Individual Differences as Predictors of Success for Learning Community Students

By

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Introduction

Defining Learning Communities

Given the varied nature of learning community programs, there is no single definition of what a learning community is. For the purpose of this research, a learning community can be defined as a kind of block scheduling in which groups of students are enrolled together in two or more courses (Tinto, 1997). Each learning community is usually organized around a theme of some kind, such as engineering, education, or psychology, which is sometimes tied to curriculum goals (Tinto, 1997). Typically, learning communities are composed of 20-25 students, and are led by a peer mentor (Tinto, 1999). Additionally, some learning community students participate in some extracurricular activities outside of the classroom.

While these characteristics describe general commonalities across learning communities and institutions, program implementation varies widely across institutions and programs (Taylor et. al, 2003). For example, some learning community programs involve living in sections of residence halls (sometimes called living-learning communities) whereas other programs do not include a living space component. (Tinto, 1999) Another key variation in learning community program implementation is whether or not students are required to participate. Some institutions have opted to require most first-year students to be a part of a learning community. Other learning community programs are entirely optional for students. Finally, learning community programs vary widely in the areas of interest offered (e.g. nursing, engineering, education, aviation). Andrade (2007) suggests that learning communities are generally beneficial, but because

of the variable nature of learning communities, it is difficult to understand which specific components make learning communities successful.

Learning communities have been receiving attention by the higher education community in recent years (Cross, 1998; Smith, 2001; Stassen, 2003). The attention around learning communities seems to largely be centered around their apparent wide-ranging benefits for student outcomes, including improved student retention, achievement and engagement. In 2005, the Association for American Colleges and Universities launched the Liberal Education and America's Promise (LEAP). This initiative was introduced in order to address a variety of ongoing issues in higher education. One goal of LEAP was to provide suggestions for increasing college student retention. The implementation of learning communities was recognized to be one of ten "high-impact practices" that increased student retention and engagement (Kuh, 2008).

What beneficial effects have we seen from LCs?

The attention that learning communities have received is not surprising given their demonstrated benefits for students, faculty, and institutions (see Smith, MacGregor, Matthews, & Gabelnick, 2004; Sperry, 2015; Andrade, 2007) Notably, learning community programs are related to a wide variety of positive outcomes, including increased academic success, increased student retention, increased student engagement and other outcomes. Lenning and Ebbers (1999) outlined 16 different positive student outcomes of learning communities including higher academic achievement, increased student retention, and greater academic engagement. Further, faculty benefits of learning communities were also identified. Faculty reported less faculty isolation and increased curricular integration. In addition, Lindblad (2000) conducted an extensive review of 63

different learning community studies from 1988-1999. This aggregation of studies focused on the assessment and resulting outcomes of learning community programs. The review concluded that learning communities programs are promising, showing an abundance of benefits to students and institutions. The author found that learning community students not only demonstrated higher college GPAs, they also had higher persistence, greater institutional commitment, greater intellectual development, and greater tolerance for difference.

In a more recent review, Andrade (2007) found evidence consistent with other findings, indicating that learning communities are related to promising student outcomes. The study looked at the degree to which learning community programs impacted four commonly assessed outcome variables: student involvement, satisfaction, academic achievement and persistence. Involvement and satisfaction were categorized by the author as experiential outcomes while academic achievement and persistence were categorized as student success outcomes. In her analysis, Andrade found that of the 13 studies that measured involvement, all found results indicating that learning communities had a positive impact on involvement. Additionally, the findings suggested that learning communities are related to student satisfaction. It should be noted that the way satisfaction was measured varied between studies. Some studies measured institutional satisfaction while others measured satisfaction involving the learning community program. Nonetheless, satisfaction results were positive for almost all the studies considered for this measure. As for persistence, results showed that all but one study measuring persistence indicated that learning community participation led to positive persistence results. Further, about 90% of the studies analyzed showed evidence for gains

in academic achievement as measured by GPA. The results overwhelmingly support the idea that learning community programs are beneficial for students.

