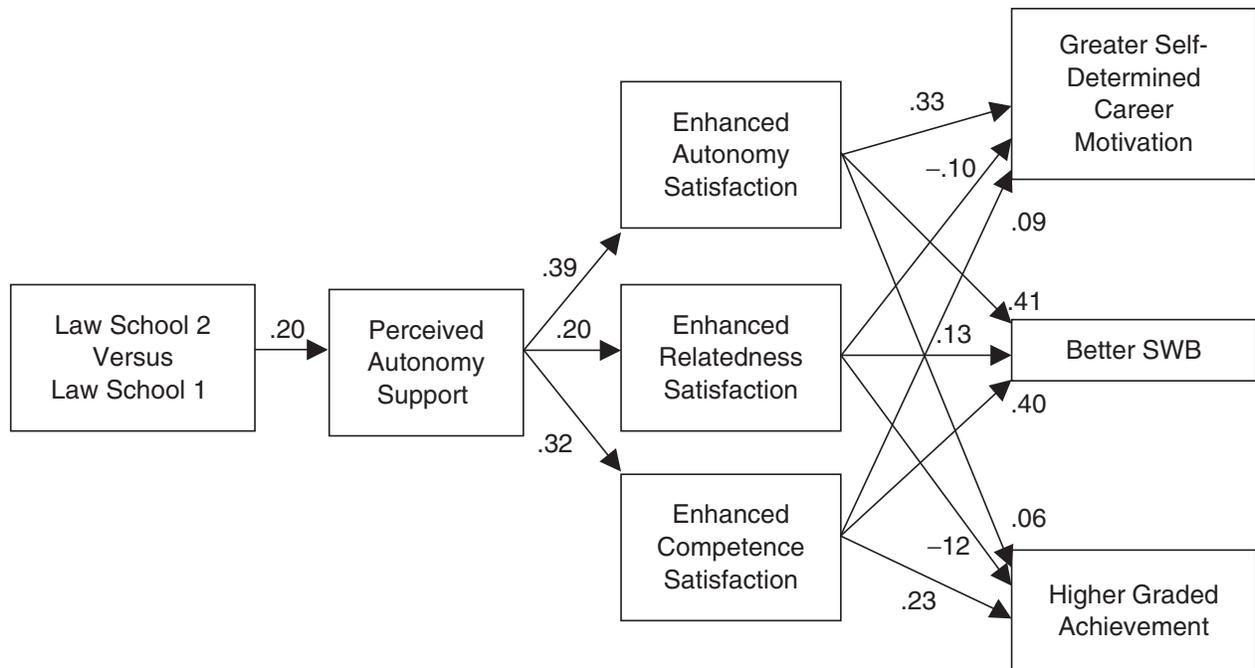
Although our data do not enable us to confidently distinguish between these two explanations for the higher grades at LS2, consideration of recent bar exam results for the two institutions indeed suggest that LS2 students may actually learn more. Bar examinations typically vary from state to state, but the states in which LS1 and LS2 are located include a nationally standardized segment—the

Multi-State Bar Examination. The questions and scoring for this portion of the exam are identical in every state, allowing us to compare learning between the graduates of the two schools with some confidence. We were able to obtain aggregate data for the summer 2005 examination that identified the percentage of examinees from each school scoring in three ranges: low (below 130), medium (130-150), and high (above 150) on the multistate portion of the exam. The comparison was striking, considering the equivalent LSAT and undergraduate grades of students at the two schools: low: LS1 47%, LS2 22%; medium: LS1 39%, LS2 54%; high: LS1 14%, LS2 24%.<sup>4</sup> Although these results are institution-wide, they are strongly suggestive that the teaching and learning at LS2 may be more effective.<sup>5</sup> In sum, although it appears that the more autonomy-supportive teaching at LS2 may ultimately have produced better learning mastery among LS2 students, further research is needed to conclusively determine this.

