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A Mixed-Methods Analysis of Mechanisms to Support College Enrollment Among Low-Income High School Students

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ABSTRACT

The purpose of this study was to build a better understanding of the issues that students encounter during the summer which deter them from enrolling in the first semester of college in the fall. In Study 1, responses to a short survey were examined, and four critical factors were identified as deterring students: *lack of college-bound identity, life circumstances and financial responsibilities, perceived lack of academic preparation, and opting for alternative career choices*. In Study 2, transcription data were analyzed from texting dialogues between students and their college advisers. A thematic analysis revealed that several practical issues emerged with great frequency - most notably financial aid concerns. Social-emotional communication was also identified as a possible mechanism for developing the students' college-bound identity. These findings underscore the need to provide underrepresented students with not only information for completing college and financial aid applications, but also with the opportunity for social support and emotional guidance during the summer leading up to college enrollment.

Keywords: *school counseling; college-bound identity; college readiness, persistence; college enrollment*

Classifications: *Counseling; Educational; Higher Education Psychology*

Public Significance Statement: *The two studies described in the present article advance our current understanding of factors that influence the college enrollment decisions of college-bound high school students from underrepresented communities. The students needed not only information for completing college and financial aid applications, but also an opportunity for social support and emotional guidance during the summer prior to college enrollment.*

A Mixed-Methods Analysis of Mechanisms to Support College Enrollment among Low-Income High School Students

Among the many benefits of attending college, successful completion of college is associated with a number of positive life outcomes, including a significantly greater salary (Perna, 2005). Data from the US Bureau of Labor Statistics (2018) indicates that the weekly wages for adults who have completed a 4-year Bachelor's degree is on average 61% higher than adults who have only completed high school. Enrolling in college and completing a degree immediately after completing high school has also been found to predict differences in students' persistence and attainment of a college degree. Delaying enrollment for as little as one year is associated with a decreased likelihood of degree completion, even after controlling for other factors (Bozick, 2007; Bozick & DeLuca, 2005; Wells & Lynch, 2012). The purpose of this two-part study was to examine issues that students encounter during the summer prior to enrolling in the first semester of college in the fall. Such information may guide the design interventions that can better address students' concerns about college enrollment over the summer months.

Defining Summer Melt

Many students face obstacles that can deter them from enrolling in college. By the time students enroll in their first year of college, they must have already overcome the challenges associated with selecting, applying to, and being admitted to college. *Summer melt* refers to the phenomenon where motivated and academically-prepared high school graduates decide not to enroll in college, even though they have received admission (see Castleman, Owen, & Page, 2015; Tierney & Venegas, 2009). The summer melt phenomenon is particularly prevalent among low-income students. Past studies indicate that about 22% of college-bound, low-income students opt not to enroll in college (Castleman, Arnold, & Wartman, 2012). These findings are particularly concerning in light of evidence suggesting that first-generation low-income college-bound students comprise about 24% of the college-bound population in the United States (Engle & Tinto, 2008), and only half are likely to go to college immediately after graduating high school

(Losen, Orfield, & Balfanz, 2006). Students who identify as either African American/Black or Hispanic enroll in college following high school graduation at a lower rate than their European American/White peers (Shapiro, Dunder, Yuan, Harrell, & Wakhungu, 2014). Taken together, these findings suggest that low-income, African American/Black and Hispanic students are particularly vulnerable to the summer melt phenomenon (Castleman et al., 2012).

