Colorado Helps Advanced Manufacturing Program

Navigator Report

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January 2018

RUTGERS
Education and Employment Research Center

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INTRODUCTION

In the fall of 2013, the Colorado Community College System (CCCS) received a four-year United States Department of Labor (USDOL) Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant for its Colorado Helps Advanced Manufacturing Program (CHAMP) project. The principal goal of CHAMP was the creation or redesign of degree and certificate programs to effectively respond to 21st-century manufacturing needs and to create employment opportunities beyond traditional-sector trajectories. Under CHAMP, a consortium of nine Colorado colleges[1] partnered with employers and regional industries with the goal of developing and enhancing academic programs to meet changing employer requirements and more quickly and efficiently prepare and credential workers. Strategies used under the grant included establishing college–industry and workforce partnerships; purchasing manufacturing equipment; creating a website featuring local labor market information; developing articulation agreements; developing hybrid and online curriculum using open educational resources; supporting students through the pathway from education to employment using navigators; and standardizing practices and policies with regard to the awarding of credit for prior learning. In addition, to facilitating students' movement into the job market, the CHAMP grant mandated the employment of a "navigator" to provide some or all of the following services:

- Help prospective and registered students to understand the career pathways available to them and identify the credentials they need to complete the pathway they choose,
- Advise and support students to increase their rates of retention and completion,
- Help students to navigate the college's processes, including the awarding of earned certificates,
- Provide referrals and support for nonacademic needs, such as housing or childcare issues, that may impair students' ability to complete their coursework,
- Identify internship and employment opportunities,
- Help students matriculate from associate degree to bachelor's degree programs, and
- Prepare students to engage in employment searches and enter the job market.

This report, prepared by the grant program's third-party evaluator, Rutgers School of Management and Labor Relations' Education and Employment Research Center (EERC), complements our previous reports[2] by focusing on the role of the CHAMP navigator at the nine consortium colleges. We begin by examining how navigators have contributed to the

[1] The CHAMP consortium includes seven community colleges: Aims Community College (Aims), Community College of Denver (CCD),), Front Range Community College (FRCC), Lamar Community College (LCC), Pikes Peak Community College (PPCC), Pueblo Community College (PCC), and Red Rock Community College (RRCC). And one technical colleges - Emily Griffith Technical College (EGTC). The ninth member of the consortium, Metro State University, Denver (MSU), is the four–year university to which students can apply CHAMP credits toward earning a bachelor's degree in engineering.

[2] The current report is part of a series of CHAMP-related reports prepared by EERC that includes a year-one report, a brief on the CHAMP website, and a report on the Prior Learning Assessment (PLA) policies developed in part with CHAMP funding.

achievement of grant goals. We then identify both some promising strategies employed by navigators as well as some of the challenges they have faced. Finally, we end this report by making some recommendations for the future.

While the current report is focused on the work of CHAMP navigators from fall of 2013 through the summer of 2016, our discussion is contextualized, referencing a broader national focus on "intentional or intrusive" student advising (Varney, 2007) to improve retention and completion rates. To illustrate how the work of CHAMP navigators fit within this wider context, we also draw on the experiences of career coaches funded under two prior USDOL TAA grants: the Colorado Online Energy Training Consortium (COETC), which focused on the energy sector; and the Consortium of Health Education Online (CHEO), which focused on the health care sector.[3]

METHODS

Over the course of CHAMP, EERC team members engaged in qualitative and quantitative data collection and analysis to evaluate program development and implementation, and to track and measure program outcomes, successes, and challenges. Data collected for this report includes the following activities and data sources:

- *Phone and on-site interviews* with project leads, navigators, program faculty, and college staff about CHAMP-related activities, challenges, and achievements. Interview tapes and notes were transcribed and analyzed using NVivo software.
- *Electronic quarterly reports completed by project staff* that provided both numeric and narrative responses about project activities. This information was manually analyzed to identify emergent patterns across the colleges as well as school-specific issues, challenges, and successes.
- *Monthly online surveys of CHAMP navigators* that were designed to capture their activities with regard to student recruitment and engagement; career training; development of internships; and work with regional and local workforce centers and employers. These surveys, which navigators were required to complete, were manually analyzed to identify the nature and frequency of navigator activities.
- *Entries in an online record-keeping system* that navigators maintained to keep track of their engagement with students. These logs included, among other data, demographic information about each student the navigator interacted with; the reason for each contact; and any referrals made during the contact. The records combined both narrative and discrete data and thus were analyzed both qualitatively and quantitatively.
- *Narrative communications from Basecamp*, the project management web portal through which the consortium colleges communicated with one another and with the Colorado Community College System. The discussion threads involving navigators and their posted documents were reviewed and analyzed for this report.

[3] See http://smlr.rutgers.edu/content/publications for EERC's reports on these other TAA projects.

- *Quantitative student data from Banner*, the Colorado Community College System's student data system. Banner data—e.g., student GPA, demographic information, certificate and degree completion dates—was used to analyze student retention and completion rates.

This report is divided into three parts. Part I will focus on the roles and different function of the navigators, and Part II will examine the number of students served by navigators, their demographic characteristics and academic outcomes, and the frequency and nature of their contacts with CHAMP navigators. Part II also provides an analysis of changes in employment status and wages after earning a CHAMP-related credential. Part III: Discusses the challenges faced by the colleges, sustainability, and ends with promising or best practices identified during the grant.

PART I: THE ROLE AND FUNCTION OF THE NAVIGATORS

Recruitment and Employment Of Navigators

To fill the grant-mandated navigator position, colleges required that candidates had, at a minimum, a bachelor's or master's degree. They also sought individuals with prior experience working with students or clients within an educational or workforce setting, and who had worked in "one-on-one situations such as case management, with a diverse clientele." This included having some "experience with nontraditional students (students 25 years and older); students with only adult basic education/GED, and academically underprepared/high school graduates" as well as "experience with at-risk populations" (Colorado Community College System, 2012a). Some colleges indicated a preference for individuals with experience in "career development/counseling, job coaching/placement." Some sought individuals with good organizational skills, strong interpersonal skills, cultural competency, and the ability to build partnerships and collaborate. Some wanted navigators who had the "ability to identify realistic goals/expectations with/for students" and had an "attitude of optimism and the ability to inspire confidence." Teaching and training experience, as well as basic knowledge of data collection methods and program evaluation, were other identified preferences. Finally, some colleges explicitly stated their interest in identifying candidates who had some background in manufacturing.

Between spring and fall 2014, eight navigators were recruited and employed.[4] PPCC hired the first CHAMP navigator in March 2014. Most colleges, however, only hired their navigator after the launch of their CHAMP program (e.g., FRCC, LCC, MSU, RRCC). EGTC hired someone on their navigator line, but this individual never really engaged in the navigator role. Of note, over the course of the grant, several navigators left[5] and were replaced—including PCC's navigator, who was promoted to the project lead position. Students' access to navigators therefore varied across campuses; that is, some schools experienced short or even long periods of time when

[4] We restrict the following discussion of navigator characteristics exclusively to this initial cohort of eight navigators.

[5] A total of 10 navigators left and were replaced during the grant. Aims, PCC, and RRCC experienced at least one change in navigators over the grant period.

their CHAMP programs employed only a part-time navigator—or none at all (Table 1). The inconsistent presence of navigators at some colleges affected the nature of the navigator role on those campuses. Further, some navigators had multiple grant and non-grant responsibilities. Collectively, these variations in presence and function may have negatively affected student outcomes.

Table 1. Navigator Presence on Campus[6]

	Aims[7]	CCD[8]	EGTC	FRCC[9]	LCC	MSU[10]	PCC	PPCC[11]	RRCC
Spring 2014	No	No	No	No	No	Part Term	FT	FT	No
Summer 2014	FT	FT	No	FT	FT	PT	FT	FT	PT
Fall 2014	FT	FT	No	FT	FT	PT	PT[12]	FT	PT
Spring 2015	FT	FT	No	FT	FT	PT	FT	FT	FT
Summer 2015	FT	FT	No	FT	FT	PT	FT	FT	FT
Fall 2015	No	FT	FT	FT	FT	PT	FT	FT	FT
Spring 2016	FT	FT	FT	FT	FT	PT	PT	FT	FT

Two CHAMP navigators had previously worked as COETC career coaches at their respective colleges (FRCC and RRCC). One navigator had previously worked both as her college's Director of Retention Services and also as the Grant Development Coordinator (PPCC). The other five navigators were external recruits.

All eight navigators had at least a bachelor's degree. Several had master's degrees, and one had a PhD in educational leadership. The navigators came with substantial work experience and, on average, were older than the cohort of career coaches recruited under the COETC grant. Several navigators had taught part or full time at the primary or secondary levels. One navigator had been a high school guidance counselor, and another had been a social worker. One navigator came from manufacturing, a career that began on the line and ended as a plant supervisor/ manager. Another navigator had once been involved in quality control at an electronics factory.

We asked the navigators what special traits, skills, or experiences they brought to their jobs as navigators. One stated that her openness to listening to students' experiences was helpful "so that we don't alienate them in any way." Another navigator explained that she used the parable of the fish when students asked why she did not answer them, but instead showed them where to get

[6] Despite the variations in staffing, it is important to note that some colleges assigned other college staff or faculty to some of the "navigator" functions. As a result, some navigators did most everything and others focused on only a few of the "defined" navigator functions.
[7] Aims had both a navigator and a business outreach coordinator.
[8] CCD had both a navigator and an internship coordinator who also was the grant project lead.
[9] FRCC had both a navigator and an employer outreach coordinator.
[10] MSU had both a navigator and an internship coordinator.
[11] PPCC added a military coordinator in February 2016.
[12] As of September 2014, the PCC navigator became the CHAMP project director and then the new navigator became the project lead.

information by telling them: "I can give you a fish and feed you for a day or I can teach you to fish and feed you for a lifetime." She explained that she saw her role as,

> *Being able to work with students and help them, not only through their education, but help them understand how a business can run and how they can make an impact as an individual within that business.*

All but one of the CHAMP navigators were female while most of the students and the faculty were men. One navigator spoke directly to the gender issue, sharing that because she had worked with men for the past 30 years, she "speaks their language." She said this helps in her interactions with students.

> *Now, I don't know machining, I don't know welding, I don't know electromechanical, but I know what kind of work that they're leading these students to. So I think it helps me understand their backgrounds. It helps me interact with them because, I don't know, I think there's a difference, it takes a little bit different interaction so that they know I'm—I don't know how to say that. That they can't pull anything over on me.*

Institutional Location and Integration

Under CHAMP, most navigators were assigned to the project team, which was often nested in the college's advanced manufacturing department or division (e.g. PCC, PPCC). This was a change from the earlier COETC grant, under which career coaches were often housed within student services, academic advising, or career services offices. The change of institutional location suggests the multifaceted role of the CHAMP navigator, whose duties extended beyond student advising into the community and the workplace with an intensified focus on employer relations.

At some colleges, navigator functions were bifurcated or shared with another person who usually held an institutional role beyond the CHAMP grant. For example, CCD and MSU both had a navigator and an internship coordinator. At both institutions, however, the internship coordinator was part time in the role. At FRCC, the navigator worked closely with a designated employer outreach coordinator; that person functioned similarly to the business outreach coordinator at Aims, who worked with the navigator at that school. Mid-way through the grant, PPCC employed a military student coordinator to work with its navigator to better facilitate the college's work with students who were active military or veterans and their families. In the discussions to follow, shared navigator functions will be revisited.[13]

Some navigators played a pivotal role in the development and administration of the CHAMP grant. Throughout the course of the grant, navigators worked with faculty and staff from an array of campus offices including student services, academic tutoring, career services,

[13] Note that shared navigator responsibilities will affect the quantitative results about the number of student–navigator interactions as well as the reasons for contacts made on these campuses.

internships, financial aid, and health services. For example, LCC's navigator often worked closely with her dean, the project director, and faculty "trouble-shooting things." At times, this navigator felt she was "at the center of things . . . making sure that everything works well for the students so that we can keep moving them forward." Similarly, PCC's navigator, who was promoted to project lead, was embedded in the Office of the Dean of Business and Advanced Technology and subsequently participated in both the college's PLA committee and the Colorado Community College System's PLA planning committee.

For a few navigators, the physical location of their offices, like those of the career coaches on earlier TAACCCT grants, presented some challenges. Shops and classrooms were often in other buildings (e.g., at LCC and PPCC). This resulted in little informal "drop-in" foot traffic that was enjoyed at FRCC, where the navigator's office was just outside the shop classroom area. Navigators often responded to the challenge of physical distance by embedding themselves in the classroom on a regular basis.[14]

> *Courses are in a couple of different locations, so I did plan on being kind of the warm body at the back of the room, so that I can be there so that if someone has a question, we can make an appointment and get together and that kind of thing. But just so they get to know who I am.*

Overview of Navigator Functions

The CHAMP navigator position was a modification of the career coach position mandated under earlier TAACCCT grants. Paralleling the career coaches, CHAMP navigators were to engage in intensive advising and to help students with both the academic and nonacademic issues that often affect their ability to remain enrolled in their programs, and complete their credentials. Navigators were also to assist students to "utilize credit for prior learning" and "transfer or lattice a program with another institution."[15] Further, while career coaches had at times worked with students on career pathways and employment-related issues, these duties were principal responsibilities for navigators under CHAMP. This shift of emphasis meant that navigators were expected to actively engage with employers and serve as the point person for newly created internship and apprenticeship opportunities at their respective schools. The name change reflected the new emphasis of the position—these new posts were designed to help students *navigate* multiple systems both within and outside the college.[16]

Mirroring experiences under COETC and CHEO, the actual role and function of each navigator was defined within the context of her college's existing student and program resources, and as indicated above, the staffing of related functions. Thus, as we analyzed the navigator's role at each of the nine CHAMP colleges, the diversity and range of navigator activities expanded or contracted to include any number of items from the following list:

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[14] PPCC's navigator was also co-located one day a week at the Colorado Springs WFC.

[15] See CCCS CHAMP proposal, p. 17.

[16] See the EERC report, *TAACCCT Career Coaches: Findings and Observations*, for a more detailed discussion of the career coach title and position. Available at http://smlr.rutgers.edu/content/publications-0.

- student recruitment
- student orientation
- developing student success skills
- academic and nonacademic advising, including making referrals to campus and community services
- helping students navigate college administrative procedures, including financial aid, adding earned credentials to their transcript, and earning credit for prior learning
- explaining career pathways
- attracting internships
- developing or growing collaborations with workforce centers and employers
- employment preparation
- assistance with job seeking

Outreach and Student Recruitment

A principal focus for many of the navigators was the recruitment of students to new and redesigned advanced manufacturing certificates and degrees. Student recruitment had not been part of the former COETC career coaches' responsibilities, but it had been a function for some CHEO career coaches.

Navigators were expected to reach out to regional employers, workforce centers (WFCs), and community organizations such as veteran groups to disseminate information about their college's CHAMP program. At colleges without an employer or business outreach coordinator (e.g., LCC), the navigator became the campus point person for the array of program opportunities under CHAMP.

In thinking about recruitment, PCC's navigator observed some of the challenges colleges faced.

> *How do we reach individuals that don't know they want to go to school yet, or don't know they want to change careers yet? So I want to get beyond the client list of the workforce center, and I want to get beyond the students who are already here at the college. I want to get that message out to other individuals who are out there, who just don't know yet that that's what they want to do., and don't know that that's what we have available here at PCC.*

Recruitment efforts included navigators going to employment sites to talk about the CHAMP program.

> *We'll often meet [prospective students] at their place of employment to kinda remove that scary barrier that a lot of students believe there is when they haven't been to college ever or haven't been to school in a long time. So we'll do enrollment at their place of employment a lot of times.*

Navigators also tabled at community events, such as the First Annual Aurora Veteran's Expo 2015 (MSU). FRCC's navigator's efforts included going directly into the community—into "coffee shops and churches and things like that [to] post posters"—to market the CHAMP program.

Navigators also invited employers and community organizations to campus events such as job fairs and open houses. Some of these events were collaborations with a local WFC. Navigators also gave tours of their colleges' advanced manufacturing training facilities and encouraged both employers and prospective students to speak with current CHAMP students. The navigator at EGTC reported that once she began to network with community organizations, she was contacted by groups with whom she had had no prior contact, but which had heard about EGTC's program through other avenues.

FRCC's navigator observed that community outreach was a multifaceted process and that her activities built on what had been done in the past. She saw her job as further developing the college's reputation by letting people know about the new opportunities the college had to offer under CHAMP.

The navigators at PCC and RRCC sent mailings to current and past students using marketing brochures created with campus funds; others used social media to showcase their colleges' CHAMP options, including noncredit, certificate, and degree programs. Navigators also used LinkedIn, posted on Craigslist, and created Facebook pages. As one navigator stated:

> *I created a Facebook page for us, so we're hoping that that will help with the younger crowd to kinda see it on there. We do a lot of promotion on there.*

The navigator at Aims who was more involved with marketing and recruitment activities than direct student advisement, developed a number of creative strategies to recruit students and to engage and recognize employer partners. First, she redesigned the school's manufacturing website to make it more interactive. She also developed a video that included bios of alumni – including women - to stimulate interest in the program. Some of these alumni became role models and helped interest new students, as well as help students network when they graduated. Faculty, students and employers were very positive about the video – especially as it showcased the caliber of the program's students, and personalized career pathways. In addition, the CHAMP website showcased some of the employers with whom the CHAMP program was partnering - recognizing their contributions to the program. With company permission, some of these companies were then hot-linked via the website. This provided students with greater access to the regions' business community – helping students become more familiarize with the range of companies, the skill sets these companies desired; as well as job postings. The Aims' navigator also helped to develop a quarterly newsletter which contained articles written by faculty and staff about the college's new programs, and the new state of the art equipment that was now available for training.

The creativity of Aims' navigator went even further. She began to consider the crossing of traditional academic boundaries. She asked faculty and staff how career and technical education (CTE) and the liberal arts and humanities might complement one another. For example, how might engineering and anthropology relate to one another? Her questions stimulated faculty to think about the crossovers. This resulted in some articles on the subject that appeared in the general college newsletter. It is not clear if the navigator's innovative thinking resulted in drawing any students into the CHAMP programs—but it does present an interesting strategy to at least draw students from other fields to explore options under CTE programs.

Some CHAMP navigators, including those at Aims, RRCC, MSU, and EGTC, also developed videos that they posted on their websites and used at recruiting events and technical shows. Aims' navigator summed up the utility of these videos.

> *[A video is] something that we could circulate showing, "Look, we have successful students. This is what this program entails. These are the experiences that students live with." And it's a great marketing tool [to show] our companies because they're like, "Oh, wow, look at that student!" And so instead of reading text, you get to watch someone talk about their experiences, and it's just easier to relate to.*

Although TAACCCT grants do not focus on or serve high school students, some CHAMP navigators encountered high schools in their marketing efforts, opening up a potentially important pipeline into their manufacturing programs. For example, LCC's navigator networked with regional high school counselors and college admissions staff. This resulted in an active dual- or concurrent-enrollment program within LCC's welding program. At PCC, some of the shops were physically located at local high schools, which provided opportunities for high school students to become aware of the college's advanced manufacturing program. One of the priorities for navigator outreach and recruitment was the expansion of diversity within advanced manufacturing programs—to reach out to women and to nontraditional students, including incumbent workers. To this end, navigators contacted a range of veterans' organizations, including the Disabled Veterans Outreach program, Aurora's Veterans Affairs Commission, and Hero2Hire. Some also attended conferences such as the Denver Veterans Job Fair. Prior to the employment of a dedicated military outreach coordinator at PPCC, the navigator at that school made regular visits to its satellite campuses on the local military bases around Colorado Springs to discuss the CHAMP program with prospective students.

To address the gender imbalance in advanced manufacturing,[17] FRCC's navigator did focused outreach to community organizations serving women, such as the PEO Sisterhood chapter ,A Woman's Place and the single moms' group at the Pearl Group.[18] She provided each group with information about the CHAMP program and career opportunities in advanced manufacturing. In addition, the navigator and project lead created a flyer about a new women-only, Intro to Machining course, that FRCC had developed. They then sent copies out to a range of

[17] The Bureau of Labor Statistics reported that only 29.1 percent of manufacturing employees were women in 2015.
[18] The Pearl Group is a community-building organization that supports single parents and single-parent families.

community-based organizations, women's groups, the local WFC, and temp/employment agencies, as well as to five hundred employers in the region. The course, which launched in the spring 2016 term, included content thought to be especially meaningful to women: work schedule flexibility to accommodate families, good pay, and creative/challenging work. It was hoped that the course would help women gain confidence, and through comradery might also increase their comfort to pursue a career in manufacturing. Ten women enrolled in the inaugural class, and five enrolled the following semester. FRCC now plans to offer the course once each academic year.

CCD's navigator also reached out to women in a focused attempt to increase the pipeline of female manufacturing students. A CCD administrator said,

> *[supporting] women in manufacturing has . . . been a real priority, a goal, of ours… Outreach really starts with presence, so we are getting in front of women and girls and really investing in them.*

CCD has a "strong institutional support for emphasizing and addressing the exposure gap in advanced manufacturing." The school's CHAMP staff have been connecting with community organizations, industry representatives, and others in manufacturing to work collectively to create awareness of opportunities in the field for women, build interest among young girls, offer internships to women and girls, and offer activities and clubs centered on women in manufacturing. CCD staff are also in the planning stages of creating a club for women in advanced manufacturing at the college.

Another notable outreach strategy CCD has employed is its work with Project "Do it Yourself (DIY)." Project DIY is an advanced manufacturing/STEM camp for Denver-area high school girls that is funded by the Women's Foundation of Colorado and hosted by CCD. In June of 2016, Project DIY graduated 18 area high school girls from its first girls-only manufacturing camp. In our interviews, the CCD staff working on the project felt it was a resounding success and noted that many of the girls who participated in the camp are now interested in pursuing an education—and career—in advanced manufacturing.

Another strategy used by CHAMP colleges to expand the number of women in advanced manufacturing was to seek out women already in the field who might serve as mentors to enrolled students. At Aims, the navigator identified a few women alumni who then opened up a larger network of female graduates. She encouraged these women to act as speakers and as mentors to the women who were considering and/or were enrolled in the school's advanced manufacturing program. In the spring of 2016, the navigator also linked up with the national organization Women in Manufacturing (WIM).[19] Similarly, the navigator at FRCC contacted the Wisconsin chapter of WIM to discuss a program they had created for women mentors in the industry. She also attended the kick-off event for WIM's Denver chapter, where she met a

[19] For more information, see http://www.womeninmanufacturing.org/home.

number of women who expressed interest in serving as mentors for FRCC's female students and the chapter's lead offered to speak with FRCC's all-female class.

