"On the Path Toward College and Career Readiness: An Evaluation of the Implementation and Outcomes of the Career Academy Program in Birmingham, Alabama"

By

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EXECUTIVE SUMMARY

In the last three decades, career academies have grown in popularity as a mechanism to bolster high school students' college and career readiness. Career academies offer small learning communities, project-based/work-based learning opportunities, and personalized academic support for students (Orr, Bailey, Hughes, Karp, & Kienzl, 2004). In an effort to improve students' academic and career outcomes, education, business, and community leaders joined forces in 2010 to create career academies in Birmingham, Alabama. Since then, Birmingham City Schools (BCS) and a local educational nonprofit organization, Birmingham Education Foundation (Ed.), have collaborated to establish one or more career academy programs in all seven public high schools. In the spring of 2016, Birmingham Education Foundation and Birmingham City Schools requested that Ed.D. students at Peabody College study the implementation and outcomes of Birmingham's career academies. The following capstone project report is the result of this research request.

With input from BCS and Ed., the following research questions were developed:

1. Is each of the seven Career Academies implemented in accordance with the standards required of districts that join the National Academy Foundation Organization?

2. If there are deviations between individual Career Academies and NAF standards, how might those deviations affect students' academic and/or non-academic skills?

3. What are the perceived academic and non-academic skills gained by students who choose to enroll in specific Career Academies?

4. How has participation in the Career Academy program shaped students' college and career perspectives, including feelings of readiness for college and/or career?

We, the researchers, used qualitative and quantitative research methods to evaluate the implementation of career academies and to compare student outcomes. We acquired qualitative data through interviews with students, educators, and community members. Quantitative data was obtained through the administration of two surveys, one for Career Academy teachers/Coordinators and one for students. In addition, we conducted a statistical comparison of pre-existing student ACT and ACT Plan data to measure differences in student outcomes. We made a school-wide comparison between senior Career Academy students and non-Academy students for each of the six high schools with a 12th grade, career academy class.

The NAF standards served as a foundation for evaluating Academy implementation by school and Academy. Although currently there exists a paucity of research specifically targeting NAF Career Academies, a handful of research studies have examined general career academies in the context of

Career Technical Education programs. This extant research as well as research on what constitutes "career readiness" offered additional direction in formulating interview questions, student survey questions, and observations.

Based on the triangulation of the qualitative and quantitative data, the following findings and recommendations were offered.

Table 1: Project Findings and Recommendations

Findings:	Recommendations:
1) Student exposure to Career Academy options is limited. 2) Students' career interests do not always align with their Academy's career specialization. 3) Academy Students are not always grouped as a cohesive cohort in their non-Academy classes. 4) Inconsistency in scheduling limits teachers' opportunities to collaborate. 5) "Hiring and retaining uniquely qualified Career Academy staff" to fill every Career Academy Teaching position has proven difficult to accomplish. 6) Integrating NAF themes and content into core subjects is inconsistent. 7) College and Career Readiness of Academy and Non-Academy students attending Birmingham City Schools remains a concern. 8) CA students are relatively more prepared for college than non-CA students. 9) Internship in Career Academies is in its infancy. 10) Students feel they possess executive function skills, although business mentors see some executive function deficits in their student interns. 11) Students report increased feelings of College and Career Readiness as well as enhanced engagement in high school as a result of Academy participation.	1) Create Career Academy fairs that showcase all academies to every eighth grader. 2) Fill the ninth grade gap year with corresponding CTE courses for interested students. 3) Intentionally schedule CA students to remain as a cohort in content classes. 4) Attract and retain critical field teachers to the CA program. 5) Ensure all teachers who are recruited to lead CA cohorts understand and accept the added responsibilities. 6) Support the CA program by ensuring sufficient transportation is available for work-based learning. 7) Support the Coordinator and Ed in providing a formal internship experience to all students. 8) Encourage two-way communication between Ed and the Career Academy Coordinators while teaching students how to manage deadlines. 9) Ensure that each Academy builds an active and robust Advisory Board.

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INTRODUCTION

Career Academies

Career Academy programs combine a college-preparatory curriculum with career training through thematic and cross-curricular units. Because Career Academies integrate academic and industry exposure, students see the connection between their classroom learning and their future professional learning, thereby increasing the relevance of their coursework (Lewis, 1998). Learning about a career can transcend specific vocational skills to include instruction on the topics of job placement, hiring, safety, wages, the role of unions, and many other practical skills. In addition, Career Academies partner with employers and Institutes of Higher Education (IHE) so that students can apply their classroom learning to actual job sites while simultaneously earning dual, high school and college credit (Stern, Dayton, & Raby, 2010). Through project-based learning and work-based experiences, Academy programs encourage students to see work as a service to the community.

Career Academies have existed in high schools since the late 1960s. However, it was not until the 1990s when their popularity increased substantially (Stern, Dayton, & Raby, 2010) and shifted from mostly vocational education for non-college-bound students to coursework emphasizing college and career readiness (Kemple & Snipes, 2000). One intended benefit of career academy participation, although not specifically substantiated by research (Orr, Bailey, Hughes, Karp, & Kienzl, Feb. 2004; Kemple & Scott-Clayton, 2004), is that Academy students will be more likely to graduate high school and meet their future goals, whether those goals include enrolling in college, enlisting in the military, or entering directly into a desired career field.

History of Career Academies in Birmingham City Schools

From the time that influential community members founded Alabama's first school house in 1874, the Birmingham City School system (BCS) has expanded exponentially to a current total of 42 schools: 18 elementary, 8 middle, 8 K-8, 7 high schools, and 1 alternative school serve the Birmingham community (Birmingham City Schools, 2016). With over 212,237 residents, Birmingham is the largest city in Alabama. Of the three largest demographic groups, African Americans make up 72.9% of the population, while Whites and Latinos make up 21.3% and 3.3%, respectively (City-Data.com). However, public school enrollment in Birmingham City Schools does not reflect Birmingham's demographics. During the 2016-2017 school year, BCS enrolled 6,243 high school students; African Americans represented 93% of the student population, while Latinos and Whites represented approximately 4% and 1% of the student population, respectively (Birmingham City Schools public data, 2016).

In 2016, six of the seven BCS high schools were listed in the "failing schools" category for ranking in the bottom 6% of Alabama public schools. Less than 50% of BCS students scored "proficient" on math and reading standardized assessments. Moreover, BCS students scored at least 20 percentage points below the state average in both subject areas (ALDSE, 2017).

Addressing the Need

Out of a concern that public school graduates lacked preparation to pursue either higher education or a professional career, business and community leaders founded the nonprofit Birmingham Education Foundation (Ed) in 2007 (interview with business partners, Jan. 2017). Birmingham's leaders created Ed to organize educational programs that would not only enhance students' educational opportunities, but also build networking opportunities and partnerships among families, educators, and businesses. To this day, Ed and Birmingham City Schools (BCS) continue their partnership with the same joint goal: All BCS graduates will graduate with the skills and knowledge necessary for college and/or career success.