Factors that Mitigate Summer Melt

Models of prevention suggest a combination of factors that can promote college enrollment, particularly among students from first-generation college backgrounds. *College going capital* refers to the knowledge, information, inspiration and resources that students from underrepresented communities gain from their families and friends, which serves as a rationale or motivation for pursuing educational attainment and a college degree (Carey, 2016). Prior longitudinal research shows that among the strongest predictors of students' college enrollment are family income, parent education, and parental educational values, even measured as early as 6th grade (Eccles, Vida, & Barber, 2004). Family background (e.g., race/ethnicity, socioeconomic status, educational attainment, etc.) is thought to be associated with social capital accessible to students in attaining a college degree (Bryan, Moore-Thomas, Day-Vines, & Holcomb-McCoy, 2011; Hill & Wang, 2015; Mwangi, Cabrera, & Kurban, 2018). Students from higher socioeconomic backgrounds or whose parents have obtained a college education may have more social capital given that they have readily available access to information about the admissions and enrollment process for attending college. Social capital is positively associated with college enrollment and persistence on college degree attainment (Coleman, 1988; Lin, McKeachie, & Kim, 2001). However, positive effects of social capital are not limited exclusively to familial relationships. Friendships with fellow students who have college-educated parents may be an indirect support, as it predicts college persistence (Cherng, Calarco & Kao, 2013).

Quality guidance counseling is also a significant predictor of students' college enrollment (Hill, 2008; Roderick, Coca, & Nagaoka, 2011). Frequent contact with college advisers provides both social and cultural capital (Clauss-Ehlers & Wibrowski, 2007). For example, "coaching

models” used by guidance advisers with at-risk high school students are highly effective in transferring essential social, emotional, and organizational skills necessary to achieve a successful transition to college, including admission and enrollment processes (Stephan & Rosenbaum, 2013). Findings from a longitudinal study examining students’ college enrollment and later retention and persistence after the first year found that students who had met with school advisers more often to seek assistance in creating direction after graduating high school, and whose school advisers established a more personalized relationship with them, were significantly more likely to continue enrollment in their college after the first year (Poynton & Lapan, 2017). College advisers greatly influence students’ college enrollment decisions (Cholewa, Burkhardt, & Hull, 2015). In a qualitative investigation of a program designed to increase social capital and improve resilience through counseling among college-bound high school seniors, analysis of semi-structured interviews revealed that the program improved students’ sense of purpose, empowerment, as well as their development of college-bound identity (Capizzi, Hofstetter, Mena, Duckor, & Hu, 2017). *College-bound identity* generally refers to the sense of confidence and skill to navigate enrolling in college (Cooper, 2002). From a psychologically grounded perspective, college-bound identity may be understood as the vision students have of themselves as being someone who attends college (Oyserman & Destin, 2010; Markus & Nurius, 1986).

Also important is *College knowledge*, which refers to the skills needed to navigate the admissions process, including registering for required exams, researching colleges and scholarships, completing applications and seeking help when needed, submitting financial aid forms, and so forth. These tasks may exhaust or frustrate students who do not have an immediate support network, particularly low-income, first generation college students (Bell, Rowan-Kenyon, & Perna, 2009; Hooker & Brand, 2010). Byrd and MacDonald (2005) identified ten aspects of college-readiness organized around three categories of skills, among them college readiness skills (e.g., academic skills, time management, goal focus, self-advocacy). When students have been given opportunities to develop college readiness skills, and believe they have

the skills to succeed in college, it may form a foundation for students sense of self as someone who is college-bound.

Challenges in Providing Student Support during the Summer

Unclear in the current literature is how best to scale mentoring practices that promote students' development of college-bound identity; empowering students to view themselves as college-ready and capable of post-secondary academic success. A key bottleneck to providing counseling services over the summer involves scaling out these personalized, mentoring interactions to students in an efficient way, particularly given that students do not tend to have regular access to the supports that are in place during the school year. Technology provides one possible means of scaling interventions, and prior technology-based interventions succeeded in providing informational supports via text messaging (Castleman & Page, 2013, 2014, 2016). To be successful, however, an intervention may need to go beyond the informational, and include socio-emotional support for college-bound students.

Research Aim

Our purpose was to build a better understanding of the issues encounter by students during the summer prior to enrolling in the first semester of college. In Study 1, we administered a 19-item survey to college-bound high school students just prior to their graduation. Exploratory factor analysis was used to better understand general themes in the perceived barriers faced by students related to enrolling in college. In Study 2, we analyzed transcription data from text message exchanges between college-bound, high school graduates and their high school guidance advisers using an open and closed qualitative coding procedure. We opted for a more unobtrusive and naturalistic approach to data collection as it would provide a rich source of information about the supportive aspects of both the informational and social-emotional exchanges occurring between advisers and students. Information learned through the two studies should provide insights for scaling up summer melt interventions and may be particularly informative for technology-based interventions.