In addition to her outreach efforts targeting women, FRCC's navigator also attempted to reach out to the Latino/a community by contacting El Comité of Longmont. She discussed FRCC's program with her contact there, and explored strategies to reach Latinos in their local community.

The above outreach efforts fit into a larger context in which researchers have examined the implicit and explicit "cultural" messaging within and outside classrooms. This messaging includes forms of *micro messages* that have been found to affect student retention—especially among students of color, students with limited means, and women (Caplan & Ford, 2014; Paul, 2015). Under CHAMP, most consortium navigators have attended conferences hosted by the National Alliance for Partnership in Equity (NAPE) that[20] addressed micro-messaging and identified strategies to improve the enrollment, retention, and completion rates of historically underserved populations. Navigators have continued to attend NAPE events, conference calls, and webinars, and both PPCC and Aims hosted NAPE trainings on their campuses. Navigators have used the NAPE trainings and events as professional development and have actively participated in employing equity practices in CHAMP classrooms as well as in their day-to-day interactions with students.

Intensive Advising: Making Connections Between Academics and Career

The literature on community college students—many of whom are first-generation college students, many of whom are balancing work, family, and school responsibilities, and many of whom are poorly prepared for college work—suggests that advising makes a significant difference. It can facilitate the engagement of students in the college experience and provide a sense that a college cares about and is invested in its students' progress and success (Cuseo, 2003, 2005; Lotkowski, Robbins, & Noeth, 2004; Upcraft & Kramer, 1995; Varney, 2007).

The ad hoc advising that often takes place during the thick of registration is only one of many different forms of advising. In ad hoc advising, the student and the advisor do not take time to get to know one another; the focus is on the student's schedule and little else (Cuseo 2005, 2003). At the opposite end of the continuum is "intentional" or "intrusive" advising, which involves proactive, action-oriented interactions with students (Drake, Jordan, & Miller, 2013; Varney, 2007). During this type of advising, the student is aided in identifying and setting academic and career goals and developing strategies to reach these goals (Earl, 1987). In fact, research has found that a career focus as an integrated part of advising increases student academic motivation (Bean & Metzner, 1985; Metzner, 1989). Intentional advising is "systematic and directive" if not, at times, prescriptive and developmental (Upcraft & Kramer, 1995). It involves assisting and supporting student success by identifying both academic and nonacademic issues and facilitating

[20] See https://www.napequity.org/stem/

referrals for necessary services or resources. And critically, it frequently involves the adviser connecting with students "before a situation occurs that cannot be fixed" (Varney, 2007).

"Intrusive advising" was identified in the first two TAACCCT grants—COETC and CHEO—as the means by which career coaches would provide "wraparound services to support retention and achievement," career counseling and referrals, academic advisement as it related to career choices, and counseling and referrals for a wide range of social and financial support services (Colorado Community College System, 2011). Early on in these grants, to better reflect the autonomy of students, a decision was made to refer to this kind of advising as "intentional" rather than "intrusive or intensive." In this report, we adhere to that convention by referring to the work that CHAMP navigators do with students as *intentional advising*.

The frequency and nature of CHAMP navigators' advising activities varied across colleges depending on the structure of each college's CHAMP program, its existing student services, and the needs of its student population. Across all colleges, from the employment of the first navigator in March 2014 through the end of our data collection period in March 2016, navigators saw a total of 1,215 unique students who collectively had 5,399 contacts with a navigator. (See Part II for an analysis of student demographics.) Table 2 displays the reasons for which students were in contact with their college's CHAMP navigator according to data collected on the navigator student tracking logs. The description of each category that appears in the table is the same one that appeared in the codebook used by navigators as they completed their logs. We present this information here to provide a context for the discussion of CHAMP navigators' activities that follows. A more detailed analysis of student–navigator interactions appears in Part II of this report.

Table 2. Students' Reasons for Contacting Navigator

Reason for Contact	Proportion of total contacts
Career Advising includes inquiries related to job searches, career planning, internship placements, resume writing, and the like.	26.9%
General check- in[21] includes any meetings with no specific purpose in mind except for an opportunity to "catch up."	25.6%
Academic Advising includes inquiries related to course selection, program of study selection, course success, mentoring and tutoring referrals, and the like.	25.0%
General Info Session includes when a student is referred or makes a general inquiry about program	16.4%
Multiple reasons can be used where there is more than one reason for the visit.	3.6%
Nonacademic includes inquiries related to family-related problems, transportation, financial assistance, social and health related issues of self or family and the like.	2.9%
Credit for Prior Learning includes meeting with a student for portfolio reviews, CLEP advising, etc.	0.2%
Workforce referral includes any meeting with any student who was referred by a WFC.	0.1%

We begin here with the advising navigators provided to prospective students.

Prospective students

As noted above, many of the CHAMP navigators engaged in marketing and student-recruitment activities; some went further to discuss academic and career options with prospective students; and some were also engaged in admission interviews for their college's CHAMP program. The latter was the case at PCC, where both the navigator and the Division of Business & Technology's academic excellence administrator carried out 1:1 screening of prospective students interested in the school's Fast Track welding certificate, production technician certificate, or other programs in welding, machining, and electro-mechanics. During the screening sessions, the individual's career goals, employment or military background, academic skills (e.g., math proficiencies needed for print reading) were explored as well as his/her ability to commit to the welding Fast Track's intensive one-semester certificate program.

PCC also coordinated pre-semester meetings for students enrolling in the college's Fast Track welding certificate program so students could meet with faculty and get a heads up on program expectations (e.g., attendance, punctuality, etc.). Through these early interactions, students were

[21] It is not clear how navigators interpreted this category and thus it may include informal contacts within the classroom as well as overlap with more focused meetings on one of the other topics.

able to get to know the PCC navigator and the services and support she could provide. These interactions also helped the navigator identify potential challenges for student success:

> *A lot of it was just these guys coming in. We'll sit and talk; we'll talk about what's going on.* [I learned that some students faced some] *pretty significant financial obstacles. So we actually took some of the grant money and put* [together] *a classroom set of some of their tools and supplies that they needed to release some of the financial burden of trying to get everything they needed for welding*.

Enrolled Students

Typically, navigators became involved with students after they were accepted and enrolled in a program of study. MSU was the only college that mandated that all students meet at least once with the navigator. At some other colleges, the navigator went into CHAMP program classrooms to introduce him- or herself and explain the nature of navigator services. Often navigators would schedule regular classroom visits to check in and see how students were doing. This helped the navigators build rapport with students. It also helped to normalize student–navigator interactions. As one navigator observed,

> *They know who I am, and they're more comfortable coming to me*. [. . . I] *let them know we're here for them. No matter how minor they might think that—for example, maybe they need help with food or something. But we can—we have resources—we can help them with that. So don't be embarrassed or afraid to come talk to us—that kind of thing. Because, I mean, yeah, I'm not just here for your career stuff, but if you need to vent or—you just never know what could be going on, but being able to help them with whatever resources they may need in the community, too—not just here on campus, but within our community.*

While nonacademic advising was a component of all navigators' workload, academic advising and career advising were the two most frequent reasons logged for student–navigator contacts. For that reason, we turn our focus first toward these interactions before returning to a wider discussion of nonacademic advising.

Academic Advising

Many community colleges across the nation require students to see an advisor at some point early in their academic career, often during orientation or registration (O'Banion, 2012). Typically, the assigned adviser is from student services or from a general pool of academic advisers. If the student has declared a major or has enrolled in a CTE certificate program, a faculty member from the subject area or discipline is often assigned to the student. Because these academic advisors are helping students during the "hurried and harried period of course registration," they often tend to focus "narrowly, myopically, and episodically on the imminent, deadline-driven task of class scheduling" (Cuseo, 2003).

Frequently, students do not again seek out an adviser until they are doing poorly. But early and preventive or anticipatory advisement—intensive advising—has been found to be important for retention and academic success (Cuseo, 2003). Such advisement can address barriers to student success such as balancing academics with work and family demands that may affect the student's ability to be successful with his or her studies (O'Banion, 2012).

In fact, a secondary aspect of intensive advising is providing the student, through regular interactions with the navigator, a sense that s/he has been "embraced by the college" and that faculty and staff are there to help him/her to be successful. The more a student experiences a sense of belonging at the college, or identifies as a member of the college community, the more he or she will make use of available services as part of his or her college experience—and the greater his or her potential for academic success (Heisserer & Parette, 2002; Bickerstaff, Barragan, & Rucks-Ahidiana, 2012).

The CHAMP navigator position, like the earlier TAACCCT-funded career navigator positons, was specifically designed and instituted to complement more traditional academic advising. Navigators were to provide in-depth advising in which students were asked about both their academic and career goals, as well as any barriers, or 'risk factors,' to achieving these goals. In addition, under CHAMP, navigators were to help students navigate through their college's academic and support system within the context of their advanced manufacturing program, identifying skill sets and credentials that employers desired. Thus, at CCD, where advising services are provided by generalists, the CHAMP navigator was a "program-specific advisor engaged in traditional 'academic-advisor problem solving' to help students navigate through the system," e.g., helping students with registration and financial aid issues. Similarly, at FRCC, where there are both credit and noncredit CHAMP program options, the navigator helped students identify which option(s) best served their interests and needs and encouraged them, as appropriate, to stack certificates and/or move into a degree program. CHAMP navigators also assisted students with Prior Learning Assessments (PLA) and with the process of applying for earned credentials; these tasks will be discussed in greater detail later in this report, but are mentioned here because both are academic in nature.

Advising models varied by college. One of the more intensive wraparound models was at LCC, where the entire CHAMP team—the navigator and the CHAMP instructors—met weekly to discuss student performance and any concerns. As needed, the navigator brought in other campus staff. For example, after identifying a collective need for academic support, she worked with the director of Learning Support Services "to establish a plan for getting a tutor in the welding shop daily to help with IT and academic needs."

Of note was the way LCC's navigator handled students—especially male students and those who had already been in the workforce or military—who were reluctant to ask for help or let it be known they have a problem.

> *The machismo kind of—you're always supposed to look strong, and you're never supposed to have emotions kind of. It does get in the way of learning, I think. And I think some of them just were—had really bad high school experiences. So they come in, and they expect to be treated badly. And so they're having a different experience.*

The navigator turned this awareness into an opportunity in which students could help one another.

> *I am noticing, though, [a particular student] struggles academically, and I was in there trying to help him. And they get kind of funny about being helped. So I said to him, "You guys can help each other. You can talk each other through things. Actually, it's better if you do because these are the things you would be doing on your job. So-and-so has a body of knowledge and they can share that with you. It's the same here. It's not like you had to get that information from Doug or I had to be your tutor. It's like, you're going to remember it better if they talk you through it because now you're getting it from Doug, you're getting it from Terry, I've talked to you about the academics and what are the best approaches, and now somebody else is saying, hey, if you do this or you look at that . . . "*

At colleges where faculty played a major role in student advisement, navigators had far fewer interactions with students. This was the case at PPCC, where the navigator reported, "when I first started, I thought I would have a steady parade of students coming in and out . . . and that didn't develop." Nonetheless, PPCC's navigator got to know students through her other student-focused activities, including soft skills training (see below).

Regardless of the frequency or intensity of their advising activities, we found that on most campuses (e.g., FRCC, LCC, MSU, CCD, PPCC), navigators regularly stopped by CHAMP-related classes to remind students of the services they could provide and to remain visible and accessible. And, as appropriate, they facilitated referrals to needed services both within and outside the college.

Career Advising

The category of career advising includes navigator activities around career choice, career readiness and soft skills, job searches, and interview preparation.

Career Pathways

Career pathways involve the formation of partnerships between educational institutions and industry for the purposes of identifying the skill sets employers need and establishing training programs to meet these needs. The career pathway system combines both educational and supportive services to facilitate students' success in earning marketable credentials and embarking on family-supporting careers (US Department of Education, 2015, pp. 1, 6; Strawn, 2016). The TAACCCT grant incorporated this idea.

The functions of the CHAMP navigators reflect multiple facets of the career pathways system: helping students identify industries with expanding job opportunities, and helping them choose the certificate and degree programs that can best prepare them for employment in those industries. Further, encapsulated within the concept of the career pathway is the goal of helping both prospective and enrolled students to explore career opportunities that either match and/or utilize their prior experiences and existent skills and interests. This exploratory process also led some individuals to decide that a career in advanced manufacturing did not actually match their interests, skills and/or goals, and that they needed to explore other career pathways.

In their work with potential and enrolled students, navigators made some—though, in most cases, limited—use of a career website and related map tool[22] developed by the Council for Adult and Experiential Learning (CAEL) using TAACCCT funding. This website, discussed in EERC's *Colorado Helps Advanced Manufacturing Program Website Brief*,[23] provides information on job types, employers, and certificate and degree programs. It also includes an industry map and industry crosswalk. These tools can help students identify the skills they have acquired in other industries (e.g., energy, construction, or the military) and explore how they overlap with the skills needed in advanced manufacturing. For example, PPCC's navigator suggested that a female veteran who had fixed Black Hawk helicopters use the career map so she could explore how her experience and skills might be well suited to a career in machining. And the navigator at Aims commented,

> *I think I can use it when students come in and have specific questions about what their trajectories would look like, but I think it's going to be more useful from an advising and tactical standpoint regarding faculty and staff than it is going to be for students because a lot of my students don't really – —they don't want to go in and mess around with it and look at it. They just want to know. They'd rather just come in and talk to someone and have someone tell them and walk them through it versus them doing the legwork.*

However, while some navigators found web-based tools to be very helpful, other navigators stated that prospective and new students came to them with well-defined plans about what they wanted to do. When dealing with such students, they felt, there was not much need to use these tools. Navigators also reported that some students were not comfortable with online resources, and so navigators used more print materials with these students.

In addition to helping students with examining the academics of a career pathways, navigators engaged students as they prepared to graduate from their respective programs. Some used the career maps to stimulate students to think about what jobs they would apply for. "It's become a very useful tool," one navigator reported, saying, "It's handy to get on [the website] and show students" different job possibilities.

[22] Available at: http://cocareeractiontools.com/

[23] To be posted on EERC's website fall 2017: https://smlr.rutgers.edu/content/publications-0

Some navigators also helped students to think beyond an actual industry or sector of employment and instead to consider the type of work environment they wanted. For example, FRCC's navigator asked students to consider how big a shop they wanted:

> [I'll ask, "Do you want to work somewhere where] *you're just kinda doing your own thing and nobody's really bothering you and you're just kinda on your own*? *Or a shop which was a really small, intimate shop where you can build friendships and you have a lot of different responsibilities—you might wear different hats or whatever?"*

Most students probably do not have much choice about their first job or worksite—nevertheless, such job reflections provided the framework for them to think more long term, to think about a career trajectory rather than a specific job. The navigator at RRCC went a step further. Recognizing that big and small shops often have different requirements and even different job application procedures, she helped students focus on the skills and application materials each type of shop most often requires.

Soft Skills

Helping students with job readiness was another significant focus for the navigators. Students were gaining advanced manufacturing knowledge and skills in the classroom. However, soft skills often did not receive the same kind of attention. Soft skills have been defined many different ways, but in general they refer to those work-related skills that facilitate communication, problem solving, flexibility, responsibility, leadership, and teamwork. Soft skills can make a significant difference in securing employment as well as in keeping a job and getting promoted (Robles, 2012). In fact, employers increasingly indicate that soft skills are as important, if not at times more important, than hard skills (Davidson, 2016). The development of soft skills has therefore become a focus of CTE programs as well as of post-employment trainings (Mitchell, Skinner, & White, 2010; Bronson, 2007; Houghton & Proscio, 2001).

The navigator at Aims commented during an interview,

> *When I talk to HR [Human Resources], they want people who have those soft skills; they have those—that drive and ambition . . .*

LCC's navigator echoed the need for a variety of soft skills when she worked with students during and after orientation.

> *Being able to follow instructions. Showing up on time. If you can't show up, you're not keeping a job…. Just coming to work ready to work, not giving attitude about anything. Even if you're asked to do something that isn't your job, go do it. Learn a new job.*

Some colleges, like FRCC, integrated soft skills development into one or more of their CHAMP courses. At LCC, the navigator, worked with the welding faculty to integrate soft skills into the classroom. As a result, faculty now use a rubric to grade students on attendance, staying on task, timeline-to-task completion, problem solving, and critical thinking.

Other college created specific trainings or courses, such as student success classes, that focused on soft skills (PPCC). Some of these were taught by the school's navigator (PPCC) or were team-taught by the navigator with other faculty or staff (PCC). In addition, some colleges made use of online resources that focus on soft skills, including the *Employability Skills for Industry* MOOC (Massive Open Online Course) developed by the CHAMP navigators with assistance from CCCS' instructional designer, on professionalism and job readiness that was posted on the Desire to Learn (D2L) interactive website (see the section on MOOCs, below).

Faculty and staff feedback about the self-paced MOOC varied across the campuses—some felt it was too academic, others felt that students needed to have more opportunities to interact with one another as they learned the content, and still others felt that the content needed to be grounded in actual day-to-day classroom interaction. As a result, the MOOC served as a stand-alone resource in addition to being used in conjunction with a required course or training.

At PPCC, students were initially required, as part of their program, to complete an online employability training developed by Goodwill Industries. However, the feedback from students and faculty was that this training was too elementary for PPCC's students, many of whom had experience in the military and/or in the labor force. As a result, the PPCC navigator began to go into classrooms and do her own workshops on employability issues.

In the fall of 2015, PCC's navigator began to conduct "career skills" workshops that integrated elements from the student success course with workforce training. This workshop, conducted in partnership with the Pueblo WFC, was held every other week and was open to current and former students. Topics covered included problem solving, time management, interviewing skills, decision-making, and work relationships.

Resumes and Interview Preparation

In addition to navigators' engagement in the development of soft skills content, they also helped students with resume writing, interview preparation, and conducting effective job searches. These are real skills that can be taught and nurtured and are important for students' sense of self (Wang & Yorks, 2012). They can increase students' access to a range of job sources, can increase their visibility, and can ultimately increase their chance of success in the job market (Hansen, Oliphant, Oliphant, & Hansen, 2009).

CHAMP navigators created resume templates (e.g., EGTC), conducted workshops on resumes and cover letters (e.g., CCD, LCC, PCC, PPCC), and/or met with students one-on-one to review their resumes (e.g., EGTC, FRCC, MSU, PPCC). One of PCC's several navigators developed a

flip booklet called *Quick Guide to Success*. This booklet provides guidance on the basics of writing a resume, preparing for an interview, questions to ask at a job interview, and appropriate dress for an interview.

Some navigators also conducted mock interviews with students. LCC's navigator went a step further. In the spring of 2016 she invited the director of HR from one of the college's industry partners, Oliver Manufacturing, to come to campus and work with the welding students. Prior to the visit, students prepared their resumes, and each completed a job application. The HR director then conducted one-on-one interviews with every student, which was followed by individual feedback that identified the areas in which the student did well, along with those on which he or she needed to work. Students found the exercise extremely helpful.

Identification of Employment Opportunities

To assist students with job finding, many navigators worked with their local WFCs and reached out to industry partners to identify current and anticipated job opportunities. At both Aims and FRCC, the navigators worked closely with the college's business/employer outreach coordinators. Navigators also worked with campus career service offices at schools where such offices existed. These offices often receive and post current and anticipated job openings.

Navigators referred students to regional WFCs, various online job websites including Connecting Colorado and search engines, and directly to employers who posted jobs. For example, the navigator at MSU presented to students in 19 advanced manufacturing classes a short video about WFCs in Colorado and the services they offer. This navigator also continuously updated students via e-mail about new jobs and financial aid opportunities, including WIOA funds.

To further facilitate contact between employers and students, PPCC's navigator developed annual manufacturing mixes, informal socials which brought regional employers to the college to meet with faculty and students. In preparation for each mixer, students developed a brief "elevator" speech to showcase their interests and skills. During the mixer, students interacted with potential employers, asking them questions about their companies and discussing the training experiences at PPCC.

Nonacademic Advising and Support

Table 2 revealed that only 2.9 percent of student–navigator interactions were logged by the navigators under the category "nonacademic advising." However, in our interviews with navigators, it was clear that nonacademic issues often came up in their interactions with students. It is possible that some navigators included nonacademic issues within other categories such as "general check-in" or "multiple issues." The recorded percent therefore may not fully reflect the frequency at which nonacademic issues arose.

Financial aid was cited by navigators as a common problem for students. Colleges provide students on financial aid with some financial planning assistance, but many students both on and off financial aid, needed more help. In response, EGTC's navigator brought to campus a representative from Western Credit Union to discuss financial planning. She also scheduled the Financial Health Institute to deliver a workshop on managing debt. Other navigators helped students with financial aid applications and referred them to the WFC for WIOA funds. The MSU navigator commented,

> *I have been working with a student who is attempting to navigate the system in an effort to receive the WIOA training dollars to assist with payment for his additive manufacturing engineering certificate. It is indeed an arduous process!*

The navigator at PPCC similarly reflected on her work with veterans and how challenging it was for some of them to secure student aid.[24] Negotiating multilayered systems was therefore another important function of the navigators.

Several navigators worked with students who were experiencing homelessness and/or food insecurity. In these situations, the navigators helped students connect with other campus offices (e.g., Student Life at CCD) and/or identified community resources such food banks, Hunger Free Colorado, and United Way 211.

Prior Learning Assessment (PLA)

Studies suggest that PLA has a positive impact on students' academic success in terms of leading to higher graduation rates, increased student retention, and saving students both money and time. Specifically, studies have shown that, compared with non-PLA students, students earning PLA credits are more likely to persist through their program with higher retention rates, higher grade point averages, and higher graduation rates (Snyder, 1990; Hoffmann, LeMaster, & Flickinger, 1996; Klein-Collins, 2010). Moreover, earning PLA credits reduces tuition costs and helps students—especially adult students— graduate faster (Klein-Collins, 2010; Travers, 2011).

In 2015, EERC released a report on the impact of PLA credits on persistence and graduation rates across 13 community colleges in Colorado between the fall of 2007 and the summer of 2010 (Kuang & McKay, 2015).[25] This CHAMP funded study showed that PLA students had better academic outcomes—specifically, higher rates of both retention and completion as well as shorter time to degree—than students who did not receive PLA credits.

One of the major components of the CHAMP grant was the redesign of Prior Learning Assessment (PLA) policy, practice, and implementation across all of Colorado's public

[24] Mid-grant, PPCC added a military liaison.

