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Amotivation: A Key Predictor of College GPA, College Match, and First-Year Retention

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Amotivation: A Key Predictor of College GPA, College Match, and First-Year Retention

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Abstract

Two studies examined the relationships between motivational orientation, college student success, and first-year retention. In Study 1, 523 college students completed measures of motivational orientation and student success. Results indicated that intrinsic and extrinsic motivation were positively related to college GPA, student-university match and adjustment to college. In contrast, amotivation was negatively related to these dependent variables. Study 2 examined a mediational model in which motivational orientation, most consistently amotivation, predicted lower college student GPA and poorer college match. These, in turn predicted a decrease in first-to-second-year retention among 385 first-year college students. These results suggest that colleges may wish to address amotivation among students as a way to enhance student success and retention.

Keywords: College students, retention, motivational orientation, amotivation

Amotivación: Un Predictor Clave del GPA Universitario, la Compatibilidad Universitaria y la Retención del Primer Año

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Resumen

Dos estudios examinaron las relaciones entre la orientación motivacional, el éxito de los estudiantes universitarios y la retención del primer año. En el Estudio 1, 523 estudiantes universitarios completaron medidas de orientación motivacional y éxito estudiantil. Los resultados indicaron que la motivación intrínseca y extrínseca estaban positivamente relacionadas con el GPA universitario, el compatibilidad estudiante-universitario y el ajuste a la universidad. Por el contrario, la amotivación estaba relacionada negativamente con estas variables dependientes. El estudio 2 examinó un modelo de mediación en el que la orientación motivacional, la más consistentemente la amotivación, predijo un GPA de estudiantes universitarios más bajo y una compatibilidad universitaria más pobre. Estos, a su vez predijó una disminución en la retención del primer a segundo año entre 385 estudiantes universitarios de primer año. Estos resultados sugieren que las universidades tal vez deseen abordar la amotivación entre los estudiantes como una manera de mejorar el éxito y la retención de los estudiantes.

Palabras clave: Estudiantes universitarios, retención, orientación motivacional, a motivación

College student retention is an important issue on college campuses. From the college's perspective, retention statistics are indicators of institutional achievement. From the students' perspective, returning to a college for a second year (and beyond) indicates that they have found a place to grow and develop, and that they feel a sense of belonging. Thus, it is in the best interest of both the student and the college to identify markers of students who are most likely to continue to graduation as well as those students who may need extra guidance on how to maximize their college experience. Traditionally, such indicators have included easily quantified factors such as high school grade point average (GPA) and standardized test scores. However, it is clear that psychological factors such as motivational orientation may also play a role in college student retention and achievement.

Self-determination theory (Ryan & Deci, 2000) identifies three types of motivational orientation. Intrinsic motivation reflects doing something because of the inherent benefits of the activity, whereas extrinsic motivation reflects doing something because it leads to some other valued outcome. Amotivation, conversely, is not a motivation to act but instead reflects a lack of intention to act. This is due to believing the action will be ineffective, feeling that one is not competent, or simply not valuing the activity (Ryan & Deci, 2000).

The study of academic motivation extends this theory to the college environment. Intrinsically motivated students are those who report being in college because they wish to learn and grow. Extrinsically motivated students report being in college in order to have the kinds of experiences that will prepare them for their careers. In theory, these are viewed as different types of motivation, not ends of a continuum, so it is possible for a student to report both of these or neither. Students who are not sure why they are in college or what they will get from the experience are described as amotivated (Vallerand et al., 1992). Much of the research in this area considers these three facets independently rather than together. Thus, the relative importance of each type is not well-established, although intrinsic motivation is often considered to be the most critical, with researchers reporting stronger relationships between intrinsic motivation and positive outcomes than extrinsic motivation and positive outcomes (e.g., Bailey & Phillips, 2016; Lazowski & Hulleman, 2016).

To examine these relationships in concert, we propose a model in which academic motivation serves as a predictor of college success, as measured by three well-established predictors of college retention: GPA, college match, and adjustment to college. In our first study, the focus is upon clarifying the links between intrinsic, extrinsic and amotivation with a number of frequently-measured variables associated with college success including college GPA (Gershenfeld et al., 2016; Reason, 2003), college match (Gilbreath et al., 2011), college adjustment (Credé & Niehorster, 2012; Nes et al., 2009) and college retention. Our second study examines the model itself, allowing us to examine the relative weight of each of the three facets of motivational orientation in predicting retention.

