LITERATURE SCAN

MENTORSHIP IN COLLEGE

ECMC Foundation | ✳NORC at the University of Chicago

ACKNOWLEDGEMENTS

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INTRODUCTION

NEED FOR COLLEGE MENTORING

Policy, research, funding, and practice must work together to provide equitable outcomes for all individuals pursuing post-secondary degrees. College mentoring is widely supported by empirical research as a positive means for college success (Eby & Dolan, 2015). Mentoring is shown to remove barriers by enhancing persistence (Bettinger & Baker, 2011), improving grades (Fox et al., 2010), promoting a greater feeling of connectivity and campus engagement (CCSSE, 2009; Pascarella & Terenzini, 1980), and reducing transitional hardships (Bordes & Arredondo, 2005).

This literature scan highlights prior research and organizations that establish goals such as these and how they provide more just outcomes for people who have been historically underrepresented within the higher education landscape, such as students of color, those from low-income[1] backgrounds, and would-be first-generation college students. By reviewing previous research on mentoring programs and providing an overview of program elements and impacts of mentoring, this literature scan aims to answer the following questions: What is the state of college mentoring? What practices are shown to be most effective for students in terms of matriculation, persistence, and completion?

Below is an overview of the topics that are discussed in the literature scan.

INTRODUCTION. This section explores how mentoring is defined in the literature and what theoretical foundations exist to evaluate its efficacy.

COMMON MENTORING PROGRAM GOALS. This section discusses the goals that mentoring programs typically set and why.

COMMON TYPES OF SUPPORTS. This section describes the various types of support provided by mentors and cites their evaluation findings.

MENTOR/MENTEE RELATIONSHIPS. This section provides an overview of the different types of mentoring relationships, how these relationships are defined, and the potential benefits they may provide.

MODES OF ENGAGEMENT. This section explores the ways mentors and mentees may interact, including face-to-face engagement, one-on-one mentoring, virtual mentoring (e-mentoring), or hybrid approaches.

GAPS IN THE LITERATURE. This section outlines the gaps in the literature and where we can benefit from further research.

The literature discussed in this paper provides an empirical foundation for understanding college mentoring and can inform how resources can be effectively leveraged to provide the most impactful outcomes for students, especially those who face the greatest challenges in higher education.

Programs that have received funding from ECMC Foundation (ECMCF) are marked with footnotes throughout.

[1] For the purposes of this literature scan, a low-income student is defined as a person from a family whose previous year's taxable income was less than 150 percent of the poverty level amount. According to the Office of Postsecondary Education, a family of four with an income of $38,625 or less would be considered low-income (Federal TRIO Programs Current-Year Low-Income Levels, 2019).

MENTORING DEFINED

Although there is general agreement that college mentoring is a viable solution to addressing issues of inequity and barriers to access and completion in higher education, there is less agreement about how to define the notion of "mentoring" in practice (Boyle & Boice, 1998; Hall & Sandler, 1982; Haring, 1999; Wunsch, 1994; Zachary, 2000). The term is used to describe a broad range of support functions (e.g., academic and financial support as well as assistance with developing psycho-social functions) occurring among various actors in a multitude of settings, as will be explored in greater detail below and throughout this paper. Scholars struggle to find a unifying definition because of the wide variability between mentoring programs. In fact, Crisp and Cruz (2009) cite over 50 different ways of describing mentoring in the literature.

Broadly speaking, the mentee/mentor relationship typically includes one of the following arrangements faculty:student, staff:student, or student:student relationships (Crisp & Cruz, 2009; Gershenfeld, 2014; Jacobi, 1991)—although, employee:student[2] and volunteer:student are also provided through some programs (Richardson, Marlin, Vadas, Colo, & Goldrick-Rab, 2018). Relationships can be defined by a number of variables, including duration, dose, functionality, intensity, and spaces in which they occur. The literature commonly cites formal mentoring programs that are found on college campuses (Erickson, McDonald, & Elder, 2009), yet mentoring can also occur informally and naturally between peers, family members, or student and college staff (Allen & Eby, 2008). Relationships may focus on systematic guidance or provide emotional support, facilitate peer networking, or provide practical training. Some mentoring programs may also provide financial support.

MENTORS AND MENTEES MAY MEET IN GROUPS, ONE-ON-ONE, FACE-TO-FACE, ON CAMPUS, VIRTUALLY, OR THROUGH A COMBINATION OF THESE METHODS.

Mentoring programs thus vary widely across multiple dimensions, and many are shown to improve academic outcomes, such as grade point averages, persistence, university transfers, and degree completion (Bordes-Edgar, Arredondo, Kurpius, & Rund, 2011; Campbell & Campbell, 2007; Crisp, 2011). Mentoring is also shown to develop the mentee's psycho-social functions (Crisp, 2009; Crisp & Cruz, 2009; Kram, 1988; Nora & Crisp, 2007), such as student engagement outside of the classroom, personal development (Kuh, 1995; Kuh, Kinzie, Schuh, & Whitt, 2005; Harper, 2005, 2006), confidence and self-esteem (Kram, 1988), and knowledge of the education system. For the purpose of this literature scan, the term "mentoring" will be explored in several capacities, including support that is provided by "counselors" and "coaches"—terms that will be explained in greater detail below. Additionally, the intention of exploring these various dimensions of mentoring is to better understand practices that could facilitate improved outcomes for underrepresented students.

THEORETICAL UNDERPINNINGS

Critics argue that the lack of an operational definition may hinder the ability of practitioners to replicate successful models or point to specific programmatic features that yield the best outcomes (Crisp, Baker, Griffin, Lunsford, & Pifer, 2017; Crisp & Cruz, 2009, Jacobi, 1991). Even when provided, they are "too vague," not "specific to the population of interest," or "largely centered on programmatic issues" (Crisp & Cruz, 2009, p. 533). For example, in one study, the authors outline four points about the practice of mentoring that are generally agreed upon by scholars (Crisp & Cruz, 2009). These points are detailed below.

1. Mentoring relationships are focused on the growth and development of students and can be constructed in various forms.

2. Mentoring experiences may include broad forms of support that include professional, career, and emotional support.

3. Mentoring relationships are personal and reciprocal.

4. Relative to their students, mentors have more experience, influence, or achievement within the educational environment. (Crisp & Cruz, 2009, p. 527-528)

Another study offers an alternative characterization in which mentoring is described as a process that "builds relationships with students that creates an opportunity for the mentor to identify spaces where connections can either be established or repaired" (Drake, 2011, p. 8).

Dawson (2014) proposed a framework for evaluating mentorships that includes identifying key features within a particular model. The author defines 16 different elements that can be combined to create specific mentoring taxonomies. The 16 elements are listed below (Dawson, 2014, p. 140).