[25] See EERC's website for a copy:
https://smlr.rutgers.edu/sites/default/files/documents/PLA%20Baseline%20Report%20FINAL%202-4-16.pdf

community colleges. During the first two years of the CHAMP grant, CCCS and participating colleges developed policy and practice recommendations for PLA. Navigators were initially identified as key actors in the roll out of the redesigned PLA. The plan was for navigators to help students identify skills gained in prior employment or through the military and then help those students apply for academic credits through the redesigned PLA procedures. However, by the third year of the grant, most navigators were still not actively involved in working with prospective and enrolled students on potential PLA credits. Instead, as each colleges' PLA steering committee (most of which did not include the college's navigator) engaged in the implementation of standardized PLA practices, a member of the campus committee worked directly with students on PLA matters. Over time, some navigators were trained in the system-wide PLA procedures and/or taking the PLA MOOC developed by CCCS.

The significant exception to the above pattern was the navigator at PCC, who eventually moved into the CHAMP project lead position. This navigator/project lead participated in the state's Prior Learning Assessment Revision committee, which helped identify student needs and worked to offer amendments to the existing policy. After the policies were amended, she was asked to develop a matrix of equivalencies for advanced manufacturing. In addition, she was an active member of PCC's campus PLA steering committee, and in this capacity was excited about the potential use of videos in portfolios to document students' skills.

As their respective colleges began to implement the amended PLA policies, other navigators became more involved in PLA. This occurred at LCC, where the navigator spoke about the college's growing interest in the use of portfolios for PLA. Referring to discussions that were taking place on campus, she observed that portfolios might provide

> *. . . a better overall understanding of their [students'] ability and whether—it would prove that they actually have that body of knowledge rather than just let them test out.*

Navigation of the Credentialing Process

One of the goals of the TAA series of grants was to increase the number of stackable credentials students earned. The hope was that additional credentials would positively impact future employment opportunities and wages. During the COETC grant, career navigators discovered that students often completed the requirements for a certificate, or even a degree, but then never actually filed the necessary administrative papers to be awarded the earned credential. For example, during the COETC grant, RRCC's career coach reviewed the transcripts of all the water quality management students and identified many students who were eligible for one or more certificates, but had not been awarded them. In response, the career coach notified each student and worked with him or her to get the earned credential(s). As a result, 76 water quality

management students were awarded an additional 160 credentials (McKay, Michael, & Khudododov, 2016).[26]

Similarly, under CHAMP, several navigators engaged in transcript reviews and then assisted students within the filing of necessary paperwork for so they could be awarded their earned credential. Most often this was a certificate.

At LCC, for example, where the CHAMP welding program was structured as a series of stackable certificates. Students needed encouragement and assistance to submit the needed paperwork to receive those credentials. At CCD, RRCC and PPCC, the navigators assisted students with the certificate award request process. PPCC's navigator observed this was a challenge not only for the student but also for her.

> *You have to fill out the paperwork. You have to get the student to sign it. You have to pull their unofficial transcript, print that out. So there's—it can be tedious, and it can be time-consuming. So kind of staying on the ball with that with our students to ensure they get their actual paper certificates in case they have to show that, yeah, they are certified, or they did get that training. So just kind of staying on top of that.*

Development of Internships

Internships provide students not only with an opportunity to learn a new skill, or even to network; for many individuals they also provide an opportunity to "try out" a trade or profession. Conversely, employers who sponsor internships can learn from students about new theories and processes taught on campus, groom the next generation of workers, and identify the most qualified individuals to employ.

CHAMP colleges were not required to establish internships as part of their programs. However, they were strongly encouraged to do so. The extent to which internships existed prior to CHAMP, and the creation of new internships opportunities varied from one college to the next. At some CHAMP colleges, navigators had responsibility for developing internship opportunities for their students, e.g. PPCC. However, a few colleges either already had an internship coordinator or established one during the grant period. For example, the navigator at Aims initially had the dual role of navigator and "business outreach and internship coordinator." By the second grant year, however, these functions had been separated into two, sometimes-overlapping positions—navigator and internship coordinator.

MSU has a dedicated internship center housed at its Denver campus which serves the entire university; however, under CHAMP MSU's engineering technology program has had its own dedicated internship coordinator. This individual works with companies to develop credited student internships as well as to identify job opportunities. The coordinator also helps prepare

[26] See report on EERC website:
https://smlr.rutgers.edu/sites/default/files/images/DE%20Executive%20Summary%202-29-16%20FINAL.pdf

students for internship placements by working with them to develop soft skills, such as professional attitude and behaviors. MSU's navigator has worked closely with the college's internship staff to identify potential internship sites and CHAMP students who might be interested in an internship experience. One of MSU's cited successes is its relationship with Ball Aerospace, where over the past two years MSU interns have been placed. At the end of their internship, many of these students have been offered full-time positions.

At EGTC, apprenticeships predated the CHAMP grant, but they were not housed within the College of Trades and Industry, where the CHAMP programs are located. As a result, the navigator was initially not involved with internships. This changed with the January 2016 launch of the college's revised advanced manufacturing certificate program, which now includes internships as part of the program of study. EGTC's navigator worked with the college's School of Business to learn about their internship models and then promoted internships through the college's Manufacturing Technology Advisory Board.

Under CHAMP, CCD decided to bifurcate the internship function from other navigator functions, employing a CHAMP-funded internship coordinator who built "from scratch" the internship program for advanced manufacturing. With the help of an ad hoc team, the internship coordinator developed the conceptual frame for workplace-based learning (WBL); developed student learning objectives; and developed unpaid internship agreements with industry partners. The navigator then worked with students to fill out their WBL applications as a first step toward being placed in internships lasting one to four weeks.

At FRCC, the workforce liaison, in collaboration with the college wide director of workforce solutions and the CHAMP navigator, has had responsibility for internship development. At the beginning of the grant, employers indicated little interest in internships. Over time, however, employers have come to recognize internships as a good pipeline from which to identify potential employees. As a result, the navigator has been able to place students in a number of different internships.

Over the course of CHAMP, PPCC experienced changes in both its project leadership and the college's senior administration. The navigator therefore became heavily involved in coordinating internship-related activities. She attended the first meeting of internship coordinators from around the state, sitting in on their informal discussion of their offices' best practices. She also surveyed the existing paid and for-credit internships at PPCC, and worked with the college's new coordinator for paid internships. In addition, she attended manufacturing forums, the Electronics and CAD/Machining Advisory Board meetings, and visited local employers to identify potential sites of internships. In August 2015, the navigator worked on revising an internship handbook for advanced manufacturing. She also helped to put together two very successful networking events at PPCC, held in March and October 2016. These events were designed to bring students and employers together with the hope that students could learn more about special industry opportunities and showcase their skills, and

employers could meet and single out students they might consider for internship and employment opportunities.

PPCC's navigator observed that there was no real consistency in how paid and for-credit internships were structured at the college. In response, she suggested that PPCC consider creating a new position, post-CHAMP, focused specifically on internships related to advanced manufacturing programs. The navigator further suggested that, once successful, this pilot model could be replicated to develop more structured internships for all other programs at PPCC, such as culinary arts, business, etc.

PCC consistently reported very successful experiences with internships. In fact, the navigator stated that employers themselves sometimes took the initiative to contact the college seeking interns—a reverse of the usual roles in that interaction. It appears that as employers learn about CHAMP and/or have special projects or particularly busy seasons, they envision the benefits of having interns. The college, however, has taken a cautious approach to such unsolicited requests; it is their view that internships do not involve simply working at a company. Rather, students must gain work experience that directly used what they were learning in the classroom or lab, "supports their program of study."

To this end the PCC navigator and the project lead have worked closely with some employers to shape students' internship experience. The result has been that many of the PCC's internships are now four- to six-week /short-term work experiences that occur at the end of the students' studies. In these situation, students became paid employees so the employer did not face the challenges of liability. Liability has always been a critical issue for internships and one especially potent in welding and machining—two fields where internships have been difficult to establish given shop-floor risks and employers' concerns about the waste of valuable materials. The feedback from employers involved in the apprenticeship program has been good. They are impressed with the skills and knowledge of their PCC apprentices, and are hiring some graduates subsequent to their apprenticeship.

In fall 2016, a PCC team, including the manufacturing department chair, CHAMP navigator, CPL specialist, and CHAMP program lead, began to explore the possibility of networking among a number of small companies to create a rotational apprenticeship program. Such a program would expose students to different job sites and skill sets. It would also reduce costs for individual companies, expanding the number and viability of apprenticeships.

At the beginning of the CHAMP grant, RRCC's navigator worked with the college's internship department to develop an internship program for machining students. The navigator was successful in developing a number of internships on her own before a new adjunct faculty position was established to serve as a part-time navigator and internship coordinator. The two individuals then worked together on the task. The assignment for the internship coordinator was to engage industry and work with the full-time navigator to further develop RRCC's internships. The coordinator also monitored and graded internships and ensured credit

allocation—something she was able to do because of her adjunct faculty position. In addition, the full-time navigator helped the internship coordinator to develop internship procedures and policies RRCC could use after the CHAMP grant sunsets September 2017. According to the navigator, "previously, no procedures were firmly in place." During fall 2015 the navigator helped to create a strategic plan for creating and implementing internships, including some that occurred during spring break and over the summer.

Although RRCC still offers internships, a lack of student interest in them has led to low enrollment. Many students are already incumbent workers, have temporary jobs lined up over school breaks, or simply take employment instead of completing internships. RRCC's navigator has since left the position, and RRCC has replaced her with a new part-time navigator whose duties do not include internship coordination to the same extent as the previous part-time navigator. Instead, the colleges' internship department has subsumed internship strategies, and the program's machining instructor is now responsible for grading and credit allocation.

LCC's navigator engaged in considerable outreach to regional employers to identify internship sites for welding students. As part of this effort, she fielded an employer survey, worked with the local WFC, and worked with members of the advisory board. However, she was unable to create traditional internships. Instead, she arranged field trips for welding students to visit a number of local and regional factories. In addition, a local business, Oliver Manufacturing, extended an invitation to LCC's advanced manufacturing students to use its shops on a day when the company is closed. The idea is to give students the opportunity to work on a project from start to finish—reading blueprints, learning about the processing of the components, and manufacturing something small from beginning to end—in a real-world environment. This offsite workshop had not been scheduled at the time of this writing.

Development of MOOCs

Three Massive Open Online Courses (MOOCs) were originally proposed during the grant application process: one on employability skills for students entering the manufacturing industry, one focused on math skills, and one focused on credit for prior learning. A fourth MOOC was added later, focused on web accessibility for educators. Of the four MOOCs, navigators were only focused on the creation and implementation of the employability MOOC. The other MOOCs were to be developed by other TAACCCT staff, faculty, or external organizations.

Manufacturing employers across the country report that their employees often lack the fundamental employability skills necessary to be successful. In response, CHAMP leadership envisioned the employability MOOC as a way for navigators to help teach soft skills to students. The MOOC was to include "an openly licensed rubric that instructors can use to assess students' mastery of basic employability skills, e.g., professionalism, initiative, and teamwork (Colorado Community College System, 2012b, p. 17)."

To assist the navigators with the development of the MOOC, CCCS provided them with access to an instructional design coordinator, a program online curriculum specialist, and CCCS staff.

As one of their first steps, the navigators met in a workshop format to identify content for the MOOC and discuss how they would proceed with its development. They then divided the work regionally. In turn, these regional navigator groups divided the MOOC content into modules. The MOOC was planned as a course that would run once a week for five weeks, but it was designed so that that faculty and students could use single or multiple modules independently. This was likely a decision made by the instructional designers. MOOC topics included: employment expectations, reading and writing, workplace courtesy, time management and deadlines, communication and cooperation, teamwork, leadership and management, and critical thinking.

Navigators worked collaboratively on specific modules with their regional counterparts. When asked if she thought the MOOC-development process was a positive one, MSU's navigator stated that the most positive aspect of the process was the collaboration with other navigators.

> *It brought us closer as a group. We have monthly meetings, and we're on Basecamp [interactive project management software designed for process collaboration], so [we] interact a lot with each other. But this was an actual working relationship, so we brainstormed together, we supported each other. In fact, I learned a lot about my teammates, stuff that I would not have known had we not had that working relationship.*

Other navigators echoed the MSU navigator's sentiments. Regional collaboration on the MOOC brought the navigators together, fostering relationships that continued after the completion of the MOOC and persisting through the rest of the grant period. (Networking among navigators will be further discussed in the next section.)

Navigators' reactions to the development of the MOOC itself and to the finished product was not generally positive, and some navigators questioned the quality of the finished product. When asked about the process, one navigator observed that the development of the MOOC felt "very rushed," and she had felt "out of place" creating the course. In fact, she commented, few navigators had training or experience in either curriculum development or teaching. Another navigator echoed this navigator, saying she found the task "difficult" without prior training or knowledge in course design.

While most navigators felt that including soft skills in the curriculum was important, some felt the platform of the MOOC was not conducive for teaching such content to manufacturing students. One navigator commented that students in her colleges' machining courses preferred to learn "hands-on," and completing online modules or classroom work that addressed soft skills was not the best pedagogy for them.

> *The students are here because they're hands-on. They wanna be out on the floor. They are not classroom students. That's why they're not going to a four-year degree, or four-year school. And they're not in the classroom taking electrical engineering or mechanical engineering. They wanna be on the floor.*

Most navigators discussed implementation of the finished MOOC with their CHAMP program team and departmental faculty. Instructors at some schools chose to utilize only some of the modules rather than the entire MOOC, assigning the selected modules as part of the D2L curriculum. Other schools chose to incorporate the learning objectives of the MOOC modules directly into the classroom, teaching those elements as part of the face-to-face course rather than making use of the actual MOOC.

Faculty and staff indicated that because not all students had ready access to computers, offering the MOOC as it was intended—online—was not helpful. A number of navigators spoke about the benefits of classroom discussion versus an online format. They noted that most classes contained a "mix" of students—those new to the career, and incumbent workers re-tooling or adding additional skills. In a classroom setting these students could discuss soft skills topics amongst themselves, and incumbent workers could share their experiences with students who were new to the field.

One navigator reported that soft skills were discussed in the classroom under the rubric of a series of questions: "What is your experience behaviorally in the shop? How do you see your skills as a student being portable in ways in the workforce?" She noted that "when they all start talking, I just feel that they're actually learning from each other." Some navigators felt this was the most beneficial part of the learning experience and something students were unlikely to get from completing the MOOC online.

Although navigators were involved to varying degrees in deciding on MOOC utilization, members of each college's CHAMP advisory board and faculty made the ultimate decision about how and when the MOOC would be used within CHAMP programs. Aims' navigator, for example, was very involved in facilitating the MOOC on campus, making sure all departmental faculty made the MOOC available to their students, posting t on their own soft-skills syllabi or D2L shells, or both. This navigator also discussed the MOOC with her schools' AAA department and made sure they were aware of the resource.

At most colleges, employers were also involved in making the decision about how much—and which—soft skills to include in program courses. Schools' advisory boards were generally used as a platform for employers to voice their input. At one school, the advisory board was "split down the middle," with some employers feeling students needed the additional soft skills training, and others feeling soft skills were not "something you could train on—you either have it or you don't." Staff and employers at some schools felt soft skills were already embedded in the program coursework, and very few additions needed to be made.

Navigators felt that for the most part students responded positively to learning soft skills, especially if they were seamlessly embedded within their courses. One navigator commented that the same skills that make someone a good employee—the ability to focus, to complete tasks on time, to show up on time and be dependable—also make someone a good student. Therefore, the challenge was reaching those students who lacked "good student" skills. Navigators who worked one-on-one or in small groups with students felt using the MOOC modules in the online format was beneficial. This allowed students to progress through the MOOC at their own pace while at the same time allowing an opportunity for group discussions to take place. Many felt that the online course was most beneficial when supplemented with other learning experiences.

By winter 2017, most schools had chosen to embed elements of the MOOC into program courses, so few CHAMP students were taking the MOOC online. Overall, navigators seemed to feel the most beneficial element of the MOOC creation and implementation was the collaborative process leading to its development.

Intercollege Networking Among the Navigators

The development of the employability skills MOOC was one of the early opportunities for navigators to collaborate with one another and with other CHAMP staff. Many other opportunities to collaborate arose over the course of the grant. In fact, more intercollegiate collaboration among navigators took place during the CHAMP project than among similarly-situated staff during any other round of the state's TAACCCT grants. Some navigators point to the creation of the consortium-wide CHAMP advisory board as a reason for this. Through this board, navigators had monthly phone calls in which they worked together discussing issues related to industry needs and student employment. As one navigator observed about these collaborative phone calls, which began very early in the grant,

> *I think a lot of it has to do with the CHAMP advisory board. For example, the navigators, from day one—even when there were just two of us and then three, and then there were four, talking on the phone—we have always talked together.*

Regular meetings among the navigators also helped cement relationships which had started with the MOOC workshop and continued during phone calls. Meetings were held at different colleges, so rural college navigators did not always have to travel the farthest. One navigator said: "We're like a team. The navigators are like a team…. We're sharing information. We're learning. We're being educated."

Another navigator echoed this sentiment, stating that learning what other navigators were doing and what was successful helped all the navigators to identify the best strategies for their own college. When asked if the meetings and trainings were useful, one navigator replied,

The interaction with those folks, absolutely. Just strategies. Like [a CHAMP staff member from her college] came because I went to a training session up at Aims. I met [another college's staff member and] I thought "Man, I really liked her marketing strategy." She said, "You know what I do, I go in for an internship site meeting, and then I say 'Well how about your existing employees, what would you like them to know?'" So she said she's very undercover about how she sells customized trainings. So I put [the two staff members] together, we had coffee. After we did that she sent us some employers. One of those employers turned out to be a good candidate to be on [our] advisory committee.

She further noted that "Sometimes it's almost the informal connections rather than the formal connections."

These "informal" connections also proved beneficial among navigators relative to students transferring to/continuing their education at other schools, including MSU. The project lead at MSU stated while formal articulation agreements were established, it was the informal network among navigators that was instrumental in helping students make decisions about transferring:

They've kind of set up a network among themselves so that when they meet with the students, they can kind of analyze what their goals are and let them know about the opportunities with MSU—Denver, since we are making the articulation agreements. And if it's something they are interested in, then it's more so, like, the navigator's putting the student in contact with the other navigator. So they would make sure that [our navigator] is able to contact their students at their school that are interested.

Although all navigators participated in networking, navigators from specific colleges tended to work closely with navigators from colleges geographically close to them. For example, the navigator at Aims tended to work most often with FRCC's navigator because they were both located in northern Colorado. The Aims' navigator also worked occasionally with the navigators from RRCC and CCD, and she participated in the "manufacturing mixers" held at PPCC. All of these colleges are located in the more northern regions of Colorado and North Denver. Other navigators in regionally similar areas also tended to work closely together.

Networking relationships among navigators have extended to employer relationships as well. The navigator at Aims, for example, once coordinated a manufacturing tour of local employers during which she led a group of "tourists"—including high school students, prospective manufacturing students, and chaperones—through the manufacturing plants of various local employers. The navigator hoped to include one specific local employer, but her contacts at the employer told her "that is just not going to happen" because of the plant's concerns about liability relative to visitors. Luckily, however, the navigator at FRCC had a contact at the same company, and through this other contact Aims was able to secure the plant's agreement for the site tour. In sum, the sharing of successes and challenges enabled the navigators to help one another, thereby extending the range of their activities and contacts, and the doors that were

opened to them. In turn, this active networking and support increased and improved the opportunities navigators could offer their students.

Navigators across the consortium also participated in other, more formal and structured activities that fostered collaboration. As previously mentioned, these included CCCS leadership convened regular navigator meetings—including trainings and professional development workshops.

In addition, while career couches under other TAA grants occasionally used Basecamp, CHAMP navigators used the platform regularly to communicate with one another. Communications on the site included: inviting fellow navigators to events, discussing upcoming state or regional events, sharing tools that they found useful in working with students, posting videos created for or by the navigators' home institution, and informing one another about scholarship opportunities they had identified.

EERC tracked 173 different navigator threads on Basecamp between October 2013 and December 2016. The analysis of Basecamp activity clearly indicates the significance of this medium for the navigators – and how it facilitated their open sharing of helpful techniques, practices, and tools, and how it enabled them to reach out and encourage one another through challenges and to also celebrate each other's successes.

PART II: OUTCOMES ANALYSIS

Part I discussed the diverse functions of the navigator across the CHAMP consortium colleges. We also described their location within their respective colleges and their interactions with one another. We now turn to an examination of the demographic and other characteristics of the CHAMP students who interacted with the navigators; the frequency of navigator-student interactions; and the identified reason for these interactions. We then move on to analyze any differences between students served by a navigator and their academic outcomes including credential completion and the stacking of credentials and; finally, their employment and post CHAMP wages.

Research Questions

EERC began its analysis of the role and impact of CHAMP navigators with five research questions.

> *Question 1*: Who were the students who contacted their colleges' CHAMP navigators? How did they compare to students who did not contact their navigator in terms of their age, gender, ethnicity/race, economic background (measured as Pell financial aid eligibility), military background, and work experience?
> Question 2: What was the frequency of students' contact with their CHAMP navigators?
> Question 3: What was the means by which students interacted with their navigators?

Question 4: Did students served by navigators complete their certificates and/or degrees at higher rates than those who were not served by navigators?
Question 5: Did students served by navigators have higher rates of employment and higher wages subsequent to earning a credential than those who had not been served by navigators?

Methods

Eight of the nine CHAMP colleges[27] are included in this section of the study: Aims, CCD, FRCC, LCC, PCC, PPCC, RRCC, and MSU.[28] With the exception of MSU, which is a 4-year university offering bachelor's degrees, the schools are community colleges conferring long-term and short-term certificates as well as associate degrees.

Data was obtained from the college's/university's administrative data sets (referred to as *Banner*). Data was also collected from EERC's online activity tracking logs on which navigators were required to record information related to their interactions with students. The tracking logs asked for a student's name, demographic characteristics (e.g., age, race, gender), the date of contact, the reason for contact, and how the student had heard about the CHAMP program. In addition, navigators were asked to record students' targeted degree/credential, as well as their employment status, internship status, military background, and Pell grant eligibility. In the case of missing data on the online tracking form, EERC attempted to retrieve the data from Banner, which contains student data recorded at the time of a student's registration. Student graduation outcomes were also retrieved from Banner.

Our population of interest includes all CHAMP students enrolled between spring 2014 and spring 2016 at the eight CHAMP schools included in the analysis. We identified a total of 3,346 students as CHAMP enrollees during this period. The navigator activity tracking logs included data on 1,759 unique students who had interacted with a CHAMP navigator during the study period. However, because some records contained incomplete, incorrect, or missing information, we were only able to identify 1,215 of these students as being enrolled in a CHAMP program. We therefore excluded 544 students who could not be linked to a CHAMP school administrator data set. These 544 students are not included in our analysis of student demographics. However, these students have been included in our analysis of navigator activities, including the number of students served.

In the sections to follow, for each research question, we report our findings at both the CHAMP consortium level and at the individual college level.

