A Mixed-Methods Approach to Understanding Adaptive and Maladaptive Patterns of Motivational Change

Abstract

The goal of the current study was to characterize adaptive and maladaptive patterns of motivational change from the freshman through senior years of college using Self-Determination Theory. After identifying adaptive (n = 38) and maladaptive (n = 38) subgroups, we compared them on several indicators of academic and social functioning. Students in the adaptive trajectory group reported higher self-efficacy and overall higher psychosocial well-being than those in the maladaptive trajectory group. Semi-structured interviews with six students from each group explored the mechanisms behind change in motivation. Thematic analysis indicated that – although both groups faced academic challenges – the maladaptive group struggled to overcome them and experienced debilitating personal issues toward the end of their college careers.

Word count: 116

Objectives and Theoretical Framework

Students' motives for attending college may shift as they navigate the opportunities, roles, and challenges that characterize the college experience (Corpus et al., 2020). But motives may not shift in the same way for all students. Indeed, several studies have identified variability in patterns of motivational change at the elementary and secondary levels (Haimovitz et al., 2011; Ratelle & Duchesne, 2014; Wang et al., 2017) as well as the transition from high school to college (Musu-Gillette et al., 2015; Ratelle et al., 2004). The current study focused on patterns of change over the college years. Our goal was to characterize the academic and socioemotional functioning of students who exhibited adaptive versus maladaptive patterns of change from freshman to senior year of college, and to explore the reasons underlying their motivational change.

Academic motivation was conceptualized using Self-Determination Theory (SDT), which places motivation on a continuum ranging in quality from fully autonomous (i.e., volitional) to fully controlled (i.e., pressured or coerced) to being altogether absent (i.e., amotivation; Ryan & Deci, 2020). It is not only the amount of motivation that matters but also the quality or type of motivation for predicting achievement, retention, and well-being (Brunet et al., 2015; Meens et al., 2018; Ryan & Deci, 2017; Taylor et al., 2014). Based on the tenets of SDT, we defined an **adaptive pattern** of motivational change as maintenance or growth in autonomous motivation, maintenance or loss in controlled motivation, and loss in amotivation. We defined a **maladaptive pattern** as the opposite: loss in autonomous motivation and growth in controlled motivation and amotivation. Using longitudinal data, we aimed to identify (a) a subgroup of students with a relatively adaptive pattern of change and (b) a subgroup of students with a relatively maladaptive pattern of change over the college years.

What factors might differentiate those students who exhibit adaptive versus maladaptive patterns of motivational change? Comparing these two subgroups on a set of academic and social correlates would indicate how distinct patterns of motivational change may relate to overall functioning and well-being in the college context. In particular, we assessed students' sense of belonging, life satisfaction, anxiety, and self-efficacy using quantitative survey instruments. A sense of belonging is a fundamental motivator for all human beings, and perhaps especially college students (Baumeister & Leary, 1995; Strayhorn, 2012). Because belonging predicts college students' intrinsic motivation and task value (Freeman et al., 2007; Zumbrunn et al., 2014), we expected it to be higher among the adaptive than the maladaptive group. We also expected the adaptive group to report greater life satisfaction and lower anxiety based on previous research showing that students with an autonomous motivational profile reported the most positive school functioning: highest satisfaction with school and lowest anxiety and distraction (Ratelle et al., 2007). Self-efficacy is equally crucial because it predicts positive achievement such as resilience in undergraduates (Cassidy, 2015). Overall, then, and consistent with SDT (Ryan & Deci, 2017), we expected students in the adaptive subgroup to report higher levels of belonging, satisfaction with life, and self-efficacy, and lower levels of anxiety than their peers in the maladaptive group.

In addition to the quantitative survey methodology, semi-structured interviews were conducted with a subset of students from each subgroup in order to explore possible reasons for their motivational change. We used an explanatory sequential mixed methods design (Plano Clark, 2019), in which the results of the quantitative survey data informed the collection and analysis of the qualitative data. It was hoped that the mixed-methods approach would provide a

rich understanding of how and why motivation might change over time in distinct ways for different students.