College GPA

College GPA is a well-established predictor of student retention (e.g., Gershenfeld et al., 2016; Reason, 2003) that has been previously linked to academic motivation (Robbins et al., 2004). For example, Bailey and Phillips (2016) administered the Academic Motivation Scale (AMS; Vallerand et al., 1992) to Australian undergraduates and found that intrinsic motivation was positively correlated with positive affect and a measure of meaningful life, and two intrinsic motivation subscales were positively correlated with grades. In contrast, Bailey and Phillips (2016) also found that amotivation was negatively related to positive affect, satisfaction with life, meaningful life, and grades. Ratelle et al. (2007) used the French version of the AMS in their research with Canadian college students. Their primary dependent variables were grades, attendance, and first-to-second-year retention. Amotivation was negatively correlated with all three of those measures (r s ranged from $-.33$ to $-.39$). Thus, studies indicate that students who lacked motivation had difficulty in meeting the social and emotional demands of college, and they had lower grades.

However, not all studies have found a link between motivation and grades. For instance, Baker (2004) also looked at amotivation using the AMS. After controlling for gender and age, amotivation was associated with worse psychosocial adjustment to college, higher levels of perceived stress, and greater psychological distress while studying, whereas intrinsic motivation was correlated with lower stress. However, with regard to academic performance, Baker (2004) found that neither extrinsic

motivation, intrinsic motivation, nor amotivation were correlated with later academic achievement.

College Match

College match, or the perceived “fit” between a student and their chosen college, is a marker of students’ satisfaction with their college choice that also has been linked to student retention. For example, [Gilbreath et al. \(2011\)](#) assessed student-university fit with the social environment, academic environment, and the campus physical environment. Student-university fit was positively predictive of students’ satisfaction with their university, which is related to students’ likelihood to stay at an institution, and their psychological well-being.

Student-university match has also been found to be directly related to retention. In a study of students at six Canadian universities, the Student-University Match (SUM) questionnaire was predictive of whether students were retained or left their institutions ([Wintre et al., 2008](#)). Student-institution fit was also the focus of [Bowman and Denson \(2014\)](#), who found that fit across 8 areas (academic, social, cultural, physical, athletic, religious, socioeconomic, and political) was positively related to intention to persist. To date, little research has directly examined the relationship between college match and academic motivation.

However, [Suhlmann et al. \(2018\)](#) measured sense of belonging to the university, well-being, dropout intention, and academic motivation; the latter measure was a 12-item scale including both the intrinsic motivation subscale To Know and the extrinsic motivation subscale Identification of the AMS. These authors did not include amotivation. Their path analytic results showed that a higher sense of belonging to the university was positively associated with academic motivation and well-being, and sense of belonging to the university was a significant negative predictor of intention to drop out. [Suhlmann et al. \(2018\)](#) pointed out that their correlational design could not rule out other potential causal directions, such as well-being preceding rather than following sense of belonging to the university.

Examination of related constructs shows similar results. For example, academic motivation is related to students’ reported social integration on campus ([Noyens et al., 2018](#)). Further, [Nowell \(2017\)](#) found that both intrinsically and extrinsically motivated college students reported that they were happier at their college than were students who reported higher levels of

amotivation. Similarly, though [Kamarraju and Karau \(2008\)](#) did not measure college match, they did find that students' valuing of the instructional techniques in their courses was related to such academic motives as thinking and self-improvement. In other words, perceived fit with their academic instruction was related to motivation. Thus, it appears likely that academic motivation is related to perceived college match.

College Adjustment

Adjustment to college is a broad concept that encapsulates how well a student transitions to college, both academically and socially, and is a marker of personal functioning. As such, adjustment to college has received a great deal of attention as both an indicator of college success and retention and as a correlate of academic motivation. For example, in their review of the literature, [Credé and Niehorster \(2012\)](#) found that college adjustment predicted college grades (both first year and overall) and was a very good predictor of retention.

[Nes et al. \(2009\)](#) examined GPA and retention over the first two semesters as outcomes, with general life optimism, academic optimism, a 2-item motivation scale that included “unmotivated,” and general distress (lack of adjustment) as predictors. Although their focus of inquiry was optimism, they found that motivation and adjustment predicted retention, as did GPA. Further, as noted previously, [Bailey and Phillips \(2016\)](#) also reported a relationship between academic adjustment and motivation.

Clearly, numerous studies have examined relationships between student motivation and a variety of higher education academic, social, and retention variables, with occasionally contradictory results. Study 1 was designed to clarify the relationship between student motivation and three variables that have been associated with college success: GPA, college match/connectedness, and college adjustment. It was expected that:

- 1) Intrinsic motivation would be strongly positively associated with college success because this orientation most clearly matches the values and expectations of liberal arts colleges, such as this institution.
- 2) Extrinsic motivation would be positively related to college success, though not as strongly as intrinsic motivation because students with clear career goals may work hard in the pursuit of the grades that will help them achieve and may enjoy the college setting, but do not fully share the academic values that define a liberal arts college.