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[27] The navigator at EGTC did not complete the tracking logs as required under the grant. As a result, we did not have information about the mode and frequency of student contacts at that school, nor information about the students with whom the EGTC navigator interacted. Due to the volume of missing data, we have omitted EGTC from the current analysis.

[28] We are not including EGTC which was a technical school, not a community college.

Study Limitations

Our analyses of navigator activities are based on the activity tracking logs that were completed by the CHAMP navigators at each school. Data quality varied from one school to another. Some schools kept detailed information on students' demographic characteristics along with their reason for contact, contact dates, and methods of contact. Other schools' data lacked any number of details. Missing data was commonly related to students' academic goals, work experiences, and reason for contacting the navigator. We were able to cross-verify some of the missing information—including goal of study, demographic characteristics, military background, and economic hardship—using school administrative data, which track these pieces of information upon students' registration each semester. However, we were unable to triangulate details about students' work experience from any other datasets available to us. Further, our review of the patterns of missing data suggests that some program navigators failed to record every contact with students. The current analysis, therefore, provides a conservative picture of the number of students actually served and may provide an incomplete picture of the intensity and range of focus of the interactions between CHAMP navigators and students.

It is important to note that, given missing and incomplete data, the information presented in the following tables and figures is affected by the base population of CHAMP students on each campus and the subset of these students who were both served by the navigators and for whom we have specific data.

The number of unique CHAMP students served by the navigators varied widely across the colleges, from a low of 21 students at Aims to a high of 344 at MSU. Readers are therefore cautioned about interpreting some of the consortium-level results, since one or two college's experiences may distort general patterns. Further, time censoring occurred with respect to data collection about students' completing one or more credentials[29].

Finally, this report focuses only on students who contacted CHAMP navigators during a specific timeframe, their characteristics, and the frequency and focus of their interactions with those navigators. However, given the differences in navigator functions and types of CHAMP programs across the consortium colleges, plus the wide variety of program and institutional factors at play, we cannot assess the specific impact of navigators on student outcomes. Future work is needed to investigate the associations between navigator-student interactions and students' academic and employment outcomes.

[29] Unlike students enrolled in CHAMP early, students enrolled in CHAMP in 2016 may not have completed their studies because we do not follow them up in 2017.

Demographics

CHAMP Students Served by Program Navigators

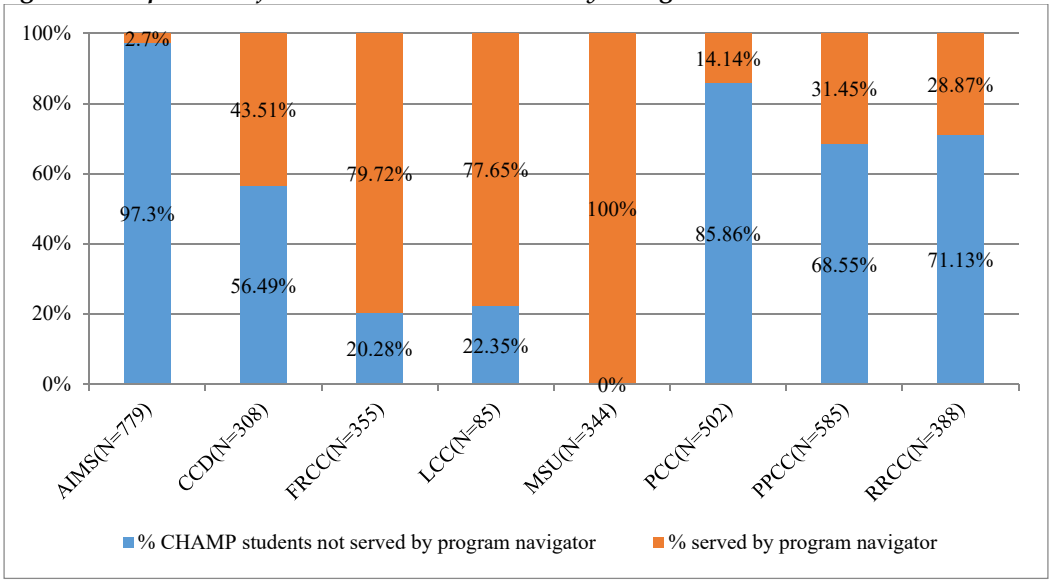
From the start of CHAMP in fall 2013 to spring 2016, 3,346 unique students were enrolled in one or more CHAMP programs across the eight study colleges. Thirty-six percent of these CHAMP students (n=1,215) had at least one verified contact with a program navigator. Several factors account for the variance in the number and proportion of CHAMP students served by navigators across CHAMP institutions. First, the size of the CHAMP program at each participating school was different. While some schools only offered one CHAMP program, others offered several different credentials and programs that were in high demand in Colorado—such as PCC, which offered both machining and welding. Second, across the colleges, policies and requirements varied with regard to whether and how often CHAMP students were required to meet with their navigator. Third, the primary focus of the navigator—whether on student–navigator advising, recruitment, and/or employer relations—varied according to the needs of the college. Finally, some colleges delayed the employment of a navigator; had a part time navigator for parts of the grant period; and/or experienced the departure of navigators and the need to recruit a new one. All these situations affected the availability of a navigator at some point(s) during the study period.

Figure 1 presents the proportion of CHAMP students from each college who interacted with their college's navigator during the observation period. All of MSU's CHAMP students were served by navigators, as were over three quarters of those at FRCC (80 percent) and LCC (78 percent). About 44 percent of CHAMP students at CCD were served by a navigator, followed by about one third of students at both PPCC (31 percent) and RRCC (29 percent). PCC reported that only about 14 percent of its CHAMP students had contact with a navigator. Finally, of all the colleges, Aims had the lowest rate of student–navigator contact—just under 3 percent of students contacted the Aims' navigator. Again, it needs to be noted that navigator functions varied considerably by college,[30] and that navigators were not always available at all times at each consortium school; in fact, there were long stretches of time during which Aims had no navigator.[31] Looking at this distribution, it seems clear that these factors affected student–navigator contact rates at the college level.

[30] The navigator at Aims was more involved in marketing and recruitment than in student advisement,

[31] See Part I. Some colleges, such as Aims, had long periods without a navigator, which may have contributed to the low rate of student–navigator contact.

Figure 1. Proportion of CHAMP students served by navigators at each consortium school



Besides the variation in the distribution of students served at the CHAMP institutions, we also examine, both at the consortium and college level, the extent by which students served by navigators varied according to a set of demographic characteristics—gender, race/ethnicity, and age—and life experiences—work history (TAA status), financial hardship (PELL eligibility), and military background.

Gender

The CHAMP population consisted of a much higher proportion of male students than female students (85 percent male vs. 15 percent female).

Figure 2. Gender of the CHAMP student population and the navigator-served population

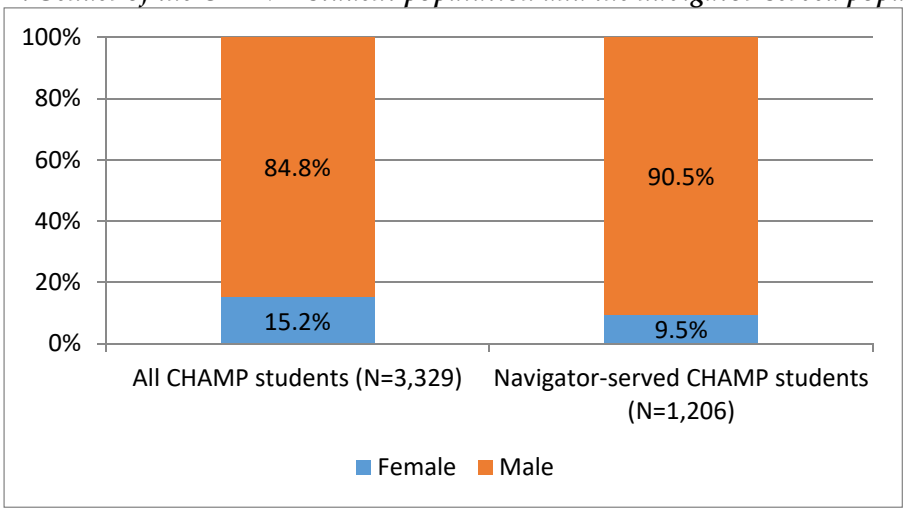


Figure 2 shows a slightly higher proportion of male students among the population served by the navigator than among the CHAMP population in general (91 percent vs. 85 percent). This reveals that male students were more likely than their female counterparts to seek the counsel of a navigator. Figure 3 gives us a more detailed look at this finding.

Figure 3. Navigator-served CHAMP students as a percentage of all CHAMP students by gender

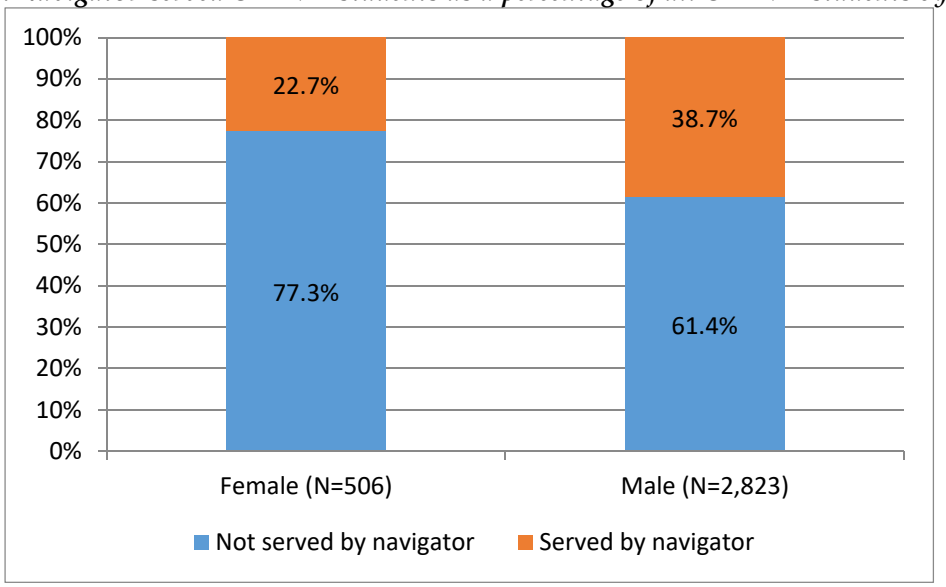


Figure 3, which breaks down the CHAMP population by gender, shows that only around 23 percent—less than one quarter—of female CHAMP students were served by their CHAMP navigator. This is a full 15 percentage points fewer than their male counterparts, who met with their navigators at a rate of 39 percent. This gender disparity in navigator-student interaction is worthy of further investigation, especially given the significant gender disparity of the field as a whole.

At the college level, when we examine CHAMP students' contact with their navigators by gender, we find considerable variation across the institutions. The results of this analysis are presented in Table 3. At MSU, where all students were required to meet at least once with the navigator, female and male students were served at the same rate - 100 percent. Otherwise, the findings at most schools were consistent with the consortium-level analysis. A larger proportion of male CHAMP students were served by navigators than were female CHAMP students. For example, at CCD and FRCC, male students were served by navigators at a rate that was 7 and 8 percentage points higher than the rate female CHAMP students who were served. A greater disparity—15 percentage points—was observed at PPCC. And even a greater disparity was found at LCC, where 80 percent of male CHAMP students, but only 57 percent of female CHAMP students were served by a navigator—a difference of 23 percentage points.

This relationship was reversed at only two schools, and in both cases, the differences were relatively small. At PCC, the difference between female and male CHAMP students served was 3 percentage points (17 percent vs. 14 percent), with proportionally more female students seeing

a navigator than males. At RRCC, the difference was slightly larger at 6 percentage points: 34 percent of female CHAMP students were served by a navigator compared to 28 percent of male students.

Table 3. CHAMP Students Served by the Navigator by Gender and School

CHAMP school	Male			Female		
	Total (N)	Navigator Served (n)	% Navigator Served	Total (N)	Navigator Served (n)	% Navigator Served
AIMS	526	17	3.2	246	4	1.6
CCD	271	120	44.3	37	14	37.8
FRCC	312	250	80.1	36	26	72.2
LCC	77	61	79.2	7	4	57.1
MSU	312	312	100.0	32	32	100.0
PCC	459	64	13.9	42	7	16.7
PPCC	534	174	32.6	50	9	18.0
RRCC	332	93	28.0	56	19	33.9
Total	2823	1091	38.6	506	115	22.7

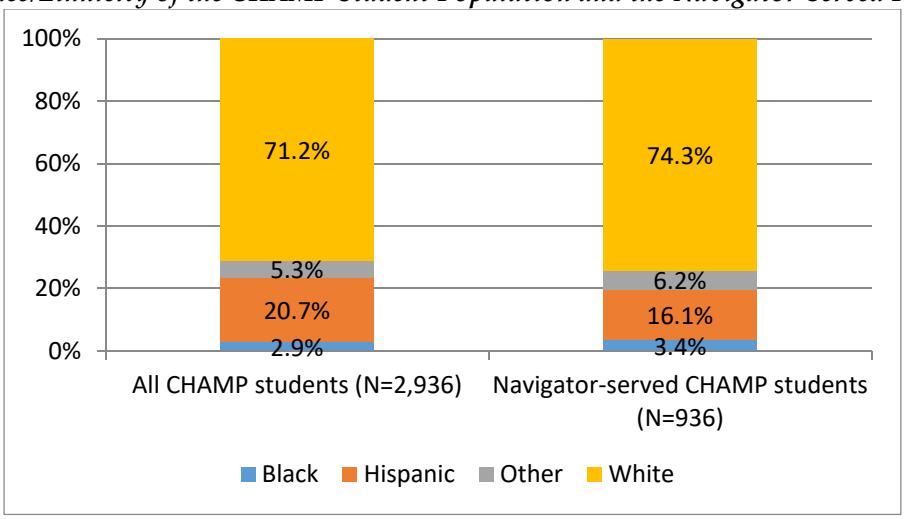
Race / Ethnicity[32]

Although our full sample contains 3,346 CHAMP students, we were only able to obtain information about race/ethnicity for 2,936 students. As a consequence, only 2,936 students are included in the following analysis. Two factors account for the missing data: CHAMP students did not always indicate their racial/ethnic background at registration, and navigators did not always report it on their tracking forms. It should also be noted that when navigators did record race/ethnicity data, it is not clear whether that information was self-reported by the student or "assumed by observation" by the navigator.

Figure 4 shows that the majority of CHAMP students in our sample were white (71 percent). Hispanics comprised the next-largest racial/ethnic group (21 percent), followed by students of other race/ethnicity (5 percent), and black students (3 percent).

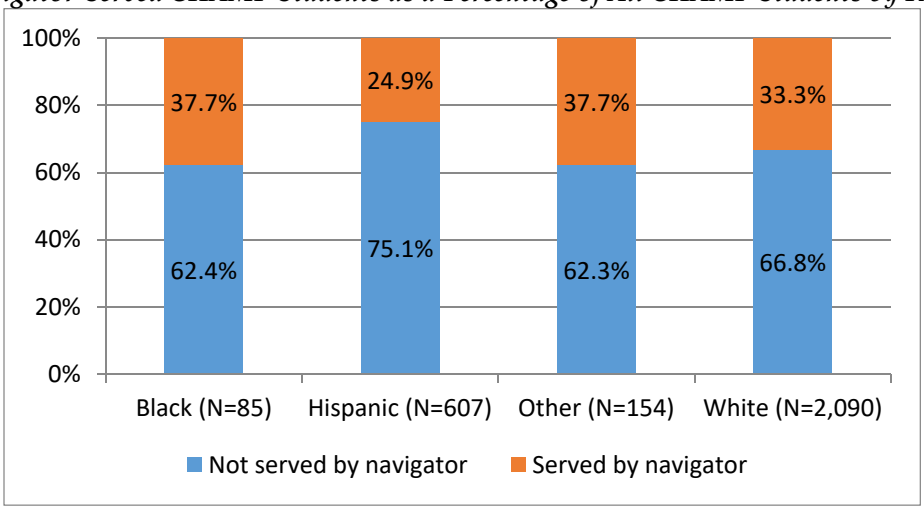
[32] The Census and some CHAMP colleges use Black Non-Hispanic, White Non-Hispanic, and Hispanic as race/ethnicity categories in their data files. However, some colleges only use the categories Black, White, and Hispanic. EERC has used White, Black, Hispanic, Other. The number of students of Hispanic origin thus might be underreported in our data.

Figure 4. Race/Ethnicity of the CHAMP Student Population and the Navigator-Served Population[33]



About 32 percent (n=936)[34] of the 2,936 students[35] for whom we were able to obtain race/ethnicity data had contact with CHAMP navigators. Compared with the racial distribution of the observed set of CHAMP students, slightly higher proportions of white, black, and students of other racial/ethnic backgrounds had contact with navigators. However, the differences were small, all falling within the range of 1 to 3 percentage points (Figure 4). Conversely, Hispanic students were underrepresented in the population of students served by navigators. Whereas Hispanic students made up about 21 percent of the overall CHAMP population, they made up only about 16 percent of those served by CHAMP navigators.

Figure 5. Navigator-Served CHAMP Students as a Percentage of All CHAMP Students by Race/Ethnicity



[33] Race/ethnicity information for the 2,936 CHAMP students was from CHAMP student registration records from the nine participating college and university. The distribution of race/ethnicity for the navigator-served population was calculated by merging navigator log data and CHAMP student registration data.

[34] Out of the 1,215 students who had contact with the navigator, we only have race/ethnicity data for 936.

[35] Out of the 3,346 CHAMP students in our sample, we only have race/ethnicity data for 2,936 students.

When we break down the population of CHAMP students by race (Figure 5), we observe that only about 25 percent of Hispanic CHAMP students interacted with a program navigator, making them the least likely racial/ethnic group to do so. Black students and those with "other" racial/ethnic backgrounds were the most likely to meet with a navigator—about 38 percent of these students did so. About 33 percent of white students interacted with a navigator.
We next examined interactions with CHAMP navigators at each college to look at variations in the racial/ethnic background of students served at each school. These results are shown on Table 4.

As noted previously, all CHAMP students at MSU had contact with navigator, so there was no difference in percent contact across categories of race/ethnicity.

At FRCC, across racial/ethnic backgrounds, the majority of CHAMP students had some contact with the college's program navigator—rates of contact ranged from 74 to 100 percent. As was the case at many schools, however, the number of both nonwhite and non-Hispanic students was relatively small: for example, while 100 percent of black CHAMP students at FRCC interacted with the navigator, that number reflects interactions with only two students.

LCC also had high rates of student–navigator contact across all categories of race/ethnicity. The exception is the interaction rate among students in the "other" category, which shows a relatively low 25 percent. This rate is likely a reflection of the very small number of observations in that category (n=4), however. Looking across the remaining groups, 80 percent of white students (n=47), 78 percent of Hispanic students (n=14), and 100 percent of black students (n=2) met with the CHAMP navigator. Once again, the rates among Hispanic and black students were likely affected in part by the small numbers of students in those racial/ethnic groups.

Thirteen of the 18 black students (72 percent) enrolled in CHAMP at CCD met with a navigator, as did almost half (47 percent) of the college's white CHAMP students. Just under 37 percent of Hispanic CHAMP students and 35 percent of students in other racial/ethnic groups were served by the navigator.

At PPCC, 20 percent of black students interacted with the CHAMP navigator, along with about 27 percent of Hispanic students and students in the "other" racial/ethnic group. About a third of white students contacted the PPCC navigator, making them the most likely to do so.

About thirty percent of white, Hispanic, and students in "other" racial/ethnic groups had contact with a navigator at RRCC. The single black student enrolled in CHAMP, however, did not have any recorded contact.

As noted above, the proportion of CHAMP students served by the Aims' navigators was small. The rate was especially low for white students: Only 2 percent (n=8) of the 496 white students enrolled in CHAMP were served by a navigator. Among the 14 black students, the rate was higher at 14 percent (n=2), but both rates are affected by the small number of students. Finally,

of AIMS's large Hispanic CHAMP student population (n=239) students, only 4 percent contacted program navigators.

The proportion of CHAMP students at PCC who had some contact with the navigator was also low. Only 12 percent of PCC's 291 white CHAMP students (n=34) were served by navigators, though a slightly higher proportion—around 20 percent—of the black (n=3) and Hispanic (n=27) CHAMP populations at the school contacted a navigator.

In sum, the proportion of students served by racial/ethnicity background varied across the CHAMP colleges. However, given the disproportional sizes of the different groups affecting rates at both the consortium and college levels, we are not able to discern any patterns of note.

Table 4. CHAMP Students Served by a Navigator by Race/Ethnicity and School

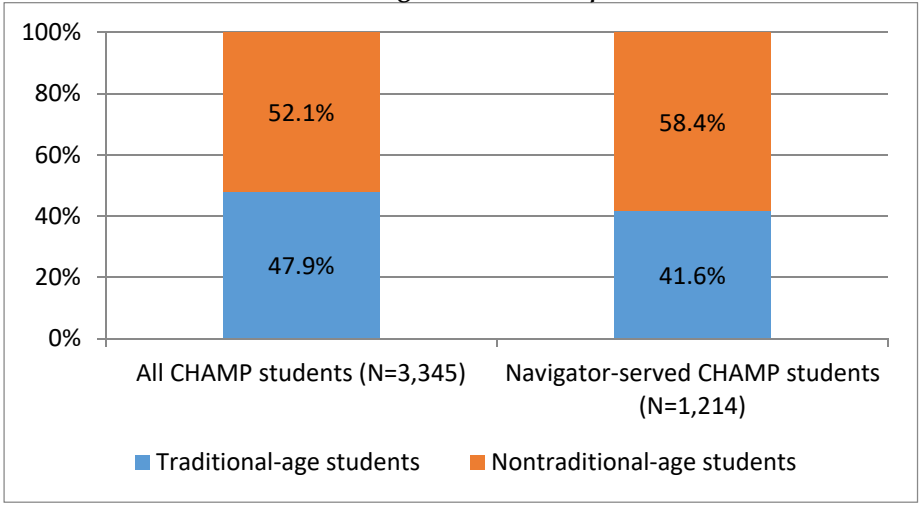
CHAMP School	Black			Hispanic			Other[36]			White		
	CHAMP enrollees (N)	Served by navigator (n)	% Served by navigator	CHAMP enrollees (N)	Served by navigator (n)	% Served by navigator	CHAMP enrollees (N)	Served by navigator (n)	% Served by navigator	CHAMP enrollees (N)	Served by navigator (n)	% Served by navigator
AIMS	14	2	14.3	239	10	4.2	12	1	8.3	496	8	1.6
CCD	18	13	72.2	41	15	36.6	17	6	35.3	196	93	47.4
FRCC	2	2	100.0	32	28	87.5	27	20	74.1	250	200	80.0
LCC	2	2	100.0	18	14	77.8	4	1	25.0	59	47	79.7
MSU	4	4	100.0	24	24	100.0	13	13	100.0	91	91	100.0
PCC	14	3	21.4	137	27	19.7	31	2	6.5	291	34	11.7
PPCC	30	6	20.0	63	17	27.0	29	8	27.6	421	137	32.5
RRCC	1	0	0.0	53	16	30.2	21	7	33.3	286	85	29.7
Total	85	32	37.6	607	151	24.9	154	58	37.7	2090	695	33.3

[36] Other includes American Indian/Alaska Native, Asian, and any other category included in CCCS Banner data sets.