- Objectives: mentoring model's goals

- Roles: description of the participating parties and their purpose

- Cardinality: number roles in a mentoring relationship

- Tie strength: intended closeness between mentor and mentee

- Relative seniority: participants' levels of experience, expertise, or status

- Time: duration of a mentoring relationship and frequency of contact

- Selection: method used to choose participants

- Matching: method used to pair mentors and mentees

- Activities: actions that mentors and mentees participate in

- Resources and tools: materials or technology available to help mentors and mentees

- Role of technology: importance of technology to enhance participants' relationship

- Training: how participants will develop crucial knowledge and skills

- Rewards: how participants will be compensated for their work

- Policy: agreement of rules on issues such as use of technology or privacy

- Monitoring: systematically review performance and the corresponding actions that will be taken depending on circumstance

- Termination: circumstances under which relationships will end

The outcomes of these specific elements can help researchers pinpoint factors contributing to the success of the program. Similarly, Crisp et al. (2017) categorized undergraduate mentoring on a specific set of characteristics: "(a) relationship features, (b) form or source of the relationship, (c) relationship structure, (d) program types, and (e) forms of mentoring support provided to the student" (p. 9). However, none of the aforementioned frameworks have been widely adopted.

COMMON MENTORING PROGRAM GOALS

College mentoring is a way to promote more equitable outcomes for traditionally underrepresented students, such as first-generation college students, students from low-income backgrounds, and students of color. These students face substantial challenges in accessing college, persisting, and completing college—and then face still more challenges in finding entry-level jobs in their chosen careers (Lumina Foundation, 2018).

The first of these challenges, accessing college, has long been a priority for educational stakeholders, and current outcomes demonstrate considerable success on this (Cataldi, Bennett, & Chen, 2018; Choy, 1999). Approximately 40 percent of the U.S. population 18 to 24 years old were enrolled in college in 2017, compared to 35 percent of the same population in 2000 (U.S. Census Bureau, 2018).

HOWEVER, SIMPLY ENROLLING STUDENTS IN HIGHER EDUCATION INSTITUTIONS IS NOT ENOUGH.

Graduation rates have failed to keep pace, causing some to call upon educational leaders to reorganize national priorities (Deming, 2017). The National Student Clearinghouse (NSC) reported that six years after enrolling, almost 42 percent of students nationally had still not completed a postsecondary degree or were no longer in school (Shapiro et al., 2019). When accounting for race, ethnicity, or income, these numbers are even lower. The NSC reported that over 52 percent of black students and 43 percent of Hispanic students from the same cohort had not yet graduated, compared to 28 percent of white students (Shapiro et al., 2019). Additionally, a review of data from the National Center for Education Statistics (NCES) conducted by the Brookings Institution (Kelchen, 2017) found that the graduation rate for low-income students (receiving Pell Grant funding) was 51.4 percent, in contrast to 59.2 percent for non-Pell recipients after six years. Disparities in graduation rates are also experienced by first-generation college students. Only 50 percent of first-generation students earn a degree within six years, compared to 64 percent of their peers whose parents have higher education experience (DeAngelo, Franke, Hurtado, Pryor, & Tran, 2011).

COMMON TYPES OF SUPPORT

As introduced above, mentoring programs provide a variety of supports. In many cases, programs will offer multiple supports, each aimed at a specific barrier. Some of the common types of mentoring supports found in contemporary mentoring programs are:

- Financial
- Administrative
- Emotional
- Peer
- Social

Below is an overview of these supports, the theory behind their functionality, and descriptions of previous research showing how they are linked to enhanced student outcomes.

FINANCIAL

College students, especially those from low-income backgrounds, may face financial hardships that hinder their ability to finish their degrees. Students often seek employment when their families are not able to provide financial assistance, so that they can pay bills and rent, in addition to student fees and tuition. However, working more than 20 hours per week has been shown to result in lower GPAs, with students attending two-year colleges affected more than those attending four-year institutions (Kalenkoski & Pabilonia, 2010).

Although financial aid may be available to low-income students, a lack of access to information about financial aid may prevent an individual from receiving assistance (Bowen, Chingos, & McPhearson, 2009) or may influence what school he or she attends. A report from Jack Kent Cooke Foundation found that high-achieving, low-income students from families in the bottom quartile only represent 3 percent of enrollees at the nation's most selective schools (Giancola & Kahlenberg, 2016). The report cites misunderstandings regarding financial aid eligibility—deterring students from applying—or unfair admission practices as underlying causes for the low representation. Seventy percent of Pell Grant recipients do not complete a bachelor's degree within six years (Baum & Scott-Clayton, 2013).

To reduce these negative effects, some organizations provide financial assistance to low-income students to help them alleviate financial pressures—often in conjunction with other mentoring supports such as academic support, personal coaching, and/or professional development. In fact, there is evidence that financial aid when provided in conjunction with other mentoring supports can be an effective use of funding. . A randomized controlled trial conducted by the National Bureau of Economic Research (2017) of the mentoring program Stay the Course[3] found that the program's "emergency financial assistance"[4] (EFA) component, when offered alone, delivered no discernable difference in terms of student efficacy (Evans, Kearney, Perry, & Sullivan, 2017). This is consistent with other research of similar results—financial incentives alone are not as effective (Angrist, Lang, & Oreopoulos, 2009; Fryer, 2010). Comparatively, the group that received EFA and comprehensive case management saw a 31 percent increase in degree completion through six semesters.

A similar, well-known program with successful results is the City University of New York's (CUNY) Accelerated Study in Associate Programs (ASAP).[5] This wrap-around program was shown to almost double graduation rates over three years (Scrivener et al., 2015). A six-year impact evaluation of the program showed that 60 percent of ASAP students had earned an undergraduate degree compared to 35 percent of community college students nationally, over the same period of time (Strumbos & Kolenovic, 2017). In conjunction with several high-intensity supports—comprehensive and personalized advisement, career counseling, and tutoring—ASAP also offers financial support in the form of tuition waivers, free MetroCards, and free textbooks. An isolated treatment group that independently controlled for the effectiveness of ASAP's financial supports was not conducted. However, the report analyzed each financial support on its own merit and concluded that the tuition waiver likely offered minimal benefit since most participants received free tuition through federal Pell Grants. In contrast, researchers concluded that the free MetroCard and free textbooks likely contributed to positive student experiences within the ASAP program. The findings suggests that if financial assistance is offered in addition to mentoring, the mentoring program should cover costs for MetroCards and textbooks.