- 3) Amotivation, as found in prior research, was expected to be negatively related to academic success.

Because regression analyses allow for the simultaneous consideration of multiple variables, Study 1 explored the relative importance of each of the three facets of motivational orientation in predicting academic success. With these relationships established, our second study will allow us to examine the relative weight of each of the three facets of motivational orientation in predicting retention through our proposed model.

Study 1

Methods

Participants. A total of 523 students attending a medium-sized (5,000-10,000 students), public liberal arts college in the northeast United States participated. Students who were outside of the target traditional college age of 18 to 26 were excluded, yielding 469 participants [377 women (80%); 91 men (19%); 1 other (<1%)]. There were 128 (27%) freshmen, 104 (22%) sophomores, 130 (28%) juniors and 127 (22%) seniors or super seniors, with 2 (<1%) students declining to answer the question. Of the participants, 190 (41%) self-identified as being White, 168 (36%) as being Black or African American, 58 (12%) as Latinx, 28 (6%) as Asian, 21 (5%) as other, and 3 (<1%) as American Indian or Alaska Native, with 1 (<1%) declining to report ethnicity. As previously noted, analyses were restricted to students who ranged in age from 18 to 26 ($M = 20.10$, $SD = 1.92$). Self-reported college GPA ranged from 1.00 to 4.00 ($M = 3.06$, $SD = .58$). High school averages ranged from 60 to 99 percent ($M = 87.51$, $SD = 5.44$).

Materials and Procedure. Following the study's approval from the college's Institutional Review Board for the Protection of Human Subjects, faculty members from a wide variety of majors were asked to notify their students of the opportunity to complete an online survey available on Qualtrics. All data were collected prior to the COVID-19 pandemic. Following informed consent, participants completed a questionnaire consisting of demographic items and the following scales:

The Academic Motivation Scale (AMS; [Vallerand et al., 1992](#)) comprises seven subscales, each with four items. Three subscales assess intrinsic motivation to attend college (for example, the desire to know), three assess extrinsic motivation to attend college (for example, to get a good job), and

one assesses amotivation (for example, not knowing why one is in college at all). In the present study, the three intrinsic motivation subscales were highly correlated with one another (r s ranging from .65 to .75). Therefore, because of concerns with collinearity and to simplify our analyses, we chose to use the To Know subscale of the AMS as our measure of intrinsic motivation, as in the Suhlmann et al. (2018) study. Items in the To Know subscale focus on college as a means to satisfy one's desire to learn more and experience new ideas. The extrinsic motivation subscales were also highly correlated with one another (r s ranging from .42 to .64). Therefore, we chose to use the Identified subscale of the AMS as our measure of extrinsic motivation, again as Suhlmann et al. (2018) did. Items in the Identified subscale focus on college as a means to achieve a desired career. In the present study, reliability for the three chosen subscales was good (Intrinsic $\alpha = .83$; Extrinsic $\alpha = .79$; Amotivation $\alpha = .84$).

The Student-University Match Questionnaire (SUM; Wintre et al., 2008) is a 17-item measure that assesses how students perceive the match between their college and their own needs, in areas such as the intellectual climate and the physical environment. Wintre et al (2008) reported that scores on the SUM predicted whether students remained in their universities or not, suggesting that the SUM can be used as an early predictor of retention. Thus, we used the SUM to indicate student connectedness with the college. In the present study, reliability was excellent ($\alpha = .91$).

The Academic Adjustment Scale (AAS; Anderson et al., 2016) is a 9-item scale examining students' satisfaction with their own academic experience in college and is designed to address adjustment in the areas of college lifestyle, achievement, and motivation. Although originally designed to comprise three 3-item subscales, we found the subscales to have reliability levels that varied from poor to acceptable (Academic Lifestyle $\alpha = .38$, Academic Achievement $\alpha = .75$, Academic Motivation $\alpha = .54$). However, the reliability for the full scale was much more stable, so we used the total score as an overall measure of adjustment ($\alpha = .74$).

Results

We examined whether student motivation to attend college—intrinsic (a more learning to learn-oriented view), extrinsic (a more career-oriented view), or amotivation—was related to their academic adjustment as measured by the SUM and the AAS, and success as measured by their GPA. Generally, both intrinsic and extrinsic motivations to attend college were positively related with higher grade point averages, perceived match with the college, and self-reported adjustment to college (Table 1).

