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## **Impact of Cohort Bonds on Student Satisfaction and Engagement**

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### Abstract:

This study examines differences in student satisfaction and engagement in cohort programs versus traditional, non-cohort educational programs by studying the impact of close bonds between students. The authors measure and compare “close bonds” within an educational cohort to a traditional program and measure the impact of close bonds on satisfaction and engagement. The results demonstrate significant difference in the bonds developed by students in cohort programs compared to non-cohort programs. The close bonds scale was strongly correlated to the engagement scale and moderately correlated to the satisfaction scale. Regression analysis suggests close bonds may predict both satisfaction and engagement.

Keywords: cohort, bonds, satisfaction, engagement, success, retention

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Cohort programs in higher education are increasingly common as an intervention to increase student retention and graduation rates (Lei, Gorelick, Short, Smallwood, & Wright-Porter, 2011). Many researchers have documented the impact of cohort models on these completion measures (Lei et al., 2011), but less is known about the impact of a cohort model on affective student outcomes and larger institutional goals of student satisfaction and engagement. Institutions are creating cohort-based educational programs for students at all levels, but particularly for graduate students. Numerous graduate programs in education have moved from a traditional model to a cohort model in recent years (Maher, 2005; Mandzuk, Hasinoff, & Seifert, 2005). Maher (2005) defined a cohort as “a group of about 10–25 students who begin a program of study together, proceed together through a series of developmental experiences in the context

of that program of study, and end the program at approximately the same time" (p. 195). It is worth noting that cohorts can and do exist in traditional models of education. Students naturally form groups around similar interests, schedule restraints, or small program size (Hubbell & Hubbell, 2010). Cohorts in this study refer to the intentionally created student groups described by Maher.

Cohort programs are attractive to administrators and policy makers for several reasons. With growing public pressure for graduates to be workforce ready, cohort models offer productive training for the work place. Cohort programs are team-oriented, much like the work environments most students will face upon graduation. Research shows that participation in educational programs that are cohort based can lead to positive workforce relationships later in life (Basom, Yerkes, Barnett, & Norris, 1996/1997; Norris, Barnett, Basom, & Yerkes, 1997). Depth of relationship with colleagues within one's field and professional network is a key component of graduate school education cohorts. Many researchers have cited the relational (bonding, support, belongingness) aspects of cohorts and its importance for students (Barnett, Basom, Yerkes, & Norris, 2000; Potthoff, Batenhorst, Fredrickson, & Tracy, 2001; Teitel, 1997).

Cohort programs also are attractive economically. Educational leaders often face the challenge of creating academic programs that create revenue for their respective institutions (Slaughter & Rhoades, 2004). Cohort programs preclude administrators from the requirement of offering a bevy of individual courses to allow for student choice within the curriculum. This reduces salary costs for faculty members while helping to ensure higher enrollment in each course section, making such programs a profit center for the institution. Furthermore, program designers are interested in academic productivity, especially in accelerated graduate programs. Wheelan and Lisk (2000) note that with adults in accelerated degree programs, there are significant correlations between cohort group development and group productivity, as measured by the grade point average.

In spite of these reasons for the attractiveness of the cohort model in education, little research has been done to determine whether or not cohort programs have an effect on the larger institutional goals of student satisfaction and engagement. Also, few studies have been done to determine the factors that make some cohorts more effective than others. If educational leaders were aware of these factors, they could emphasize them in programmatic design or maintenance.

Koepfen, Huey, and Conner (2000) proposed a framework for studying cohorts that has eight dimensions: (1) social interaction and interdependence, (2) developing a common purpose, (3) group and individual learning, (4) cohesiveness, (5) facilitation of collaboration and field experiences, (6) academic performance, (7) interaction with faculty, and (8) student retention. We use this framework in our research to operationalize a definition of "close bonds." We then work to determine whether or not students in cohort groups have closer bonds than students in traditional programs and whether or not "close bonds" are related to student satisfaction and student engagement.

### **Hypotheses**

Based on the above framework, we have developed two hypotheses relating to cohort programs for graduate students. They are: 1) students in cohort programs develop closer bonds than students in traditional, non-cohort programs, and 2) close bonds will positively influence student satisfaction and engagement.