Because of CUNY ASAP's success, colleges across the United States have begun adopting this mentoring model. Two-year results of a randomized evaluation of three similar Ohio programs show similar results. The programs saw statistically significant increases in persistence and credit accumulation, and graduation rates more than doubled; jumping from 7.9 percent to 19.1 percent (Sommo, Cullinan, & Manno, 2018).

[5]ECMCF grant recipient.

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[3]ECMCF grant recipient.

[4]The EFA was intended to cover unanticipated events such as large medical expenses, car trouble, or loss of income due to an illness.

ADMINISTRATIVE

Administrative support can be thought of in terms of college counseling intended to support students as they navigate the web of administrative requirements often encountered in their higher education experiences. This may include college admissions, course recommendations, college transfer assistance, and financial aid applications. As is the case for many college mentoring programs, administrative supports are often a mixture of many different elements that, as a whole, function as a means to remove barriers to college success. For example, both Stay the Course and the CUNY ASAP program offer college advising and counseling as part of their comprehensive mentoring services. As reported above, both programs were found to offer positive outcomes for students.

A unique look at what is possible with a program that focuses primarily on student advising is Bottom Line (BL).[6] BL is a college counseling program for low-income students that provides individualized support beginning in the summer before the senior year of high school through the summer proceeding high school graduation. If students attend one of BL's target institutions, the student will continue to receive advising support for up to six years after high school. BL advisors provide comprehensive administrative support that includes providing students with lists of colleges that are aligned with their individual circumstances and goals, guidance writing essays and completing applications, and assistance with the Free Application for Federal Student Aid (FAFSA) form and scholarship applications. Each BL advisor typically has a caseload of 40-60 students, which is significantly lower than the national student-to-advisor average ratio of 482:1 for public high schools (NCES, 2014-15) and 260:1 for public undergraduate institutions (Robbins, 2012). Over the course of the 15-month study period, an average of 13 contacts between the advisor and advisee were made, with the majority of interactions happening in-person in the counselor's office.

RESEARCH HAS SHOWN BOTH CORRELATIONAL AND CAUSAL RELATIONSHIPS BETWEEN SMALLER STUDENT-TO-COUNSELOR RATIOS AND HEIGHTENED POSTSECONDARY OUTCOMES FOR STUDENTS.

The BL counseling model resulted in substantial increases in college enrollment among its participating students (Barr & Castleman, 2017). The positive impact persisted and grew over time due to the program's continuous college counseling. The report showed 90 percent of students receiving BL counseling enrolled in college compared to enrollment rates of the control group, which was 7 percent lower (Barr & Castleman, 2017). Additionally, BL students were 14 percent more likely to be enrolled in a four-year institution than their control group peers. The authors report that BL's success can be attributed to the long-term and high-impact support strategies that it offers to students, especially to those who attend one of BL's target institutions.

[6]ECMCF grant recipient.

EMOTIONAL

Research has demonstrated the benefits of multi-dimensional mentoring—mentoring that not only provides academic and professional guidance, but also personal and emotional support (Crisp, 2009; Crisp & Cruz, 2009; Kram, 1988; Nora & Crisp, 2007). Kram's (1988) work showed that the psychosocial functions are connected to building the mentee's identity and sense of self-worth. This support may be offered through role modeling, companionship, acceptance, or by providing encouragement or advice. In fact, in Haring's (1999) study, mentees cited the psychosocial functions as being the most valued.

Pathways to Education is a multi-dimensional mentoring program in Toronto, Canada. It was created to help high school students from low socioeconomic backgrounds living in housing projects graduate from high school and enroll in postsecondary education. In addition to counseling, academic support, and financial support, the program provides social support in the form of group mentoring. Activities for freshman and sophomore students are centered on developing social skills, team work, and conflict resolution. Juniors and seniors participate in career mentoring activities such as college campus visits, job interview practice, and resume workshops. A 2014 study of Pathways to Education found high school graduation and postsecondary education enrollment rates greatly increased, "in some cases by more than 50 percent" (Oreopoulos, Brown, & Lavecchia, 2017). The next two sections discuss the benefits of mentoring that go beyond advising and academic counseling, and the value that this type of support provides to students.

PEER

Tinto's theory of student retention provides an empirical framework for understanding a student's motivation to remain in school (Tinto, 1975, 1982, 1987, 1993). He argued that student persistence is not only predicated upon academic achievement, but also upon feeling socially connected and integrated into the institution. Other research (Clark, 2005; Kuo, Hagie, & Miller, 2004; Swail, 2003) support this reasoning; college transition is a complex process combining both academic and social factors. Moreover, student engagement outside of the classroom—such as extracurricular activities and faculty and peer interaction—can be as beneficial to academic persistence and personal development as activities that occur within the classroom (Kuh, 1995; Kuh et al., 2005; Harper, 2005, 2006). Many mentoring models have the potential to provide this type of support, and they have shown heightened efficacy when students are connected socially or emotionally with their mentor or have a widened social network as a result of the program (Hryciw, Tangalakis, Supple, & Best, 2013; Otto, 1994; Wunsch, 1994).

The National Survey of Student Engagement cites campus engagement benchmarks as "active and collaborative learning," "student-faculty interaction," "enriching educational experiences," and "supportive campus environment"—each contributing to student learning and development (Kuh, 2009). A few activities contributing to meeting these benchmarks are listed below—although there are many more.

- Working with classmates on projects outside of class
- Discussing course ideas with students, family members, coworkers, or others
- Talking about career plans with a faculty member or advisor
- Participating in a practicum, internship, field experience, co-op experience, or clinical assignment
- Having a campus environment that emphasizes prioritizing study and academic work
- Tutoring or teaching other students
- Having a campus environment that encourages contact among students from different economic, social, and racial or ethnic backgrounds
- Participating in a learning community

Receiving social support can be especially beneficial for students of color who attend predominantly white institutions (PWI) where chances of being socially connected are lower than at historically black colleges or universities, contributing to lower rates of academic success (Flowers, 2002). Research has shown that a lack of racial representation and poor racial campus climates can make students feel isolated and excluded (Rankin & Reason, 2005), which can lead to early school departure (McClain & Perry, 2017). A qualitative analysis of students of color in science, technology, engineering, and mathematics (STEM) majors at a PWI revealed that peer support was one of three important factors for minority student retention in STEM (Palmer, Maramba, & Dancy, 2011).

A study of a peer-assisted study session (PASS)[7] program found that participants increased academic performance and decreased failure rates compared to students who did not receive this type of peer support (Hryciw et al., 2013). The study cohort consisted of bachelor of health science students with a mean age of 25 years old (± 7 years standard deviation). Students[8] overall were satisfied with the mentoring program, reporting greater academic confidence, improved study skills, confidence when working in groups, and a better understanding of bioscience. Importantly, many PASS participants reported that the program contributed to increased student networks, supporting previous research (Tinto, 1987).