Methods and Data Sources

Participants

Participants were 115 students from a small liberal arts college who responded to a survey both in December of their freshman year and again in December of their senior year (49% female; 79% white, 19% Asian, 10% Latinx, 4% Black). A subset of participants representing extreme adaptive (n = 6) and maladaptive (n = 6) patterns of motivational change participated in a follow-up interview (42% female; 74% white, 16% Latinx, 5% Asian, 5% Black).

Measures

All scales reported below were internally consistent in the present sample (αs = .76 - .93). For each scale, items were averaged to create a composite variable.

Academic Motivation. Participants' academic motivation was assessed using the 16-item version of the Academic Self-Regulation Scale from Vansteenkiste et al. (2009). Participants used a 5-point Likert scale to rate how much they agreed with the reasons for engaging in their academic work, including intrinsic motivation (e.g., "because I enjoy doing it"), identified regulation (e.g., "because it is personally important to me"), introjected regulation (e.g., "because I want others to think I'm smart"), and external regulation (e.g., "because others oblige me to do so"). Amotivation was assessed using the four items from the AMS-C (Vallerand et al., 1992; e.g., "Honestly, I don't know; I really feel that I am wasting my time in school").

We used the Relative Autonomy Index (RAI) to represent the extent to which motivation was autonomous by weighting the external regulation subscales negatively and the internal regulation subscales positively. The motivation composite was calculated as 2 × Intrinsic + Identified – (Introjected + External)/2−2×Amotivation (see Pan & Gauvain, 2012). The RAI score at freshman year was subtracted from the score at senior year. Based on the tercile split of RAI difference scores, the top third of the sample was identified as the adaptive subgroup (n = 38) and the bottom third of the sample was identified as the maladaptive subgroup (n = 38). The middle group (n = 39) was not analyzed.

Belongingness. Participants' belongingness to the college community was measured with a subset of items from the Collegiate Psychological Sense of Community scale (Lounsbury & DeNeui, 1996). Participants used a 5-point Likert scale to rate how much they agreed with each of four statements (e.g., "I really feel like I belong here").

Satisfaction with Life. Participants' life satisfaction was measured using the Satisfaction with Life Scale (Diener et al., 1985). Participants used a 7-point Likert scale to rate how much they agreed with five statements (e.g., "In most ways my life is close to my ideal").

Anxiety. Participants' anxiety was measured by the GAD-7 scale (Spitzer et al., 2014). Participants were asked to rate if they have been bothered by nervousness or anxiety over the past 14 days (e.g., feeling nervous, anxious, or on edge) using "not at all", "several days," "more than half the days," and "nearly every day."

Self-Efficacy. Participants' self-efficacy was measured using the Expectancy for Success subscale from the Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991). Participants used a 7-point Likert scale to rate how much they agreed with seven statements (e.g., "I'm certain I understand the most difficult material presented in the readings this semester"). An

eighth item referring to grades was dropped because grades are not routinely reported to students at the participating institution.

Interview Protocol

Participants were asked to recall their academic motivation during their freshman year, describe their current motivation at senior year, and characterize any change that took place in their motivation or strategic approaches to overcoming academic obstacles. Additional prompts were framed by SDT's premise that the fulfillment of psychological needs is essential for well-being (Ryan & Deci, 2017). More specifically, participants were asked about their sense of control over their academic life (autonomy), capacity to complete tasks (competence), and connection to the community (relatedness). Finally, participants were asked to consider how their motivation was impacted by the current pandemic.

Procedure

Participants reported on their academic motivation via an online survey in December of their freshman year. In December of their senior year, they reported on their academic motivation as well as all other survey measures listed above. In January or February of their senior year, participants with extreme RAI difference scores were invited to participate in a follow-up interview, lasting 15-20 minutes. Interviews were conducted over Zoom, audio recorded, and transcribed in order to perform thematic analysis of their content. The coder was blind to participants' RAI scores and other survey responses during both the interview and the coding process.