Study 1: Survey Data

To gain a better insight into the types of issues affecting students' decision to enroll in college, we developed a survey based on the most common factors identified in the summer melt literature. The survey was administered to low-income students from underrepresented groups who were graduating from high schools in a large urban center. Responses were analyzed to identify the prevalence of different informational and socio-emotional issues.

Methods

During the late spring and early summer between May and June of 2017, a questionnaire was distributed to college-bound, high school graduates in a large, urban region in the northeastern United States. Questionnaire items were partly based on a previously developed survey by McWhirter (1997). The survey consisted of 19-item Likert-type questions about issues that prevent the respondent from enrolling in college in the fall semester ahead. The items consisted of statements that covered a broad range of issues, including, but not limited to, financial (e.g., "I can't afford to go to college"), academic (e.g., "I'm worried that I'd find the courses too difficult"), social (e.g., "I wouldn't fit in at college"), and value-based (e.g., "I don't think college will help my future"). All responses were provided using a 5-point scale (1=Not at all, 2=Unlikely, 3=Neither likely nor unlikely, 4=Likely, 5=Completely).

Results and Discussion

Sample. Respondents ($N = 168$) ranged in age from 16 to 21 years of age, with a mean age of 17.7 years ($SD = .73$). All respondents attended urban high schools within which in the 2018-2019 year an average of 17.2% of students qualified as English Language Learners, 82.1% of students qualified for free or reduced price lunch based on family incomes, and an average 82.9% of students experienced economic hardship (NYC DOE, 2019). Based on the gender distribution at the school-level, female and male participation was presumed equal.

Descriptive analysis. Descriptive statistics for each of the questionnaire items are shown in Table 1. Statements that received the highest overall average ratings are those with the largest mean scores. These statements included items assessing fears of the challenging nature of college

coursework (“I’m worried that I’d find the courses too difficult”), the financial burden (“I can’t afford to go to college”), confusion over how to register for courses (“I am confused about how to register for my college classes”), lack of certainty over receiving adequate guidance from an adviser (“I won’t have guidance from a counselor or adviser over the summer”), and family obligations (“I have family responsibilities (e.g., childcare”).

Factor analysis. An exploratory factor analysis (EFA) using a minimal residual (ordinary least squares) factoring method and oblimin rotation was conducted to examine the structure of the questionnaire given the current set of responses. Analyses were conducted in the *psych* package (Revelle & Revelle, 2015) using the R statistical language (R Development Core Team, 2011). The minimal residual solution will often produce estimates similar to that of the maximum likelihood approach but can handle data where singularity is a potential problem (Revelle & Revelle, 2015). Direct oblimin rotation, a form of oblique rotation which assumes that the factors are correlated (Gorsuch, 1983, p. 203-204), was selected on the basis that items were thought to be inter-correlated and it is one of the most common forms of oblique rotation used in principal components and exploratory factor analysis (Kim & Mueller, 1978, p. 50). A correlational matrix for the four-factor solution based on an EFA using oblique (oblimin) rotation revealed correlations between .22 to .48. Bonferroni corrected correlations between items are presented in Table A as supplemental material. As recommended by Tabachnick, Fidell, and Ullman (2007, p. 646), if correlations exceed .32, then there is 10% (or more) overlap in variance among factors, enough to indicate that oblique rotation should be used.

Visual examination of the screen plot and parallel analysis revealed that 4 factors were sufficient. The four-factor solution produced a Chi Square ($df = 101, N = 138$) = 148.21, $p < .0016$, Tucker Lewis Index of factoring reliability (TLI) = .918, $RMSEA = .065$ (10 % CI: .037, .078), root mean square of the residuals ($RMSA$) = .04. These indices indicate the solution is sufficiently well-fitting (Hu & Bentler, 1999; Kline, 2015).