At this time, much of the research on the effectiveness of learning communities has been done on community colleges. However, a handful of studies on 4-year institutions suggests that learning communities are useful in that context as well. Zhao and Kuh (2004) researched outcomes of learning community participation from students at 365 4-year institutions. They found that learning community participation was related to a variety of positive long-term student outcomes including: enhanced academic performance compared to non-learning community students, a positive relationship with overall student engagement, increased student retention, and other outlined learning outcomes. While Zhao and Kuh (2004) found no significant differences in GPAs between first-year learning community students and non-learning community students, they did find that by senior year, students who had participated in a learning community had significantly higher GPAs than those who did not. These results suggest that learning communities may not have an immediate impact on academic performance, but rather their benefits related to academic performance are latent in nature.

Other research suggests learning community programs may have a more immediate impact on academic performance for various types of students. Hotchkiss, Moore & Pitts, 2006 found that participation in "Freshman Learning Communities" have shown to increase student achievement, as measured by GPA during the first year, but only for certain students. For example, there was no significant differences in GPA for white women in a learning community versus white women who were not in a learning community. Further, findings from Huerta and Bray (2013) suggest that learning

communities are related to higher semester GPAs for Latino students. In addition, the

literature suggests that first year academic success as measured by GPA is the best

predictor of 2ⁿᵈ & 3ʳᵈ year student retention (Westrick et al., 2015). Thus, learning

communities may have important implications for minority students in particular in terms

of GPA and retention.

One major criticism of learning communities and relevant findings has to do with

the high variability across learning community programs. In other words, findings within

the learning community literature are difficult to generalize. It is important to note that

the impact of learning communities differ between types of programs. Stassen (2003)

explored differences in outcomes of three different learning community models at the

same university. She found that all three learning community models, even the least

structured, showed more positive outcomes for learning community students than non-

learning community students, including higher first-semester GPAs and student retention.

This suggests that despite the wide-ranging differences between programs, learning

communities are generally benefiting students and institutions.

Personality and Student Outcomes

There is an abundance of past research that suggests that personality is related to

positive student outcomes (some examples: Trapmann, Hell, Hirn, & Schuler, 2007;

Noftle & Robins, 2007; Tross, Harper, Osher, & Kneidinger, 2000). Much of the

literature focuses on the Five Factor Model (FFM) of personality (McCrae & Costa,

1997). The FFM is a commonly known personality model and is widely accepted by the

psychology community. The five personality dimensions included in the FFM are

extraversion, neuroticism, agreeableness, conscientiousness, and openness to experience.

Each personality dimension in the FFM is thought to be independent of the other

dimensions and believed to be universal human traits (McCrae & Costa, 1997).

In a recent meta-analysis, Poropat (2009) shows support for the FFM of

personality predicting academic success, as measured by GPA. Specifically, Poropat

(2009) found that conscientiousness strongly related to academic performance (ρ = .22).

Openness and agreeableness were the next most related with correlations of ρ = .12 and ρ

= .07, respectively. In a separate meta-analysis, O'Connor & Paunonen (2007) found

similar results again with conscientiousness having the strongest relationship to GPA (ρ =

.24), and openness (ρ = .06), and agreeableness (ρ = .06) being slightly positively related

to academic success. Further, Gibson, Lounsbury, and Saudargas (2004) Found that both

emotional stability and conscientiousness both had a strong negative relationship with

intentions to withdraw from college.

Personality and Attitudes

According to Brody & Ehrlichman (1998) personality is defined as "those

thoughts, feelings, desires, intentions, and action tendencies that contribute to important

aspects of individuality (p.3)." It is clear from this definition that personality and attitudes

are inextricably linked. Furthermore, there is evidence that student attitudes are

associated with their academic performance. Clevering et al. (2011) found student

attitudes about seeking academic help was a better predictor of academic performance

(GPA) than was help-seeking behavior itself. Little research has investigated personality

and its effect on both attitudes and performance among learning communities. Knowing

this would be beneficial because it could help institutions and learning community

programs better understand which types of students are likely to be successful. In other

words, identifying relevant personality characteristics can help identify students who are a good fit for learning communities, or suggest what attitudes are helpful for performance and engagement in learning communities.