In 2010, BCS began the planning phase to implement a series of Career Academies (CAs) in Birmingham City high schools. The intention was for the Career Academies to have a symbiotic relationship with the Career Technical Education (CTE) pathways that had already existed in BCS high schools for decades. As part of the CTE program, students are encouraged, but not required, to declare a CTE pathway beginning in ninth grade. If they complete the requisite number of courses, they may graduate with credentials in that CTE industry. When BCS decided to incorporate the Career Academy program, all but one of the already established CTE programs correlated to the new Career Academies. BCS partnered with the National Academy Foundation (NAF), incorporating the NAF model into the budding Career Academies. The NAF model and its standards stipulate specific structure, development, curricula, and career exposure for cohorts of students. Similar to BCS and Ed's overarching goals, the goal of the NAF Career Academy model is to "ignite students' passion for learning, support school and district priorities and give businesses the opportunity to shape America's future workforce" (NAF Educational Design, 2016). BCS's first academies opened in August 2012 in five high schools: Carver, Huffman, Jackson-Olin, Wenonah, and Woodlawn. Parker added a Career Academy in 2013, and Ramsay added a Career Academy in 2016. Each of the seven schools now house at least one of the following Career Academy foci: business and finance, engineering, architecture and construction, health science, hospitality and tourism, information technology, and urban education. All but two of Birmingham's Career Academies, Huffman's Academy of Architecture and Construction and Parker's Academy of Urban Educators, follow existing NAF program models. Currently, Birmingham's Career Academies serve approximately 840 students of the total high school student population of almost 6,270 (Ed, Career Academy Cohort Numbers, 2017).

Birmingham Education Foundation

Outside of BCS, a key stakeholder in the success of Career Academies is the Birmingham Education Foundation (Ed). When Career Academies were implemented in the schools, Ed took the role of facilitating career exposure by facilitating interaction between local businesses and schools. Ed sponsors, develops, and implements career-education programs for Birmingham Career Academy students to help the schools meet the NAF work-based standards (Birmingham Education Foundation,

"Meet Ed: History of Ed," 2016). Ed is the primary actor in creating a coordinated, sequenced set of experiences based on career awareness, exploration, and preparation.

One experience that Ed sponsors is called Bridging the Gap (BTG) for all Career Academy students from 10th through 12th grade. This program provides students with exposure to local businesses, networking opportunities with industry professionals, and ongoing career-related experiences (Educate Locale-Network of Programs, 2015). The career education activities become progressively more extensive based on students' grade level. Tenth grade students visit career sites, while eleventh grade students shadow business mentors who work in the students' intended career field. During students' twelfth grade year, students have the opportunity to participate in a paid internship experience that holds significant importance to students and Ed. staff alike: "The internship piece is our crown jewel. That is the game-changer." (Ed Staff Member). Interviews for the internship are conducted during the senior Career Development Conference in October. In 2016, thirty-five students interviewed for a total of thirty-five positions in partner companies. Apart from the opportunity to interview, the Career Development Conference provides students with the opportunity to present their resume's, business cards, and personal narratives to volunteers from local businesses, who, in turn, offer feedback to students.

Project Purpose

After six years of implementation and two graduating classes, BCS is interested in knowing whether Academy students are receiving the academic content knowledge and executive skills necessary to obtain and retain a job. The purpose of this capstone project is to independently evaluate the BCS Career Academy program according to the standards set by the National Academy Foundation to assess whether Career Academy students gain additional academic and non-academic skills including social, executive, and occupational skills through Academy participation.

Logic Model

Based on Campbell's conceptual guide found in Patton's *Qualitative Research & Evaluation Methods* (2015), a three-dimensional model was created (Figure 1) to represent the potential relationships among the components of the program (NAF standards), factors that influenced implementation of the components, and the subsequent level of program implementation. Prior research shows mixed results of Career Academies that are established with the required components (Orr, Bailey, Hughes, Karp, & Kienzl, 2004; Stern, Dayton, Raby, 2010); Kemple, 2004). Our efforts focused on discovering the factors that influence the implementation of NAF standards in each Academy and the resulting academic outcomes.

The components of the Career Academy model are laid out clearly by NAF. They include student recruitment and enrollment, personalized learning, leadership, professional development, college and career readiness, work-based learning, and internship. While factors that influence implementation, such as unique district or state requirements may be the same across all academies, these factors may not

affect each Academy the same way. The factors that influenced Career Academy implementation included school policies, district policies, state policies, Ed Birmingham programs, NAF policies, and external factors such as partnerships and businesses. Our task was to consider each factor in relation to the NAF standard being assessed at each Academy, and then to synthesize the factors' effects on the program as whole.
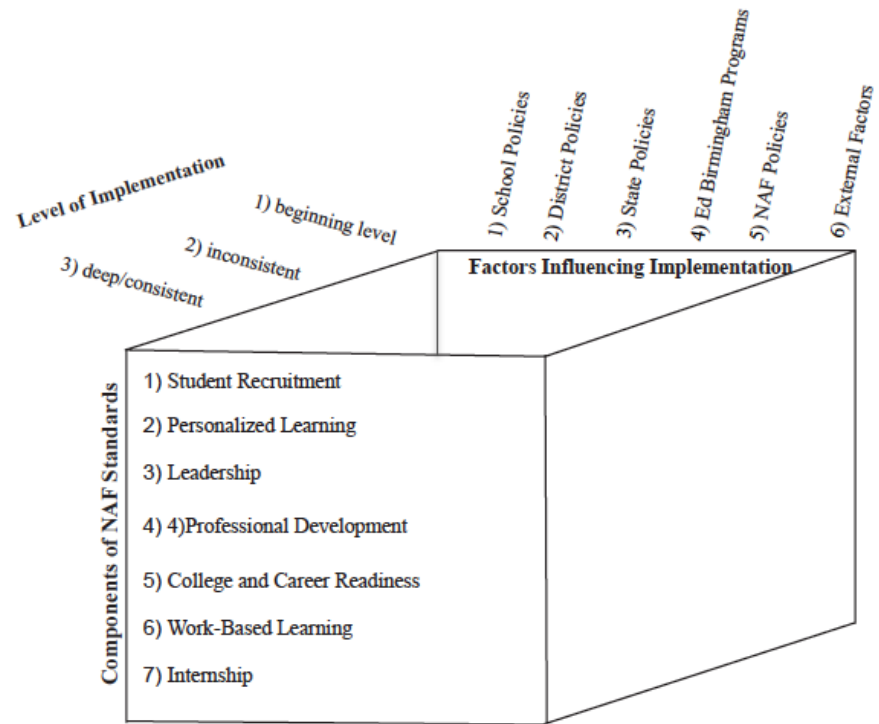

Figure 1: Logic Model

CONTEXTUAL ANALYSIS

National Academy Foundation (NAF) is a national network of education, business, and community leaders who collaborate to ensure that high school students within the program are "college, career, and future ready." NAF partners with high schools in high-needs communities to create small learning communities (schools-within-schools) that focus on a particular industry while preparing the students for college.

In order to provide high quality learning to the students, NAF's educational design is built around four "Elements of Practice." Within those Elements, standards exist assess career academies (see Figure 2). This project evaluated each school's Career Academy based on NAF standards (Figure 2).