Table 1

Study 1: Relationships between motivation and college adjustment variables

	Intrinsic Motivation	Extrinsic Motivation	Amotivation
College GPA	.20**	.19**	-.29**
Student-University Match	.37**	.35**	-.10*
College Adjustment	.45***	.45***	-.42***

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

However, students who reported higher amotivation reported lower GPAs, lower levels of match with the college, and lower levels of self-reported adjustment to college. Thus, students' GPA, match with college, and adjustment did not differ so long as they were motivated. However, those students who were amotivated reported lower outcomes on all three of these measures.

We then examined the relative importance of intrinsic motivation, extrinsic motivation, amotivation in predicting academic success as measured by student-reported GPA, student match with the college, and college adjustment through three linear regression analyses (Table 2).

Year in school was also included in the model because student GPAs tend to improve over time, perhaps reflecting that those with the lowest GPAs leave school. Finally, high school average was included in the analyses because of its relationship with future academic success, and so we could examine the effects of motivation after controlling for high school GPA.

Table 2
Study 1: Regression analysis predicting college success

Variables	B	SE B	β	α	Model R²
<i>College GPA</i>					
Year in School	.02	.02	.05	.34	.17
High School Average	.03	.01	.29	<.001	
Intrinsic Motivation	.11	.04	.15	.01	
Extrinsic Motivation	.01	.05	.02	.82	
Amotivation	-.13	.03	-.20	<.001	
<i>Student Match</i>					
Year in School	-.00	.03	-.00	.96	.15
High School Average	-.01	.01	-.06	.24	
Intrinsic Motivation	.20	.05	.24	<.001	
Extrinsic Motivation	.17	.06	.18	.003	
Amotivation	-.01	.04	.02	.73	
<i>Academic Adjustment to College</i>					
Year in School	-.01	.02	-.02	.59	.26
High School Average	.01	.01	.11	.01	
Intrinsic Motivation	.26	.04	.35	<.001	
Extrinsic Motivation	.01	.05	.01	.87	
Amotivation	-.20	.03	-.29	<.001	

As expected, high school average was positively related to college GPA. Further, intrinsic motivation was positively related to GPA, while amotivation was negatively related. The remaining variables were not significant predictors in the analysis [$R = .43$, Adj. $R^2 = .17$, $F(5, 356) = 15.90$, $p < .001$].

Student match with the college was positively related to both intrinsic and extrinsic motivation. The remaining variables were not significant predictors in the analysis [$R = .40$, Adj. $R^2 = .15$, $F(5, 395) = 14.68$, $p < .001$].

Academic adjustment to college was positively predicted by high school GPA and intrinsic motivation and negatively predicted by amotivation [$R = .52$, Adj. $R^2 = .26$, $F(5, 407) = 30.45$, $p < .001$].

Discussion

Study 1 examined the associations between motivation and college success and adjustment variables (Table 1). The correlations between amotivation and the college success and adjustment variables were all negative whereas the correlations between either intrinsic or extrinsic motivation and the college success and adjustment variables were all positive and they were all closely matched. The positive correlation between intrinsic motivation and college success and the negative correlation between amotivation and college success were expected, as Bailey and Phillips (2016) reported similar findings. And the general similarity of the responses of students who were intrinsically and those who were extrinsically motivated for college adjustment were as we predicted.

The regression analyses (Table 2) clearly point to the importance of motivational orientation in predicting all three measures of student success after controlling for high school GPA. Amotivation, in particular, was negatively related to two of the three measures. Further, intrinsic motivation was positively related to two of the three. Extrinsic motivation was related to only one of the three measures, in keeping with our expectation that it would not be as strongly connected to student outcomes as the other two.

As we had hypothesized and in agreement with prior research, Study 1 established the role of motivational orientation in predicting academic success as measured by GPA, student college match, and academic adjustment to college (e.g., Bailey & Phillips, 2016; Robbins et al., 2004; Suhlmann et al., 2018). These results indicate that all three types of motivational orientation are involved in college student success and wellbeing. Given the prominence of amotivation in our results and the relative lack of emphasis on amotivation in prior research, it is clear that further examination of amotivation is needed.

However, Study 1 had two important limitations. First, because all data were collected at one point in time, it was impossible to know whether the variables would predict behavior in the future. Second, the participants were disproportionately female. Although data were collected from a variety of departments across campus, most participants were from the Psychology Department, a largely female major.

Thus, in Study 2, we added the important dependent variable of first-to-second-year retention, which allowed us to examine a mediational model of motivational orientation as a predictor of college retention. With Study 2, we

decided to focus on the variables most closely related to success in Study 1, with particular emphasis upon amotivation. Further, we sought to recruit a much more representative sample from across the campus.