#### Formal Structural Equation Model Test

The regression results suggest that the four-step model of thriving shown in Figure 1 should fit the data well. To formally test the model, we employed LISREL software (Jöreskog & Sörbom, 1993). Prior to analysis, all variables were residualized to remove the influence of gender, age, prior career, and race. In addition, the corresponding Year 1 variables were partialled out of need satisfaction, final GPA, and SWB, focusing the analysis on change in these quantities. Based on the initial theoretical model, paths were specified from institution to perceived autonomy support; from perceived autonomy support to changes in autonomy, competence, and relatedness need satisfaction; and from each of the three needs to each of the three final outcomes (although the regression analyses above suggested that not all the paths between the needs and the outcomes would emerge as significant). We also allowed error covariances between the three need satisfaction scores because of their significant intercorrelations.

Figure 2 presents the path coefficients that resulted. Consistent with the regression results, relatedness satisfaction was not associated with GPA and self-determined career motivation, and autonomy satisfaction was not associated with GPA. In addition, in this full model, competence satisfaction was not associated with self-determined career motivation. Still, the model fit well with a  $\chi^2(12)$  of 19.67,  $p = .074$  (where  $p > .05$  is usually taken as a sign of good fit), and a root-mean-squared error of approximation (RMSEA) of .056, where fits of less than .05 (McDonald & Ho, 2002) or .06 (Hu & Bentler, 1998) are indicative of good fit. We also examined the Non-Normed Fit Index (NNFI; Tanaka, 1987), the Comparative Fit Index (CFI; Bentler, 1990), and the



**Figure 2** Parameter estimates for the structural equation model.

NOTE: All downstream variables residualized to remove the effects of race, age, gender, prior job experience, loan balances, and the Year 1 versions of the variable (where appropriate). All coefficients greater than .13 are significant at the .05 level. Four coefficients are nonsignificant: relatedness to career motivation, relatedness to achievement, competence to career motivation, and autonomy to achievement. SWB = subjective well-being.

Goodness of Fit Index (GFI; Jöreskog & Sörbom, 1993); coefficients above .95 on these indices are typically taken to indicate good fit (Hu & Bentler, 1998). Here, the coefficients were .96, .98, and .98. Thus, our data generally support the integrated SDT model presented in Figure 1.

We next tested a variety of alternative models. First, we evaluated a variant in which the four nonsignificant paths, listed above, were omitted. In this analysis, all the remaining specified paths were significant, and the model as a whole had a  $\chi^2(16)$  of 23.96 ( $p = .09$ ), with RMSEA = .049 and NNFI, CFI, and GFI ranging from .97 to .98. Although the baseline model and alternate model have nearly the same fit, we note that the alternative model supplies the most parsimonious representation of the data, as well as yielding a RMSEA below .05. Still, to avoid capitalizing on sampling bias, we used the original hypothesized model (see Figure 2) as the baseline for subsequent alternative model tests.

As a second alternative model, we added three additional paths to the baseline model, namely, from institution to the three need satisfaction variables. Does institution have direct effects on need satisfaction that are not carried by perceived autonomy support? In this analysis, institution had a significant direct effect on competence satisfaction ( $\beta = .19$ ,  $p < .01$ ) but not on the other two needs. Also, a  $\chi^2$  difference test with 3 degrees of freedom established that the alternative model fit significantly

better than the baseline model ( $\chi^2 = 8.20$ ,  $p < .05$ ). Thus, it appears that autonomy support does not completely explain the positive effects of attending LS2 on participants' feelings of competence. Of course, variations in autonomy support should not be expected to capture every type of variation between different social contexts, and this finding may reflect other unmeasured positive pedagogical characteristics of LS2. Or, it may simply reflect the fact that LS2 students received somewhat higher grades than LS1 students.

As a third alternative model, we added two additional paths to the original model, namely, from institution to self-determined career motivation and to SWB (recall that institution-level differences in GPA had already been removed). Does institution have direct effects on these two outcomes that are unmediated by perceived autonomy support and need satisfaction? In this analysis, institution had a significant direct effect on SWB ( $\beta = .09$ ,  $p < .05$ ) but not on self-determined career motivation. However, a  $\chi^2$  difference test with 3 degrees of freedom established that the alternative model did not fit significantly better than the baseline model ( $\chi^2 = 7.31$ ,  $p > .05$ ). Given this and the modest path coefficient of .09, we suggest that an institution-to-SWB direct effect is not necessary to represent the data.