Figure 2: NAF Standards

NAF ELEMENTS of PRACTICE
- Academy Development and Structure
- Advisory Board
- Curriculum and Instruction
- Work-Based Learning

NAF ACADEMY THEMES
- Health Sciences
- Engineering
- Information Technology
- Hospitality and Tourism
- Finance

Each Academy is expected to follow specific curriculum, work-based experiences, and project-based learning for the students. NAF also provides annual and ongoing professional development for Career Academy faculty who teach academy students. According to the NAF model, an Advisory Board and Academy Coordinator provide oversight, mentorship, and connections to colleges and career industries.

RESEARCH DESIGN

METHODS

Overview

Our evaluation process follows what Rossi, et al (2004) describe as a "participatory or collaborative evaluation" with the evaluators and stakeholders working together to plan and conduct the evaluation. Our research project used a mixed-methods approach to determine the relationship between student participation in career academies and students' academic, executive, and social/emotional outcomes. Our qualitative measures included interviewing a sample of all participants in career academies: Career Academy Coordinators, Career Academy teachers, Career Academy seniors (in one Academy we interviewed juniors since the Academy had yet to have a senior class), members from Birmingham Education Foundation, and local Career Academy business mentors. Quantitative measures were used to find statistical differences in means between CA school program/type as the independent variable, and the dependent variables of students' Official ACT and ACT Plan scores. Quantitative analysis was also conducted to determine whether student responses to a survey significantly differed across Career Academy programs. The student survey, along with a separate survey for Career

Academy educators, asked respondents to quantify their perspectives using a Likert-based scale. We triangulated the quantitative data with findings from the qualitative interviews to contextualize and refine our findings of the extent in which CAs developed students' academic, executive, socio-emotional, and occupational skills.

Quantitative Strategies

Two surveys were developed to help quantify, as well as triangulate, student and teacher perspectives on participating in the Career Academy program. For the student survey, most questions came from the U.S. Department of Education's High School Longitudinal Study of 2009, the Educational Longitudinal Study of 2002, and Dawson and Guare's "Executive Skills in Children and Adolescents" (2nd ed.). Attempts were made to include as many questions as possible from these published and widely-cited survey mechanisms to increase the likelihood of construct reliability. We created some additional questions for the survey to help better understand students' perceptions of the implementation of career academies as well as students' feelings on any academic or career outcomes gained through Academy participation. As for the educator survey, most questions were derived from a survey designed by Dr. Akilah Swinton (2015) that was administered in Prince George's County, Maryland to evaluate the county's career academies. We utilized Swinton's (2015) survey questions for two reasons. First, survey questions held increased reliability compared to possible original questions that we could design ourselves. Second, Swinton's (2015) survey specifically asks educators to reflect on whether the NAF standards of teacher collaboration and curriculum integration are being implemented at the campus level. We designed some additional survey questions to specifically measure Career Academy fidelity to the NAF model as well as teacher perspectives on students' relative college and career readiness.

In order to gauge differences in performance among Career Academy programs/schools on standardized test measures, we considered two separate standardized test measures— ACT Plan (taken by students in 10th grade) and the official ACT (taken by students in 11th grade). We chose to only consider student data from current 12th grade students to compare the same cohort from 10th to 12th grade. Based on the senior data provided by BCS, we were able to consider seven individual Career Academy programs with 12th grade classes:

- Carver Academy of Engineering (AOE)
- Carver Academy of Health Sciences (AOHS)
- Huffman Academy of Architecture and Construction (AOAC)
- Jackson-Olin Academy of Health Sciences (AOHS)
- Parker Academy of Urban Educators (AOUE).
- Wenonah Academy of Hospitality and Tourism (AOHT)
- Woodlawn Academy of Business and Finance (AOBF)

To determine possible differences in ACT and ACT Plan scores among students in particular CA programs, we performed MANOVA tests in which CA program was the independent variable and the ACT and ACT Plan English, Reading, Science, and Math scores were dependent variables. We also wanted to determine if there existed statistically significant differences in student survey responses. For this reason, we ran separate ANOVA tests in which each student response was the dependent variable.

Survey Sample

In terms of student survey participation, 91 students began the survey, while 86 students completed the survey (See table 2). Compared with the 186 total senior Career Academy students in BCS, the survey had slightly less than 50% participation rate of senior students. Overall, female survey respondents were overrepresented in the survey. In terms of race and ethnicity, African-Americans were slightly underrepresented, and Latinos were slightly overrepresented (BCS Enrollment data, 2016-2017). In total, 18 teachers began the teacher survey while only 16 teachers answered every question. At least one teacher from every Academy with a full-time Career Academy teacher completed the survey.

For the quantitative difference in means tests between career academies, we analyzed test data of 808 BCS senior students (185 of those seniors were Career Academy students). We disaggregated each student's individual ACT and ACT Plan data based on whether or not the student participated in a specific Career Academy offered at the student's school. Only students with complete sets of ACT and ACT Plan data were included in the sample.

Interviews

In January of 2017, we conducted structured interviews at the seven BCS high schools. At each school, we were able to interview at least one group of Academy students as well as the Career Academy Coordinator. Moreover, in all schools but one, we were able to interview at least one Academy teacher. Next, we interviewed Ed. staff members and business mentors at the Birmingham Education Foundation Office and at a local business incubation center called Innovation Depot.

We primarily interviewed Academy educators (CA Coordinators and CA teachers) individually. To provide additional insight, we interviewed several core content teachers (English, Math, Science, etc.) who teach both Academy and non-Academy students. As for student interviews, we conducted group interviews consisting of 2-6 students per group. Since we wanted to understand students' comprehensive Academy experience, we narrowed our interview focus to twelfth grade students in each of the academies. One of the academies that had been recently created, Parker Academy of Health Sciences, did not have a senior class of academy students, so 11th grade students were interviewed instead.

Artifacts

BCS artifacts that we analyzed included data for all BCS high school students and Career Academy students. This data included ACT, ACT PLAN, enrollment and attendance data, demographic data, and BCS Plan Summary for 2015-2016. We also analyzed promotional flyers, curriculum and lesson plans, and Advisory Board minutes from the schools with active Advisory Boards.

The Ed artifacts analyzed were 2015-2016 Year in Review," "2017 Internship Evaluation," "2017 Internship Fair Post-survey," 2016-2017 "BCS Career Academy cohort numbers and schedule," and the "2015-2017 Educate Local Program Plans."

Limitations

Threats to the internal validity of study findings include differential selection of participants. Because enrollment was open and choice-based, students who enroll in Career Academies might be more academically and/or career inclined than their non-Career Academy counterparts or vice-versa. This may lead to extraneous or confounding variables. An additional threat to validity occurs in treatment diffusion where Career Academy and non-Career Academy students interact through core content classes or extracurricular activities.

External validity threats are also present when analyzing survey results. One potential threat involves selection bias since students and teachers self-select to join the Career Academy program and also self-select in their choice to complete the survey. Moreover, the survey is not a randomized sample, since we encouraged participation instead of randomly selecting a portion of the total teacher and student population. Contamination could exist because not all surveys were administered simultaneously. There was more than a month-long window to complete the survey, and students or staff who completed the survey earlier could have possibly influenced the responses of those who completed the survey later.

Threats to Reliability

Although we attempted to improve reliability by using existing, published measures, some survey questions that we developed ourselves have not been tested for reliability and could prove unreliable.