[7]Although there is no formal name for this mentoring program, the program is called "PASS," which stands for peer-assisted study session.

[8]In order to participate in this study, students were required to email the chief investigator, successfully complete a course the prior year, obtain a grade of 80 percent or higher in the subject, and attend trainings and workshops during the semester.
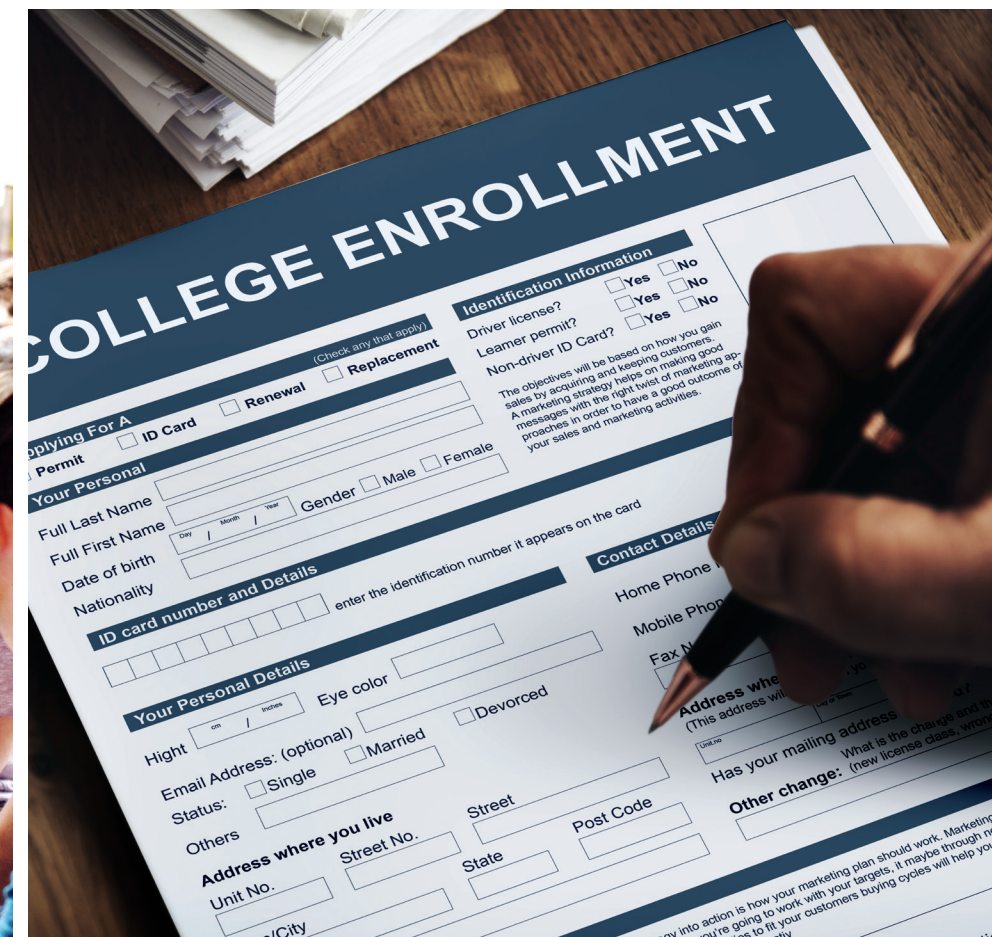
SOCIAL

Some mentoring programs seek to assist students both academically and professionally by facilitating access to a larger and more connected social network that can be useful during and after their postsecondary education. An individual's access to social capital can be an invaluable resource that opens doors in a number of ways and throughout life (Bourdieu, 1973, 1986; Julien, 2015). Examples might include leveraging a letter of recommendation from a professor or asking peers in the Honors Program how to apply for a scholarship. A lack of social capital is thought to "shut out" people from traditionally marginalized populations due to not having the connections required to advance one's position. Because of this, many mentorship programs have made increased access to social capital a program priority.

On campus, access to social capital can help a student feel more connected to the student body and to the institution as a whole. As discussed above, feeling "connected" or effectively engaged both academically and socially on campus have been shown to be critical elements for student success (Astin, 1984; Kuh, 2009; Kuh et al., 2005; Tinto, 1975, 1993). This occurs through improved academic outcomes, retention, and persistence to degree attainment (Rhee, 2008).

The rise of social media has the potential to provide students with networking opportunities, which can help to improve social capital through campus engagement and social inclusion. A study by Pinilla et al. (2015) looked at the usage of a closed group on Facebook as an effective peer mentoring tool for undergraduate medical students. Over the course of two years, students posted a total of 1,853 posts and comments. The researchers observed that activity peeked at the beginning of semesters and around mid-terms, indicating that the students utilized the site most frequently to seek guidance around curricular milestones. The research suggests that a similar platform can be used in formal mentoring programs that aim to expand social networks and mentoring services for students from underrepresented backgrounds, enabling students with shared characteristics to connect and communicate experiences and ideas in a low-cost, virtual platform. Another study by Ellison, Steinfield, and Lampe (2007) reported similar findings; there is a strong association between social capital and use of social media.

A 2012 study explored the value of an internal social media platform used by incoming freshmen at a large Midwestern university (DeAndrea, Ellison, LaRose, Steinfield, & Fiore, 2012). This study aimed to determine whether a student-only website had the ability to shift student perceptions about their campus experience and academic success as they transitioned from high school to college. The study found that using the site increased students' perceptions that they would have a diverse social support network during their first semester. A second study (Wohn, Ellison, Laeeq Khan, Fewins-Bliss, & Gray, 2013) that focused on social media usage for soon-to-be first-generation college students found accessing information about college through Facebook was associated with higher levels of confidence in their understanding of the college application process.

Similar to studies previously mentioned, some mentorship programs set career-focused goals and utilize social networks to increase students' post-graduation opportunities. One example is the program Genesys Works.[9] In addition to college and career coaching, the organization provides eight weeks of technical and professional skills training (e.g., resume development and interview coaching) for high school students the summer after their junior year to prepare them to work in paid, corporate internships during their senior year. A cost-benefit analysis showed that the program was highly effective, with the greatest benefit stemming from students' higher rates of college enrollment and college completion and the potential to leverage their professional development skills and internship experience into meaningful employment after graduating (Belfield, n.d.).

[9] ECMCF grant recipient.