Finally, we tested a fourth alternative model in which we again added three paths to the baseline model, this

time from perceived autonomy support to the three final outcomes. Does autonomy support have direct effects that are unmediated by need satisfaction? In this analysis, none of the additional paths were significant, and the model also did not fit significantly better than the baseline model,  $\chi^2(3) = 2.19$ , *ns*.

In sum, these analyses again suggest that the completely mediated model of Figure 1, in which institution affects perceived autonomy support which in turn affects psychological need satisfaction and then final outcomes, is quite reasonable. Still, supplementary analyses suggested that institution might have had direct effects on competence satisfaction and that, perhaps unsurprisingly, all three needs did not influence all of the outcomes. Reassuringly, however, autonomy satisfaction predicted self-determined career motivation, and competence satisfaction predicted higher GPA, which are the two specific links we would most expect. Also, all three of the needs predicted enhanced SWB, consistent with past research on needs and SWB (Sheldon et al., 2001; Reis et al., 2000).

*Multiple group analysis.* Finally, we conducted a series of multiple-group analyses to evaluate the fit of the model within each sample separately (of course, institution was dropped as a variable for these within-institution analyses). In the first model, we constrained all paths to be equal between the two samples. The model fit well, with NFI, CFI, and GFI equal to .90, .97, and .95, respectively, indicating that the same basic processes were occurring in both samples. However, subsequent analyses revealed that the model fit somewhat better (NFI, CFI, and GFI = .95, 1.0, and .98, respectively) if two paths were allowed to differ between the two samples: between change in competence satisfaction and SWB ( $\chi^2$  difference with 1 *df* = 3.63, *p* = .057; path coefficients = .46 and .33 in LS1 and LS2) and between change in competence satisfaction and final grade ( $\chi^2$  difference with 1 *df* = 5.37, *p* = .021; path coefficients = .09 and .37 in LS1 and LS2).

## DISCUSSION

This 3-year prospective study provides new support for SDT's dynamic-process model of human thriving and also provides considerable new insight into the problems in contemporary legal education. To date, few longitudinal studies of this duration have been reported either within past SDT research or within past studies of the effects of legal education.

The first step of the validated (see Figure 2) model addressed group-level variations in institutional culture. As expected, given the apparent differences in the educational philosophies of the two schools discussed earlier, students at the two schools perceived their schools

as differently supportive of autonomy. Specifically, faculty at LS2 were felt to be more focused on student concerns and to provide more choices and more meaningful rationales for mandatory rules and requirements. In comparison, the faculty at LS1 was felt by students to be more controlling and insensitive to their perspectives.

At the second step of the model, which concerns the combined sample regardless of institutional membership, perceived autonomy support predicted greater autonomy, competence, and relatedness need satisfaction over the 3 years. Conversely, students who rated faculty within their program as more controlling experienced declining psychological need satisfaction. This is consistent with SDT's emphasis on the fact that negative social contexts can deprive people of the psychological nutrients that they need to thrive (Ryan, 1995).

As expected from the nutrients perspective, greater need satisfaction predicted better outcomes at the last step of the model, including higher subjective well-being relative to baseline, better graded performance controlling for undergraduate GPA, and more self-determined motivation to pursue the upcoming legal career. Conversely, those whose needs were less satisfied experienced reduced well-being, poorer-than-expected grade performance, and less self-determined motivation to pursue the legal career. Although not all of the needs predicted all of the outcomes, they all predicted SWB, as in past research, and also predicted the specific outcomes we would most expect.

It is also noteworthy that the fully mediated model of Figure 1 received quite good support. Specifically, it appears that variations in the social context affect both need satisfaction and downstream outcomes primarily via associated variations in the autonomy supportiveness of those contexts. Also, autonomy support affects downstream outcomes primarily via variations in need satisfaction that autonomy support produces. Thus, the model appears to be both parsimonious and unambiguous with respect to its implied causality. Of course, experimental studies with perfect control and random assignment would offer the best demonstration of causality; unfortunately, such studies are not possible when studying questions of this type. However, by controlling for prior levels of key constructs and thus focusing on change in these constructs, longitudinal studies such as ours may supply the next best thing to a true demonstration of causality.

In the paragraphs below we will consider a variety of further implications and issues that devolve from these findings.