Limited Generalizability

Our comparison is relevant only to the BCS Career Academies. Our findings cannot be used to make general conclusions about all career academies across the United States, or any other district's career academies. Finally, we cannot demonstrate causality because we have used a non-experimental design that features possible issues with temporal antecedence and extraneous and/or confounding variables. Temporal antecedence cannot be determined since we do not know which exactly came first:

the development of students' academic achievement abilities and executive skills, or students' participation in a Career Academy. Moreover, the same extraneous and/or confounding variables that pose possible threats to internal validity likewise pose threats to the generalizability of the study. Thus, the most that our data can show is relative associations.


KEY FINDINGS

Our findings are based on the qualitative data gathered from interviews, documents provided by BCS and Ed, and survey data from students and teachers who participate in the Career Academies. Our quantitative data originated from the ACT Plan and ACT scores provided by BCS. From these sources we gained an appreciation of the internal and external factors that affect the implementation of Career Academies in each school.

KEY FINDING 1: Students' exposure to Career Academy options is limited.

Individual school recruitment practices determined the exposure that middle school students received regarding Career Academies. Both engineering schools actively recruited eighth-grade students because these programs began in ninth grade. Three other schools whose Career Academies did not begin until tenth grade also informed middle-school students and parents of Career Academy opportunities. The other schools recruited for tenth-grade Career Academy students during the second semester of their ninth-grade year. Student survey results reflect these findings. Only 36% of students answered positively that they "agree" that "In eighth grade, my school provided me with information about different high-school Career Academy options and how to apply to the Career Academies" (see "Graph 1" below)

Graph 1: Student knowledge of Academy Program in 8th grade

STUDENT SURVEY QUESTION #8:

CAREER ACADEMY OPTIONS WERE
PRESENTED IN 8TH GRADE

■ Agree   ■ Disagree   ■ Neutral

22%

36%

42%
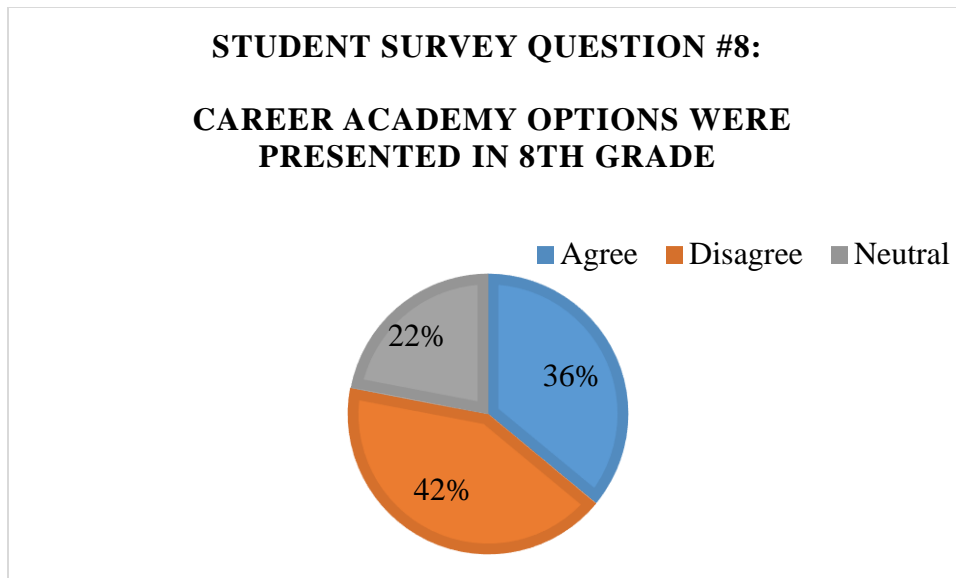
Freshman "gap year."

  "We start [the Academy] in the tenth grade so there is a gap when they [students] first hear about the opportunity. We lose track of the students during that gap" (Coordinator).

  All Career Academies coincided with a similar CTE pathway, with the exception of Parker's AOUE. All students were encouraged, but not required, to choose a CTE pathway beginning in 9th grade. Because the students received varying amounts of information concerning the Career Academy program at their school, they were not likely to choose a CTE pathway that coincided with a Career Academy. For example, the three Coordinators who recruited eighth grade students did not mention any effort to actively place those interested in the CA into a CTE pathway that would lead to the Career Academy. One school's Career Academy Advisor, who is also a school counselor, spoke about working with other counselors to place all ninth grade students into a CTE track. However, she did not indicate that she recruited eighth grade students for the corresponding CTE track. Rather, she was more concerned that all ninth grade students completed required courses for graduation.

Key Finding 2*: Students' career interests do not always align with their Academy's career specialization.*

  Three school Coordinators stated that students were often placed into Academies without first consulting the students. Eight out of the thirty-three students interviewed had not initially elected to participate in the Academy program, but were placed in an Academy even though the students had not initially expressed interest in the Academy program. In some cases, the students found that they enjoyed the cohort, the field trips, and the opportunities afforded by Career Academies; unsurprisingly, these students remained in the program. On the other hand, Coordinators suggested that other students placed

in the Academies had to withdraw because their extracurricular activities such as athletics conflicted with their Academy obligations. "We have a lot of athletes who are put in there. . . and their extracurricular takes priority over the activities" (content teacher).

Because BCS spreads out its career academies across the seven high schools, some students may not be zoned to attend a high school that has the career academy that matches the students' career interests. Students could apply for an out-of-zone exemption to attend the Career Academy of their choice, but students must provide their own transportation. Students also risk the possibility of attending what their family and/or friends perceive as a "rival" school. These physical and social barriers steered virtually all students into attending the Academy of their zoned high school regardless of their career interest. In the interviews, we found only one student who enrolled in an Academy that she was *not* zoned to attend.

Student recruitment proves to be a third issue that leads to some incongruence between student' career academy placement and their career interests. Career Academy Coordinators did not actively recruit students until they were already in high school, and then only recruited students within the Coordinators' own schools. Because of these recruitment practices, some students indicated in their interview responses that they were unaware they could have chosen another school's Academy.

Indeed, two business partners noted the misalignment between students' interests and their Academy enrollment: "A lot of students just joined their Academy because that was what was there, what was available to them (business partners)." Three Ed members also agreed. One stated: "The concept of going to a high school out of their zone is a new concept. There are deep high-school relationships that still shape a life in Alabama" (Ed member). Another Ed member cited the lack of information as an additional factor in students' failing to choose the career academy that corresponded with career interest: "How is an eighth grader supposed to make that decision and once you are in ninth grade you won't change high schools unless you literally see that Academy to be life-changing" (Ed member).

One specific example comes from interviews with students in Huffman's Construction Academy. None of the students expressed a desire to enter the construction industry. Yet, they were enthusiastic about remaining in the Academy because the Academy program provided unique career exposure and experiential learning opportunities: "I would encourage anyone when they come to high school to get into an Academy. Get in one, it doesn't matter which one. It is good exposure. Even if it is not what you want to do" (Huffman student). Nevertheless, according to research, all students should ideally attend the Career Academy that matches their career interests. Stern, Dayton and Raby (2010) note that students gain a better understanding of academic subjects when these subjects are applied to their career interests.