Age

Many CHAMP students had previously been in the labor force or in the military, and were now returning to college to earn CTE certificates, associate degrees, and/or bachelor's degrees. Many of these nontraditional-age students wanted to enhance their skills or change their career paths. Given their life experience, it was not surprising to find that older students were more likely than their younger counterparts to seek the services of a navigator. As Figure 6 shows, 58 percent of nontraditional-age CHAMP students contacted a navigator versus only 42 percent of traditional-age students.

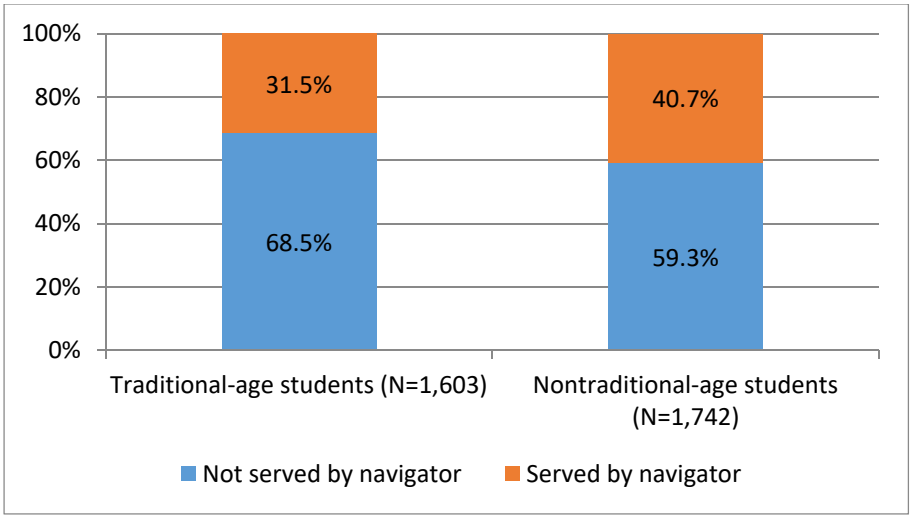
Figure 6. Proportion of Nontraditional Students (Age 25 Or Older) in the CHAMP Student Population and in the Navigator-Served Population[37]



Whereas Figure 6 revealed that nontraditional-age students were more likely than traditional-age students to be served by a navigator, Figure 7 reveals the size of that disparity. Nontraditional-age CHAMP students were served by navigators at a rate of 41 percent, which is 9 percentage points higher than that of traditional-age CHAMP students (32 percent).

[37] One student's age data was missing, thus N=3,345.

Figure 7. Navigator-Served CHAMP Students as a Percentage of all CHAMP Students by Age Group (Traditional Vs. Nontraditional)



The college-level distributions of traditional- and nontraditional-age students, shown on Table 5, varied. Colleges that offered certificates (e.g., FRCC and PPCC) tended to have more nontraditional-age students than did those that offered associate and bachelor's degree programs.

Given the comparisons described in Figures 6 and 7, some interesting findings emerge at the college level. We find that at several consortium colleges, the proportions of traditional-age and nontraditional-age students served by navigators were similarly distributed. At three of the eight schools—AIMS, LCC, and PPCC—the two populations differed by 2 percentage points or less. Moreover, the one-percentage-point difference at LCC was tipped in favor of traditional-aged students contacting navigators more often than nontraditional-age students.

The differences observed in Figures 6 and 7 can be attributed to only three schools: CCD, PCC, and RRCC. At CCD, 20 percent more nontraditional-age CHAMP students than traditional students had contact with navigators (52 percent vs. 32 percent). At RRCC the rate of nontraditional students served was more than double that of traditional-age students (50 percent vs. 20 percent), and nontraditional students at PCC were served three times more often than younger students (21 percent vs. 7 percent).

Table 5. Proportion of CHAMP Students Served by a Navigator by Age Group (Traditional Vs. Nontraditional) and School

CHAMP School	Traditional-Age Students			Nontraditional-Age Students		
	Total (N)	Served by navigator (n)	% Served by navigator	Total (N)	Served by navigator (n)	% Served by navigator
AIMS	400	9	2.3	379	12	3.2
CCD	134	43	32.1	174	91	52.3
FRCC	93	82	88.2	261	200	76.6
LCC	68	53	77.9	17	13	76.5
MSU	182	182	100.0	162	162	100.0
PCC	238	17	7.1	264	54	20.5
PPCC	217	65	30.0	368	119	32.3
RRCC	271	54	19.9	117	58	49.6
Total	1603	505	31.5	1742	709	40.7

TAA Status

TAA status refers to a federal program serving workers who have been laid off or will be laid off due to foreign trade or the off-shoring of jobs. Once a group of workers has been designated "TAA eligible," members of that group can apply for TAA services and benefits—which include a number of funded educational and retraining opportunities—through their state's Workforce Centers(WFCs).[38] In our analysis, we use the term "TAA-like" to describe individuals who are unemployed or low income and who are seeking to further their education or retrain. The TAA-like status was provided in the data sets the navigators filled out.

Navigators were asked to indicate if any of the students they served had TAA status or were TAA-like. Navigators, however, were not consistent in recording this information in the log. As a result, we cannot compare the rates of TAA eligibility among CHAMP students served by navigators against that of the entire population of CHAMP students. We can only state that of the 1,759 students who had contact with a navigator, 19 were identified as being TAA-eligible, and 445 students were identified as being TAA-like.

Financial Aid Eligibility

We used PELL eligibility as the surrogate/proxy indicator of financial hardship. Figure 8 shows that PELL-eligible students made up 36 percent of all CHAMP students, but only about 28 percent of those served by a navigator.

[38] See https://www.doleta.gov/tradeact/factsheet.cfm.

Figure 8. PELL Eligibility of the CHAMP Student Population and the Navigator-Served Population[39]

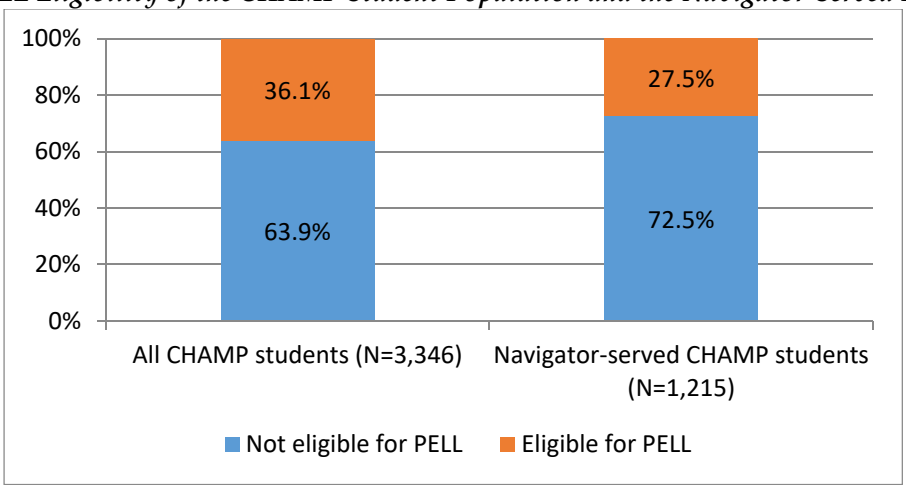
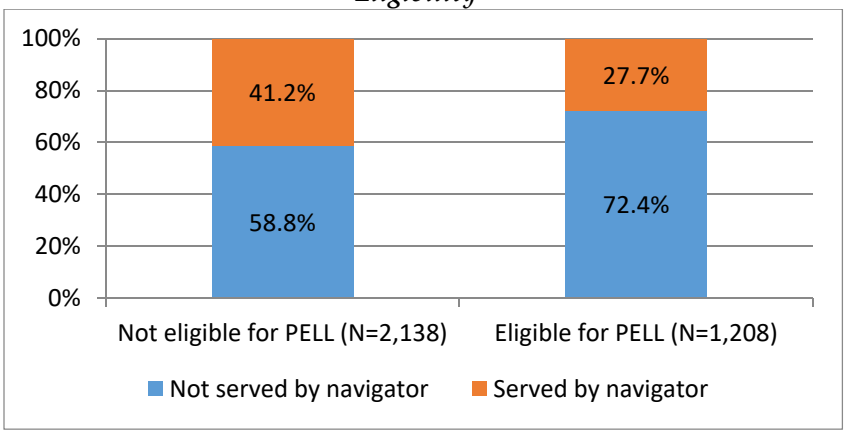


Figure 9 supports this finding. When we break down the CHAMP population by PELL eligibility, we see that a lower percentage of students who were eligible for PELL grants (28 percent) had contact with a navigator than did students who were not eligible for PELL grants (41 percent). This finding implies that students facing financial hardship may be less likely than those who are not struggling financially to reach out for assistance in their programs. This counter-intuitive finding is concerning and suggest the need for more outreach to students who have financial need.

Figure 9. Navigator-Served CHAMP Students as a Percentage of All CHAMP Students by PELL Eligibility[40]



In Table 6 we compare the rates by which navigators served students with and without PELL eligibility at each consortium college. For the consortium as a whole, the rate of navigator contact for students who were PELL-eligible and those who were not, was similar, 28 percent

[39] Only includes the 1,215 out of 1,758 CHAMP students served for whom we have PELL-eligibility data.

[40] Only includes the 2,138 CHAMP students for whom we had PELL-eligibility data and the 1,208 students served for whom PELL eligibility data was recorded. Further, MSU CHAMP data is not included in this analysis.

for PELL eligible and 30 percent for PELL-ineligible. However, at a college level FRCC, CCD, PCC, and RRCC, PELL-eligible students were more likely than their non-eligible counterparts to contact a navigator. The greatest difference was observed at RRCC, where 49 percent of PELL-eligible students had contact with the navigator versus only 25 percent of the ineligible students at the school—a difference of 24 percentage points. Only at PPCC were these roles reversed; there, slightly more PELL-ineligible students (33%) than PELL-eligible students (30%) were served by a navigator. Again, it is important to note that differences in school population sizes affect these rates, as does each navigator's uniquely defined role at the college. Further, colleges varied in the range of support resources available to their CHAMP students.

Table 6. Proportion of Champ Students Served by a Navigator by Pell Grant Eligibility and School

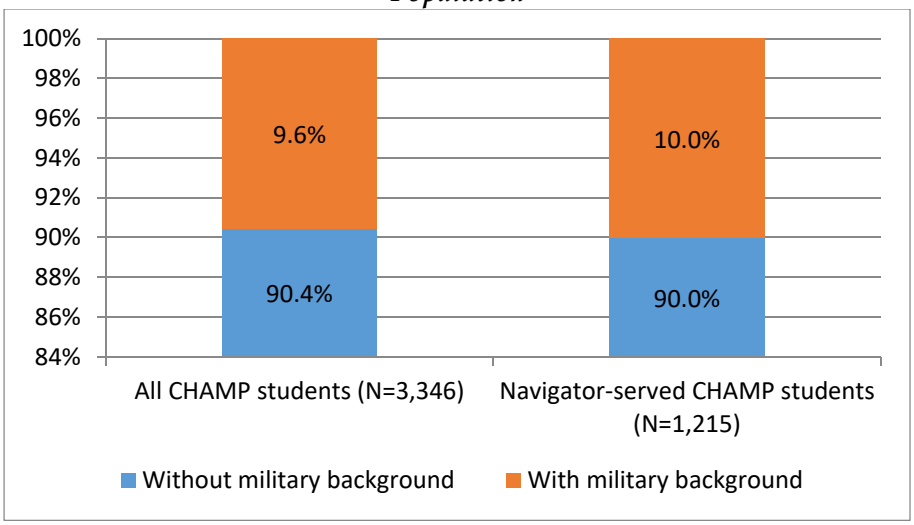
CHAMP School	PELL-eligible students			PELL-ineligible students		
	Total (N)	Served by navigator (n)	% Served by navigator	Total (N)	Served by navigator (n)	% Served by navigator
AIMS	319	11	3.4	460	10	2.2
CCD	143	77	53.8	165	57	34.5
FRCC	37	33	89.2	318	250	78.6
LCC	59	47	79.7	26	19	73.1
PCC	316	54	17.1	186	17	9.1
PPCC	275	83	30.2	310	101	32.6
RRCC	59	29	49.2	329	83	25.2
Total	1208	334	27.6	1794	537	29.9

Military Background

Just under 10 percent of CHAMP students had a military background. That proportion was slightly higher among students served by navigators, but the difference was less than a single percentage point. [41]

[41] Note, many of the colleges have programs specific for vets and thus students' military background may have been served by these programs, and not by the navigator.

Figure 10. Military Service Background of the CHAMP Student Population and the Navigator-Served Population



Across the CHAMP consortium, over a third of students with a history of military service were seen by a navigator (38 percent). This rate was comparable to the rate of nonmilitary who had contact with a navigator (36 percent), as shown in Figure 11.

Figure 11.Navigator-Served Champ Students as a Percentage of All Champ Students by Military Service Background

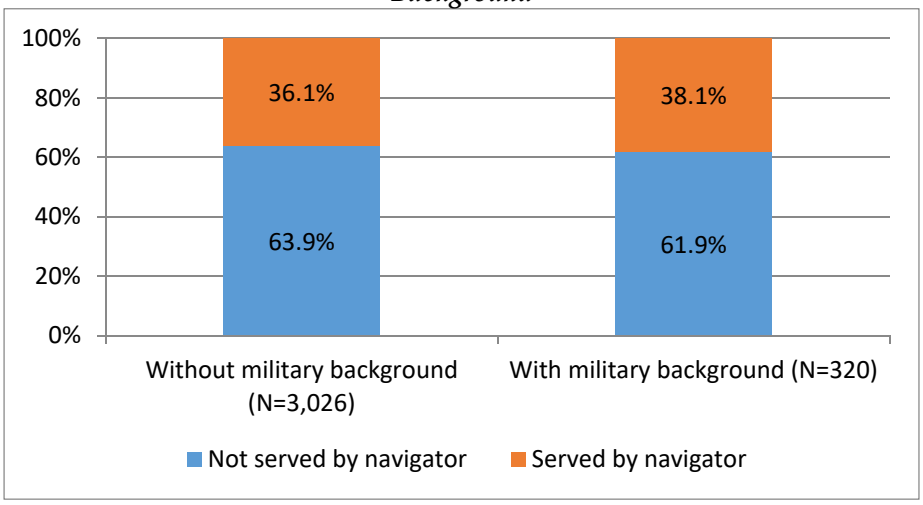
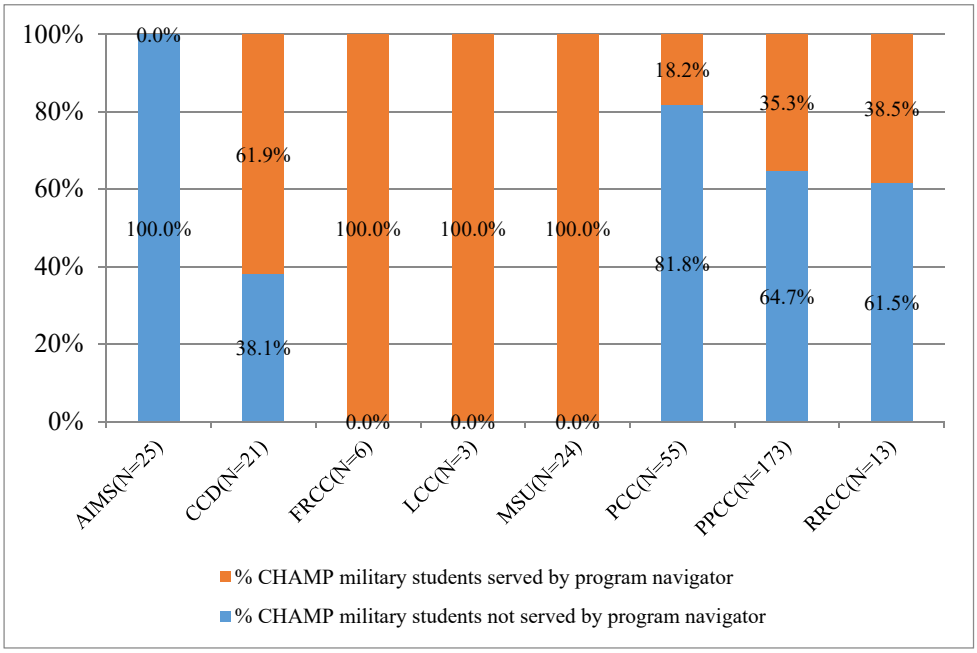


Figure 12 shows that military students at FRCC, LCC, and MSU, though small in number, were all served by program navigators. None of the 25 military students at Aims had contact with their program navigators; this is in keeping with the low number of CHAMP students at Aims who had any navigator contact.

At CCD, 62 percent of the 21 military students were served by navigators, and over a third of the 13 military students at RRCC had contact with navigators. Though our data indicate that only 35 percent of the military students met with the navigator at PPCC, it is likely

that this number underreports the number of military students served at the school. By the middle of the CHAMP grant, PPCC had hired a military liaison who worked with CHAMP students, so it is likely that more students with a military background met with a CHAMP-funded person than is indicated here.

Figure 12. Proportion of CHAMP Students Contacting Navigator by Military Service Background and School



Navigator Activities

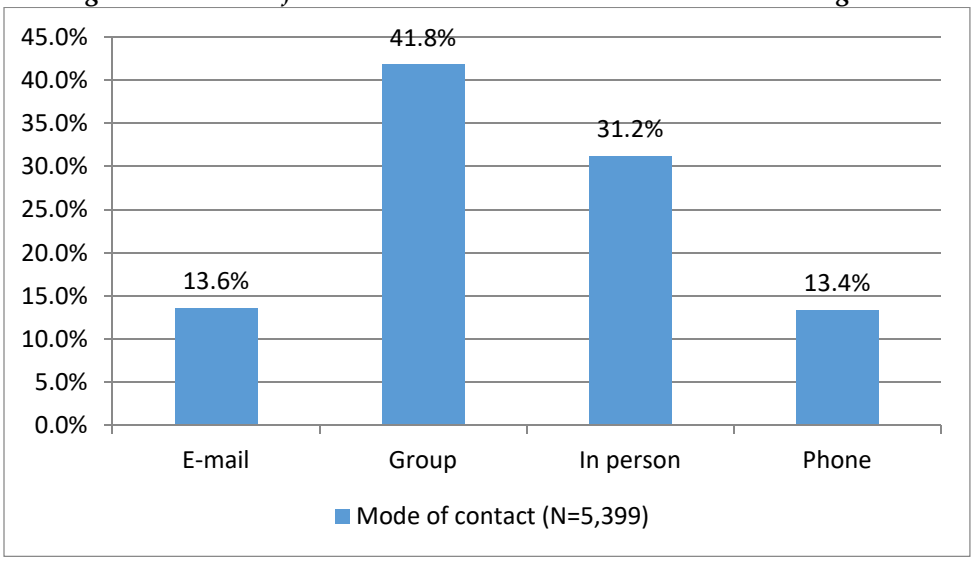
As discussed in Part I, one of the defined functions of the navigators was to work directly with CHAMP students, providing academic and career advising and preparing them for job searches and interviews. The degree to which advising was a primary function of the navigators varied by college as did the CHAMP program's policy about mandating student–navigator interactions. Other school-specific factors also influenced the data reported in this section, including the availability of navigators; the role of faculty as advisers; the CHAMP programs offered by the school; the related credentials offered (certificates, associate degrees, or bachelor's degrees), and the duration of those programs; and finally, the regional job market for CHAMP-related fields. While some of these factors were discussed in Part I, the navigator tracking log and other available data sets did not track this contextual information. It was, therefore, not possible to analyze their influence quantitatively. Still, all these factors must be kept in mind with respect to the analyses that follow.

The data for this section comes directly from the activity tracking logs that the navigators were asked to keep. We report here on the mode and frequency of contacts, and the reason for recorded interactions between CHAMP students and navigators.

Mode of Contact

For the study period, navigators' activity tracking logs documented 5,399 contacts with CHAMP students.[42] This number is greater than the number of unique students served by navigators, as it takes into account multiple contacts with individual students.
CHAMP students and navigators communicated through four main channels —e-mail, phone calls, group-lessons, and "in-person"[43] generally one to one navigator/student visits. Figure 18 indicates that the majority of interactions between CHAMP students and program navigators were made through group sessions[44]; these accounted for 42 percent of all student–navigator contacts. In-person one to one interactions were also common, accounting for over 31 percent of contacts. Across all eight CHAMP schools included in the analysis, e-mail and telephone contacts each accounted for about 13 percent of student–navigator interactions.