Table 1
Items from survey with descriptive statistics and component factor loadings

Factor	Factor Loading
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Label	Question item	<i>n</i>	<i>Mean</i>	<i>SD</i>	1	2	3	4
College-bound Identity	I wouldn't fit in at college [Q10]	132	1.76	.99	.78			
	I'm not really interested in going to college [Q12]	132	1.77	1.25	.72			
	I don't think college will help my future [Q9]	132	1.7	1.14	.71			
	My family doesn't want me to go to college [Q5]	132	1.38	.90	.63			
	I didn't get into a college that offered the major I was interested in [Q15]	132	1.86	1.09	.58			
	I haven't been accepted to a college that I want to attend [Q2]	131	2.06	1.33	.54			
	I am confused about how to register for my college classes [Q6]	132	2.34	1.25	.37			
	Circumstances and Financial Burden	There are family issues that make it difficult for me to attend college [Q17]	131	1.85	1.05		.69	
I have family responsibilities (e.g., childcare) [Q3]		132	2.11	1.26		.65	.26	
I can't afford to go to college [Q1]		132	2.53	1.35	.30	.41		
Academic Preparation	I'm worried that I'd find the courses too difficult [Q11]	132	2.56	1.25				.71
	My English language skills aren't good enough for college [Q16]	132	1.7	1.09				.50
	I'm not academically prepared enough [Q14]	132	2.04	1.09				.42
Other Career Options	I want to work at a job instead of attending college [Q4]	131	1.93	1.16				.75
	I want to take time off between high school and college [Q18]	132	1.82	1.21				.63
	I'm considering military service instead [Q13]	132	1.48	.86				.38
	I won't complete all of the requirements in time to enroll [Q7]	131	1.93	1.18	.48	.46		
	I won't have guidance from an adviser or adviser over the summer [Q8]	132	2.32	1.26	.26			
	The distance to travel to college is too far away [Q19]	131	2.05	1.12	.26			.27
SS loadings					3.39	1.49	1.31	1.50
Proportion Var					.18	.08	.07	.08
Cumulative Var					.18	.34	.40	.26

Note: Loadings < .25 are not shown.

The factor analysis revealed approximately four factors, consisting of the following categories (in order of average ratings for items within the factor): *circumstances and financial burden* ($M = 2.16$, $SD = .97$), *academic preparation* ($M = 2.10$, $SD = .93$), *college-bound identity* ($M = 1.83$, $SD = .82$), and *other career options* ($M = 1.75$, $SD = .88$). Two items (“I won't have

guidance from a counselor or adviser over the summer”[Q8], and “The distance to travel to college is too far away”[Q19]) did not meet the cut-off loading of .30 and were dropped from the list of items indicative of the four factors. Another item (i.e., “I won't complete all of the requirements in time to enroll” [Q7]) was complex in that appeared to load approximately equally well on two different factors, with loadings greater than .30. Due to the complex loading of this one item, it ultimately excluded from the factor solution. These four factors indicate the broad range of issues that graduating high school students worry may interfere with their attending college.

Study 2: Message Transcription Data

Next, we sought to determine if students’ concerns that were expressed in the themes derived from the survey data persisted over the summer months, as well to identify any other issues and themes that may have become more salient to students as the fall semester approached. We also sought to understand how those issues affected student decision-making around college enrollment on a more granular level over the course of the summer. To that end, we conducted a qualitative investigation of SMS text and email message data comprised of exchanges between students and their college advisers in high school. This approach was ideal for this investigation because it provided naturalistic data that has been unobtrusively collected and is rich in information about support-seeking behaviors of college-bound recent high school graduates when interacting remotely with college advisers. While the use of text and email message data for analytic purposes has not been applied extensively in psychological research, methods of inquiry have been used in communication sciences and applied linguistics (Tagg, 2012).

Methods

Data for the current study were text dialogues recorded between June and September 2018, a critical time period when students who are contemplating issues surrounding college enrollment. College advisers shared the exchanges with administrative staff from a counseling organization between July and October 2018. As part of their association with the counseling organization, advisers received professional development on an approximately monthly basis.