Results

Quantitative Analyses

Figure 1 shows the RAI scores for the adaptive and maladaptive groups at both time points. Although the two groups had relatively similar levels of motivation at freshman year, they diverged sharply by senior year. Subgroup comparisons on the set of academic and social correlates are presented in Table 1. The adaptive subgroup reported significantly higher levels of self-efficacy (p =. 009) and life satisfaction (p = .001) than the maladaptive group. There was also a trend for the adaptive group to report higher levels of belongingness (p =.06), but there was no difference in reported anxiety (p = .14). Overall, then, the adaptive group reported more adaptive functioning than the maladaptive group on most of the correlates.

Qualitative Analyses

Thematic analysis produced 28 distinct codes for the interview transcripts, which are listed in Table 2 along with frequency data by subgroup. Based on these patterns, five overarching themes emerged: 1) The maladaptive group experienced external pressure/controlled motivation; 2) Both adaptive and maladaptive subgroups felt motivated by college's environment; 3) College was academically challenging for everyone, but the adaptive group appeared to be better at overcoming these challenges; 4) Online schooling during the pandemic was universally challenging; 5) Personal issues strongly impacted the maladaptive group at senior year.

Integration and Scholarly Significance

The present study identified two distinct subgroups of students who began college with similar motivational beliefs but diverged sharply three years later. Our mixed-methods approach pointed to important differences in functioning and potential mechanisms of change, each of which center on psychological needs fulfillment.

Because the two groups were created based on RAI scores, differences in perceived **autonomy** were foundational. Compared to the adaptive group, students in the maladaptive group reported a stronger sense of pressure and control in their interview responses: they recalled a sense of obligation to enroll in college and a focus on deadlines as motivators.

Competence issues were also critical. The adaptive group not only reported significantly higher self-efficacy than the maladaptive group but also described strategic approaches to overcoming setbacks (e.g., realistic goals, adjusting expectations). Although both groups found college to be academically challenging, the maladaptive group was unique in expressing frustration and hopelessness.

Finally, **relatedness** figured largely for both groups, who reported connection to the campus community during freshman year, and motivational costs of isolation during the pandemic. But there were also important differences. The majority of interviewees from the maladaptive group reported interpersonal and health issues that disrupted their academic motivation. No students in the adaptive group did. This – coupled with the trend toward greater belonging in the survey data –suggests that the adaptive group experienced greater relatedness.

Although a robust literature has demonstrated that *static levels* of autonomous motivation predict student outcomes, the present study adds to a growing body of work considering the predictive value of *motivational change* (Corpus et al., 2020; Leroy & Bressoux, 2016). Students with movement toward more autonomous motivation showed higher psychosocial well-being and academic beliefs than their peers whose motivation changed in the opposite direction, which is consistent with SDT (Ryan & Deci, 2017). Moreover, our mixed-methods approach provided a richer understanding of potential mechanisms of motivational change, such as the differential impact of personal problems for some students versus others. Our data suggest that potential points for motivational intervention may center around building competence and coping strategies for both relational and academic challenges. After all, college is a place for students to not only acquire knowledge and academic growth but also a sense of industry and identity.

Word Count: 1943

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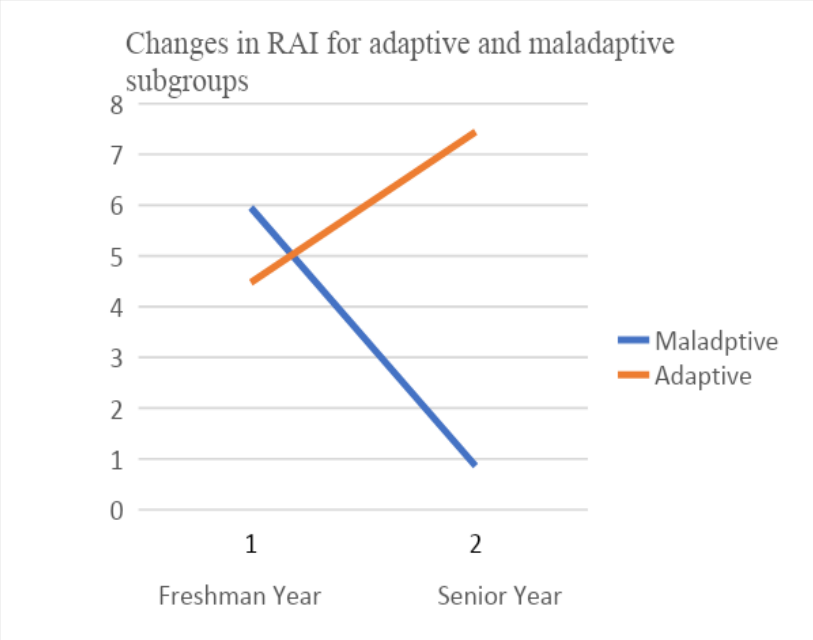
Figure 1. Changes in RAI for the Adaptive and Maladaptive Subgroups