### Implications for SDT

Again, this 3-year study provided one of the longest term validations of the integrated SDT model to date,

indicating that the model may describe important processes relevant to lifespan personality development. Another innovation for the SDT model derives from our longitudinal examination of two different institutional contexts as predictors of perceived autonomy support. Although SDT focuses conceptually on social dynamics, social-level variables have typically been assessed via individual differences in perceptions of a single social context. With such a methodology, autonomy support, a social-level factor, may sometimes be confounded with personality differences that are unrelated to the social context. In our data, perceived autonomy support differed as expected across two institutional contexts, and these group-level differences in turn had downstream effects on those immersed within those contexts.

The data are also worth considering in light of Vallerand's (1997) hierarchical model of intrinsic and extrinsic motivation, which builds on SDT by focusing on motivation at three nested levels of analysis (global, contextual, and situational) and which considers the dynamic interplay between these levels. The global level of analysis refers to a person's trait or characteristic motivational tendencies, the contextual level refers to the major domains of activity and experience within the person's life, and the situational level refers to particular moments in time within a particular context. The current results examine only one life context, law school, and thus might be said to have limited applicability for these students' lives as a whole. However, law school may be an especially critical life context for these students, given its salience in determining their future career and income possibilities and given that law schools train students in a whole new way of thinking. Indeed, Vallerand (in press) described the bottom-up means by which particular important life contexts might slowly affect people's global dispositions. Consistent with his analysis, in our study the law school context apparently had bottom-up impacts on students' global well-being as well as on their basic need satisfaction, motivation, and performance. Future research might examine how particular situational experiences (i.e., disappointing grades, humiliating classroom episodes, or frustrating interactions with faculty) cumulate over time to cause changes in context-level motivation, which may in turn lead to global-level changes in personality.

### Implications for Legal Education

These results suggest that, to maximize the learning and emotional adjustment of its graduates, law schools need to focus on enhancing their students' feelings of autonomy. Why? Because such feelings can have trickle-down effects, predicting changes in students' basic need satisfaction and consequent psychological well-being, effects that may also carry forward into the legal career.

Given the excessive incidence of depression among practicing lawyers (Beck et. al., 1995; Eaton et. al., 1990) and the likely negative spillover of that phenomenon to society and the justice system (Benjamin et. al., 1986; Hess, 2002; Krieger, 1998, 2005; McKinney, 2002), these findings may have substantial practical importance.

Autonomy support also predicted (via need satisfaction) what many would consider the most important outcome of all—final law school GPA. Of course, incoming GPA and LSAT, as expected, had their own predictive effects for law school GPA. However, our data indicate that perceived autonomy support and psychological need satisfaction, although more subjective than GPA and LSAT, are just as critical in that they predict performance independently of these more objective indicators. Indeed, despite the equivalence of academic predictors, the school populations differed markedly in their Multi-State Bar Examination results in ways that would be predicted from our findings of institutional differences in reported autonomy support and need satisfaction.

Finally, institutional autonomy support also predicted a third key outcome: students' self-determined motivation to begin their careers. This is important because a person's initial motivation within a new context (i.e., the first job) can determine whether he or she thrives over time (Sheldon et al., 2003). The current findings suggest that the motivation-dampening effects of law school may indeed have negative effects that extend well beyond graduation. These effects are also consistent with recent commentators' claims that there are major problems in the legal profession (Daicoff, 1997; Schiltz, 1999). Of course, much longer term longitudinal studies are required to confirm these potential connections.

How, then, to transform institutional cultures for the better? This is a complex question. Given our findings that greater autonomy support predicted improved need satisfaction, subjective well-being, and motivation for career, and may have led to enhanced learning and bar performance as well, schools would be well served to evaluate how they can best consider the priorities of their students and provide choices consistent with those priorities. We would expect, for example, that students are generally seeking quality teaching and that they attend law school to learn to practice law. However, law schools traditionally emphasize theoretical scholarship and the teaching of legal theory, and many hire and reward faculty primarily based on scholarly potential and production. Our findings suggest that schools will benefit from reevaluating faculty priorities regarding such issues and from considering carefully the effect of their teaching methods and practices on students. Changes toward employing faculty with more teaching and lawyering (including public service) experience, offering a balance of practical skills training, or providing more training

and rewards for teaching excellence might also ultimately enhance students' sense of autonomy and engagement. Can autonomy-support teaching itself be taught? Yes—for example, Reeve and colleagues have shown that even formerly controlling teachers can be trained to better support the autonomy of their students and provide them subsequent benefits (Reeve, 1998; Reeve, Jang, Carrell, Jeon, & Barch, 2004).