These sessions allowed advisers to gain new skills for their practice and to communicate issues and needs to administrative staff based on observations from their work. The text corpus was provided to researchers by a counseling organization after being cleaned of any directly identifying information. Between mid-September to December 2018, text and email dialogues between students and college advisers were analyzed. Institutional Review Board (IRB) approval was sought and granted pursuant to research activities.

Sample. The deidentified text and email message corpus was provided to a team of researchers from a community organization. Participants included students and advisers, thus allowing conversations to be examined within the situated identity of an adviser-student relationship (see Gee, 2004). It is estimated that approximately 30 advisers contributed messages, involving upward of 250 students. Given that messages were provided on a rolling basis and deidentified without any linking information by staff of the counseling organization, it is difficult to determine the average contribution to the corpus for each adviser and student dyad.

Students. The students who contributed to the text corpus were enrolled in the same high schools described in Study 1 and had the same demographics.

Advisers. The advisers who communicated with students in the text exchanges were college advisers who were connected with a community organization that provided professional development and other support services. Advisers had been in contact with nearly all of the students over the course of their senior year in high school and had been working over the year to prepare them for college entry. Support generally included providing guidance on college identification, including campus visits, preparation of application materials, as well as applications for scholarships, grants, and federal aid. In addition to the administrative responsibilities of serving as a high school adviser, many were also trained to provide social and emotional support to students as they navigated the process.

Message Transcription. The text and email message data corpus was transcribed by two research assistants. Text data was entered into a spreadsheet with each row comprising one exchange in the dialogue. Non-textual information in the dialogue, such as images, gifs, emojis,

sound or other file types, was replaced with a short description. The research assistants met on a weekly basis to review the transcriptions, with disagreements being resolved by consensus. Potentially identifying information was removed from the transcription records, including names of individuals or schools. In order to preserve information about the discursive dynamic while also masking the identities of those participants involved in the conversational exchange, information about the approximate date and time of the dialogue, the conversational sequence, and the individual's role in the conversation (i.e., student or adviser) was entered into the transcription log. Conversations that may have been exchanged between the same adviser and student on different days were largely treated as separate dialogues. All transcribed messages were reviewed for consistency, accuracy, and the lack of identifying information by the research assistant before any coding was undertaken.

Message Coding. The qualitative coding was conducted in two phases. The first consisted of an open coding process, while the second phase consisted of a closed coding process using those codes derived during the first phase.

Open coding. Using the SMS text message transcript data, two research assistants began deriving thematic codes to assign to each exchange within the conversation. The initial coding phase was completed based on grounded theory methodologies (Tagg, 2012; Titscher, Meyer, Wodak, & Vetter, 2000), which involves coding inductively from the data such that the results fit the sample well. This phase of coding took place between late-September to mid-October 2018. During this phase, the coders sought to identify themes as well as places where new topics emerged within the dialogue, thus assigning conversation numbers to each set of messages within the exchange that were topically linked (e.g., 3.2.1 as opposed to 3.2). The research assistants continued to meet on a weekly basis to review the codes and to reach consensus where inconsistencies had arisen. The meetings also allowed the research assistants to discuss common themes that appeared to emerge in the corpus of messages. By the end of the first round of coding, a list of themes and their relative density within the corpus had emerged. Examples of

selected message exchanges representative of each genre are shown in Figure A in supplementary material.

Closed coding. Following the open coding phase, a team of researchers, advisers, and administrators of the community organization met to review the codes derived during the first phase. The team of researchers included the principal investigators, administrative staff from a college advising organization that partners with city schools, and graduate research assistants, some of whom were currently serving as school advisers. During meetings which took place between October to November 2018, the researchers and stakeholders met to review the current list of codes in an effort to clarify and check them for consistency. Codes were also consolidated and organized into broader genres and more specific topical categories.