Note: At freshman year, the adaptive (M = 4.48, SD = 3.42) and maladaptive (M = 5.95, SD = 3.42) groups did not significantly differ, $t(74) = 1.88$, $p = .08$. At senior year, however, the average RAI score for the adaptive group (M=7.44, SD = 3.08) was substantially higher than that of the maladaptive group (M = .86, SD = 4.14), $t(74) = -7.86$, $p < .001$.

Table 1. Mean Levels of Academic and Social Variables by Subgroup

	Adaptive Subgroup	Maladaptive Subgroup	
	M (*SD*)	*M* (*SD*)	*t(74)*
Self-efficacy	5.30 (.22)	4.50 (.21)	-2.69**
Belongingness to school	3.08 (.58)	2.80 (.72)	-1.88†
Life satisfaction	4.55 (1.14)	3.55 (1.27)	-3.59**
Anxiety	2.56 (.16)	2.86 (.12)	1.49

** $p < .01$, *$p < .05$, † $p < .07$

Table 2. Frequency of Code Presence in Interviews with Adaptive and Maladaptive Subgroups

Codes	Adaptive (*n* = 6)	Maladaptive (*n* = 6)
Freshman – Positive Motivational Features		
Motivated peers	2/6 (33%)	2/6 (33%)
Motivated by the new social experience of college	5/6 (83%)	5/6 (83%)
Motivated by the academic learning environment	4/6 (67%)	2/6 (33%)
Proving ability	4/6 (67%)	1/6(17%)
High competence	3/6 (50%)	1/6(17%)
Guilty	1/6(17%)	2/6 (33%)
Overcoming difficulty	1/6(17%)	2/6 (33%)
Tight-knitted friendship	4/6 (67%)	4/6 (67%)
Campus involvement	3/6 (50%)	1/6(17%)
Freshman – Negative Motivational Features		
Supposed to go to college	1/6(17%)	3/6 (50%)
Difficult to adapt to new academic demands	4/6 (67%)	5 /6 (83%)
Unmotivated because of certain required classes	2/6 (33%)	4/6 (67%)
Did not care about going to school	0/6(0%)	2/6 (33%)
Frustrated by academic challenges	0/6(0%)	5/6 (83%)
Struggled to fit in	2/6 (33%)	2/6 (33%)
Personal issues	2/6 (33%)	3/6 (50%)
Senior – Positive Motivational Features		
Sense of accomplishment	3/6 (50%)	1/6(17%)
Know how to meet School's expectations	5/6 (83%)	1/6(17%)
Needing to meet deadlines	3/6 (50%)	5/6 (83%)
Post-graduation goal	2/6 (33%)	2/6 (33%)
Senior – Negative Motivational Features		
Online schooling format	5/6 (83%)	6/6 (100%)
Personal Issues	0/6(0%)	4/6 (67%)

Senior burn-out	4/6 (67%)	4/6 (67%)
Unbalanced work/life schedule	1/6(17%)	3/6 (50%)
Limited access to campus spaces and people	5/6 (83%)	4/6 (67%)
Strategies for overcoming academic challenges		
Use of external resources	4/6 (67%)	5/6 (83%)
Altering standards	3/6 (50%)	1/6(17%)
Use of self-regulation	3/6 (50%)	2/6 (33%)

Note. Codes for which the groups differed by 33% or more are highlighted in yellow.