Table 1: Summary of common types of mentoring supports

Type of Mentoring Supports	Findings and Gaps in the Literature
Financial	**Findings:** • Reduces financial stress • Overworking reduces persistence and class load, resulting in lower graduation rates • Needs to be paired with mentoring to be effective • Lack of informational access to available aid creates bad institution choices, potentially lowering likelihood to graduate **Gaps:** • Unclear amount of financial support (and with what accompanying supports) is needed to produce best outcomes
Administrative	**Findings:** • Provides access to administrative knowledge such as college admission information, course recommendations, transfer process, financial aid applications, etc. • Underrepresented students often lack access to these resources; administrative support opens these doors • Can provide emotional support when mentor/mentee bond • Produces limited outcomes alone, especially for persistence to graduate **Gaps:** • More research needed to understand what type and amount of additional support needed to complement administrative mentoring
Emotional	**Findings:** • Provides role modeling, companionship, acceptance, encouragement, and/or advice • Builds the mentee's identity and sense of self-worth **Gaps:** • Research reviewed for this literature scan did not isolate the effects of emotional support in mentoring relationships. Further research is needed to determine the effects of emotional support without other types of support
Peer	**Findings:** Promotes social connections, campus integration, and widened social networks/social capital • Aligns with Tinto's theory of student persistence to graduate • Shown to contribute to student retention, academic persistence, and personal development • Especially beneficial for students of color at predominantly white institutions **Gaps:** • Limited literature that cross compares programs that facilitate peer connections • Lack of knowledge about specific program elements that yield best results, limiting the potential to replicate
Social	**Findings:** • Improves academic achievement, retention, and persistence to graduate • Opens doors for future career opportunities that would otherwise be unavailable • Workshops are an example of career-focused support that develops skills for students to utilize after graduation **Gaps:** • Limited literature that studies the full scope of how social capital, built through mentoring programs, affects students long-term • Limited research on how social capital supports affect graduation rates • More research needed to understand what type and amount of additional support are needed to complement mentoring programs that offer career support

MENTOR/MENTEE RELATIONSHIPS

The dynamic between the mentor and mentee can be a crucial component of a successful mentoring relationship. Effective mentors are described as being resourceful, generous, honest, present, full of energy and passion, and as offering programmatic and emotional support to mentees (Otto, 1994; Wunsch, 1994). When a relationship is successful, the mentor has provided the mentee with the agency and confidence to independently solve problems and elevate personal achievement or productivity. The relationship between mentees and their mentors can vary.

THE MENTOR MAY BE A PEER, NEAR PEER, COUNSELOR OR COACH, A FACULTY MEMBER AT THE STUDENT'S HOST INSTITUTION, AN EMPLOYER, VOLUNTEER, OR INFORMAL MENTOR FOUND WITHIN THE STUDENT'S PERSONAL SPHERE.

Mentor and mentees may be paired based on shared demographics or shared interests. Scholars theorize that pairing based on demographic similarities may influence the quality of the relationship (Albright, Hurd, & Hussain, 2017; Blake-Beard, Bayne, Crosby, & Muller, 2011; Turban, Dougherty, & Lee, 2002) and the expectations for the relationship (Liang & West, 2006). When given the option to choose, mentees preferred to select mentors from similar racial/ethnic backgrounds (Liang & West, 2006). In a 2017 literature review, Albright et al. found that "demographically matched mentors may offer shared life experience that could...demonstrate possibilities for adolescents' future selves that are less commonly depicted in their everyday lives or the media" (p. 3). Shared life experiences based on similar identities fostered greater trust and empathy between mentors and mentees. Blake-Beard et al. (2011) examined mentees with mentors of the same race or gender among STEM undergraduate, graduate, and postdoctoral scholars. Students matched in this way reported receiving more help, and also reported that race and gender were important factors in determining the quality of the relationship. However, somewhat notably, the study found no significant difference between same race and same gender pairings compared to mixed race and mixed gender pairings in terms of academic outcomes. Related studies have found evidence that psychological similarities outweigh shared demographics alone. A 2017 study of underrepresented students in STEM disciplines found that mentees who share similar perspectives and values with their mentors experienced greater overall benefit than those who only shared racial identities (Hernandez, Tangalakis, Supple, & Best, 2017). However, it is important to note that mixed race pairings require "culturally competent" mentors to develop a successful relationship (Liang & West, 2006, p. 6).

PEER-TO-PEER

The peer-to-peer relationship is a recognizable variation to traditional mentoring models. Peer-to-peer models are shown to deliver a mutual benefit for each participant by sharing the role of mentor and mentee (Amaral & Vala, 2009). A National Science Foundation funded initiative, Peer-Led Team Learning (PLTL), was a program aimed at improving academic performance of students in the sciences. The mentors used materials that were provided by course instructors to lead weekly out-of-class sessions with peers from the same class. There were significant benefits reported by both the mentor and mentees (Wamser, 2006). A report studying the effects on the peer leaders had several promising findings.
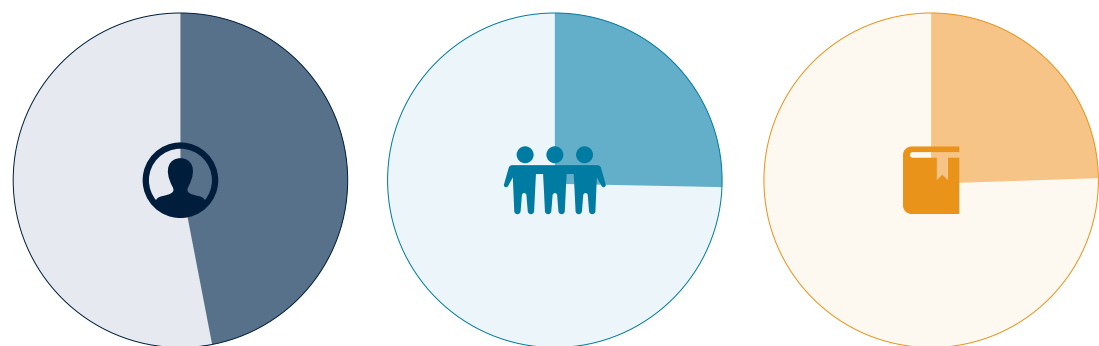
First, **43 percent** of respondents reported that acting as a leader helped them better understand the material and strengthened their problem solving skills. Second, **26 percent** of respondents indicated that group activities exposed them to different learning styles and problem solving techniques. Third, **23 percent** of respondents described understanding their own studying and learning styles better (Gafney & Varma-Nelson, 2007, p. 535).

Another study by Hryciw et al. (2013) found that peer mentoring led to an increase in students' networks. As noted above, peer networking can add significant value to a student's college-going experience and has the potential to enhance his or her social capital.