## Review of the Literature

### Benefits of Cohort Groups

Murphy (1993) stated, "The cohort structure promotes the development of community, contributes to enhanced academic rigor, and personalizes an otherwise anonymous set of experiences for students" (p. 239). Researchers suggest cohorts also increase the bonds among classmates and their sense of belonging, networking, trust, and mutual aid (Barnett et al., 2000). Cohort participation increases social capital among members, creating a mutually beneficial system of obligations, trust, and accountability for students (Mandzuk et al., 2005). Members of cohorts report higher degrees of socialization than non-cohort students do (Mandzuk et al., 2005), and they report feeling individual support, emotional security, and friendship (Norris & Barnett, 1994). Furthermore, cohort members report academic benefits of cohort participation, including the perception that their knowledge increased as a result of cohort membership (Norris & Barnett, 1994). Cohort participation has been shown to change the depth of class discussions (Teitel, 1997) and to positively affect learning outcomes for adult students (Reynolds & Hebert, 1998). Additionally, Teitel's (1997) study shows that faculty and staff overwhelmingly view cohorts as positive.

### Problems with Cohort Groups

Research also has shed light on some problems with the cohort structure. First, cliques may form, which can harm students' sense of belonging, negating one of the main purported benefits of the cohort structure (Barnett et al., 2000; Radencich et al., 1998). Other studies note the academic benefits of a flexible curriculum that allows for student choice and experimentation, which is not typically available in a closed cohort system (Centra & Rock, 1971). Additionally, students in cohorts may feel more pressure to adapt to the opinions of others in the group than students in non-cohort classes who are less bonded to their classmates (Mandzuk et al., 2005). Students in cohort groups tend to band together to negotiate assignments, due dates, and even program administration, at times negatively impacting the power relationships between students and faculty in class (Maher, 2005; Tietel, 1997).

### Bonding and Cohort Effectiveness

Norris and Barnett (1994) note, "A cohort structure does not in itself insure a cohort" (p. 34). Little research exists to show how the effective functioning of a cohort group leads to measurable outcomes for the institution. Three common measures of institutional effectiveness are student satisfaction, student engagement, and student persistence. In this study we focus on student satisfaction and student engagement; however, we highlight in our literature review the correlation between these two variables and student persistence in the work of previous researchers.

**Student persistence.** Reynolds and Hebert's (1998) research found that members of cohort groups generally have higher grade point averages than students who are not members of cohort groups, and that these positive student outcomes lead to reduced attrition. High persistence rates are important for colleges and universities because such rates are used as a metric of institutional quality, in addition to improving the financial outlook for institutions through both tuition and alumni giving (Sarraf et al., 2005). However, because persistence cannot be fully measured until after a student completes a degree program, institutions often measure student satisfaction and student engagement, each a predictor for persistence, throughout a student's enrollment to determine the likelihood of persistence to graduation (Kuh, 2001; Noel-Levitz, 2011).

**Student satisfaction.** Satisfaction has been shown to positively impact academic achievement, as well as interaction among students and faculty on campus (Centra & Rock, 1971; Pascarella, 1985). Satisfied students are more likely to continue to enroll at the same institution until graduation (Suhre, Jansen, & Harskamp, 2007). Additionally, students who are a part of effective groups have been shown to be more satisfied with their individual learning (Hilgard & Bower, 1966). However, a link between positive cohort relationships and student satisfaction with the institution has not been examined.

**Student engagement.** Student engagement is one of the best predictors of student learning and personal development (Carini, Kuh, & Klein, 2004). The level of student engagement at a given institution is largely seen as a measure of institutional quality (Kuh, 2001). Additionally, student engagement is important to many institutions because of the demonstrated linkages between engagement and student retention (Carini, Kuh, & Klein, 2004), which lead to desirable institutional outcomes such as higher graduation rates, alumni giving, and alumni participation (Sarraf et al., 2005). Student engagement is often studied for undergraduates, but is rarely discussed for graduate students (Pontius & Harper, 2006). Wang (2003) argued that the oft-used measure for undergraduate student engagement, the National Survey of Student Engagement (NSSE), could be easily adapted for use with graduate students. However, we found no research measuring engagement of cohort students.

### **Conceptual Framework and Measures**

The measurement instrument used in the study is a 24-question survey. We offered both a paper and an electronic (internet-based) version of the survey to participants. The survey took 10 minutes to complete. The survey was voluntary, was not intrusive, and was appropriate for the significant time restraints on the target population. This survey was used to measure the independent variable, close bonds, as well as the two dependent variables: student satisfaction and student engagement.