Study 2

There is a great deal of discussion about the importance of student GPA, student match with the college, initial adjustment to college, meeting with advisors early in the first year, and declaring a major in encouraging students to persist in college (e.g., Han et al., 2017). In Study 2, we examined the relative importance of these factors in predicting retention. And, building upon the findings of Study 1, we examined the influence of motivational orientation on these predictors of retention.

Retention and Student Motivation

Several measures of retention have been studied: intention to persist or leave (e.g., Morrow & Ackerman, 2012; Suhlmann et al., 2018), successful completion of a course (e.g., Vallerand & Bissonnette, 1992), and retention in a program or major (e.g., Robinson et al., 2019). However, perhaps the classic measure is whether a student is still enrolled at the institution after the first year (e.g., Morrow & Ackerman, 2012).

Student motivation has shown promise as a predictor of retention across academic levels (e.g., Copeland & Levesque-Bristol, 2010). At the high school level, Vallerand et al. (1997) found that students who dropped out of school had higher amotivation scores than those who persisted (these authors used the French version of the AMS). Legault et al. (2006) provided a more in-depth analysis by examining four elements of amotivation in high school students: ability beliefs, effort beliefs, characteristics of the task, and value placed on the task. All four subscales of amotivation were significantly related to intention to drop out of high school.

Among graduate students, Ivankova (2004) also found self-motivation predicted students' persistence in an online doctoral program. Subsequently, Isacco and Morse (2015) reported a correlation of +.48 between their motivation measure and a 1-item measure of intention to remain in college. Their measure of connection to the university was also a significant predictor of intention to stay.

However, most studies examining motivation and retention have focused upon undergraduate college students, with mixed results. [Morrow and Ackerman \(2012\)](#) included both intention to persist and first-to-second-year retention as dependent variables. Their predictors included a four-subscale measure of sense of belonging (that measured how connected students felt toward the institution) as well as motivation measures including subscales for intrinsic value, instrumental (extrinsic) value, and a “no better option” subscale with items such as “I’m at this university because I don’t have any other options”.

These motivation subscales correspond somewhat to the AMS intrinsic, extrinsic, and amotivation scales. Sense of belonging was not a significant overall predictor of either intention to persist or first-to-second-year retention, although the faculty support subscale was positively related to intention to persist, and the peer support subscale was positively related to actual retention. For motivation, their overall multiple regression was significant for intention to persist; both instrumental value (positively) and “no better option” (negatively) were significant predictors of intention to persist. For actual first to second year retention, however, only the personal development subscale was a significant predictor, and it was in a positive direction.

[Han et al. \(2017\)](#) included measures of academic motivation and first-to-second-year retention. In this study, sense of belonging, but not academic motivation was related to retention, and academic self-efficacy was related to GPA. Similarly, [van Rooij et al. \(2018\)](#) found that intrinsic motivation was positively correlated with academic adjustment in college, but not intention to persist. In their study, only satisfaction with degree program affected intention to persist. A different conceptualization of student motivation was provided by [Lucey \(2018\)](#), who used in-depth interviews of adult learners to develop a phenomenological analysis of online students’ experiences. Motivation was found to be important in Lucey’s small-n study. In a similar phenomenological study, [Williams-Watson \(2018\)](#) reported that self-motivation was a factor in retention of minority students in science, technology, and engineering majors.

While the results of these studies are somewhat inconsistent, overall, there is support for the view that motivation is an integral component in student persistence and retention ([Pintrich & Schunk, 2002](#)). More specifically, the correlation between motivation and retention suggests that students who exhibit greater motivation are able to persist in the face of difficulties, adjust

to the developmental challenges of college life more easily, earn better grades, and remain in school (Robbins et al. 2004).

However, this relationship may not be a straightforward one. Robbins et al (2004) completed a meta-analysis of 109 studies predicting college GPA and retention. They found that, although academic motivation was a predictor of college GPA, it did not emerge as a significant *independent* predictor of retention. Predictors of retention included academic goals, academic self-efficacy, and academic skills. It is possible, then, that the relationship between motivation and retention is an indirect one, exhibited through other indicators of college success, such as GPA and student match.

Because Study 1 found that motivational orientation was a predictor of academic success variables that have been linked to college retention, Study 2 tested a mediational model in which these relationships were examined together. It was predicted that motivational orientation, as measured in the first semester of college, would predict college GPA at the end of the first year, which would then predict retention in the fall of the second year. Further, it was expected that motivational orientation would be correlated with early indicators of college success and connectedness, including student college match, major declaration, self-reported adjustment to college, and early meetings with faculty advisors. In turn, these early indicators of college success and connectedness would predict retention in the fall of the second year.