Participation in a learning community program typically comes with a variety of perks above and beyond academic benefits. Nonacademic benefits vary from program to program but may include early class registration, guaranteed preferred housing type/location, and early move-in. Arguably, the students who joined the learning community program primarily for the non-academic perks may not be focusing as heavily on academics or academic outcomes compared to those who joined for academic reasons.

The Present Study

While the literature overwhelmingly suggests support for learning community programs, there are certainly many gaps in the current research that need further exploration. This research aims to take a look at how individual differences such as personality and attitudes may play into learning community outcomes such as institutional retention, program retention, learning community student engagement, and academic performance. Sperry (2015) recognized the need for exploration of the relationship between student characteristics and learning community outcomes. Her study looked at 13 pre-college predictors of success for first-year learning community students. Specifically, some of the independent variables analyzed in the study included SAT scores, high school percentile, days since admission, days since orientation, and grant eligibility. These pre-college variables were used to predict retention into the second fall semester and probation status after first semester. Notably, the author found that the best predictors of student retention were the five independent variables listed above. While

these findings are useful for understanding some of the individual differences that are useful for predicting beneficial learning community outcomes, at this time, no studies have investigated personality differences as potential predictors of learning community success. Thus, the present study aims to explore how personality and attitudes may be related to learning community student outcomes. The current study proposes the following hypotheses:

H1: Personality characteristics will be related to learning community student success outcomes:

a. Ambition will be positively related to student GPA.

b. Prudence will be positively related to student GPA.

c. Ambition will be positively related to student retention/persistence.

d. Prudence will be positively related to student retention/persistence.

e. Adjustment will be positively related to student retention/persistence.

H2: Personality will be related to learning community engagement:

a. Sociability will be positively related to Learning Community engagement.

H3: Attitudes will mediate the relationship between personality and learning community student outcomes:

a. Enrollment motivation mediates the relationship between ambition and GPA, such that higher GPA is related to students joining the learning communities for academic reasons as opposed to nonacademic reasons, which in turn, relates to higher GPA.

b. Enrollment motivation mediates the relationship between prudence and GPA, such that those students who joined the learning communities program for academic reasons will have higher GPAs than those who joined for non-academic reasons.

c. Excitement mediates the relationship between ambition and retention, such that

    higher retention is related to higher excitement, which in turn relates to better

    retention

d. Excitement mediates the relationship between prudence and retention, such that

    higher retention is related to higher excitement, which in turn relates to better

    retention.

e. Excitement mediates the relationship between adjustment and retention, such that

    higher retention is related to higher excitement, which in turn relates to better

    retention.

Method

Participants

The sample consisted of all 221 learning community students at MNSU. The majority of

the students in the sample were first-year students and primarily white. In the learning

communities program, there are 13 first-year learning communities and 3 sophomore learning

communities. Learning communities at Minnesota State University, Mankato have a maximum of

25 students each.

Procedure

Data was collected from participants at several different points in time. First, I

collected HPI data from Hogan Assessments late in the fall 2016 semester and early in

the spring 2017 semester. Next, I gathered student engagement data and institutional data

during the spring 2017 semester. Survey responses from a learning community survey

regarding student motivation and attitudes were also used. Students completed this

survey prior to the 2016-2017 academic year.

Learning community students at MNSU were recruited to participate in the study and take the HPI via Qualtrics. Participants were sent a recruitment email though Qualtrics with a link to the survey, which included the consent form and information about how to take the HPI. After giving consent, students were directed to an additional page where they accessed the HPI. Students who did not originally participate were sent a reminder email one month later.

At the beginning of the spring 2017 semester participants were sent another email through Qualtrics and were asked to complete the learning community engagement survey. If participants followed the link in the email they were directed to the engagement survey.