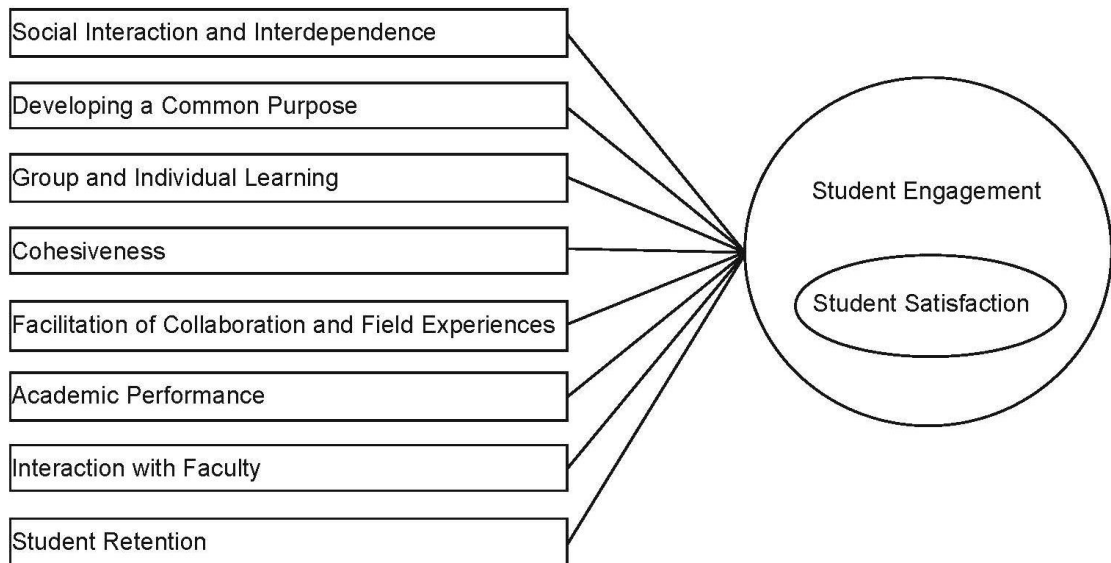
The independent variable in this study is close bonds. The term “close bonds” is operationalized using Koeppen, Huey, and Connor’s (2000) eight dimensions of effective cohorts: (1) social interaction and interdependence; (2) developing a common purpose; (3) group and individual learning; (4) cohesiveness; (5) facilitation of collaboration and field experiences; (6) academic performance; (7) interaction with faculty; and (8) student retention. The close bonds questions were converted into a scale variable (Cronbach's alpha = .887). The dependent variables are student satisfaction and student engagement. Our original intent was to also ascribe student persistence as a dependent variable; however, in the process of surveying students we realized that our student persistence questions were ineffective in that all students answered positively to all questions related to persistence. Since the research shows student satisfaction and engagement are positively correlated with student persistence, we elected to use those dependent variables (satisfaction and engagement) throughout the study.

The survey questions measuring the dependent variables came from the National Survey of Student Engagement (NSSE) and the Adult Student Priorities Survey written by Noel-Levitz. Research has shown these measures to be both valid and reliable (Kuh, 2001; Noel-Levitz, 2011). Items related to academic engagement were used to measure graduate student engagement, as graduate students are often less involved in extracurricular activities and campus life than the undergraduate students for whom the NSSE questions were created. Scale variables were created for engagement and satisfaction using these items. The internal reliability for each scale was high (Cronbach’s alpha = .729 for engagement; Cronbach’s alpha = .852 for satisfaction). At least seven survey items address each key concept.

### Survey Concept Map

In our survey of students, we measured the eight components of close bonds as illustrated in the concept map below. (See Figure 1.) We measured the effect of these eight components of our independent variable on the dependent variables of student satisfaction and student engagement. Students receiving the treatment of a master's-level “cohort program” in education were compared against our control group (students in master's-level non-cohort education programs).

#### Eight Components of Close Bonds



*Figure 1.* Conceptual model of components of close bonds among students as predictors of student satisfaction and engagement.

In conclusion, our hypotheses are: 1) students in cohort programs develop closer bonds than students in traditional non-cohort programs, and 2) close bonds will positively influence student satisfaction and engagement.

#### **Data Collection**

In order to maximize our potential response rate and to control for differences in students by locale and academic program, we limited our sample to master’s degree students in education programs at colleges and universities within 30 miles of a metropolitan area in the southeastern United States. Limiting our sample to schools in this area, we found eight schools with master’s-level programs in education. Five of the eight schools participated in our survey (see Figure 2). Some of these schools offer cohort programs, while others offer traditional classes in their master's-level education programs. The graduate students in the cohort-model degree programs serve as our treatment group. Graduate students at the area schools with traditional (non-cohort) master's programs serve as our control group. We contacted the program coordinators of the graduate programs to ask them to facilitate their students' participation in the study. Five of the eight schools agreed to participate.