A new and larger team of research assistants then set out to apply many of the codes that had been previously derived from the corpus. The research assistants then reviewed and assigned codes to the transcript according to the new coding categories that had been agreed upon by the group of researchers. Each research assistant was assigned to one of two groups, with each group covering half of the overall corpus of text and email message data. The research assistants initially worked independently, in an effort to reduce bias in the coding process and to ensure that the coding scheme could be consistently applied by different coders. During the series of meetings, any confusion or inconsistency in the coding process was resolved through consensus. A final set of agreed-upon coded transcript data was then reviewed by a graduate research assistant and served as the basis for the data presented in the results.

Results and Discussion

Text corpus. The message corpus consisted of 145 conversations exchanged over text or email message, 79 direct messages and 25 group messages exchanged through a messaging app, RocketChat. Given the focus on content, all of the messages were analyzed according to the same coding scheme. Conversations, even from the same conversational dyad, were counted as separate “sub-conversations” if the course of the conversation changed drastically to another

topic. When multiple linked topics emerged almost simultaneously within the same conversational exchange, these were coded as subtopics.

Both the number of conversations and the number of exchanges within the conversations were counted within each thematic category. Altogether, there were 249 conversations (i.e., frequent and continuous communicative interaction with minimal delays or delays lasting less than 24 hours), consisting of 364 sub-conversations (i.e., conversation turns that involve a drastic change in topic), amounting to 4020 exchanges (i.e., each individual message sent by a member of the communicative interaction). On average, there were 11 exchanges in each sub-conversation, though the length varied considerably ($SD = 18.4$). Of these exchanges, approximately 44.1% ($n = 1772$) were from a student, while approximately 55.9% ($n = 2248$) were from an adviser.

The number of conversations within each unique code was thought to reflect not only the relative frequency that the themes emerged (Chi, 1997), but also the extent to which the issue reflected in that theme could present a barrier to the students' enrollment in college. In addition, the number of messages exchanged within a discrete theme category was taken to reflect not just the frequency, but also the relative complexity of topic, as more complex topics may require more exchanges in order to achieve a mutual understanding or resolution.

Themes. Themes were derived during the open coding phase. The themes were then organized into genres categories to effectively consolidate topics and to examine the prevalence of overlapping themes. Each message within a conversation was coded with only one discrete theme and was not coded into multiple categories. Thus, the counts reflect the number of conversations and messages within that category exclusively. The genres (overarching themes) derived from the corpus are shown in Table 2.

Table 2

Number and percentage of total conversations and message exchanges sorted according to frequency of conversations.

Genre	Conversations		Exchanges	
	N	% of Total	N	% of Total
social	119	31.00%	1014	25.20%
request	85	22.10%	896	22.30%
financial aid	62	16.10%	960	23.90%
registration	24	6.30%	281	7.00%
immunization	20	5.20%	129	3.20%
reminder	14	3.60%	35	0.90%
exam	12	3.10%	77	1.90%
enrollment	9	2.30%	148	3.70%
college online account	7	1.80%	68	1.70%
summer pre-college program	6	1.60%	33	0.80%
application process	5	1.30%	51	1.30%
college campus visit	3	0.80%	13	0.30%
diploma	3	0.80%	78	1.90%
contact	2	0.50%	7	0.20%
health insurance	2	0.50%	17	0.40%
college classes	1	0.30%	4	0.10%
college interview appointment	1	0.30%	11	0.30%
college orientation	1	1.90%	176	4.40%
college transfer credits	1	0.30%	13	0.30%
transportation	1	0.30%	9	0.20%
Grand Total	384	100%	4020	100%

More specific theme categories are shown in Table B in supplemental material. As an illustration, the following excerpt of an exchange provides an example of one coded as “social.”