Prior to the 2016-2017 academic year, all learning community students were asked to complete an online survey through the learning communities program. This survey was used to better understand students' attitudes and motivation prior to the start of the school year. This data was linked to the rest of the survey data for analysis.

Measures

Personality Variables

Adjustment. Adjustment was assessed using the HPI (Hogan & Hogan, 1992; Hogan & Hogan, 2007). The adjustment scale consists of 37 items, all of which are evaluated on a dichotomous true-false scale. A sample item from this scale is "I keep calm in a crisis." Prior research suggests that this measure is typically reliable (Cronbach's α=.82; Hogan & Hogan, 2007).

Ambition. Ambition was assessed using the HPI (Hogan & Hogan, 1992; Hogan & Hogan, 2007). This scale contains 29 items, all of which are evaluated on a

dichotomous, true-false scale. A sample item from this scale is "In school, I worked hard for my grades." The ambition scale is shown to typically be reliable (Cronbach's α=.80; Hogan & Hogan, 2007).

Prudence. Prudence was assessed using the HPI (Hogan & Hogan, 1992; Hogan & Hogan, 2007). This scale contains 31 items, all of which are evaluated on a dichotomous, true-false scale. A sample item from this scale is "I strive for perfection in everything I do." Again, previous research supports the scale's general reliability (Cronbach's α=.71; Hogan & Hogan, 2007).

Sociability. Sociability was assessed using the HPI (Hogan & Hogan, 1992; Hogan & Hogan, 2007). This scale contains 24 items, all of which are evaluated on a dichotomous, true-false scale. A sample item from this scale is "I would go to a party every night if I could" This scale is also shown to be generally reliable (Cronbach's α=.83; Hogan & Hogan, 2007).

Academic Variables

Retention into spring 2017. Retention into spring 2017 was measured by collecting registration data after the 10th day of the term. The 10th day of the term was used for data collection because it is the official reporting date. Students who drop courses must do so before the 10th day of the term in order to have the course removed from their transcripts.

Cumulative Grade Point Average (GPA). Cumulative GPA was gathered from the Learning Community Program Coordinator for all participants in order to analyze the

relationship between personality characteristics and student GPA. GPA is measured on a

0-4-point scale.

Term Grade Point Average (GPA). Fall 2016 GPA was gathered from the

Learning Community Program Coordinator for all participants in order to analyze the

relationship between personality characteristics and student GPA. GPA is measured on a

0-4-point scale.

Student Attitude/Motivation Variables

Learning Community Student Motivation. In order to assess what motivated

students to join the learning communities program, I used data that was already collected

from a pre-year learning community student survey. This survey was completed by the

participants prior to the start of the 2016-2017 academic year. The survey asked learning

community students about why they joined the program and their attitudes towards the

learning community. This measure includes one question: "What was your primary

reason for joining the learning communities program?" Table 1 includes response choices

and their classification as either academic or nonacademic.

Table 1

Response Options to Student Motivation Question

Response Option	Classification
Organized study sessions	Academic
Meet others in my major/area of study	Academic
Faculty interaction opportunities	Academic
Planned activities/social events	Nonacademic
Pre-registration in classes	Nonacademic
Housing type	Nonacademic
Housing location	Nonacademic
Student referral	Nonacademic
To get involved on campus	Nonacademic
Early move-in	Nonacademic
Encouraged by a parent or guardian	Nonacademic
Encouraged by the department of my area of study	Academic

Learning Community Attitudes. Data on student attitudes was also collected in the pre-year learning community survey. A participant's attitude about the learning community prior to the start of the school year was assessed by their response to two questions on the survey: "I am excited to be participating in the Learning Communities program at MSU" and "Overall, I have a positive feeling about my choice to join a learning community." Response options were measured on a 7-point Likert-type scale from strongly agree (1) to strongly disagree (7).