Method

Participants. A total of 421 first-year students completed the study. As part of the consent process, students were specifically asked to allow the researchers permission to access their academic records over their time in college. This enabled the researchers to follow up on their college GPA and enrollment status in the college. Of the original 421, 41 students did not give permission or, more commonly, gave an incorrect or illegible student number, yielding a final sample of 380 participants.

Of these, 200 (53%) were women, 178 (47%) were men, 1 (<1%) was a non-binary student, and 1 (<1%) declined to report gender. In response to a question on ethnicity, 158 (42%) identified as Black or African American, 138 (36%) identified White, 38 (10%) identified as Latinx, 16 (4%) identified as Asian, 10 (3%) identified as biracial, 3 (<1%) identified as other, and 17 (5%) failed to report ethnicity. Further, 313 (82%) had declared a major, 66

(17%) were undeclared, and 1 (<1%) did not answer the question. Self-reported overall high school average ranged from 70 to 105 ($M = 86.54$, $SD = 5.63$), with 45 (12%) students not reporting a high school average. There was no overlap between the participants in Study 1 and Study 2.

Materials and Procedure. Following approval of the study by the college's Institutional Review Board for the Protection of Human Subjects, students were approached in college writing courses during the fall semester and asked to participate. Because college writing is a standard first-year course, all students were expected to be in their first semester of college and to be representative of first-year students on this campus. Following informed consent, students completed a questionnaire in their classes. In order to take little instructional time and to encourage participation, the questionnaire was kept as brief as possible and was completed on a single page. The instrument included the following:

Students were asked to provide their gender, ethnicity, high school average, and college major, if they had declared one. Students were also asked if they had met with their major advisor, a college advisor, or any faculty member. Further, a single item ("How would you describe your adjustment to college so far?") asked about adjustment to college, with five response options ranging from Very Well to Very Poorly.

In a stream-lined version of the Student-University Match Questionnaire (SUM; [Wintre et al., 2008](#)), six items were used to assess students' match to the college. Students reported their perceived fit with the college's student body, social environment, academic goals, intellectual climate, academic challenge, and level of assistance available on a 5-point scale ranging from "Absolutely no fit" to "A great fit." In the present study, reliability was good ($\alpha = .82$).

Three subscales from the Academic Motivation Scale (AMS; [Vallerand et al., 1992](#)) examined intrinsic and extrinsic motivation and amotivation. As in the first study, we used the To Know subscale to assess intrinsic motivation and the Identified subscale to assess extrinsic motivation. In this study, reliability was acceptable (Intrinsic $\alpha = .79$; Extrinsic $\alpha = .73$; Amotivation $\alpha = .78$).

Student enrollment was ascertained one year later at the beginning of their fall (third) semester. Of the 380 participants, 255 (67.1 %) were still enrolled and 125 (32.9 %) were not, a retention rate in line with that of the college as

a whole. First-year student GPAs were recorded at the end of their spring (second) semester, at which time we also confirmed that all participants were, in fact, first-year students as we had anticipated. In the case of students who did not return for the spring semester, fall (first) semester GPAs were recorded (Overall $M = 2.66$, $SD = .82$, Range .26 - 4.0).

Results

A series of one-way between-subjects ANOVAs or Chi square analyses were completed to examine the relationship between individual variables and enrollment status. As predicted, college GPA [$F(1, 377) = 58.25, p < .001, \eta^2 = .13$], student-university match [$F(1, 366) = 14.08, p < .001, \eta^2 = .04$], declaring a major [$\chi^2 = 5.63, p = .02, \phi = .12$], initial adjustment to college [$F(1, 376) = 21.10, p < .001, \eta^2 = .05$] and having met with an advisor early in college [$F(1, 346) = 6.36, p = .01, \eta^2 = .02$] were found to differentiate between those who were retained and those who were not.