Table 1  
*Participating institution characteristics*

School	Type	Estimated Enrollment	Cohort/Traditional
A	Private, master's	1,500	Traditional
B	Private, doctoral	13,000	Traditional
C	Private, doctoral	2,500	Cohort
D	Private, doctoral	4,000	Cohort
E	Private, master's	4,000	Cohort

We designed the survey administration procedures to place as little burden on the schools in the sample as possible to improve response rates. Therefore, we gave each school two administration options. In the first option, the school could choose a paper-based survey administration. For schools choosing this option, a member of the research team scheduled a time to visit one class of students enrolled in the program. The researcher briefly explained the project and gave respondents an overview of the informed consent agreement before asking students to complete paper copies of the survey. Students also were given the option of providing their contact information on a separate piece of paper, which was not associated with their responses on the survey, to be used in a drawing for a \$50 gift card as an incentive for completing the survey. In the second administration option, schools could choose an online survey administration. Schools choosing this option were provided with an email message that included the informed consent information and a link to the survey. They then forwarded that message to the students in the selected programs. The online survey was identical to the paper survey used in the other type of administration. At the end of the online survey, students were given the option to click a link to open a new survey, not associated with their responses on the first survey, where they could provide their contact information for the incentive drawing. We combined the contact information from the paper-based surveys and the online surveys and selected one participant at random to win the incentive gift card.

Some weaknesses existed in the survey administration procedures. For example, the presence of a researcher during the administration of the paper-based surveys potentially led respondents to answer more positively than in the more anonymous online version of the survey. When we measured student engagement and student satisfaction taking into account whether students took the survey on-line or on paper, we discovered significant differences after performing a *t*-test ( $p < .05$ ). Consequently, we controlled for administration method (paper versus on-line) in our regression analysis. Furthermore, the presence of the researcher at the paper-based administrations may have made respondents less confident that their participation is voluntary, despite the researcher's statements to the contrary and the Institutional Review Board (IRB) consent form outlining the voluntary nature of participation. Administration of the paper-based survey during class may have caused participants to view the survey as school-sanctioned, which also may have led them to believe it was not voluntary.

Surveys were administered using one of these two methods for all students. The email sent to students participating in the online survey was identical for all students. The researchers administering the paper-based surveys used a script approved by the IRB to ensure identical administration. We administered identical surveys in these two manners to both control and treatment groups. One school from the control group opted for the on-line administration, and one school from the treatment group opted for the on-line administration.

The entire population of schools meeting our criteria (within a 30-mile radius of the selected metropolitan area and offering a master's-level education program) was included in the

first cluster of our sample. From this point, the sample was based on convenience. Schools opting for the paper-based survey administration were asked to identify one class section to which the surveys could be administered. This introduced potential bias into the sample because the students in the class chosen by the institution may be significantly different in some way from other students. Additionally, this meant the number of students sampled from each program varied by the size of the class selected, rather than by the number of students enrolled in the program. Therefore, some programs may have been overrepresented in the sample. This process also introduced potential error of non-observation, as some students enrolled in the program may have not been included in this non-random sample.

This study used a static group comparison research design. Because students in the sample were already enrolled, either in a cohort-model program or a traditional graduate degree program, prior to the commencement of this study, random assignment to treatment and control groups was not an option with this sample. This selection bias could impact the validity of this study, as students who opted into cohort-model programs may be pre-disposed to build closer bonds with their peers. The non-randomization of the groups poses a threat to the external validity of this research.

Due to the diversity of the institutions surveyed, the study results may be generalized to master’s students at an array of institutions. The study was limited to master’s students studying education; the results may not be generalized to undergraduates or doctoral students, or to other academic disciplines. As mentioned above, the centralized location of the sample may limit the generalizability of the study results to urban southern communities.

Finally, the nature of survey research is such that the analysis was done on self-reported data. The respondents were asked to rate their own levels of bondedness, student satisfaction, and student engagement for this study. There is the possibility that self-reported data may be biased in some way.