NEAR-PEER

The near-peer mentoring model matches students with other students or recent graduates who are typically one to five years older, have more experience, and have some unifying factor between them (Bos, Berman, Kane, & Tseng, 2012; Jackson & Evans, 2012). They may come from similar backgrounds or possibly share the same academic goals. The peer mentoring organization PeerForward[10] supports high school students from low-income households and first-generation students by recruiting and training influential juniors and seniors to become peer leaders. The peer leaders are trained at workshops on college campuses where they learn techniques for guiding their peers into higher education. One study looked at a program focusing on financial aid and examined the program's ability to influence FAFSA completion rates. It was found that students at PeerForward schools applied for financial aid 7 percent more than matched comparison schools (Scott & Page, 2017).

Another program called College Possible[11] uses a near-peer coaching model, utilizing recent college graduates from AmeriCorps.[12] College Possible aims to increase college enrollment for high school graduates and increase year-to-year persistence in higher education. The volunteers provide mentoring support to students starting in the spring of their sophomore year. Coaching support includes college search and application processes, financial aid and scholarship guidance, ACT or SAT preparation, and general planning for the high school to college transition. Students have access to as much as 320 hours of guidance and support with coaches throughout high school. Support is also provided the summer after graduation so that college enrollment plans are seen to fruition. Once enrolled, students continue to have access to coaching throughout their post-secondary education, up to graduation. This includes financial aid guidance, tutoring, and encouraging students to connect to local campus opportunities.

A three-year study of College Possible Milwaukee by the Wisconsin HOPE Lab found students served by the program were 18 percent more likely to enroll in college the year after graduating and were more likely to enroll in four-year and selective institutions (Richardson, Marlin, Vadas, Colo, & Goldrick-Rab, 2018). However, the study found limited evidence that the program increased the odds of persistence from the first to second year of college.

[10]ECMCF grant recipient.
[11]ECMCF grant recipient.
[12]https://www.collegepossible.org/news/new-study-confirms-college-possibles-impact-on-students/

COUNSELORS/COACHES

The role of a counselor or coach can take on a hybrid of approaches. What precisely distinguishes a "coach" from a "counselor" is disputed among scholars and can vary based on the context in which it is being used (Garvey, 2004). Broadly speaking, an academic "counselor" will typically offer guidance or advice, while an academic "coach" offers the same but from a more holistic perspective. The term "coaching" is typically used to describe support that aims to improve an individual's overall experience or improve specific skills. The differential can be vague and sometimes interchangeable. The counselor or coach may be an academic advisor who primarily assists with logistical or administrative support, such as in the Bottom Line program discussed above, or it could be someone who offers additional support that is focused on providing emotional and personal guidance as well.

A randomized experiment of the student coaching program InsideTrack demonstrated that integrated advising/coaching with frequent and proactive contact—whether via phone, email, social media, or text—can demonstrate positive outcomes for students (Bettinger & Baker, 2011). Students who received the program had higher completion and retention rates than their peers. Those who were randomly assigned to an InsideTrack coach were 9 percent more likely to persist in college and 3-4 percent more likely to sustain this persistence. At the end of four years, coached students were 4 percent more likely to graduate. Most of the students participating in the study were non-traditional college students from public, private, and proprietary universities who were enrolled in a degree program either full or part-time.

> TYPICAL SUPPORT FROM COACHES INCLUDED HELPING STUDENTS BUILD A CLEAR VISION OF THEIR GOALS, MAKING CONNECTIONS BETWEEN DAILY ACTIVITIES AND LONG-TERM GOALS, AND HELPING BUILD PRACTICAL TIME MANAGEMENT, SELF-ADVOCACY, AND STUDY SKILLS.

A 2012 study found that college counseling to low-income and students of color over the summer can lead to higher graduation rates and better institutional choices (Castleman, Arnold, & Wartman, 2012). The Big Picture Learning program involved extending the existing school counseling services for students through the summer months. The program offered information regarding financial options as well as other informational support. The study found that students in the treatment group were 14 percent more likely to enroll right after graduation and 19 percent more likely to keep their previously decided post-secondary plans.

uAspire is another organization that provides low-income students with counseling services centered on making informed financial decisions for college. Their program operates on three levels by offering student advising in person and over text, hosting professional development opportunities for school counselors and college access providers, and working at the policy level to improve financial aid systems. Seventy-two percent of uAspire students begin college the fall after graduating high school, compared to 54 percent, the national average for students from low-income high schools (uAspire, 2018).

FACULTY

Formal faculty mentors often provide administrative support by giving students access to resources, assisting with college transfer, or by providing academic guidance (Zell, 2009). A 2012 report found that faculty mentoring enhanced student experiences by sharing a common ground, offering holistic support, humanizing the educational experience, and proactively supporting students' needs (Museus & Neville, 2012). Students in a STEM undergraduate research program reported that they viewed faculty members as role models (Thiry, Laursen, & Hunter, 2011), sharing common academic interests and goals. Zell (2009) found students felt empowered to ask questions and pursue their professional goals when they were able to engage with faculty members in discussions outside of class. Informal mentoring relationships can lead to increased student engagement (CCSSE, 2009; Pascarella & Terenzini, 1980). The findings are limited in their generalizability because of small sample size. Furthermore, there is limited literature on how to replicate successful models. Faculty mentoring programs can benefit from additional research.

VOLUNTEERS

In cases where the individual is not provided with monetary compensation explicitly for their role as mentor, the relationship may be considered "volunteer mentoring." One Million Degrees (OMD)[13] is a nonprofit organization that provides Chicago's low-income community college students with wrap-around mentoring. OMD uses a volunteer coaching model where professionals in the Chicago area can apply to coach one or two scholars. The volunteers provide multifaceted support, including academic support, financial support, professional development, and personal coaching. Scholars have access to tutoring, networking events, financial literacy resources, and a personal coach, among many other resources. The University of Chicago Poverty Lab conducted a study of OMD, finding that "program scholars are 35 percent more likely to enroll full-time and 47 percent more likely to persist to the next term in their first year in the program" (2019, p. 1).

[13]ECMCF grant recipient.