Table 3

Study 2: Logistic regression predicting enrollment

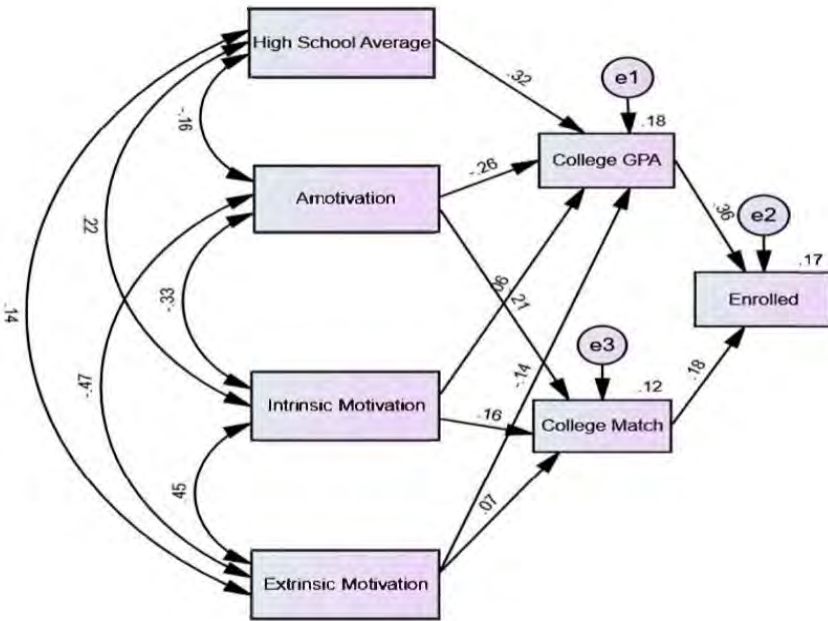
Predictor	B	SE B	Wald	α
College GPA	.96	.18	29.98	<.001
Major Declaration	-.53	.36	2.49	.59
College Adjustment	-.25	.17	2.15	.14
Met with Anyone?	-.15	.16	.91	.86
Match with College	.42	.20	4.25	.04

Because it was assumed that there was overlap among these variables, a binary logistic regression was completed to identify which of these best predicted enrollment. The full model containing all predictors was statistically significant, [$\chi^2(5, n=336: \text{enrolled}=226, \text{not enrolled}=110) 63.06, p < .001, \text{Cox \& Snell } R^2 = .17$], indicating that the model was able to distinguish between respondents who were or were not enrolled one year later. However, only college GPA and college match were significant predictors (Table 3).

Given this, we developed a simplified model in which intrinsic motivation, extrinsic motivation, and amotivation were examined as predictors of college GPA and match with college. In turn, college GPA and

Figure 1

Study 2: Path analysis model of associations between motivational orientation and enrollment status



Note. Coefficients presented are standardized linear regression coefficients. All paths are significant, except Extrinsic Motivation to College Match and Intrinsic Motivation to College GPA.

college match were predictors of enrollment status. High school average was also included in the model as a predictor of college GPA. This model was analyzed through path analysis using AMOS.

The results of the path analysis with the standardized regression coefficients are presented in Figure 1. This model had a good fit with a chi-square = 394.11 ($df = 28, p < .001$), RMSEA = 0.004, NFI = 0.985, NNFI =

0.93 and CFI = 1.00. Figure 1 indicates that greater high school average and lower levels of amotivation and extrinsic motivation predicted college GPA, but intrinsic motivation was not a significant predictor. Further, lower levels of amotivation and greater intrinsic motivation predict college match, but extrinsic motivation is not a significant predictor. In turn, college GPA and college match predict enrollment status. R-square indicates that 17% of the variance in enrollment can be explained by this model.

Discussion

Study 2 tested a model in which student high school average and motivation to attend college were utilized as predictors of college GPA and college match. These two constructs were, in turn, utilized as predictors of first-year retention (Enrolled, Figure 1). As predicted, both college GPA and college match were found to be positively related with first-year retention (Enrolled). And as expected, high school average was a positive predictor of college GPA which, in turn, was a positive predictor of remaining enrolled. The relationship between student motivation and remaining enrolled was more complex.

Intrinsic motivation and extrinsic motivation had contrasting relationships with college GPA and college match, our two predictors of remaining enrolled. Whereas intrinsic motivation was not found to be related with college GPA, and was positively related with college match, extrinsic motivation was negatively related with college GPA and was not related with college match. In contrast, amotivation was negatively, and more strongly, related with both college GPA and college match than either intrinsic or extrinsic motivation (Figure 1), indicating that amotivation was a critical factor in predicting student success and, subsequently, retention.

These results may help explain some of the inconsistency in prior research. For example, [Han et al. \(2017\)](#), who did not identify motivation as a predictor of retention, used a measure that assessed intrinsic motivation, but not extrinsic or amotivation. Similarly, [van Rooij et al. \(2018\)](#) examined only intrinsic motivation in their study that did not find a relationship between motivation and intention to persist. Conversely, [Morrow and Ackerman \(2012\)](#), who found such a relationship, included amotivation. Given the results of the present study which indicate a role for intrinsic and extrinsic motivation and amotivation, it appears that our understanding of student

success and retention benefits from considering the role of all three and, particularly, amotivation.