Learning Community Student Engagement. Student engagement data was gathered through a learning community engagement survey. Data was collected early in the spring 2017 semester. I was primarily concerned with overall satisfaction with the learning communities program, so one item was used for this measure: "Rate your overall satisfaction with your experience in the learning community." Participants' responses were measured on a 7-point Likert-type scale (with 1=*Extremely dissatisfied* and 7= *Extremely satisfied*.)

Results

Of the 20 responses, not all data was completed for each individual. All of the following analyses were run pairwise, in order to take advantage of as much data as possible for each analysis.

Hypotheses 1a and 1b stated that both ambition and prudence scores would be positively related to student GPA. Two linear regressions indicated both ambition scores and prudence scores have a small beta weight when predicting student GPA, respectively (β= .17, p=.24; β= .17, p=.24). In this sample, the hypothesis was not supported such that scores on ambition and prudence were not significantly related to the academic performance measure (GPA).

Hypotheses 1c, 1d, and 1e stated that ambition, prudence, and adjustment would be positively related to student retention. These hypotheses were unable to be tested due to the fact that there was zero variance in student retention in this sample. In other words, all students who completed the HPI also persisted from spring semester 2017 to fall semester 2017.

Hypothesis 2 predicted that sociability scores would be positively related to learning community student engagement. A linear regression indicated that sociability scores have a large beta weight when predicting learning community student engagement in the wrong direction, such that sociability scores are negatively related to learning community student engagement (β= -.61, p<.01). In this sample, the hypothesis was not supported in the correct direction.

Hypothesis 3 was tested using mediation analysis. As noted by Baron and Kenny (1986), in order for mediation to occur, all pathways must be significant, and the path between ambition and GPA must be non-significant when enrollment motivation is included in the model. In our data, pathway A (from ambition to GPA) did not demonstrate a significant association (β=.17, p= .24). Next, pathway B (from ambition to enrollment motivation) did not show a significant relationship (β= .01, p= .97). Finally, pathway C (from enrollment motivation to GPA) was also not significant (β= -.30, p= .32). These results indicate no mediation in the model for this sample. Therefore, hypothesis 3a was not supported.

The same method was used for testing hypothesis 3b. Again, all pathways must be significant, and the path between prudence and GPA must be non-significant when enrollment motivation is included in the model. First, pathway A (from prudence to GPA) was tested and was not significant (β=.17, p= .24). Next, pathway B (from prudence to enrollment motivation) did not demonstrate a significant relationship (β= -.19 p= .54). Again, pathway C (from enrollment motivation to GPA) showed no significant results (β= -.30, p= .32). The results suggest that there is no mediation in this model and consequently, hypothesis 3b was not supported.

Hypotheses 3c, 3d, and 3e suggested that learning community program excitement would mediate the relationship between ambition, prudence, and adjustment and retention. These hypotheses were also unable to be tested due to the lack in variance in retention scores. Again, because all students who completed the HPI also persisted from spring semester 2017 to fall semester 2017 the mediated logistic regression could not be ran for analysis.

Discussion

Hypothesis 1 predicted that scores on various personality characteristics would be positively related to learning community student success outcomes including student GPA and retention. Specifically, Hypothesis 1a and 1b stated that ambition and prudence would positively correlate with academic success (cumulative GPA). Neither ambition nor prudence were related to academic success. Further, hypothesis 1c, 1d, and 1e stated that ambition, prudence, and adjustment would all be positively related to student retention such that, higher scores on the personality measure would relate to persisting from one semester to the next. Given that all students included in the sample were retained from fall semester 2016 to spring semester 2017, there was no variance in the data and the hypotheses could not be tested. The lack of variance in the sample is likely due to the small sample size.

Hypothesis 2 stated sociability scores would positively correlate to learning community student engagement. This was not supported. However, scores on sociability were related to learning community student engagement but, not in the predicted direction. The significant beta weight suggests that lower scores on sociability are related to higher learning community student engagement scores in this sample.