INFORMAL

Informal mentor/mentee relationships are those that occur naturally and without the formal guidance found in mentoring programs. Examples of informal mentors include an aunt, uncle, cousin, teacher, coach, neighbor, religious leader, and employer. In many cases, informal mentors will share some sort of commonality with the mentee, such as demographics or similar backgrounds (Hurd, Sánchez, Zimmerman, & Caldwell, 2012; Hurd & Sellers, 2013; Hurd, Varner, & Rowley, 2013; Sánchez, Reyes, & Singh, 2006). Scholars noted that having these commonalities may help the mentor to connect with the mentee emotionally, and therefore provide greater capacity to support the student in a variety of ways. Hurd, Tan, and Loeb (2016) found that first-generation college students and those from historically underrepresented racial and ethnic groups saw the greatest amount of academic efficacy based on the number of informal mentors the individual obtained or retained over the first year of college. The study found that students had higher grade point averages due to a reduction in psychological distress. Unfortunately, knowledge of how institutions may support students in securing informal mentors has not been largely studied.

Teachers or professors may also fulfill the role of informal mentors. A 2014 study found that early interactions with faculty members helped students become socialized and, in later years, evolved into natural mentoring relationships (Fuentes, Alvarado, Berdan, & DeAngelo, 2014). The study presented evidence that students may engage in more meaningful mentoring interactions with faculty throughout their college experience when they have an initial connection with a faculty member early on. There is, however, a lack of knowledge on the ways institutions can support historically underrepresented college students in sustaining informal mentoring relationships.

GROUP

Collaborative learning, or group mentoring, is found to help students cope with academic issues and develop teamwork and communication skills (Topping & Ehly, 2001).

AN ADDED BENEFIT OF GROUP MENTORING IS ITS LOW COST COMPARED TO OTHER MENTORING FORMATS.

This method of mentoring has its own unique advantages by uniting participants with others who share common goals or experiences (Driscoll, Parkes, Tilley-Lubbs, Brill, & Pitts Bannister, 2009). One small study, consisting of 22 female, mostly minority, undergraduate nursing students found that group members were pleased with their mentoring experience and reported positive benefits as a result of their participation (Kostovich & Thurn, 2013). The group met over the course of the program, which lasted four semesters. Participants reported that connections with other group members grew each semester, with the feedback after the fourth semester indicating an "overwhelming sense of cohesion and bonding in the group" (p. 416). In addition, the program improved retention rates.[14] It is important to note that this study has a very small sample size, lacked a comparison group, and that the group mentoring was part of a course requirement; the findings are limited in their generalizability. This is a specific area where more research is needed.

EMPLOYER

Employee/mentee mentorships are very similar in nature to the mentoring relationships described above, yet utilize the experience of those working in professional fields to provide specialized support to mentees. The employee/mentee pair may be a student and an employee from an outside organization—as seen in Washington University's Mentor Collective[15] where employees from Deloitte and Boeing are paired with engineering students with similar backgrounds and/or interests.

Another study surveyed interns and residents enrolled in five internal medicine residency training programs affiliated with Harvard Medical School (Ramanan, Taylor, Davis, & Rebe, 2006). The goal of the study was to measure the residents' satisfaction with mentoring during their training and their perceived career preparation. Ninety-three percent of respondents reported that it is "important to have a mentor during residency," yet only half acknowledged a current or past mentor. Interestingly, the study found that underrepresented minority residents were significantly less likely to establish a mentoring relationship than their peers—perhaps highlighting the importance of facilitated mentoring programs. Underlining this imperative, mentored residents were almost twice as likely to report that they experienced excellent career preparation.

[14]While the program reported increased retention rates, the information provided was anecdotal, and no formal data was provided.
[15]https://engineering.wustl.edu/current-students/outside-classroom/Pages/mentor-collective.aspx

Table 2: Summary of mentor/mentee relationships

Type of Mentor/Mentee Relationships	Findings and Gaps in the Literature
Peer-to-peer	**Findings:** • Provides mutual benefits to mentoring pair • Improves academic performance when part of tutoring • Shown to widen student networks and increase social capital **Gaps:** • Limited literature about how to replicate successful peer-to-peer models
Near-peer	**Findings:** • Increases student's access to administrative knowledge while increasing peer network • Most successful when the pair bonds emotionally **Gaps:** • Limited literature about how to replicate successful near-peer models
Counselors/Coaches	**Findings:** • May provide logistical support, administrative support, or emotional and personal guidance • Can provide increased completion and retention rates when paired with frequent and proactive contact • Summer counseling can lead to higher matriculation rates and better school choices **Gaps:** • Limited literature about how to replicate successful relationships that provide emotional bonds • Limited literature cross comparing dose and duration
Faculty	**Findings:** • May provide access to resources, assisting with college transfer, providing academic guidance, or seen as role models • Shown to empower students to pursue goals when connected more casually (outside of classroom) **Gaps:** • Limited literature about how to replicate successful models
Volunteers	**Findings:** • Similar outcomes as shown for employer, peer, and faculty mentor relationships, depending on volunteer role and connection to student **Gaps:** • Limited literature that studies volunteer mentoring for college students that occurs outside of normal mentoring channels (i.e., through formal volunteer organizations)
Informal	**Findings:** • Connect with mentee emotionally • Can build the mentee's identity and sense of self-worth, and promote academic efficacy • Underrepresented racial and ethnic groups, and students from lower socioeconomic backgrounds see the greatest amount of academic efficacy from informal mentors **Gaps:** • Lack of knowledge for how institutions can support students in building and sustaining informal mentoring relationships for underrepresented college students
Group	**Findings:** • In one study, participants who share common experiences shown to promote positive outcomes such as increased retention rates and a greater sense of cohesion (Kostovich & Thurn, 2013) • Helps build teamwork and communication skills • Potential for lower program cost compared to other types of mentoring support **Gaps:** • Limited literature studying college mentoring programs for underrepresented racial and ethnic groups and students from lower socioeconomic backgrounds that use group mentoring
Employer	**Findings:** • Provide specialized support to mentees **Gaps:** • Limited studies examining the outcomes for student-employee mentoring for underrepresented racial and ethnic groups and students from lower socioeconomic backgrounds

MODES OF ENGAGEMENT

Modes of engagement for mentors and mentees can occur in a variety of settings. They may be on campus, face-to-face, off campus, within groups, virtual (also known as e-mentoring), or through a combination of any of these mediums. Although literature on individual modes of engagement does exist, there is a lack of research comparing the impact of different modes.

FACE-TO-FACE

Traditionally, the most common mentoring structure involves a one-on-one and face-to-face interaction. This type of mentoring provides an opportunity for the mentor to directly engage in specialized support, addressing the immediate and unique needs of the mentee. When the relationship is among members of the same college or university, it also allows for insightful knowledge of the inner-workings of the shared institution, providing this added benefit (Fuentes, Alvarado, Berdan, & DeAngelo, 2014; Gafney & Varma-Nelson, 2007; Museus & Neville, 2012).