Adviser: Hiii [student name], how are you????
Student: Hey!!!
Adviser: Good And you?
Student: I'm good too!
Adviser: How's your summer been so far???
Student: Boring [laughing tears, crying, laughing tears emoji]

Unlike the preceding example, the excerpt below is more of an informational exchange, which was coded under the “registration” theme:

Student: [...] I just signed into [college online account] n this is here [screenshot of students classes]
Adviser: Usually when that comes up You have to make an appointment with an academic adviser who helps you pick classes and gives you access to select classes

Adviser: Check your email and see if york has sent you an emails about class registration
Student: Okay ima do that rn
Student: [screenshot of class schedule]
Student: But the [department] they trying to fix it
Adviser: You spoke to someone at [college]?
Student: Yeah, they told me to wait
Adviser: Wait until when
Student: They waiting for the [department] office

These examples highlight some of the variation in content, tone, and likely also the intentions of the participants in the conversation. As seen in Table 2, most exchanges involved discussion of specific informational content area (e.g., financial aid or registration). However, 25% of the exchanges were coded as social (25%). Although some of the social exchanges are inherent in the nature of text messaging, it also seems that the students were seeking out connection, and perhaps social-emotional support from their college advisers as the fall college enrollment drew nearer. In the discussion that follows, we further unpack the potential significance of the types and frequency of certain themes that emerged in the exchanges between students and advisers and related it to the factors that emerged from the survey data in Study 1.

General Discussion

The choice to pursue a college degree immediately after graduating high school has serious implications for many students' career success, financial stability, and life satisfaction. Unfortunately, many low-income, first-generation students opt not to enroll in college immediately after completing their high school degree. This decision is thought to stem from barriers that hinder students' access to college during the summer immediately after completing high school. In this study, we sought to build a better understanding of the issues students encounter during the summer prior to enrolling in the first semester of college in the fall.

Constructing a College-bound Identity

Findings from Study 1 suggested that some common concerns for college-bound high school graduates include worries about not fitting in, family expectations or values, lack of apparent interest in attending a particular college or college in general, and not even knowing how to take steps such as registering for classes. In Study 2, the considerable number and density

of conversations and exchanges identified as social communication, while not having a concrete purpose related to college enrollment, may actually indicate a hidden objective: helping students develop their *college-bound identity* (Capizzi et al., 2017). Advisers may also recognize these social exchanges as opportunities to build rapport so that they can provide students with information in a social context more likely to be based on mutual understanding.

While social communication has been previously deemed irrelevant to students thinking about college enrollment and college-bound identity (see McDonough, 2005), it may actually serve a critical purpose in acclimating students to a future-state identity as a person who has a college education. As students prepare for the practical aspects of enrolling in college, they may find themselves caught between what is often a highly structured and supervised environment with low-stakes obligations, and one which is largely externally unconstrained with very high expectations and responsibilities. For many students, finding purpose for attending college and the motivation to pursue their degree once enrolled, depends on the extent to which they view attainment of a college degree as part of their identity (Elliot, Choi, Destin, & Kim, 2011). Duncheon (2018) suggests students may come to understand a purpose for attending college through three critical aspects of sensemaking (see Weick, 1995), including identity construction, social interaction, and from environmental cues. While identities are not conferred by others as social labels, the construction of a college-bound identity is certainly developed through social transmission, by way of social interactions and relationships, assuming roles, and affiliating with group memberships (Oyserman, Elmore, & Smith, 2012). As such, college-bound identities are partly a social construct, and so certain students may need greater social and emotional support to develop a college-bound identity during the summer transition process.

Overcoming Practical and Financial Barriers

The findings from the Study 1 indicated that *family commitments and the financial burden* of attending college can make the prospect of attending college, even on scholarship, difficult to manage. Similarly, consideration of post-graduation *options aside from attending college*, such as working, taking time off, or enrolling in the military, was also found to be

important. In the findings from the Study 2, we found that approximately 16% of the conversations between students and advisers were in regard to financial aid questions or concerns. Given the range of topics and codes extracted, these findings suggest that students spend a considerable amount of time contemplating financial issue over the summer leading up the first semester of college. It is important to bear in mind that these conversations were only possible for students due to continued communication opportunities with their college advisers; most students, particularly low income, first generation students will not have access to this type of support. Except those that were initiated by college advisers, the exchanges were also likely prompted by students who may have been more inclined or empowered to seek help (see Poynton & Lapan, 2017). Students who do not believe they have the financial means to attend college, may be less likely to view the long-term benefits of education on their future financial earnings. Though it has been shown that individuals with lower educational attainment tend to work in occupations with less regular schedules, lower earnings, and generally less control and mobility and therefore less freedom in planning (Carnevale, Smith, & Strohl, 2010; Tausig, 2012; Vuolo, Mortimer, & Staff, 2016), students may not recognize the long-term gains of attending college (Oyserman & Lewis, 2017).