### Methods

In order to perform our analyses, we developed scale variables for our independent variable, cohort bonds, and our dependent variables, student engagement and satisfaction. To create these variables, we summed the self-reported responses of the survey items related to each topic. Additionally, we created a variable for program selectivity that was based on each program’s admissions requirements and the average entrance exam score for the most recent entering class. These factors were combined, and each program was assigned a selectivity score from 1 (minimally selective) to 4 (very selective). These scale variables are described in Table 2. Additionally, we collected demographic, enrollment, and relationship data to use as control variables.

Table 2  
*Summary of Scale Variables*

Variable	Mean	SD
Close Bonds Scale	37.15	.603
Engagement Scale	33.37	.457
Satisfaction Scale	22.80	.410

To analyze the data from this study, we used three methods: (1) a *t*-test to measure the difference in means between cohort groups and non-cohort groups on the scale values for close bonds; (2) correlations between the close bonds scale and the student engagement and

satisfaction scales; and (3) a regression analysis between the close bonds scale and the student engagement and satisfaction scales, which allowed us to control for factors such as school selectivity, demographics of the respondent, length of enrollment, relationships between classmates prior to enrollment, and administration method (paper versus on-line).

In our regression analysis we controlled for the following demographic variables: number of children, marital status, age, gender, and race. We chose these variables to control for differences among various demographic groups with respect to our dependent variable. For example, we wanted to account for any variation that one’s gender might have with respect to our dependent variable. With respect to enrollment we controlled for selectivity of the program, length of enrollment, GPA, and time between completion of bachelor’s degree and start of master’s degree. We felt that these were important factors for which to control because they could influence satisfaction and engagement independent of close bonds. For example, we wanted to control for a school type to allow for potential differences between a student at School B and a student at School A with respect to engagement and satisfaction. Last, we controlled for relationship variables such as knowing members of the program prior to enrollment, seeing classmates at work, or seeing classmates socially. Again, we felt that these factors needed to be controlled because they could influence satisfaction and engagement independent of close bonds as established via the cohort mechanism.

### Results

#### Close Bonds in Cohorts versus Non-Cohort Programs

To test the hypothesis that students in cohort programs develop closer bonds than students in traditional non-cohort programs, we examined mean scores on the self-reported bond scale. The mean bond scale score for students in cohort programs ( $n=55$ ) was 38.82, with a standard deviation of 5.683; the mean score for traditional non-cohort students ( $n=47$ ) was 36.45, with a standard deviation of 5.323. We ran a t-test for independent means to determine if the difference between the means of each group was significant. (See Table 3.) The test statistic  $t=-2.162$ , was significant at  $\alpha =.05$  ( $p=.033$ ) with the confidence interval  $[-4.547, -.196]$ . This statistically significant difference suggests there is a difference between close bonds developed by students in cohort programs and those developed by students in traditional programs. Therefore, we reject the null hypothesis that there is no difference between bonds between members of the two groups (cohort and non-cohorts).

Table 3  
*Bonding Scale Scores by Cohort Affiliation*

	Cohort Affiliation		<i>t</i>	<i>df</i>
	Yes	No		
Bonding Scale	38.82 (5.683)	36.45 (5.323)	-2.162*	100

*Note.* \* $p < .05$ . Standard deviations appear in parentheses below means.

#### Relationships between Close Bonds and Satisfaction and Engagement

To test the hypothesis that close bonds will positively influence self-reported student satisfaction and engagement in degree programs, we first ran a correlation between the close bonds scale and each of the other scales to determine if there was a relationship between the variable pairs. The close bonds scale score was strongly correlated to the engagement scale



[ $r(93) = .50, p < .001$ ] and had a medium correlation to the satisfaction scale [  $r(89) = .411, p < .001$ ]. (See Table 4).

Table 4  
*Correlation to Close Bonds Scale*

	Engagement Scale	Satisfaction Scale
Close Bonds Scale	.500***	.411***

Note. \*\*\*Correlation is significant at the 0.001 level (2-tailed)

The relationships between the close bond scale and the engagement and satisfaction scales are statistically significant, which indicates that we can reject the null hypothesis that there is no relationship between close bonds and engagement and satisfaction. The two correlations are also substantively significant. The  $R^2$  values of .25 for engagement and .17 for satisfaction indicate that 25% and 17%, respectively, of the variance in these variables is accounted for by the variance in close bonds.

Given the statistically and substantively significant correlation between close bonds and the engagement and satisfaction scales, we completed a regression analysis to determine the predictive relationship between close bonds and engagement and satisfaction, controlling for other variables that may influence these relationships (See Table 5).