Figure 13. Modes of Contact Between CHAMP Students and Navigators



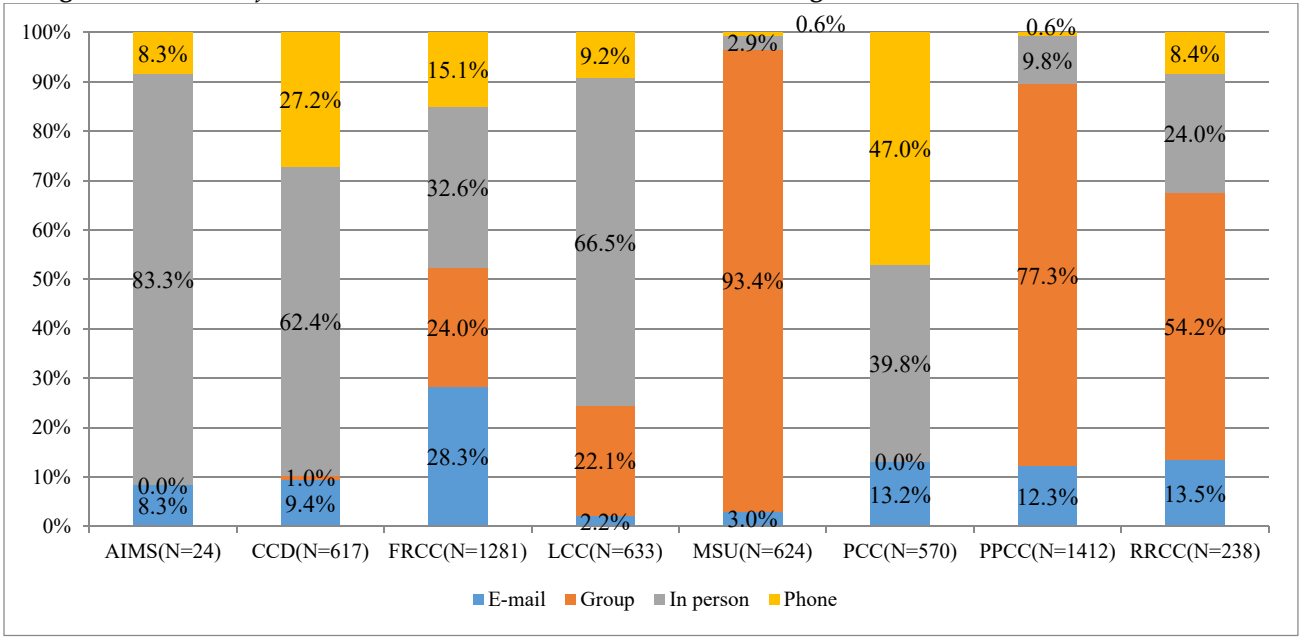
Though group lessons were the most frequently used mode of contact at the consortium level, differences emerge when we examine modes of contact at the individual college level; this analysis is shown in Figure 14. As expected, most student—navigator contacts at MSU (93 percent), PPCC (77 percent), and RRCC (65 percent)) were group sessions. (At these three colleges, group sessions mostly focused on soft skills and job preparation.) In-person visits were the most commonly used mode of interaction at Aims (83 percent), CCD (63 percent), and LCC

[42] Records that lacked a date of interaction were eliminated from the analyses of the intensity and frequency of contact later in this section.
[43] Navigator logs separated group sessions from other modes of face to face contact using "in-person" to denote sessions in which the navigator met individually with a student.
[44] We should be careful when interpreting the frequency of group interactions, as it is unclear how individual navigators interpreted this category when entering data into the log; some may have entered the number of students participating in the group interactions, while others may have entered the number of defined group sessions.

(66 percent). This is somewhat consistent with the consortium-level results, which showed that mode of contact to be relatively popular among CHAMP students as well.

Interestingly, however, the navigator at PCC logged no group interactions at all; the vast majority of contacts at that college were made by phone. Another anomaly appears at FRCC, where e-mail contacts account for 28 percent of student–navigator interactions. This makes e-mail contact (more common at FRCC than group interactions (24 percent), second only to in-person contact in frequency (33 percent).

Figure 14. Modes of Contact Between CHAMP Students and Navigators at Each Consortium School



In general, we found that e-mail and phone use varied widely at the college level. At the consortium level, we observed that each accounted for about 13 percent of student–navigator interactions. By college we found e-mail use varied from as low as 3 percent at MSU to the 28 percent previously discussed at FRCC. Similarly, phone contacts at the college level ranged from no use at all at MSU to being used for nearly half of all communications at PCC.

Frequency of Contact

Between spring 2014 and spring 2016, CHAMP navigators documented 5,352[45] contacts with students in their online activity tracking logs. The number of contacts made at each consortium college varied widely based on several factors. First, navigators' hiring dates and tenures of employment differed by college (see Part I). Second, CHAMP programs were launched at different time points during the study period. Third, programs varied in the number of students

[45] We only focus on the contacts that have dates available. The 437 contacts that did not indicate date of contact were excluded from this part of analysis.

enrolled at each college. Fourth, the length of the programs varied such that some students were only enrolled for one or two semesters. And fifth, as discussed, the navigator role varied across the colleges such that some were primarily focused on student advisement—and thus were more available to engage with students—while others were more focused on recruitment and marketing or on employer relations.

We broke down the 5,352 contacts to identify the number of unique students represented therein, and then we examined the frequency of recorded contacts with a navigator for each of these students. During the study period, 1,740 unique CHAMP students had at least one contact with their college's navigator.[46] We found that some students had a single recorded contact and a number had more than 30 contacts over two years. The number of times students interacted with their school's CHAMP navigator reflected, to some extent, that navigator's function and campus presence.

Table 7 presents the number of unique students at each school who interacted with a CHAMP navigator alongside a breakdown of how often navigators met with individual students. We see that CHAMP students at Aims contacted their navigator only once, as did the majority of students at CCD (67 percent), MSU (78 percent), and RRCC (66 percent). To some extent this parallels for MSU and RRC the significant use of group contacts.

On the other end of the spectrum, most CHAMP students at LCC—49 out of 75, or over 65 percent—met with their navigator five or more times. Many students at FRCC (25 percent), PCC (42 percent), and PPCC (36 percent) also had more than five contacts with program navigators.

Table 7. Number of Navigator Contacts Per CHAMP Student by School

CHAMP School	Total Unique Students	Number of Contacts								
		1	%	2	%	3–4	%	5 or more	%	Median
AIMS	25	25	100.0	0	0.0	0	0.0	0	0.0	1
CCD	282	189	67.0	58	20.6	30	10.6	5	1.8	1
FRCC	380	125	32.9	91	23.9	68	17.9	96	25.3	2
LCC	75	12	16.0	7	9.3	7	9.3	49	65.3	7
MSU	476	369	77.5	83	17.4	21	4.4	3	0.6	1
PCC	124	29	23.4	18	14.5	25	20.2	52	41.9	3
PPCC	262	52	19.8	29	11.1	86	32.8	95	36.3	3
RRCC	116	77	66.4	14	12.1	10	8.6	15	12.9	1
Total	1740	878	50.5	300	17.2	247	14.2	315	18.1	1

[46] Some students who contacted the Navigator were not CHAMP students. They have been excluded.

Number of Contacts and Number of Students Served Each Month[47]

Given differences in the hiring dates for navigators and the start dates of the various CHAMP-funded programs, we were interested in tracking the number of contacts and number of unique students served in each month during the study period, spring 2014 to spring 2016. These data appear in Table 8.

We found that the number of contacts varied by month from a low of 20 to a high of 546 contacts, and the number of unique students served varied by month from a low of 18 and to a high of 392. The large range of number of contacts and number of unique students served in each month reflects to some extent the academic calendar and the availability of navigators.

At the beginning of the CHAMP grant spring 2014, as colleges were developing or enhancing their programs, few students were enrolled, and fewer still were served by a navigator. As the program developed, the number of students contacting navigators increased from a low of 18 in January 2014 to that year's high of 258 unique students in August. High numbers of unique contacts and frequency of contacts is seen in August and September 2015. These high numbers line up with the beginning of the fall term and no doubt reflect the waves of incoming students seeking information and guidance about CHAMP programs.

The large number of unique students and the peak in the frequency of contacts in March and April 2015 suggest that students also tend to seek the guidance of navigators as they prepare to graduate and look for jobs—in other words, when they need employment assistance or help with credentialing processes. However, these data are incomplete as not all colleges reported navigator activities for April and May 2016.[48]

Small numbers of unique students annually each December and from May through July reflect winter recess on most campuses, and lower rates of enrollment for summer programs.
See Appendix B for the complete set of college-level data showing the numbers of unique students served each month by CHAMP navigators. Again, the prior contextual caveats need to be taken into consideration when viewing the differences across the colleges.[49]

[47] The frequency of contacts in each month should be interpreted with caution as each school may have put their navigators in place at different points in time. As Appendix A–B shows, navigators at Aims started working with students in 2016, while their counterparts at FRCC and MSU started contacting students from the beginning of 2014. Navigators at CCD and LCC, on the other hand, started to serve students in Fall 2014.

[48] In some cases, this was because of staffing changes and the absence of any navigator.

[49] For example, some schools, such as FRCC and MSU, employed navigators early in the grant period, while other colleges experienced long delays in hiring navigators or had gaps between navigators.

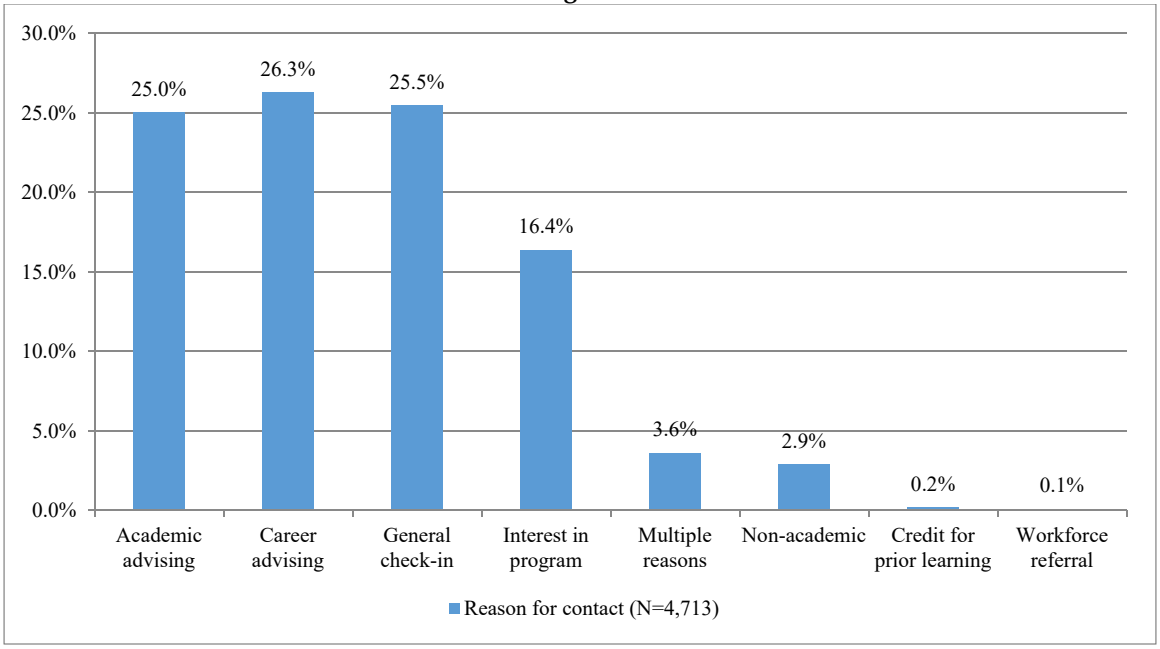
Table 8. Total Contacts Made and Number of Unique CHAMP Students Served by Navigators Each Month, January 2014–May 2016

Month	2014		2015		2016	
	# Contacts by month	# Unique students by month	# Contacts by month	# Unique students by month	# Contact by month	# Unique students by month
January	20	18	370	161	296	211
February	112	97	251	188	302	156
March	53	36	272	214	356	211
April	33	26	277	203	103	82
May	29	24	94	78	5	5
June	98	67	36	25	NA	NA
July	117	76	38	34	NA	NA
August	343	258	231	198	NA	NA
September	140	110	546	392	NA	NA
October	193	122	283	216	NA	NA
November	201	143	290	225	NA	NA
December	78	65	185	142	NA	NA
Total	1417	1042	2873	2076	1062	665

Reasons for Contact

Out of the total number of recorded student–navigator contacts (N=5,352), 88 percent (n=4,713) included the reason for the contact. Figure 15 identifies the reason(s) navigators listed for their interactions with a CHAMP student. According to navigators, each of the following three reasons accounted for around 25 percent of the interactions they had with students: career advising, academic advising, or general check-ins. Another 16 percent of student–navigator contacts had to do with students' inquiries about the CHAMP program. Very few of the navigators' students contacted them for workforce referrals, with questions regarding credit for prior learning, or with nonacademic concerns. The lack of contact on PLA was probably a result of delays in the implementation of the roll out of the redesigned PLA policies and procedures. Note, the percentages in Figure 15 reflect one or more contacts per student about the identified reason.

Figure 15. Student–Navigator Contacts Categorized by the Reason for the Contact, As Identified by Navigators[50]



In Table 9 we examine reasons for contact in terms of unique students rather than by frequency of contact. We found that most CHAMP students contacted their navigators for help with career advising. This category, which includes career mapping, job preparation, and employment searches, stimulated nearly one third of the students who contacted a navigator to take that action. Just over 24 percent of unique students contacted a navigator to learn about the CHAMP program. Academic advising accounted for another 21 percent of students seeking navigator guidance, and around 14 percent of navigator-served students contacted their navigator for the purpose of a general check-in. Only three students got in touch with a navigator with an inquiry about PLA, and another five made contact regarding a workforce referral. Combined, these students accounted for less than 1 percent of all navigator-served students.

[50] Navigators used a codebook for each of the categories. Complete descriptions of each category appear in Table 2 of this report.

Table 9. Unique Students Served by Navigators by the Reason for the Contact, As Identified by Navigator

Reason for contact	# of unique students	Percent
Academic advising	508	21.2
Career advising	753	31.5
General check-in	332	13.9
Interest in program	584	24.4
Multiple reasons	117	4.9
Nonacademic	90	3.8
Credit for prior learning	3	0.1
Workforce referral	5	0.2
TOTALS	2392	100

Next we examine the reasons students contacted a navigator at each individual school. (See Table 10.) Again, we see differences by college.

The majority of CHAMP student–navigator contacts at CCD, LCC, and PCC were related to academic issues. For example, at CCD, almost two thirds (65 percent) of student–navigator contents students were for the purposes of academic advising, as were over half of all contacts made by students at LCC (52 percent) and PCC (54 percent).

In contrast, the reason for nearly all of MSU students' contacts with their CHAMP navigator was for career advising—those meetings accounted for 95 percent of student–navigator interactions at the school. Two thirds of Aims students (67 percent) and the proportional majority of FRCC's students (44 percent) also consulted their navigators for career advising.

The majority of student–navigator contacts at PPCC and RRCC were identified as general check-ins (77 percent and 60 percent respectively). It is not clear from the logs what these entries referred to—they may have been informal contacts or brief interactions in which navigators met a student in a classroom or lab and asked how he or she was doing.

Students seeking information about the CHAMP programs at their schools accounted for about 20 percent of reported contacts at CCD, FRCC, PCC, and PPCC.

Of interest was that nonacademic issues—e.g., financial aid, housing, family needs, etc.—did not emerge as a common impetus for student–navigator interaction. This is quite different from the experience of career coaches under both COETC and (to a lesser extent) CHEO. There were also few contacts related to workforce referrals or for information on how to receive credit for prior learning experience. During CHAMP, PCC was very active with credit for prior

learning/prior learning assessment activities which may be why they were the only college which reported activity for this purpose.

Table 10. Reasons for Contacting Navigators, by School

CHAMP College	Interest in program		Academic advising		Credit for prior learning		Career advising		Nonacademic		Workforce referral		General check-in		Multiple reasons	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
AIMS (N = 24)			3	12.5			16	66.7	3	12.5			1	4.2	1	4.2
CCD (N = 467)	129	27.6	302	64.7					4	0.9			1	0.2	31	6.6
FRCC (N = 952)	211	22.2	215	22.6			422	44.3	91	9.6					13	1.4
LCC (N = 637)	8	1.3	333	52.3			109	17.1	13	2.0	2	0.3	110	17.3	62	9.7
MSU (N = 618)	20	3.2	9	1.5			586	94.8	3	5.0						
PCC (N = 561)	127	22.6	300	53.5	10	1.8	92	16.4	20	3.6	1	0.2			11	2.0
PPCC (N = 1270)	274	21.6	9	0.7			8	0.6			2	0.0	977	76.9		
RRCC (N = 184)	3	1.6	8	4.3			6	3.3	3	1.6			111	60.3	53	28.8

Student Outcomes

CHAMP project goals included improving rates of retention and completion, expanding the number of credentials students earned, and increasing both the rates of employment and wages of students earning one or more CHAMP credentials. CHAMP-funded navigators were to facilitate and enhance the success of students in these areas.

The third and final section of our analysis examines CHAMP students' academic and career outcomes by comparing the outcomes of students who were served by a navigator to students not served. Given the wide variation in navigator functions, contextual issues at each of the colleges, and differences in the industries upon which the various CHAMP programs were focused, our analysis can only suggest the impact of student–navigator interactions on outcomes. More research is needed to move from associative to causal explanations.

Academic Outcomes

Degree Completion by Target Credentials

In this section we examine differences in credential completion rates between the CHAMP students who were served by navigators and those who were not. We begin our analysis by presenting the credentials CHAMP students reported as their desired goal. We then examine students' graduation rates. Note that, our analysis only looks at data up to and including spring 2016. Students who started their program of study during the latter part of the study period may not have had sufficient time to complete their credential. Thus, there may be more students who earned a credential than are reported here.

Each time students register, they are asked to indicate the credential they intend to pursue. The data set for the following analysis, however, includes only the target credential declared by students at the time of their initial registration for one or more CHAMP courses.

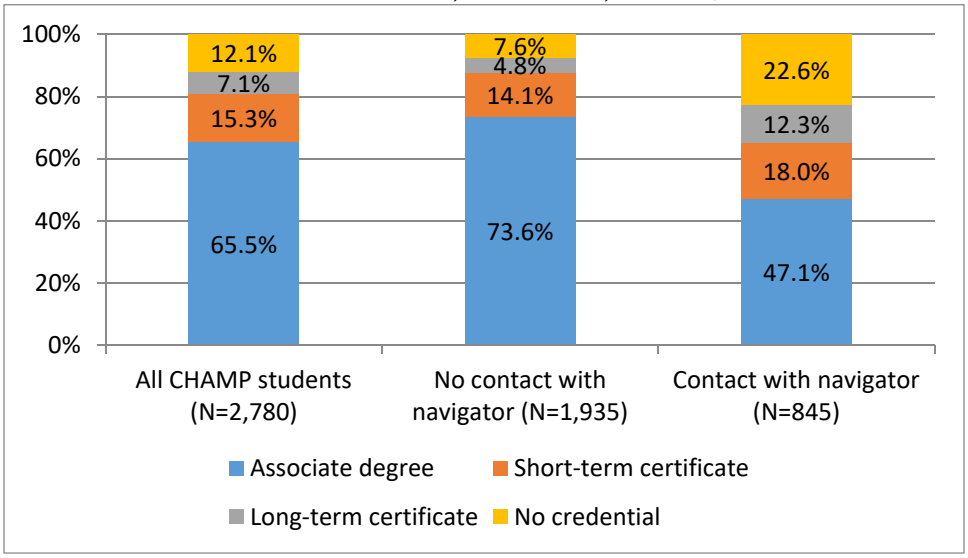
Our target credential variable contained five categories: short-term certificate (programs taking less than one year to complete); long-term certificate (one- to two-year programs); associate degree; bachelor's degree; and no credential (used for students who did not declare a target credential at the time of their initial CHAMP enrollment).[51] Because MSU is the only four-year college in the CHAMP program, and almost all of the school's 311 CHAMP students were pursuing bachelor's degrees, we left them out of this portion of the analysis in favor of focusing on the seven CHAMP community colleges.[52] What remained for analysis was a sample of 2,780 CHAMP students.

[51] It is unclear whether these students were enrolled in noncredit courses and did not intend to earn a credential or simply failed to report their academic goal on the form.

[52] Because none of the colleges that remained in the analysis granted four-year degrees, bachelor's degree is not included as a category of the target credential variable.

Figure 15 shows the breakdown of credential goals for the above defined sample of CHAMP students, and for students who were and who were not served by program navigators.

Figure 16. CHAMP Students' Target Credentials Within Categories of Navigator Interaction (All CHAMP Students, No Contact, Contact)



Associate degrees were the most popular target credential indicated by CHAMP students, pursued by about two thirds (66 percent; n=1,822) of the enrollees. (See Figure 15 and Table 11.) The next most frequently sought-after credential for CHAMP students was short-term certificates (15 percent; n=425). Long-term certificates were the least popular targets (7 percent; n=196). About 12 percent (n=337) of students did not declare a target credential when they initially enrolled in a CHAMP course.[53] This distribution of target credentials reflects, to some extent, the distribution of the credentials offered under CHAMP at the various consortium colleges; the history of such credentials at the colleges (for example, more established programs enjoyed greater market knowledge); as well as the anticipated job market of the industries represented by each of the programs.

CHAMP students pursuing an associate degree accounted for a much larger proportion of students who did not have contact with a navigator, than of those who did—74 percent versus 47 percent, respectively. In contrast, students pursuing both short- and long-term credentials were more likely than not to have had at least one contact with a navigator. This was also the case with students enrolled in noncredit courses/programs or who had not yet identified a credential target, 22.6 percent versus 7.6 percent (N=337). This large difference was most likely driven by the relatively high rate of student–navigator interaction at FRCC (75 percent; n=252).

[53] Many of the students in this cohort were incumbent workers who enrolled in one or more CHAMP-related courses but were not initially pursuing a CTE certificate or associate degree. For example, many students at FRCC were incumbent workers taking noncredit CHAMP-related welding courses to enhance their technical skills while on the job.

As shown on Table 11, CHAMP students' target credentials varied by college in a way that reflected, in part, the nature of the CHAMP program(s) offered by the college. The proportion of students served by navigators also varied by school and by the type(s) of credential(s) offered.

Despite the large numbers of CHAMP students at Aims, PCC, and PPCC pursuing associate degrees (540, 361, and 476 respectively), the rates at which students at these schools contacted their navigators were relatively low, ranging from 3 percent at Aims to 32 percent at PPCC.

Again, the different functions of the navigators at these colleges, as well as gaps in the availability of navigator services, may have contributed to the low rates at Aims.

Over 90 percent of students pursuing short- or long-term certificates at FRCC and LCC had some contact with their CHAMP navigator, and over 60 percent of CCD's certificate students had contact with a CHAMP navigator. However, the proportions of students served by navigators at PCC, PPCC, and RRCC were far lower, ranging from 23 to 38 percent of students seeking short-term certificates; and from 13 to 27 percent of those seeking long-term certificates. As noted above, many of the students at FRCC (n=252) were enrolled in a noncredit course or had not yet identified a credential. Eighty students at Aims also were either noncredit students or did not initially specify a target credential. While roughly three quarters of the FRCC students in this cohort met with their navigator, less than 3 percent of those at AIMS did so, which again may reflect the periods during which no CHAMP navigator was available at Aims.