Supporting Academic Preparedness and College Knowledge

In Study 2, most of the themes that emerged from the dialogues between students and advisers over the summer resonate with the theme of *college knowledge* (Bell, Rowan-Kenyon, & Perna, 2009; Hooker & Brand, 2010). Students may not feel that they have had the opportunities for academic preparation to attend college (Duncheon, 2018) and may question whether they have both the organizational and self-regulation skills to balance the increased academic workload and lack of direct supports in college (Conley, 2012; McAlister & Mevs, 2012). Having fewer peers or family members to offer guidance based on experience can make this especially troublesome for low-income, first generation college students (Hungerford-Kresser & Amaro-Jimenez, 2012; Reid & Moore, 2008).

Limitations

While the present findings may help to organize a framework for intervening on the issue of summer melt, there are several potential factors that limit the generalizability of the present findings. Due to the iterative nature of coding, there was not a mechanism in place to quantify inter-rater agreement. The study is also limited in generalizability due to the fact that data from Study 1 and Study 2 were drawn from separate cohorts of students and therefore do not have evidence to support conclusions about longitudinal change over the summer prior to college enrollment. More rigorous methods for conducting critical discourse analysis could produce further insights to understand how some of the exchanges, particularly those of a social nature, are situated within the broader discourse of how students develop a college-bound identity and prepare for college enrollment over an extended period of time (Jäger, 2001; Titscher et al. 2000). Finally, students in the current studies lived in a large urban center. Issues related to summer melt may differ somewhat for low-income students in a rural setting. For example, most of the students in the current studies were accepted to colleges located in the same city where they lived, but rural students may be forced to relocate far from home to attend college.

Implications

This investigation was primarily focused on creating a framework for understanding emerging themes in college-bound, graduating high school seniors' perceived access to college. Effective policies and interventions to support low-income and underrepresented students in the process of enrolling in college, should also consider structural and historical factors that have prevented such students from accessing educational opportunities, and should seek to mitigate these issues based on rigorous evidence-based practices that systematically involve advisers in meaningful participation (Bedolla, 2010; Stone-Johnson, 2015). Interventions designed to provide informational and social support to first-generation college-bound students may help to mitigate summer melt. Since the summer months often entail travel and other work obligations that may separate students and advisers, the use of remote messaging applications may be one effective means to provide a support for college-bound high school graduates (Castleman &

Page, 2015). Future efforts should be made to consider the quality of the exchanges, and how students are provided opportunities to socialize in a way that allows them to develop a college-bound identity.

Conclusions

College-bound graduating high school students need both informational and social supports in place in order to enroll in the fall semester (Castleman & Page, 2014). Without such supports, students are less likely to enroll immediately after high school, thus greatly decreasing their likelihood of attaining a college degree (Bozick, 2007; Bozick & DeLuca, 2005; Wells & Lynch, 2012), subsequently limiting future career opportunities. Our findings, drawn from mixed-methods research, elaborate on previously established models by showing that these concerns generally emerge in students prior to high school graduation yet may not persist as distinctly as students prepare to enroll during the summer leading up to their first semester. Post-graduation, more concrete concerns emerge, including seeking help to complete forms, particularly for financial aid, health insurance or immunization, enrolling and registering for classes, etc. Also, important, however, was the significant portion of students' dialogues with advisers that were almost entirely social in nature. These exchanges did not involve the exchange of information but were most likely a means by which students received social support, helping them construct and maintain their college-bound identity. These findings underscore the need to provide underrepresented students not only information, but also the opportunity for social support during the summer months leading up to college.

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