While further analyses should be conducted to better understand this relationship, there are a few explanations that may help explain this relationship. First, students with higher scores on sociability may also be involved with more student groups on campus and are therefore less active and engaged in the learning community program. Another possible explanation for this result is that students who are generally less sociable may think of the learning communities program as providing a well-balanced, structured, academic-focused environment that does not require an overwhelming amount of student involvement and are therefore more satisfied with the program. Further, it is also possible that students with higher sociability scores do not find the amount of programming or content of programming within the learning communities program as engaging or social enough. Finally, it is possible that more introverted students find the social programs to be helpful, whereas more socially apt students find them suffocating or unnecessary.

It should be noted that the variance in the sample was very restricted. The scale for the engagement measure included scores between 1-7 with 1 indicating very low engagement and 7 indicating very high engagement. All engagement scores within the sample were between 5-7. This suggests that overall, the students in the sample had favorable levels of engagement.

Hypothesis 3 predicted that attitudes would mediate the relationship between personality characteristics and learning community student outcomes. Specifically, hypothesis 3a and 3b stated that enrollment motivation would mediate the relationship between both ambition and prudence, and GPA, such that higher GPA is related to students joining the learning communities for academic reasons as opposed to nonacademic reasons, which in turn, relates to higher GPA. These hypotheses were not

supported. In both cases, scores on ambition and prudence were not related to student GPA. Further, there was no relationship found between ambition and GPA, prudence and GPA, and enrollment motivation and GPA. Therefore, neither mediation model was supported.

Next, hypotheses 3c, 3d, and 3e predicted that learning community program excitement would mediate the relationship between ambition and retention, prudence and retention, and adjustment and retention, such that higher retention is related to higher excitement, which in turn relates to better retention. As mentioned previously, due to the lack of variance in the sample, these hypotheses could not be tested and are therefore not supported. Future researchers should try and increase the sample size in order to be able to explore this relationship.

Overall, none of the three original hypotheses were supported by the results. One of the major limitations of the present study is the small sample size. While the learning community population included 224 students, the sample of students who completed the consent form to participate in the study included only 58 students. Further, of those 58 students, only 20 students completed the Hogan Personality Inventory. This is likely because the HPI required students to enter in a user ID and password. Although efforts were made to make this process as easy as possible, this appeared to be a major obstacle where many participants ended their participation. In order for any scores on the personality measure to be reported, the participant had to complete the entire survey. Of the 20 students who completed the HPI, not all of them completed both the Pre-Year Learning Community Survey and the Learning Community Engagement Survey. Future researchers should explore various other recruiting tactics, such as in-person recruitment,

to increase the sample size. Additionally, researchers should consider alternative methods of instructing students on how to accurately complete the HPI, or researchers should consider using a paper version of the survey.

A second limitation of this study is the lack of consideration of the high variability between the different learning communities. Given that each learning community takes different learning community courses and is led by a different undergraduate peer mentor, student experiences within the learning community program are likely highly varied. Because learning communities are capped at 25 students, it is difficult to study the between-group differences from one learning community to another. This would likely be particularly important for measures such as learning community student engagement. If future researchers are able to increase their sample, it would be interesting to study differences between different learning communities. Future researchers could also try and control for differences between learning communities by suggesting standardized learning community programming.

Another limitation is the retention measure. In this study, persistence from fall semester to spring semester was used as the retention measure. Using persistence as the retention measure may help explain the lack of variance in retention. Typically, retention in higher education is thought of as continuing coursework from one academic year to the next. Future researchers should consider studying learning community student outcomes over a longer period of time in order to better understand the relationship between personality and retention.

Learning communities have clearly shown to be related to various positive student outcomes. Having a better understanding of what helps students to be successful is

important to the future of higher education and learners themselves. Identifying which

students are likely to be a good fit for this program may also improve their success rates.

Given the evidence that personality is also related various student outcomes, it is

important for researchers to continue to explore the relationship between personality and

learning community student outcomes.

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Individual Differences as Predictors of Success for Learning Community

Students

Nicole Haffield

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