VIRTUAL AND HYBRID APPROACHES

Technology has afforded a new wave of mentoring models with several programs taking advantage of different ways of communicating and engaging with students. In many cases, these e-mentoring programs utilize a combination of technology mediums and face-to-face interactions to engage with students (Lunsford, Crisp, Dolan, & Wuetherick, 2017).

One such program is iMentor.[16] iMentor uses a combination of online and in-person advising for 10th-grade students attending public high schools via weekly online communications and monthly in-person meetings. One goal of the program is to create a strong relationship based on substantial evidence that mentor/mentee closeness contributes to positive academic outcomes (Bayer, Grossman, & DuBois, 2013). Although the report could not provide definitive evidence regarding what activities were most related to strong student-mentor bonds, correlational evidence suggests that students who had informal conversations with their mentors were more likely to report stronger bonds. Additionally, students who attended events also reported stronger relationship closeness, indicating that face-to-face interactions may have a stronger association to relationship closeness than sending emails. Further research is needed to better understand the nature of these activities and their impact on student-mentor relationships. The study also found that the program had small but statistically significant impacts on critical thinking and internal resilience, and career-related activities (Merrill, Kang, Siman, & Soltani, 2016).

OMD,[17] a previously mentioned program, also utilizes a hybrid approach. OMD provides academic, financial, and emotional support that can take the form of tutoring, stipend, and informal meetings/interactions. Mentors and mentees may interact through in-person meetings, phone calls, emails, texts, and other means. The program's goal is to empower low-income recent high school and continuing community college students to reach their fullest potential. A 2019 study of OMD found that the program's wrap-around mentoring approach increased full-time enrollment by 35 percent and likelihood of persistence to another semester by 47 percent (University of Chicago Poverty Lab, 2019).

[16]ECMCF grant recipient.
[17]One Million Degrees. ECMCF grant recipient.

Table 3: Summary of modes of engagement

Modes of Engagement	Findings and Gaps in the Literature
Face-to-face	**Findings:** • Students have potential to create greater bond • Mentors can directly engage in specialized support, addressing the immediate and unique needs of each mentee • If mentor and mentee belong to the same institution, mentor can provide institution-specific insight and advice **Gaps:** • Lack of research that studies how technology and resulting cultural norms may alter traditional face-to-face/one-on-one mentoring dynamics
Virtual	**Findings:** • Shown to provide positive impacts on student critical thinking and internal resilience, and career-related activities for high school students • Provides new and different ways to communicate and engage with students • Low-touch programs shown to provide limited support **Gaps:** • Limited literature studying the effectiveness of virtual mentoring in a systematic way • Shown to have potential for providing emotional bonds, yet more research needed to understand how
Hybrid	**Findings:** • Positive effects on college enrollment for high school students, especially for four-year institutions • Hybrid approaches show greater results than virtual mentoring alone **Gaps:** • Limited literature studying the effectiveness of hybrid approaches in a systematic way • Shown to have potential for providing emotional bonds, yet more research needed to understand how

GAPS IN THE LITERATURE

Mentoring is widely supported by empirical research as a positive means for college success, especially for those who have been traditionally underrepresented in higher education (Eby & Dolan, 2015). More specifically, research found mentoring can increase retention (Bettinger & Baker, 2011), improve grades (Fox et al., 2010), promote a greater feeling of connectivity and campus engagement (CCSSE, 2009; Pascarella, 1980), enhance persistence (Bettinger & Baker, 2011), increase graduation rates (Castleman et al., 2012; Scrivener et al., 2015; Sommo et al., 2018), and reduce transitional hardships (Bordes & Arredondo, 2005). While this literature scan provides an overview of recent mentoring programs and program elements as well as the impacts of mentoring on student outcomes, key gaps in the literature exist.

MANY PROGRAMS UTILIZE MULTIPLE STRATEGIES SIMULTANEOUSLY, AND RESEARCH FINDINGS TEND TO FOCUS ON THE IMPACT OF THE PACKAGE OF STRATEGIES, NOT THE CONTRIBUTION OF EACH ONE INDEPENDENTLY—ONE EXAMPLE BEING CUNY'S ASAP PROGRAM.

Although the program as a whole has been shown to be effective, **specific elements within the program that most contribute to its success** were not individually evaluated. Because of this, knowledge of how to best replicate or grow successful programs is relatively unknown. Second, the literature lacks a **common definition** for "mentoring" as well as a taxonomy for "evaluation." Third, there are not many studies that evaluate program efficacy based on **dose, intensity, and duration** of the mentoring program. While some authors have described the perceived benefit (or lack thereof) of programs that offer specific treatment levels (e.g., Scrivener et al., 2015), other studies have indicated an increase in relationship quality based on contact frequency and duration (Ensher & Murphy, 1997; Harrison, Price, & Bell, 1998). Despite this, studies that isolate these features and make comparisons specifically pertaining to length and/or treatment frequency are notably limited in the research. Fourth, there is a lack of research pertaining to the **cost benefit or return on investment** of mentoring programs. Similarly, there is little known about how **program size** may affect outcomes, limiting knowledge about the potential for **program scalability**. Finally, there is minimal research on **virtual mentoring**. This is an area for future research considering the burgeoning prominence of technology within contemporary mentoring programs.

CONCLUSION

Research shows that programs utilizing wrap-around mentoring supports see significant positive outcomes regarding accessing, persisting, and completing a degree (Scrivener et al., 2015). Additionally, mentoring relationships where the mentee and mentor (or mentors in the case of group mentoring) connect emotionally are shown to increase positive outcomes as well. This is also true of mentorships that facilitate a student's feeling of connectivity or integration within an institution.

CONVERSELY, PROGRAMS THAT ARE "LOW-TOUCH," THAT DO NOT PROVIDE MULTI-DIMENSIONAL SUPPORT, OR THAT FAIL TO ENGAGE STUDENTS EMOTIONALLY DO NOT SEE THE SAME PROGRAMMATIC EFFECTS.

Additionally, financial aid supports, when offered without mentoring, do not significantly impact student retention or graduation (Angrist et al., 2009; Baum & Scott-Clayton, 2013; Evans et al., 2017; Fryer, 2010).

However, as noted, there are limitations to what conclusions can be made due to gaps in the literature. At the time of this writing we are unable to determine which elements of wrap-around programs are most effective, and which elements should be prioritized when structuring mentoring programs and goals. We also have limited knowledge regarding program dose and duration, or on the efficacy of relatively new methods of mentoring such as virtual mentoring. The lack of an operational definition that clearly defines the goals of mentoring and an absence of a taxonomy with which to evaluate program effectiveness limits our ability to make rigorous comparisons between specific mentoring approaches. Without these scales, decisions regarding program funding and program size are not easily determined. Future research may consider including these elements in study designs.

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