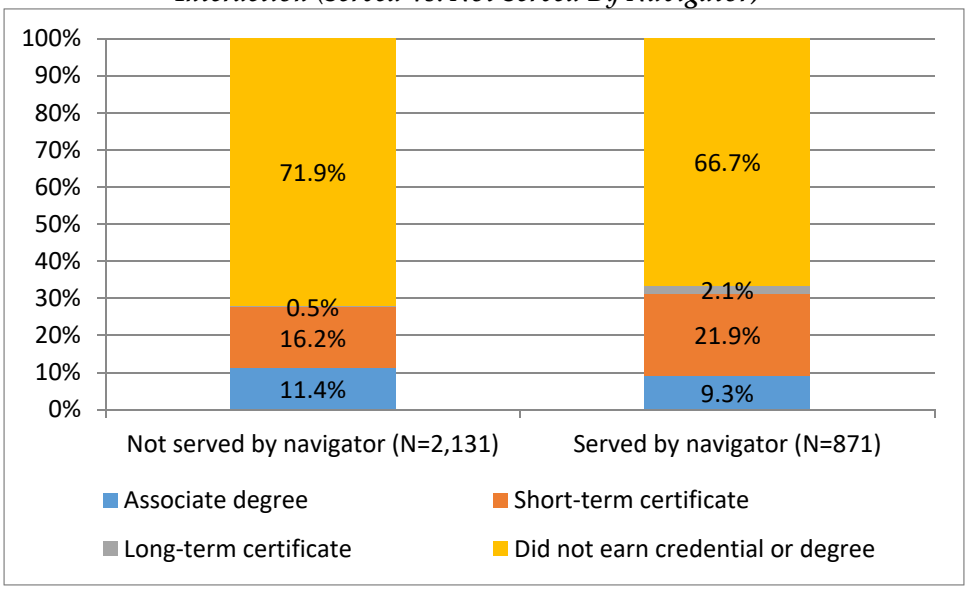
Table 11. Proportion of Champ Students Who Contacted a Navigator, By Declared Credential and School

CHAMP school	Short-term certificate			Long-term certificate			Associate degree			No credential declared at registration		
	Total (N)	Contacted navigator (n)	% Contacted navigator	Total (N)	Contacted navigator (n)	% Contacted navigator	Total (N)	Contacted navigator (n)	% Contacted navigator	Total (N)	Contacted navigator (n)	% Contacted navigator
AIMS	77	1	1.3				540	17	3.1	80	2	2.5
CCD	74	46	62.2	27	17	63.0	175	68	38.9	2	1	50.0
FRCC	28	25	89.3	40	40	100.0	26	22	84.6	252	187	74.2
LCC	16	15	93.8	31	29	93.5	38	22	57.9			
PCC	29	11	37.9	72	13	18.1	361	46	12.7			
PPCC	64	19	29.7	11	3	27.3	476	153	32.1	2	1	50.0
RRCC	132	30	22.7	15	2	13.3	206	70	34.0	1	0	0.0
Total	420	147	35.0	196	104	53.1	1822	398	21.8	337	191	56.7

Program Completers

An important question for this report was if CHAMP students served by navigators earned credentials at a higher rate than those who had not been served by a navigator. Figure 16 shows that overall, regardless of their target credential, students who contacted a navigator had a completion rate 5 percentage points higher than those who did not contact a navigator—33 percent versus 28 percent. This difference was significant.[54] At the individual credential level, the credential completion rate among students in short-term certificate programs who interacted with a navigator (22 percent) was 6 percentage points higher than that of those in who had not (16 percent). However, navigator contact was not related to higher completion rates for all target credential groups. Among students enrolled in associate degree programs, those who had not seen a navigator had a higher rate of completion (11 percent) than those who had seen a navigator (9 percent).[55,56]

Figure 17. Degree Completion Rates Among All CHAMP Students Within Categories of Navigator Interaction (Served Vs. Not Served By Navigator)[57,58]

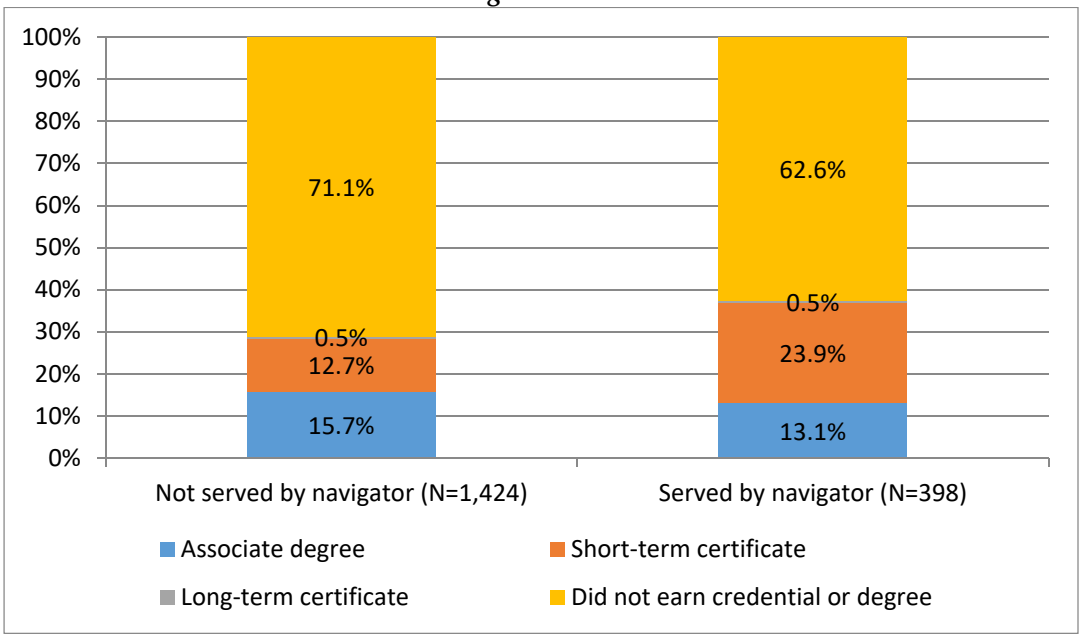


In Figure 17 we present the rate at which CHAMP students completed, during the period under study, the credential they had declared as their target when they first enrolled in a CHAMP course. In this model, the cohort who did not earn a credential includes students who were in progress to a credential but had not yet completed a credential; those in noncredit/non-credential programs; and those who simply did not declare a target credential upon their initial registration. Among students pursuing an associate degree, those who did not interact with a navigator had a slightly higher associate degree completion rate than those who did—16

[54] Chi-square with one degree of freedom = 8.129, p = 0.004
[55] The numbers were too small here for a significance test.
[56] It not known in these cases if students received advising from faculty or from another campus service.
[57] Figure 16 looks at all students regardless of whether they declared a credential as their goal at registration.
[58] This excludes 344 MSU students as they did not earn any credentials.

percent versus 13 percent—but this three-percentage-point difference was not statistically significant. There was, however, a significant difference in the rates of completion for students pursuing a short-term certificate. Students who interacted with a navigator had a completion rate of 24 percent as compared to a completion rate of 13 percent for those who had not been served.

Figure 18. Credential Completion for Students Who Declared Goal of Earning an Associate Degree by Navigator Contact



We next examined the rate by which students earned a credential with and without navigator contact, at each CHAMP college. This analysis is shown in Table 12.

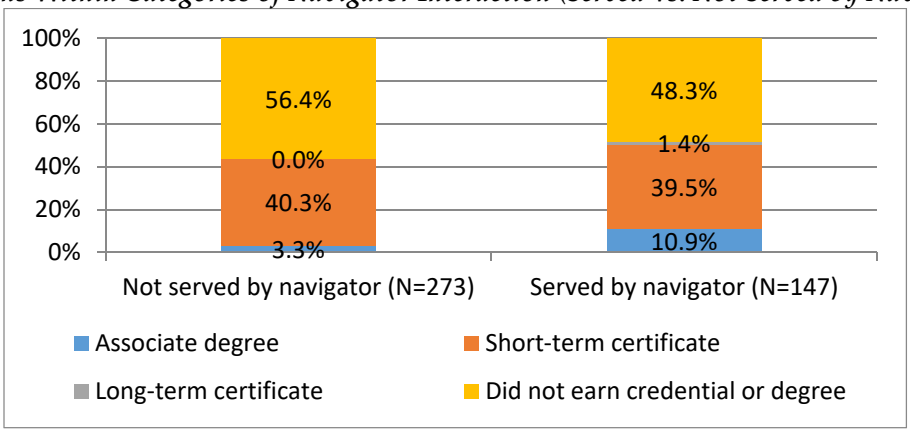
At FRCC, all CHAMP students who earned a credential met with a CHAMP navigator, as did three quarters of those who did not earn a credential. At all other schools, navigator contact seemed to vary by the credential earned. At PCC, for example, 57 percent of CHAMP students earning short-term certificates had been served by navigators, but only 14 percent of those who earned associate degrees had navigator contact. At both PPCC and RRCC, the rate of navigator contact was similar among students receiving short-term certificates and associate degrees—just over 30 percent—but very few students earning long-term certificates interacted with a navigator. At PPCC, only one of eight students (13 percent) who earned a long-term certificate contacted a navigator; and at RRCC, the only student who graduated with a long-term certificate did so without having contact with the navigator. A similar pattern was observed at LCC.

Table 12. Earned Credentials of CHAMP Students Served by a Navigator by School

CHAMP School	Short-term certificate			Long-term certificate			Associate degree			No credential earned		
	Total (N)	Served by navigator (n)	% Served by navigator	Total (N)	Served by navigator (n)	% Served by navigator	Total (N)	Served by navigator (n)	% Served by navigator	Total (N)	Served by navigator (n)	% Served by navigator
AIMS	136	0	0.0				111	7	6.3	532	14	2.6
CCD	34	26	76.5	2	2	100.0	30	21	70.0	242	85	35.1
FRCC	34	34	100.0	14	14	100.0	8	8	100.0	299	227	75.9
LCC	17	14	82.4	2	1	50.0	10	9	90.0	56	42	75.0
PCC	53	30	56.6	1	0	0.0	87	12	13.8	361	29	8.0
PPCC	71	24	33.8	8	1	12.5	62	19	30.6	444	140	31.5
RRCC	192	63	32.8	1	0	0.0	15	5	33.3	180	44	24.4
Total	537	191	35.6	28	18	64.3	323	81	25.1	2114	581	27.5

Figure 18 provides a more in-depth look at CHAMP students who initially declared their goal to be a short-term certificate, but who went on to earn other credentials. For short term certificates, there was little difference in students' rates for completion in relation to navigator contact. Completion rates were approximately 40 percent for both students with contact and students without contact. However, we found that 11 percent of CHAMP students served by navigators exceeded their initial goal and went on to earn an associate degree during the study period compared to only about 3 percent of students not served by navigators.

Figure 19. Credentials Earned by CHAMP Students Initially Registered in Short-Term Certificate Programs Within Categories of Navigator Interaction (Served Vs. Not Served by Navigator)



Stacking Credentials

One of the goals of the CHAMP project was to facilitate students' ability to stack credentials—i.e., for students to accumulate more than one credential. Credential stacking may involve earning more than one certificate or, upon completing an initial credential, transferring earned credits into an associate degree or even a four-year bachelor's degree program. Navigators at some of the consortium colleges played an active role in guiding and assisting students with the stacking of credentials. This included, as discussed in Part I, helping students complete and file any related documentation that must be submitted prior to a certificate being issued. And at RRCC the navigator very actively reviewed students' transcripts to identify additional certificates that students may have been unaware they had earned as they pursued other credentials. A number of other navigators also reviewed students' transcripts, but less actively.

In this section we examine credential stacking. Our analysis includes an examination of differences by navigator contact. As one reads this section, it is important to note that not all colleges offered the same opportunities to earn more than one short-term certificate (i.e., schools may have offered only one short-term certificate).

We looked at the 537 CHAMP students who earned one or more short-term certificates (Table 13). We found that 40 percent of those students earned two or more certificates. The highest proportions of students earning more than one short-term certificate were found at LCC (77

percent),[59] FRCC (47 percent), PPCC (47 percent), and RRCC (47 percent). In fact, ten students from RRCC earned six short-term certificates. In addition, 12 students from Aims earned six short-term certificates, and another Aims student earned eight.

[59] Note, on the way to earning an associate's degree in welding, LCC's students earned three stackable certificates – introduction, intermediate and advanced welding.

Table 13. Credential Stacking by Short-Term Certificate Earners at Each CHAMP School

CHAMP School	Short-term certificate earners							Total (N) earning short-term certificates	Earned >1 short-term certificates (n)	% Earned >1 short-term certificates
	Single short-term certificate	2 short-term certificates	3 short-term certificates	4 short-term certificates	5 short-term certificates	6 short-term certificates	8 short-term certificates			
AIMS	84	11	8	17	3	12	1	136	52	38.2
CCD	26	6	2	0	0	0	0	34	8	23.5
FRCC	18	14	2	0	0	0	0	34	16	47.1
LCC	4	9	4	0	0	0	0	17	13	76.5
PCC	49	1	1	1	0	1	0	53	4	7.5
PPCC	38	12	14	7	0	0	0	71	33	46.5
RRCC	102	43	16	20	1	10	0	192	90	46.9
Total	321	96	47	45	4	23	1	537	216	40.2

On Tables 14 and 15, we compare the number of students earning short-term certificates who had navigator contact with those without navigator contact. Of the 346 CHAMP students who had no navigator contact, 44 percent (n=153) earned two or more certificates. Of the 191 students who earned short-term certificates and interacted with a navigator, however, 33 percent earned two or more certificates. When interpreting this result, it is important to note that the vast majority (78%) of students who earned multiple certificates without interacting with a navigator were at Aims and RRCC. At Aims there was an inconsistent navigator presence and both schools had several strong CHAMP short-term certificate programs.

Table 14. Credential Stacking by Short-Term Certificate Earners Not Served by Navigators

CHAMP School	Short-term certificate earners							Total (N) earning short-term certificates	Earned >1 short-term certificates (n)	% Earned >1 short-term certificates
	Single short-term certificate	2 short-term certificates	3 short-term certificates	4 short-term certificates	5 short-term certificates	6 short-term certificates	8 short-term certificates			
AIMS	84	11	8	17	3	12	1	136	52	38.2
CCD	6	0	2	0	0	0	0	8	2	25.0
LCC	2	1	0	0	0	0	0	3	1	33.3
PCC	20	0	1	1	0	1	0	23	3	13.0
PPCC	20	9	11	7	0	0	0	47	27	57.4
RRCC	61	30	14	16	0	8	0	129	68	52.7
Total	193	51	36	41	3	21	1	346	153	44.2

Table 15. Credential Stacking by Short-Term Certificate Earners Served by Navigators

CHAMP School	Short-term certificate earners						Total (N) earning short-term certificates	Earned >1 short-term certificates (n)	% Earned >1 short-term certificates
	Single short-term certificate	2 short-term certificates	3 short-term certificates	4 short-term certificates	5 short-term certificates	6 short-term certificates			
CCD	20	6	0	0	0	0	26	6	23.1
FRCC	18	14	2	0	0	0	34	16	47.1
LCC	2	8	4	0	0	0	14	12	85.7
PCC	29	1	0	0	0	0	30	1	3.3
PPCC	18	3	3	0	0	0	24	6	25.0
RRCC	41	13	2	4	1	2	63	22	34.9
Total	128	45	11	4	1	2	191	63	32.9

Table 16 indicates that 266 CHAMP students earned an associate degree, and 39 percent of these students (n=104) also earned one or more certificates. Nineteen of these students (16 whom were from Aims) earned an associate degree plus 6 or more short-term certificates.

Half of the associate degree earners at Aims, CCD, and LCC earned short-term certificates along with their associate degrees, and that proportion was exceeded at RRCC, where almost two thirds—62%—of associate degree earners stacked credentials.

Table 16. Credential Stacking by CHAMP Associate Degree Earners at Each Consortium School

CHAMP School	Earned 1 associate degree only	Short-term certificate earners							Earned 1 associate degree plus ≥1 short-term certificate	Total earned 1 associate degree	% of Associate degree earners who also earned at least one short-term certificate
		+ 1 short-term certificate	+ 2 short-term certificates	+ 3 short-term certificates	+ 4 short-term certificates	+ 5 short-term certificates	+ 6 short-term certificates	+ 7 short-term certificates			
AIMS	52	14	9	6	5	2	16	0	52	104	50.0
CCD	8	7	0	1	0	0	0	0	8	16	50.0
FRCC	3	1	1	0	0	0	0	0	2	5	40.0
LCC	5	1	3	1	0	0	0	0	5	10	50.0
PCC	67	7	3	3	0	0	2	1	16	83	19.3
PPCC	22	4	5	2	1	1	0	0	13	35	37.1
RRCC	5	0	3	0	3	2	0	0	8	13	61.5
Total	162	34	24	13	9	5	18	1	104	266	39.1

While there was a considerable difference in the number of CHAMP associate degree earners who went on to earn short-term certificates across the consortium colleges overall, we found that, in general, a higher percent of students with dual credentials had contact with a navigator, than had not. (See Tables 17 and 18.) Whereas 51 percent of students who had contact with a navigator managed to earn at least one additional credential, only 36 percent of those who had no navigator contact were able to do so. The higher rate of navigator-served students stacking credentials suggests the positive impact of CHAMP navigators on students' academic outcomes.

Table 17. Credential Stacking by Champ Associate Degree Earners Not Served by Navigators

CHAMP School	Earned 1 associate degree only	Short-term certificate earners							Earned 1 associate degree plus ≥1 short-term certificate	Total earned 1 associate degree	% of Associate degree earners who also earned at least one short-term certificate
		+ 1 short-term certificate	+ 2 short-term certificates	+ 3 short-term certificates	+ 4 short-term certificates	+ 5 short-term certificates	+ 6 short-term certificates	+ 7 short-term certificates			
AIMS	51	13	8	5	3	2	16	0	47	98	47.9
CCD	4	3	0	1	0	0	0	0	4	8	50.0
LCC	1	0	0	0	0	0	0	0	0	1	0.0
PCC	59	3	3	3	0	0	2	1	12	71	16.9
PPCC	15	1	3	1	1	0	0	0	6	21	28.6
RRCC	3	0	2	0	1	2	0	0	5	8	62.5
Total	133	20	16	10	5	4	18	1	74	207	35.7

Table 18. Credential Stacking by Champ Associate Degree Earners Served by Navigators

CHAMP School	Earned 1 associate degree only	Short-term certificate earners					Earned 1 associate degree plus ≥1 short-term certificate	Total earned 1 associate degree	% of Associate degree earners who also earned at least one short-term certificate
		+ 1 short-term certificate	+ 2 short-term certificates	+ 3 short-term certificates	+ 4 short-term certificates	+ 5 short-term certificates			
AIMS	1	1	1	1	2	0	5	6	83.3
CCD	4	4	0	0	0	0	4	8	50.0
FRCC	3	1	1	0	0	0	2	5	40.0
LCC	4	1	3	1	0	0	5	9	55.5
PCC	8	4	0	0	0	0	4	12	33.3
PPCC	7	3	2	1	0	1	7	14	50.0
RRCC	2	0	1	0	2	0	3	5	60.0
Total	29	14	8	3	4	1	30	59	50.8

Retention Rates

Another of the CHAMP project outcomes that was to be facilitated by student–navigator interactions, was student retention. Over the study period, we compared the retention rates of CHAMP students who had contact with a navigator to those of CHAMP students who had not. The results are presented in Tables 19 and 20. CHAMP programs began to be rolled out in spring 2014; we therefore begin with the Spring 2014 consortium cohort and track these 767 students through spring 2016, comparing students with and without contact with a navigator. The 228 navigator-served students enrolled in CHAMP programs as of spring 2014 had a retention rate of 77 percent entering the Fall 2014 term; the retention rate of students who were not served by navigators was only 50 percent. While the rates of retention diminish over time—in part given the time needed to complete various short- and long-term certificates and associate degrees—navigator-served students continued to have higher retention rates than their counterparts.

We then looked at the Spring 2015 cohort. We found the same pattern: better retention rates among navigator-served students. This time, however, the differences in the rates were not as large—perhaps because CHAMP programs may have been better established in the second year of the grant and therefore easier for students to navigate on their own.

Table 19. Retention Rates for Spring Champ Cohorts by Navigator Interaction Category (Contact Vs. No Contact)

Spring 2014 CHAMP cohort (N=767)	**No navigator contact (n=539)**	**Navigator contact (n=228)**	**Spring 2015 CHAMP cohort (N=581)**	**No navigator contact (n=343)**	**Navigator contact (n=238)**
Spring 2014–Fall 2014	49.9%	76.8%	Spring 2015–Fall 2015	47.2%	53.8%
Spring 2014–Spring 2015	42.7%	69.3%	Spring 2015–Spring 2016	42.6%	50.0%
Spring 2014–Fall 2015	25.8%	57.0%			
Spring 2015–Spring 2016	18.6%	43.4%			

The same pattern was observed among the Fall 2014 cohort: Those served by navigators experienced higher retention rates than those not served by navigators. (See Table 20.) However, the differences for this cohort were not as large as that observed among the Spring 2014 cohort. Further, we did not observe any retention-rate advantage for students who had contact with a navigator in the Fall 2015 cohort. Both those with and without navigator contact had retention rates just below 70 percent entering the Spring 2016 term.

Table 20. Retention Rates for Fall Champ Cohorts by Navigator

Fall 2014 CHAMP cohort (N=531)	No navigator contact (n=299)	Navigator contact (n=232)	Fall 2015 CHAMP cohort (N=619)	No navigator contact (n=329)	Navigator contact (n=290)
Fall 2014–Spring 2015	69.9	75	Fall 2015–Spring 2016	69.0	68.3
Fall 2014– Fall 2015	44.8	49.1			
Fall 2014–Spring 2016	37.8	39.7			

In sum, the differences in retention rates between navigator-served and non-navigator-served CHAMP students were more pronounced in the early stages of the CHAMP program. It is not clear to what degree this reflects changes in the definition of navigator functions and their activities over time; a tendency for interventions to occur only early in the students' academic career; or some other factor.

Employment and Wage Outcomes

In our sample of 3,002 CHAMP students, 1,323 students were incumbent workers, and 1,679 were non-incumbent workers—students without any income in the quarter of their first CHAMP-course enrollment. In this section, we examine whether non-incumbent-worker students were working[60] after they earned a credential through the CHAMP program, and compare the rates of employment for those who had navigator contact with those who had not. We then examine if students who were incumbent workers experienced wage gains of more than $500 after completing their CHAMP credentials. Again, we compare those with and without navigator contact. Finally, we look at employment rates and wage gains according to the type of CHAMP credential earned. In this final analysis, we compare the rate for three credential categories—students with an associate degree only, with associate degree(s) and certificate(s), and with certificate(s) only.

Employment

Among the non-incumbent workers, 539 students earned credentials between spring 2014 and spring 2016. We compare the rate of employment by credential types for students with navigator contact (N = 176) vs. students without navigator contact (N = 363). The results are presented in Table 21.

[60] In this analysis, we define employment as earning > $1,000 in the quarter during which a student earned his or her final credential or the quarter immediately after credentialing occurred.