KEY FINDING 3: **Academy Students are not always grouped as a cohesive cohort in their non-Academy classes.**

NAF structured the Career Academy program as a Small Learning Community (SLC) in which students move as a cohort through all of their technical courses and most of their core content classes. Within the content classes, Academy themes should be integrated and executive skills taught. According to interviews with teachers, Coordinators, and students, three schools could not group students for any core content classes. Three schools maintained the cohort through most of the core classes. We found that the ability to group cohorts of Academy students into the same content classes was impeded by the following three obstacles:

1. School-level course scheduling: None of the Academy Coordinators had participated in student scheduling the past summer, although two Coordinators stated that they had participated in scheduling in previous summers. As a result, Coordinators could not ensure that Academy students were scheduled as a cohort into core content classes taught by NAF-trained teachers. The Coordinators suggested that their non-participation in scheduling was a result of school leadership shifting priority away from Career Academies: "We have been more spread out as far as how successful we have been in insuring [Academy students remain together]. There was a shift in new leadership . . . It may have helped in providing equity to who teaches what, but was not good for the cohort" (CA Coordinator).

2. Student academic levels: Student academic levels and their choices of classes also affected the cohesion of the cohort. Students' academic abilities differed, necessitating a diffusion of the cohort to accommodate various academic abilities. This occurred most frequently during students'11th and 12th grade school years when some students enrolled in dual credit, AP/Pre-AP, or honors classes, while others remained in general track classes.

3. NAF policies that conflicted with school resource limitations: One factor beyond the school's control was the NAF expectation to increase Academy enrollment to reach a goal of seventy-five students per cohort. Most BCS schools were simply not equipped with the staff to dedicate teachers to three Academy classes of twenty-five students each. The schools that could not schedule the Academy cohort into core content classes were the three smallest schools in the district. "We try to cohort them as best we can in other classes. But the class last year was so large that because of resources and the way the other curriculum was structured we had to split that ninth grade" (CA Coordinator). This expectation resulted in Academy students taking different core content classes, which broke up the cohesiveness of their student cohort.

KEY FINDING 4: *Inconsistency in scheduling limits teachers' opportunities to collaborate.*

The Absence of a Common Planning Time for Academy Teachers

The teachers who instructed Career Academy students in both technical and core areas often lacked a common planning time or other formal collaboration time. On the teacher survey, a majority of

teachers (59%) responded "no" to the question that asked them if they shared a common planning period with other Career Academy teachers. Coordinators remembered common planning time in the first year of their academy implementation, but "when the schedule got 'flip-flopped' it changed" (CA Coordinator). According to the NAF model, teachers should meet weekly to collaborate and plan together. Although teachers could meet outside their planning time, for example, either before or after school, some Coordinators felt that was an unlikely option. "They [the teachers] don't have time to eat their lunch, let alone go and talk to another teacher" (CA Coordinator)

In spite of the lack of scheduled common planning, 65% of teachers agreed that they met regularly for curriculum integration, and 88% of the teachers surveyed believed the Career Academy felt like a small learning community. This could signify that teachers did indeed use time outside of the normal school day to meet and collaborate, or that the absence of a common planning time did not hamper teachers' conception of their Academy as a "Small Learning Community."

Concerns over the extent in which Academy educators participate in ongoing professional development specific to the context of Career Academies.

According to NAF standards, professional development should occur at all levels through regularly scheduled meetings specific to the Career Academy context. Although Coordinators met monthly with the District Coordinator, there was lack of evidence to contend that all Academy teachers' participated in ongoing professional development relative to the Academy model. Although the survey reported that 76% of teachers completed more than eight hours of professional development (with 65% of the teachers completing twenty or more hours), the survey did not specify whether or not the professional development was specific to teaching in career academies. Based on interviews with teachers and Coordinators, we found that one school received ongoing professional development with Ed, whereas the teachers from four schools attended summer NAF Training. These teachers considered the additional professional development training with NAF throughout the year as beneficial: "You are hearing from more experienced academies what works and what doesn't. They teach team-building activities. We get a lot from it" (Teacher).

However, three schools did not mention any NAF training. One Coordinator, who had attended the NAF conferences nearly every year she was a coordinator, felt that some aspects of the NAF training had become redundant: "I try not to go to summer NAF training but send teachers by themselves. I've been to [a number of] conferences and I would say I have outgrown NAF (Coordinator)."

KEY FINDING 5: "Hiring and retaining uniquely qualified Career Academy staff" to fill every Career Academy Teaching position has proven difficult to accomplish.

Hiring Qualified Career Academy Faculty

NAF defines uniquely qualified teachers as those who are certified in both core- and career-content areas. Because Career Academies fall under the auspices of the state CTE program, the CA teachers are expected to also be certified to teach CTE. Approximately 25% of teachers surveyed responded that they lacked industry experience, a requirement for CTE certification. This percentage reflects the difficulty that BCS has experienced in acquiring and retaining certified teachers, which is not uncommon in urban public schools (Watlington, 2010). At the time of the project, Carver AOHS was functioning without a CTE/CA instructor. The Coordinator suggested that a biology-certified teacher would be better than the constant revolving door of non-certified substitutes and guest speakers. However, the state CTE requirement did not provide the option to hire teachers who were not certified health professionals for that position. At Huffman, the same restriction left the AOAC without a construction teacher for more than a year. When probed as to why the positions remained unfilled, the Coordinators and Ed both responded that the potential instructors would receive a significant cut in pay to become a teacher and have to complete an extensive alternative certification process.

Hiring Content Area Teachers to teach Career Academy Students

Not only did the Academies find hiring technical instructors difficult, but recruiting content teachers willing to submit to the additional training and coordination required of a Career Academy teacher was also challenging. According to one Coordinator, "One time, every teacher had been trained, every teacher came up with the first part of the program." Content teachers who taught CA students were initially recruited from within the school by the Coordinators. Over time, teacher turnover took its toll on program integrity. Coordinators began to recruit the best remaining teachers as replacement content teachers, but this resulted in wide array of teachers—from those who were committed and trained in the Career Academy model to those who lacked Career Academy training. Specifically, three schools that did not schedule Career Academy students as a cohort into content areas also lacked NAF-trained teachers. As one Coordinator observed: "When you have the overturn in staff and bring in TFA or new teachers who don't understand the concept of an Academy, you are just going with a regular teacher who is coming in and teaching as usual, but Academy is a little different (Coordinator)." Although students lavished praise on teachers for their care, they recognized the impact of not learning from a CA-trained teacher. One CA student commented: "The teachers are fantastic. They push us and motivate us to drive forward. They know us on a personal basis" (CA student). In contrast, another student complained: "They need to start hiring actual certified, and qualified, teachers who will actually teach" (CA student).

KEY FINDING 6: Integrating NAF themes and content into core subjects was inconsistent.

Integrating Technical Concepts with Core Content

Career Academy programs of study should integrate career and technical concepts into core subjects. One of the lowest percentages of positive answers on the teacher survey involved curriculum integration. Only 65% of teachers reported they regularly met with core content teachers to discuss curriculum integration. This correlated with the 59% of surveyed teachers who do not share common planning. Additionally, the two schools that successfully grouped cohorts of CA students into the same content classes proved more consistent in integrating academy content and project based learning into core content coursework. However, in the three schools in which students were not grouped as a cohesive cohort, students and teacher interviews suggested that the integration of academy themes and project-based learning was inconsistent.