### Limitations and Future Research Directions

This study found certain negative effects that were common to the two diverse schools sampled and also found important differences in those effects based on differing perceptions of autonomy support. To further explore the differing effects, future research should expand the number of samples and seek to pinpoint the institutional factors most linked to student perceptions of autonomy support. In particular, studies might focus on schools with systematically varying commitments to scholarship and teaching, varying faculty qualifications and orientations, varying grading systems, and varying program support and flexibility. Ideally, such research will be able to initially sample a larger percentage of the entire student body of the institutions studied, and retain a higher percentage of students, to ensure that the samples represent the actual populations at those schools. Finally, future research could also follow law students into their careers to determine the longer term consequences of their educational experiences.

To further explore the common effects found in the two schools, including a generalized loss of well-being, reduced need satisfaction, and less intrinsic motivation for future career, future research should include other professional education settings, such as medical, business, social work, or nursing schools. It may be that the problems observed in our studies extend beyond law schools and are symptomatic of deficiencies in American education more generally. Alternatively, these problems may occur more frequently in educational programs such as law, business, or accounting that have more extrinsic subject matter or methods focused on material resources, achieving competitive advantage, and the like, in contrast with programs such as nursing or social work that focus on more intrinsic values such as helping others or bettering the human condition (Kasser & Ryan, 1993, 1996). These intriguing questions, and many others, await further research.

### NOTES

1. Because values (i.e., the “what” of motivation; Sheldon, Ryan, Deci, & Kasser, 2004) do not yet have a formal place within self-determination

theory process models, we do not consider values and value changes in this article.

2. This information is gathered from discussions with faculty at both schools and from comparing the resumes of the two faculties. Law School 2 (LS2) also continues its relatively stronger emphasis on teaching by giving equal credit for teaching and scholarship when considering salary raises, whereas Law School 1 (LS1) gives much greater emphasis to scholarly production. Ranking comparisons are taken from *America's Best Graduate Schools* (2006, pp. 60-63) and from Leiter (2004).

3. We did not assess Year 1 career motivation because at that time students' focus was on the upcoming law school experience. We did assess Year 1 school motivation, but we do not report it here because the different referents (school vs. career) mean that it is not a true repeated measure. For the reader's information, none of the career motivation results in this article are changed when Year 1 school motivation is controlled. Also, consistent with the fact that LS1 and LS2 were equal on Year 1 subjective well-being and need satisfaction (see Table 2), LS1 and LS2 were also equal on Year 1 school motivation.

4. We confirmed with the deans of students at both schools that essentially all of their students take a course to review for the bar examination, eliminating the possibility that LS1 students do more poorly on the exam because fewer of them take the reviews.

5. One of the two law schools had bar performance data (fail vs. pass) for graduates in the current sample; we were able to obtain and analyze that data for 78% of the sample at that school. Of the demographic variables, age (biserial  $r = -.23, p < .10$ ), race (non-White/White;  $r = .25, p < .05$ ), and LSAT score ( $r = .23, p < .10$ ) were correlated with passing, and Year 3 grade point average (GPA) was also correlated with passing ( $r = .39, p < .01$ ; undergraduate GPA was not). More important, the psychological variables also correlated with actual bar exam performance (for perceived autonomy support,  $r = .34, p < .01$ ; for changes in autonomy need satisfaction,  $r = .22, p < .10$ ; for changes in competence need satisfaction,  $r = .28, p < .05$ ; and for changes in relatedness need satisfaction,  $r = .32, p < .01$ ). A hierarchical regression entering perceived autonomy support at Step 1 and changes in need satisfaction at Step 2 revealed that perceived autonomy support was significantly predictive at Step 1 and that autonomy support and changes in competence satisfaction were both predictive at Step 2. These results further emphasize the importance of autonomy support for objective performance at a within-institution rather than between-institution level of analysis.

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