Overall Discussion

Predicting student success is obviously of importance to both students and the institutions they attend. Study 1 focused upon academic achievement and college adjustment, and how they were related to students' motivation. It was found that intrinsic and extrinsic motivation were both positively related to college GPA, student-university match and college adjustment. In contrast, amotivation was negatively related with college GPA, student-university match and college adjustment. In order to further clarify the relationships among these variables, three multiple regressions were conducted. The regression analyses indicated that amotivation was a significant negative predictor of both college GPA and college adjustment. We suggest that these results indicate that an increased emphasis upon student motivation, and particularly upon student amotivation, is warranted.

Clearly, during a period of often stagnant or even falling enrollments, a focus upon retaining already-admitted students has increased for many colleges. Study 2 tested a model using high school average and student motivation to predict whether students would stay enrolled. High school average was a positive predictor of college GPA while extrinsic motivation and amotivation were negative predictors. College GPA was a positive predictor of first-year retention (Enrolled). In addition, intrinsic motivation was a positive predictor of college match while amotivation was a negative predictor. And college match was a positive predictor of first-year retention.

The negative relationship between amotivation and both college GPA and college match might reflect that amotivation has been linked to greater stress, low self-esteem or poor mental health (e.g., [Baker, 2004](#)). It is also possible that amotivation might be linked to poor class attendance, not completing assignments, etc., thus leading to poor grades and a negative view of college. Further research examining predictors of amotivation or the subscales of the construct itself ([Legault et al., 2006](#)) may help colleges identify additional paths to assist students.

The importance of amotivation as a predictor of student success has been recognized for a number of years. For instance, [Legault et al. \(2006\)](#) attempted

to clarify what the nature of amotivation actually is. They suggested that amotivation should not be conceptualized as the absence of motivation, the absence of intrinsic or extrinsic incentive for behavior and growth. Rather, they concluded amotivation “is itself an entity, a complex and multifaceted process, which is not so much an absence as a broad effect of unmet needs.” (p. 580). They saw their research on identifying the subscales comprising amotivation as the first steps toward understanding the concept.

More recently, [Nowell \(2017\)](#) measured motivation by using the product of two items to indicate internal, external, or mixed major/career motivation. He reported a U-shaped relationship between this measure of motivation and happiness among college students. Nowell suggested that students who are either amotivated or mixed in their motivations could be considered at-risk. Similarly, [Otis et al. \(2005\)](#), although they studied students transitioning from middle school to high school, also noted the importance of amotivation: “Only when students do not perceive any reason why they should go to school (amotivation), do they then develop intentions to quit school.” (p. 180).

Our current studies further support the importance of student amotivation and, more specifically, a simple model is proposed that links motivation, especially amotivation, with college student first-year retention. Intrinsic and extrinsic motivation were positively related to each other but in the path analysis had somewhat inconsistent relationships with first-year retention. However, amotivation was negatively related with both intrinsic and extrinsic motivation and in the path analysis amotivation was consistently related to the increased risk of leaving college.

There are, of course, limitations to the present study. In particular, a number of factors beyond those examined in this research are involved in whether a student remains enrolled. Among these are: financial challenges faced by students and their families, health (mental as well as physical), and campus residency, among others (See: [Fike & Fike, 2008](#) and [Peltier et al., 1999](#) for review). In order to maintain a reasonable-length questionnaire, we examined just a few variables that were expected to be key to student retention. Future research, however, should examine how these other variables interact with the current model. Further, the present study was completed on a single campus of a medium-sized state university in an urban

setting. Additional work is required to explore whether this model is applicable to other institutions, such as private colleges or large universities.

Despite these limitations, the results of these studies point to potential interventions to enhance student retention. Study 2 was completed using a brief, single-page measure that was easy to administer in just a few minutes of class time. We propose that it would be advantageous for colleges and universities to identify their amotivated first-year students using such a brief measure, and then target resources to meet the needs of these at-risk students. In their meta-analysis of motivational interventions to improve educational outcomes, [Lazowski and Hulleman \(2016\)](#) reported that such interventions are generally effective across age groups and modalities in improving a broad range of outcomes, from interest to test scores to discipline referrals to retention. Thus, early identification of college students at risk for dropping out could have long-term implications for degree completion and, indeed, may be considered an ethical obligation on the part of the college. That is, after accepting their payments, it follows that colleges would have an ethical obligation to provide a sound education and an environment conducive to success. If amotivated students are less likely to succeed, we should help them understand and address the issue. The amotivation scale (only 4 items) allows such students to be easily identified.

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