Although the teachers found it difficult to deliberately integrate career themes and content into core courses, students perceived that their academy and core content classes were interrelated--80% of students reported on the student survey that integration had occurred between core content and Career Academy classes.

Teacher Turnover

"We [the teacher and Coordinator] talked about how there shouldn't be a disconnect between Career Academy focus and content area, but when you're grasping to stay alive, you teach to the test" (CA teacher). One factor that impacted the CA integration into core subjects was instructor turnover. As stated earlier, two schools' Academies had not filled their Academy instructor positions for two years. The students noticed the missed educational opportunities caused by an absence of a permanent instructor trained in the field: "Students who were used to doing hands-on projects wish they could go back to doing those projects" (CA Coordinator). Specifically, Carver's HSA instructor position had been open for two years. Although the Coordinator brought in guest speakers to fill the period, there was no cohesion for the students. A similar issue occurred with turnover among content teachers. Four coordinators mentioned teacher turnover and the impact it had on integrating technical areas into core content classes, particularly in math classes which lacked a permanent, certified teacher. Overall, five of the seven schools indicated either high levels of turnover among content teachers, or a persistent shortage of an Academy teacher.

NAF Curriculum and Student Reading Comprehension

A significant tenet of the NAF standards is following NAF curriculum that was designed by industry personnel around real-world projects. We wanted to know if the curriculum had been adjusted by the Coordinators and/or the teachers, and the factors that might have led to the adjustments. Two content teachers revealed that they adjusted the content curriculum, while two technical teachers stated

that they could not teach the NAF curriculum without adjustment. The common reason was summed up by a teacher who declared that "The kids cannot read on grade level. I have had to modify the curriculum to make it more hands-on until they can get up to speed" (CA Teacher). According to the 2016 ACT Aspire scores (given to all BCS eighth grade students), up to 90% of eighth-grade students enter BCS high schools unable to read on grade level ("Find your school's ACT Aspire Scores," 2016). Thus, some teachers felt they had to adjust the reading portion of the curriculum to convey the thematic concepts at students' reading levels.

Conflict Between NAF and CTE Curriculum

There appeared to be a notable tension between NAF and CTE requirements or state curricula at the school level. Although not required, it is strongly recommended that every student declare a CTE pathway in ninth grade, and the school's Career Academy is one of those pathways. Under the CTE policies, the students who follow the pathway classes will graduate with a number of credentials based on the Pathway. Students participating in a Career Academy also earn that pathway's credentials. This alignment of CTE with Career Academies was not seamless, according to the interviews. Woodlawn AOBF adjusted its NAF curriculum to satisfy state CTE requirements. Another Coordinator also adjusted its curriculum to satisfy state requirements. She explained that "NAF was trying to make us [the Academy] convert to their system but the state said their curriculum was more rigorous." A teacher at another school observed that the AOHS-aligned science classes were unavailable because the state eliminated the genetics and forensics courses. Not all academies, however, conflicted with CTE-approved courses. The AOUE is not a NAF theme, so they used the state CTE program. Both Engineering Academies used the joint NAF and CTE-approved engineering program called "Project Lead the Way" (PLTW).

Project-Based Learning

The primary vehicle by which NAF course themes are integrated into core subject area content is through in-school, project-based learning. This appeared, however, to be the first section of the curriculum to be altered or eliminated by the schools due to factors already-mentioned. From the interviews, individual teachers appeared to be integrating curriculum, but there was not an overarching press to do so. One core content teacher discussed having some project-based learning with Career Academy students in her mixed classroom of Academy and non-Academy students, "but not as much, mainly because we have other things we have to prepare students for, like grammar, reading, speaking, writing, and listening skills."

Some students in their interviews felt the lack of opportunities for real-world, project based collaboration with their peers and recommended a solution. Two students in two different schools suggested that the schools establish "more Academy meetings within ourselves." These two students

(and the other students participating in the two interviews) expressed an eagerness to network with peers in other academies to share information, contacts, and support. This could even help with students' extensive project of applying and preparing for college: "Maybe we should get all the Academy students together and talk about internships and our future. A lot of students don't have parents at home and they cannot help them figure out how to go [to college]. . . . *Because at the end of the day all the academies connect in some way*" (CA student).

Key Finding 7: College and Career Readiness of the Academy and Non-Academy students attending Birmingham City Schools remains a concern.

NAF defines programs that promote college and career readiness as programs that help students build college knowledge, navigate the college application process, and meet the minimal admission requirements of state colleges. A college and career readiness program should also offer multiple post-secondary options in high school, such as AP courses, dual-enrollment classes, and industry certifications.

According to NAF standards, college readiness implies several conditions to be met. First, students must be academically prepared to be successful in college. Second, students must graduate from high school with the eligibility to be admitted into a four-year, state college or university. Academy stakeholders differ in their perception of Academy students' college readiness. On the teacher survey, 88% of teachers agreed that the CA program provides students with the skills and knowledge necessary for college success. However, some of the business partners that interact with the students disagree. "There are some basic writing skills that are lacking for most of the them" (Business Partner) "If they (the district) are going to do the number of different careers that these career academies are designed for, you have got to get more to graduate from high school...and more importantly those that graduate from high school are actually ready to go to college to get a degree in that field." (Business Partner).