Table 5  
*Summary of Regression Analysis for Variables Predicting Student Engagement*

Variable	B	SE B	$\beta$
Close bond scale score	.334	.089	.404***
Number of children	.171	.838	.028
Marital status	-.255	.992	-.034
Time off prior to degree commencement	-.696	.566	-.173
Age of respondent	.268	.687	.063
Current GPA	.423	1.099	.040
Sex of respondent	.416	.989	.041
Race of respondent	.344	.394	.087
Number of years enrolled in current degree program	.584	.724	.088
Do you see classmates socially?	-1.142	1.068	-.120
Do you see classmates at work?	-.364	.974	-.037
Did you know classmates prior to this degree program?	1.814	1.144	.159
Selectivity of academic program	-.030	.422	-.009
Paper or Online Administration	2.946	1.344	.239**

Note:  $R^2 = .454$ . \*\*\* $p < .001$ , \*\* $p < .05$

The model as represented in Table 5 accounts for 45.4% of the variance in student engagement. For every one unit increase on the close bonds scale, there is a .334 unit increase in engagement. This is statistically significant ( $p < .001$ ).

The model as represented in Table 6 accounts for 33.2% of the variance in student satisfaction. For every one unit increase on the close bonds scale, there is a .308 unit increase in satisfaction, and it is statistically significant ( $p < .001$ ). After analysis, our findings suggest that close bonds could be used to predict both student satisfaction and engagement after controlling for identified variables.

Table 6  
*Summary of Regression Analysis for Variables Predicting Student Satisfaction*

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Close bond scale score	.308	.084	.457***
Number of children	.690	.753	.137
Marital status	-.151	.868	-.026
Time off prior to degree commencement	-.266	.508	-.084
Age of respondent	-.257	.823	-.078
Current GPA	.261	1.011	.031
Sex of respondent	-1.091	.884	-.137
Race of respondent	-.194	.360	-.064
Number of years enrolled in current degree program	.222	.648	.042
Do you see classmates socially?	-.082	1.013	-.011
Do you see classmates at work?	.753	.894	.097
Did you know classmates prior to this degree program?	-1.132	1.012	-.126
Selectivity of academic program	-.698	.374	-.264*
Paper or Online Administration	2.169	1.251	.215*

Note:  $R^2 = .332$ . \*\*\* $p < .001$ , \* $p < .1$

### Conclusion

Our hypotheses—1) students in cohort programs develop closer bonds than students in traditional, non-cohort programs, and 2) close bonds positively influence student satisfaction and engagement—were supported by this study. In particular, we found that students in master’s-level programs in education in the selected metropolitan area that were cohort program tended to report closer bonds than students in non-cohort programs. Furthermore, the close bonds between these students, as represented in a close bond scale, were correlated positively to both student engagement and satisfaction.

The literature suggests that engagement and satisfaction have a positive correlation with persistence—an important outcome for program planners with respect to master’s-level education programs and their success. Our study found a predictive relationship between close bonds and satisfaction and engagement.

In comparing traditionally formatted programs to cohort programs, we found significantly higher scores on the “close bonds” scale for students who were part of a cohort program. Depth of relationship with colleagues within one’s field and professional network is a key component of graduate school education cohorts. Many researchers have cited the relational (bonding, support, belongingness) aspects of cohorts and its importance for students (Barnett et al., 2000; Potthoff et al., 2001; Teitel, 1997). We also found that, even after controlling for numerous variables, close bonds were positively correlated with self-reported student satisfaction and student engagement. Due to the link between student satisfaction, student engagement, and persistence, institutions seeking to improve student persistence rates often attempt to improve student satisfaction and student engagement. According to our research, one way to make these improvements is to increase the bonds between students. Due to the relationship between cohort programs and close bonds found in master’s level educational programs in this study and the predictive relationship between close bonds and self-reported student satisfaction and engagement, the results of this study may be used to recommend utilizing the cohort format to increase student satisfaction and engagement in similarly situated programs.

The finding that close bonds can predict student satisfaction and student engagement leads to additional research questions for consideration in future studies. A deeper understanding of what creates close bonds would be helpful to program designers with respect to these educational programs. Our findings suggest that further research in understanding the dynamics of how bonds are created between cohort members would add to the literature and further guide master's-level program design. Further studies could also determine the effects of close bonds on engagement and satisfaction, and ultimately persistence, at other educational levels and in other disciplines. A final area for additional research is the impact of close bonds within a cohort on the strength of bonds students develop for the program or institution. Strong bonds to a program or institution may create a more engaged alumni base, stronger word-of-mouth marketing, and a stronger donor base for the institution.

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