Overall, the rates of employment upon graduation were similar for both group of non-incumbent workers, 34 percent for those with contact and 37 percent without contact. However, variations in employment rates were observed when we examined the non-incumbent-worker population according to the type of credential received. Certificate earners[61] served by program navigators had a slightly higher employment rate than their counterparts not served by program navigators—38 percent versus 33 percent. However, of note, navigator-served students earning associate degrees had a significantly lower rate of employment than associate degree earners not served by program navigators (5 percent vs. 41 percent). We also looked at students who had earned an associate degree and one or more certificates – the pattern continued but the difference was smaller. Thus, navigator served students with associate degrees plus certificates had a rate of employment of 38 percent compared to those not served who had a rate of 50 percent.

Table 21. Post-Graduation Employment Rates for Non-Incumbent-Worker CHAMP Students by Navigator Interaction Category (Not Served Vs. Served) And Credential(S) Earned

Type of earned credentials	Not served by navigator			Served by navigator		
	Total (N)	Employed upon graduation (n)	Employed upon graduation	Total (N)	Employed upon graduation (n)	employed upon graduation
Associate degree only	76	31	40.8%	20	1	5.0%
Associate degree + certificates	48	24	50.0%	16	6	37.5%
Certificate only	239	78	32.6%	140	53	37.9%
All credential earners	363	133	36.6%	176	60	34.1%

Wage Increases

Finally, we examine whether contacting a program navigator is associated with an increase in wage (over $500) for the incumbent workers in our study, and we examine that relationship by the type of credentials earned. Among the 349 CHAMP students identified as incumbent workers who earned credentials, 114 students had contact with navigators. Their wage increase results are presented in the Table 22. Comparing all credential-earning incumbent workers served by navigators with their counterparts who were not served by navigators, we do not find any difference in wage increase—roughly 40 percent of both groups experienced post-graduation wage increases greater than $500. As in the previous analysis, variations were observed when the population was broken down by the credential(s) earned. A higher proportion of students who only earned certificate(s) and were served by program navigators experienced post-graduation wage increases as compared to their counterparts not served by navigator (46 percent vs. 40 percent). However, the relationship was reversed in the case of incumbent workers who earned associate degrees—whether alone or in combination with one

[61] Since few students earned long-term certificates, we do not distinguish short- vs. long-term certificate in this session.

or more certificates. Here we found that only 27 percent of associate-degree-only students who interacted with navigators experienced a wage gain as compared to 43 percent who had not navigator contact. For the students who earned both an associate degree and one or more certificates, the rates for wage gain were 14 percent and 32 percent, respectively.

Table 22. Post-Graduation Wage Increases of Incumbent-Worker CHAMP Students by Navigator Interaction Category (Not Served Vs. Served) And Credential(S) Earned

Type of earned credentials	Not served by navigator			Served by navigator		
	Total (N)	Experienced wage increase of >$500 upon graduation (n)	with wage increase of >$500 upon graduation	Total (N)	Experienced wage increase of >$500 upon graduation (n)	wage increase of >$500 upon graduation
Associate degree only	65	28	43.1	11	3	27.3
Associate degree + certificates	31	10	32.3	14	2	14.3
Certificate(s) only	139	55	39.6	89	41	46.1
Total credential earners	235	93	39.6	114	46	40.4

PART III: CONCLUSION

In this final section, EERC discusses the challenges identified by the navigators themselves, and by staff and faculty colleagues in respect to the role and functions of CHAMP navigators at their respective colleges. We then talk about the significant challenges colleges are facing sustaining either the navigator position and/or navigator functions. We end the report with the promising or best practices that have emerged over the course of the past four years. We hope these identified activities will provide insight and stimulus to the colleges as they work to improve student recruitment, and strive to increase rates of retention and completion of credentials in advanced manufacturing.

Challenges

Echoing the experiences of career coaches under earlier TAACCCT grants, CHAMP navigators have experienced a number of acute and chronic issues. These issues not only challenged the navigators' ability to carry out their defined functions during the grant, but also reduced the possibility that their functions would be integrated into their college's infrastructure post grant. Addressing these challenges, then, are key to ensuring that the promising practices and lessons learned under the grant will be sustained beyond the grant. We turn now to the often-overlapping challenges that affected navigators' program contributions, our assessment of their impact, and their potential to affect post-grant sustainability.

Definition of the Navigator Role

The generality of the CHAMP proposal's job description enabled each college to define the position to meet its own needs. However, the diversity of those needs, and the varying array of resources each college had available, diluted clarity about the focus and activities of the navigator. For some colleges, this meant traversing a difficult, if not steep, learning curve in defining its navigator's role and functions under the grant.

Some navigators continued very much in the career coach mode, while others focused more on industry partnerships. This division of focus made it difficult for EERC to assess navigator impact across the nine colleges, especially with respect to student–navigator interactions (see Part II).

The generalist nature of the role also created challenges for some navigators. Most navigators (like the career coaches before them) came to their positions with a wide array of skills including academic or vocational advising or workforce, teaching, or social work experience, but none came with all the skills required to fulfill their assignments. While learning new skills is an important part of professional growth, some navigators felt concerned that they were being given responsibility for activities beyond their current capacities: The development of the employability MOOC was a good example of this. Similarly, though student recruitment and outreach/marketing were not part of the incoming skill set of many navigators, they were nonetheless expected to hit the ground running in those competencies.

Several navigators felt they did not have sufficient background to advise students, especially in their CHAMP-industry fields. This belief was rooted in their lack of knowledge about industry skill sets, career trajectories, and industry terminology. The lack of industry knowledge initially limited the ability of some navigators to provide in-depth guidance to prospective and enrolled students. It also affected the navigators' interactions with industry employers with respect to jobs and internships.

> *I came in not really knowing the fields of engineering graphics and welding and [the] machining industry. I've had to really get up to speed with that . . . had to learn a lot about the industry there. There's a lot to learn; it's huge.*

At several CHAMP colleges, some of activities that had been defined under the CHAMP navigator role (e.g., employer outreach, internship coordination, student advisement) were already the responsibility of preexisting faculty or program staff. In some of these cases, the navigators had to identify supplementary activities and/or create their own primary focus. For example, PPCC's faculty advise students, and other staff interact with employers. The navigator therefore immersed herself in soft skills training and in helping students to process their paperwork for credentials.

In contrast to the navigators who struggled to define their roles, navigators at other colleges felt stretched in multiple directions, uncertain how to attend to all their assigned tasks. For example, in addition to their defined advising responsibilities, several navigators felt that faculty relied too heavily on them to monitor students' progress and well-being on a regular basis. One navigator expressed feeling burdened,

> *. . . to do 'check-in' calls with students. I feel that needs to come from the instructor. Almost like an employee/employer relationship; if you cannot show up to work, you would call your boss.*

Multi-Campus Colleges and Student Access

Navigators were more valuable to students who could easily reach out to them. Several navigators served multiple campuses, however, and in these situations, it was often not possible to set up offices at each campus. This reduced the navigators' visibility and created barriers to building strong connections not only to students but to other campus services. CCD's navigator, for example, related problems he experienced with the referral process to the CHAMP program's satellite location from CCD's main campus. Many supports services are on the main campus and thus it was a challenge for students to get to them. Similarly, students at EGTC and RRCC faced difficulties accessing other needed college services through their navigators. The CHAMP program at EGTC was located at the college's Trades' campus, about two miles from the main campus—and RRCC's CHAMP program was located at a satellite location, Warren Tech, a high school facility. Off-site locations away from the main campus also affected navigators' student outreach and recruitment efforts.

Finally, many of the colleges held evening classes. This meant navigators had to straddle daytime activities in the field with prospective students and employers alongside late-afternoon and evening meetings with enrolled students.

Space and Privacy

Many of Colorado's community college campuses have significant space constraints. As a result, another challenge was literally finding office space for the navigators. At times, navigator offices were located at a considerable distance from CHAMP classrooms and labs even if they were basically part of the same department, as was the case at PCC. This distance affected student–navigator interaction. Further, some navigators either had no regular office and thus were forced to meet with students in their classrooms or find other temporary space (CCD) or shared offices with other workers, which curtailed their ability to engage in conversations that were sensitive or private in nature (e.g., PCC, RRCC).

Students' Use of Navigators

In the discussion above it was noted that students are often reluctant to seek out advice or help until they are faced with a major roadblock to their studies. Even then some would rather disappear than acknowledge they need help and support. To respond to this "reluctance/ resistance," MSU mandated one or more student–navigator meetings to "normalize" these interactions. Navigators at many colleges regularly visited CHAMP classrooms to allow students to get to know them, perform a general check-in, and identify any students who may be struggling. Despite these efforts, navigators continued to observe that a good number of students have a hard time seeking out advice or help. (See Part II for our analysis of navigator contacts by college and the reasons those contacts were made.)

Staffing and Sustainability

Table I presented details about navigator staffing over the course of the CHAMP grant. As indicated, most colleges did not employ a navigator until the summer of 2014, almost one year into the grant. Three colleges experienced navigator turnover because the navigator left the college, took another non-grant-funded positon, or was promoted to the project lead (PCC).

In some cases, navigators worked part time for all or part of a semester. While staff changes are common in most fields, such changes during a time-limited grant impact the visibility of the program and the capacity to maintain consistency of activities. They also can affect efforts to sustain and integrate the navigator position into the college network or to justify the need for a dedicated navigator for advanced manufacturing.

For example, although PCC experienced a number of navigator staff changes, and only employed a part time navigator in the final grant year, the college had a very successful CHAMP program. Given PCC's division of business and technology existing advising resources—including dedicated academic excellence advisers— the department's senior administrators wonder if they will be able to justify the need for a navigator, and/or find resources to sustain such a position, beyond the grant period.

At FRCC, the navigator left during the spring 2016 term and was not replaced. While the project lead sees this as a real loss for the college's machining program, the college's administration expressed some reservations about the wisdom of having a dedicated adviser for a specific program like machining. Such an advising structure may isolate students, they argued, and could contribute to their lack of integration into the wider college. In this context, it is important to note that FRCC is currently transforming its academic advising services into more of a mentoring model. Under this new model, program maps will be used to help students become more aware of pathway options. The college is also planning for a college-wide student success course.

MSU's navigator was told when she was hired that her position was time limited. As of mid-fall 2016, this navigator was unsure whether any of her functions, especially student outreach and education, would be maintained post-grant, reassigned to other college staff.

LCC's navigator observed that after the grant there would probably be some "turning point" at which a decision would be made with respect to navigator functions. For example, if "all of a sudden, the welding program isn't doing as well," the career counselor/educational case manager functions might be continued through other college or new grant resources. However, if the welding program does well post-grant, there will be no incentive to fund a dedicated adviser for the program. While the college has not yet decided if, and how it will sustain navigator functions, it has decided to continue the employment of the individual come campus capacity.

As indicated above, PPCC's navigator focused much of her time on helping students process paperwork for their earned credentials and providing soft skills training, and was minimally involved in internship development. However, over time she had observed that the college did not have any college-wide policy or procedure with regard to translating internships into academic credit. She therefore suggested that the college consider creating a new position focused on coordinating and centralizing all PPCC credit and noncredit internships and apprenticeships.

At colleges such as Aims, where the navigator role was bifurcated into a student advising position and an internship- or employer-outreach coordinator, even more questions arise in terms of charting a path forward after the grant sunsets. It is unclear which if any of these positions is most likely to be continued, which functions would be retained by whom, or even—given the diverse functions of each role—whether the positions could be recombined to serve the advanced manufacturing program or the student body college-wide.

Student Recruitment and Marketing

Marketing and recruitment was a significant challenge for many navigators for several reasons. First, some had no experience with recruitment and therefore learned as they engaged. Second, the grant did not include a budget line for marketing, thus the colleges had to identify other resources with which to develop their marketing materials. This was not always easy. For example, Aims' navigator struggled to get her department to fund the development of banners and marketing material. Third, some colleges emphasized degree programs over certificate programs—thus, several navigators (e.g., PCC) received limited support for their efforts from other advisers and found their programs had a lower profile during campus-wide recruitment activities. Fourth, colleges needed to be on an approved provider list in order for individuals receiving WIOA benefits to enroll. As colleges established their programs, they needed to apply for this status. That application process was delayed at some colleges (e.g., PPCC), affecting recruitment efforts. Similarly, veterans cannot receive their "living stipend" if they take only

hybrid courses; this policy, which is a real contradiction between the federal push for program hybridization and financial support of veterans, also affected recruitment efforts.

The relatively low unemployment rate in the region—2.9 percent, the second-lowest in the nation in 2016[62]—posed a significant problem for some colleges in that there was less of an incentive for TAA-like individuals to return to school for additional training, especially if the program ran during the day. The navigator at RRCC observed,

> *. . . now with the economy being so good, it's hard to find new students. Because how do you lure them into a daytime program that's pretty full-time, either the morning or the evening? Then with the incumbent-worker piece is—we've heard that, "Well, my employer's not going to pay for it. I'm not going to do it." Or "I already work full time. I have a family, and you want me to—? " So the motivation might not be there. So [we're] really trying to work with industry, saying, "You wanted us to have these classes. Can you meet us halfway and help us recruit students?"*

Entry-level salaries were also not sufficiently attractive to recruit students into programs that would require both money and time.

Given all these factors, navigators struggled to locate and identify prospective students. Some navigators initially piggybacked on other student-recruitment activities but found that too often, few students showed up, or there was limited interest in advanced manufacturing among those who attended. Under prior grants, local WFCs often sent prospective students to the colleges for training or retraining—however, over the course of the grant were far fewer WFC referrals, as, according to one navigator, "potential students are getting placed in jobs." So the navigators were challenged: If not from the WFCs, through campus networking, or through employers, where does one find prospective students? What are the venues and networks "geared more toward a manufacturing industry or folks who would be interested in that"? Identifying this audience was not always easy.

Internships

Despite a CHAMP-project goal to develop and expand internship opportunities, navigators faced a number of challenges. Given students' other work and family demands, there was often not much student interest in internship positions. Navigators also found that most employers were more interested in employing graduates than hosting interns. Safety and liability issues were the most frequently cited reasons for this preference, but another issue was that the small manufacturing companies that are common in Colorado generally lack the resources to offer internships. Finally, while some colleges, such as CCD and MSU, had well established internship offices with which the navigator collaborated, some colleges lacked clear policies

[62] "Over the year, construction is up by 10,900 payroll jobs, leisure and hospitality by 24,200, and educational and health services by 11,000 jobs. Mining and logging, which includes oil and gas activities, is down by 6,800 payroll jobs from March 2015, according to seasonally adjusted data" (Wallace, 2016).

with respect to credit and noncredit internships, which limited the development of new internships.

College–Workforce Center Partnerships

The structure and intensity of college–WFC relationships varied across the CHAMP consortium. As indicated above, some colleges have enjoyed good partnerships, many of which were established by career navigators under earlier TAACCCT grants. An ongoing problem, however, has been that partnerships between the colleges and WFCs are often more personal relationships than positional ones. As a result, when staff turns over at a WFC or at the college, the connections weaken, if not end entirely, and the collaborative gains previously made just "[fall] off the radar."

Of note, during the CHAMP period, Denver-area WFCs were in transition, outsourcing their services in response to the Workforce Innovation and Opportunity Act (WIOA). This affected EGTC's work with them. It is unclear if this was also the cause of CCD's difficulty in establishing structured or continuous relationships with any of the three WFCs in their service area. CCD's navigator initially tried using e-mail and phone calls to the three centers but got no response, so in the end he just "dropped in" on them if he needed something.

In Colorado there is no formalized statewide data collection mechanism through which WFCs keep track of their referrals. Each WFC is independent, deciding if and how it wants to share data. An issue that arose during the earlier COETC and CHEO grants was securing follow-up information about any grant-touched students who career navigators referred to a WFC. Again, while CHAMP navigators, like career coaches, recorded who they referred, they were unable to find out what took place at the WFC unless the student returned and self-reported. This hampered the identification of any issues students faced getting the services the needed. It also limited the navigators' ability to track successful referrals and to track to what extent additional services and/or the receipt of financial aid enabled students to successfully complete their certificate or degree programs.

Documentation and Record-Keeping

Assessing the impact of the CHAMP navigators on student progress and completion was complicated by the navigators' wide range of focus and array of activities. Although we did set up mechanisms for navigators to track their work with students and document their other activities, completion of these monthly summaries was variable over the course of the grant. This further limited our ability to assess navigator impact (see Part II). Finally, we could not secure UI data for the noncredit students, many of whom were incumbent workers, because their social security numbers had not been recorded. It was therefore impossible for us to analyze these students' post-program employment outcomes.

Sustainability

Sustainability of the navigator position and/or navigator functions are in and of themselves challenges faced by the CHAMP colleges. However, given the importance of sustainability we have separated it out and given it a separate section here.

EERC researchers have observed that the position of career coaches established under earlier rounds of TAACCCT grants (COETC and CHEO), were mostly discontinued after the respective grant ended. This was even the case when the individual filling the position continued his or her employment at the college. It appears that most colleges in the CHAMP consortium also will not sustain their navigator positions when CHAMP sunsets on September 30, 2017. We therefore recommend that **s**ustainability should focus on the specific navigator functions which appear to have had the most positive effects on program and student outcomes. These include the association between contact with a navigator and students' higher rates of retention and stacking credentials.

To this end, some CHAMP colleges are reviewing the specific navigator functions and activities which have most benefited their own students and determining how best to sustain them through other staff and offices. For example, FRCC plans to maintain its college Outreach Coordinator, adding some navigator functions to her responsibilities. Similarly, RRCC's CHAMP staff have identified campus offices which and staff/faculty who will add navigator functions to their routines after CHAMP sunsets. In fact, during the final grant year RRCC had some of these individuals "shadow" the navigator to learn the "what" and "how" of the work she has done. We believe this is a good model for other consortium schools to consider adopting.

Promising/Best Practices

In this report, we discussed multiple ways the navigators, and their CHAMP colleagues, have worked to achieve project goals. In this section, we highlight the strategies and practices we believe are most promising in terms of their effects on program and student success. We suggest colleges consider the use and expansion of these strategies as they move forward post-grant.
Marketing and Recruitment Strategies

Navigators have successfully used **s**ocial media platforms—e.g., Craigslist, LinkedIn, and Facebook—as a recruitment strategy to showcase CHAMP program options.

Marketing materials that included success stories profiling students in ways that highlight how participation in a CHAMP "program of study benefited their career" have been effective in attracting new students. Targeted recruitment and education efforts geared specifically toward traditionally underrepresented populations—such as women and racial/ethnic minority groups in manufacturing—in forums, courses, media, and through direct community outreach, have helped some colleges attract students from these populations.

The development of a mentor and advisory network of women in manufacturing helped FRCC's CHAMP program increase the numbers of women enrolling in its certificate programs.

Thinking out of the box, Aims' navigator stimulated conversations among program staff about the crossover potential for CTE and the liberal arts and humanities. Formal and informal bridges can expand students' exploration of new fields that can enhance their work in their home subject. For example, anthropology students might compare more traditional modes of manufacturing with current advanced manufacturing and its effect on workplace culture or a welding student might learn in a history course about early craft guilds. Faculty from engineering, history, and business might share materials introducing business ethics, new ways to view technology, and innovative management techniques.

Creating a Pipeline into Manufacturing

A number of navigators noted the importance of stimulating interest among high school students in careers in advanced manufacturing as important to maintaining and expanding the workforce—and the field as a whole. While not part of the grant, some programs had contact with high school students, e.g., hosting career fairs, or utilizing shop facilities at high schools, and through the college's dual-enrollment programs. In fact, as a means to reflect changes in the industry and to attract the next generation of workers, PPCC's faculty began, referring to the college's electronics technology programs as "robotics."

Program-Focused Student Orientation

PCC expanded its pre-semester orientation from one that was focused on general guidance about the college and its procedures to one in which students met program faculty and discussed program expectations. The college found that this change enhanced student engagement in the program.

Normalization of Intensive Advising

Navigators found it extremely helpful to regularly visit and spend time in program classrooms and labs. Maintaining a regular and active presence in these neutral settings helped establish mutual rapport—students got to know the navigators and the navigators got to know students—and created opportunities for emerging issues to be identified and addressed more quickly. It also helped students feel "embraced by the college."

Mandated student–advisor/navigator meetings during the course of study helped "normalize" the use of an adviser to discuss progress, deal with problems and challenges, and plan for next steps. At a minimum, three meetings—one at the beginning of a program, one at the mid-point, and a third near the end—have been found to be helpful.

Transcript Review and Follow Up

Building on the work done under COETC, many navigators now review student transcripts to identify credentials students may have earned but have not been awarded. Navigators then help students with the applications and procedures necessary to be granted a credential. Transcript review and follow up has increased the number of credentials awarded, which carries dual benefits. It helps students with their job searches and helps colleges build their retention and completion rates.

Local Employers as Resources

By hot-linking potential employers' websites on her CHAMP program's website, Aims' navigator enabled students to quickly access information about different subfields within their industry. This helped student to identify companies with job openings, and helped them prepare for job interviews.

LCC's decision to invite HR staff to conduct mock interviews on campus was found to be a highly effective strategy. Students were able to practice their interview skills with a potential employer, and receive immediate and helpful feedback prior to going out on an actual job interview.

PPCC's employer-student mixer was well received by both employers and students. It provided students an opportunity to informally speak with employers and gain employers' perspectives about needed skill sets, as well as introduce employers to the next generation of workers.

PR as an Incentive in Employer Relations

Public recognition of the businesses and community organizations that work with the consortium colleges—e.g., online and print news articles, mention on websites, awards, etc.—does not occur often. However, such recognition can be an important strategy to enhance and maintain the involvement of these partners and may bring new partners to the table.

Conclusion

As discussed, the navigator position and role functions varied considerably at each of the consortium colleges over the course of the CHAMP grant. In addition, the type of program credential – including length of study – and the existence of other student support services and faculty advisement – has made it difficult to claim a definitive correlation between navigator interaction and any specific student outcome. Nevertheless, as indicated in the above analysis, students across the consortium who interacted with a navigator often had better rates of retention and completion, and stacked more credentials than those without navigator contact. Further, at some colleges, the relative proportion of non-traditional students who interacted with a navigator suggests that these students have unique needs that colleges might not always address.

More research that examines college specific factors that may have influenced student outcomes with or without navigator interaction, would need to be done to determine the relative impact of the navigator on student and employment outcomes. This research is not possible at this time. It will therefore be important for the colleges and CCCS to observe over the next few years what if any changes occur in student outcomes in CHAMP developed programs. And to compare changes in enrollment and completion at those colleges which maintain navigator functions in a single individual or distribute across campus offices; and to observe the long term sustainability of their respective CHAMP enhanced programs with or without a navigator.

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