According to ACT (2017), college readiness is demonstrated by scoring at least 18 on the English section, 22 on both the math and reading sections, and 23 on the science section. As can be seen from Graphs 2, 3, 4, and 5 below, even when considering both Career Academy and Non-Career Academy students, only Carver AOE students scored high enough to meet the ACT's benchmark for college level readiness. However, Carver AOE students were solely able to meet college readiness benchmarks on one test, ACT English.
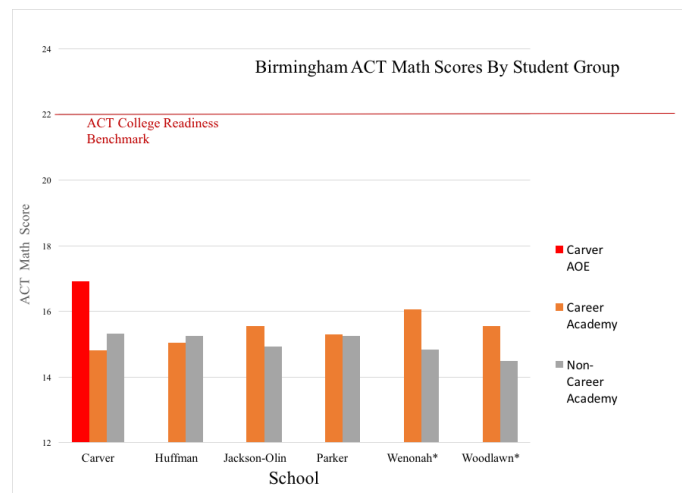
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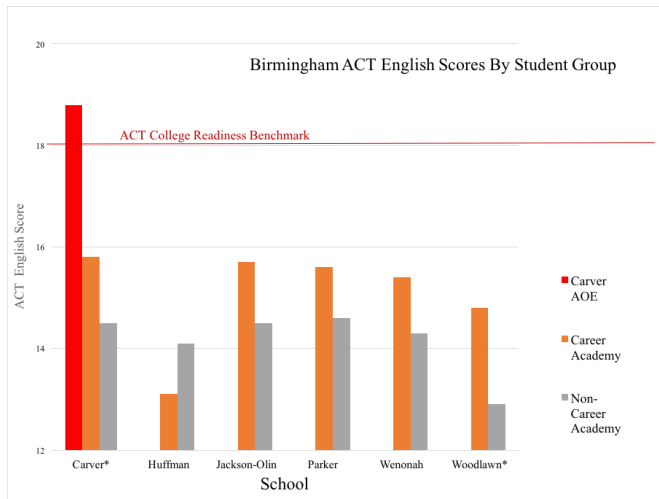
Graph 2: ACT English Scores
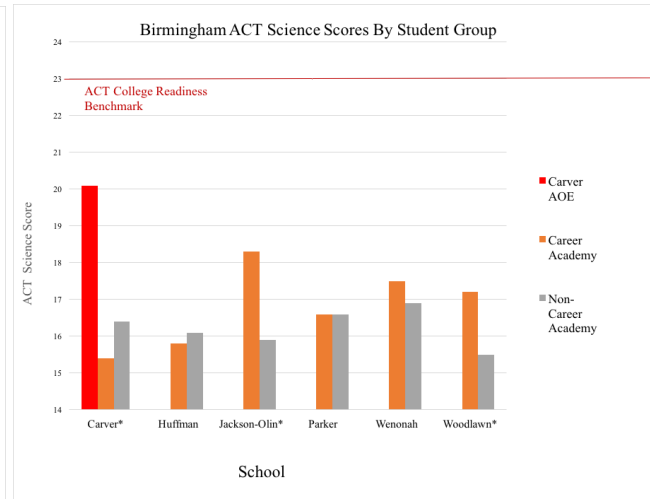
Graph 3: ACT Science Scores
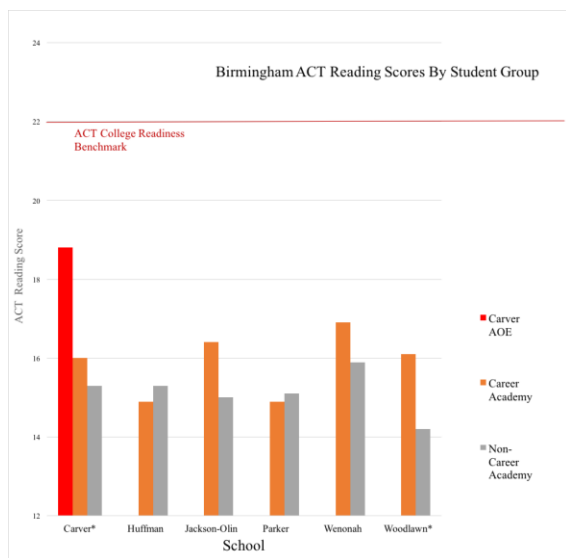
Graph 4: ACT Reading Scores

Graph 5: ACT Math Scores

In evaluating whether the career academies had prepared students for at least state college admission, we considered whether students' mean ACT composite scores reached the 50% composite ACT average of students who enrolled in Alabama state universities (U.S. Department of Education, 2017). Table 2 compares each group's composite ACT score with 50% ACT composite ranges for eleven Alabama state schools. The average ACT composite scores for every Academy falls within the 50% range of the students enrolled at Alabama A&M, and all academies except for Huffman AOAC fall within the 50% range of the students enrolled at Alabama State (see Table 2 below).

School/Program		Auburn Univ. 50% ACT Comp. Range 24-30	Alabama A&M 50% ACT Comp. Range 15-19	Univ. of Alabama 50% ACT Comp. Range 22-31	Jacksonville St. 50% ACT Comp. Range 19-26	Univ. of N. Alabama 50% ACT Comp. Range 19-25	Auburn Univ. @Montgomery 50% ACT Comp. Range 19-24	Univ. of W. Alabama 50% ACT Comp. Range 19-23	UAB-Huntsville 50% ACT Comp. Range 21-27	UAB-Bham 50% ACT Comp. Range 21-27	Univ.of S. Alabama 50% ACT Comp. Range 20-25	Alabama St. 50% ACT Comp. Range 16-19
CARVER AOE 2017	(Mean ACT Composite Score= 18.6)	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No	Yes
CARVER AOHS 2017	(Mean ACT Composite Score= 15.6)	No	Yes	No	No	No	No	No	No	No	No	Yes
CARVER Non	(Mean ACT Composite Score= 15.5)	No	Yes	No	No	No	No	No	No	No	No	Yes
HUFFMAN AOAC 2017	(Mean ACT Composite Score= 14.8)	No	Yes	No	No	No	No	No	No	No	No	No
HUFFMAN Non	(Mean ACT Composite Score= 15.3)	No	Yes	No	No	No	No	No	No	No	No	No
JACKSON-OLIN AOHS 2017	(Mean ACT Composite Score= 16.6)	No	Yes	No	No	No	No	No	No	No	No	Yes
JACKSON-OLIN Non	(Mean ACT Composite Score= 15.2)	No	Yes	No	No	No	No	No	No	No	No	No
PARKER AOUE 2017	(Mean ACT Composite Score=15.6)	No	Yes	No	No	No	No	No	No	No	No	Yes
PARKER Non	(Mean ACT Composite Score=15.6)	No	Yes	No	No	No	No	No	No	No	No	Yes
WENONAH AOHT 2017	(Mean ACT Composite Score=16.5)	No	Yes	No	No	No	No	No	No	No	No	Yes
WENONAH Non	(Mean ACT Composite Score= 15.7)	No	Yes	No	No	No	No	No	No	No	No	Yes
WOODLAWN AOBF 2017	(Mean ACT Composite Score= 16.1)	No	Yes	No	No	No	No	No	No	No	No	Yes
WOODLAWN Non	(Mean ACT Composite Score= 14.6)	No	Yes	No	No	No	No	No	No	No	No	No

Table 2: Comparing Composite ACT Averages of Student Groups to 50% ACT Composite Ranges of Public, Four-year Colleges in Alabama

As can be seen in Table 6, the non-academy and academy students both have scores that are within the 50% ACT composite range of enrolled students at Alabama A&M. However, the non-academy students in only three of the six high schools (Carver, Parker, Wenonah) are within the 50% ACT composite range for Alabama State. When considering the ACT Composite range of the vast majority of Alabama state colleges, most academy and non-Academy students in Birmingham fall below the colleges' 50% ACT Composite Range (U.S. Department of Education, 2017). This indicates that college readiness of all Birmingham City School students regardless of whether or not they participate in a Career Academy remains a concern.

Key Finding #8: CA students are relatively more prepared for college than non-CA students.

Referring to the ACT composite graph below (graph 6), in all but one of the programs, Academy students as a group scored higher average ACT composite scores than their non-Academy counterparts. In the one high school in which Academy students scored below their non-Academy peers, the differences in mean composite scores were minimal and statistically insignificant (See Appendix ___ for a breakdown of ACT scores by subsection).

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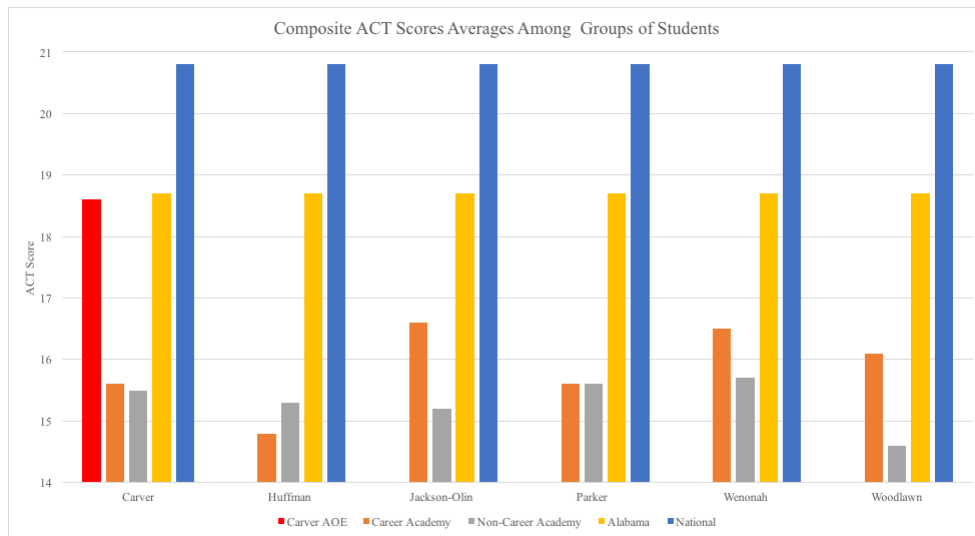
Graph #6: Composite ACT Score Averages Among Student Groups in BCS

Moreover, as shown in the Table 2 earlier, when considering whether students had the opportunity to be admitted into a four year, state university, career academy students were more likely than their non-Academy peers to meet the 50% ACT Composite score averages of Alabama state colleges. For these reasons, Academy students appear to have relatively more college readiness compared to their non-Academy counterparts.

Although career academy students have overall college knowledge and guidance, students need additional support to connect their college studies to their career focus

The standard that sets NAF apart from other college-ready programs is the expectation that all Academy students receive career-themed guidance on college exploration and college choices based on their individual interests. Students from all interviewed schools indicated that they received college guidance from multiple sources, to include Career Academy teachers and Coordinators, as well as external sources, such as Ed or their business partners. According to Academy Coordinators, all students must apply to at least one college in November, including applying to FAFSA. Students at three schools mentioned the district college fair, adding that they were able to apply to scholarships at that time as well. Of the 32 students interviewed, thirty students responded that they had received college guidance, and twenty-six students had already applied to a college as of January. Five of those students had applied to only one school, and the other eighteen students had applied to more than one school. Two students indicated they did not plan to attend college: one due to economic necessity and one who believed that their desired career position did not require further education than that gained through the Career Academy. Students were also asked about their preparation for other parts of the college enrollment process, such as completing FAFSA. Of the thirty-two students interviewed, twenty-two stated they had completed the FAFSA application.

Based on educator interviews, Academy Coordinators and teachers provide significant support for students in the college application process. Six of the seven Coordinators provided examples of strategies they use to connect students to information on college costs, financial assistance, and application processes. Two Coordinators rely on their Academy's Facebook page to post college and loan application information, scholarship applications, and posts from graduates regarding their college experiences. One school's FAFSA Coordinator is also the Academy's core content teacher, and helps the students with their FAFSA application during their content class time.

Another way to promote students' college access is to provide students with multiple post-secondary education options during high school, such as dual-enrollment college courses, Advanced Placement courses, and classes that provide industry certification. In interviews with students from the six high schools that had 12th grade Academy students, students at four of the high schools mentioned dual enrollment opportunities. One of those schools, in particular, is within one block of Jefferson State College, and Academy educators use the Academy's proximity to the college to provide dual enrollment classes for students. Academy educators also regularly invite representatives from the college to provide college information to Academy students. In addition, students at four of the high schools have the option to take AP classes. At the newly-minted Career Academy at Ramsay, students can participate in both the Career Academy and International Baccalaureate program.

Teacher and student survey responses support the career academy's focus on preparing students for college. The survey question asking students about their plans after high school received a 90% response of students indicating that they planned on attending college rather than immediately going into the military or working full time upon finishing high school. Additionally, 94% of teachers responded that the Career Academy program focused on preparing students for college.

Apart from merely encouraging students to apply to college and the FAFSA, NAF expects Academies to support students in applying to college programs that match their career interests. Yet, none of the teachers or Coordinators that were interviewed specifically mentioned providing career-themed college guidance. Even though Ed provides 100 Freshman per school with a series of college visits as part of the *College 101* program, Ed does not provide guidance that specifically focuses on students' career academy focus. Rather, *College 101* provides a broad overview of the college experience and requirements to successfully enroll in an institute of higher education.

Finding #9: The Internship Program at Career Academies is in its infancy

The culminating element in the NAF standards is work-based learning. This element should be developed throughout the program so that, in their senior year, the students complete high-quality, compensated internships in their Academy industry. Of the seniors interviewed, 80% reported participating in a paid internship position. The majority received their internship through Ed's program. Yet, on the student survey, only 40% noted that they had participated in an internship for compensation or course credit. The question regarding internships was one of two questions that were found to have

statistically significant differences in survey responses among Career Academy programs. All students at Carver and Jackson-Olin AOHS answered affirmatively to internships, while none of the students at Parker AOUE reported having internships (see Table 3 below; Note: none of Ramsay AOE students reported having an internship, but this was because Ramsay students had not reached the 12th grade internship year).

Table 3: Student Survey Data Concerning Internship Participation with Tests for Statistical Significance

I have had, or am currently in, an internship acquired through my career academy program that compensates me financially or with course credit.

1= Yes
2=No

School/Program	Mean
CARVER AOE 2017	1.71
CARVER AOHS 2017	1
HUFFMAN AOAC 2017	1.43
JACKSON-OLIN AOHS 2017	1.00
PARKER AOE 2017	1.57
PARKER AOHS 2017	2.00
RAMSAY AOE 2017	2
WENONAH AOHT 2017	1.64

ANOVA

	Sig.
Between Groups	.012

NAF describes the internship as "intentional that includes an individual student learning plan." The internship piece at the individual Career Academy is in various stages of reaching that goal. Many of the Coordinators substitute students' out-of-school jobs or out-of-school volunteering activities for the NAF-specified internships. Out-of-school jobs and volunteering activities, however, do not fulfill the NAF criteria since they do not come with a formal lesson plan.   From interviews, students at three academies expect to complete 120 hours of workplace internship. Their internship descriptions varied from their current job or volunteering positions to finding a job through their Coordinator, Ed staff members, or their schools' Advisory Board members. On the other hand, students at two other academies indicated that internships were not required.

During the Career Development Conferences, Ed helps students to develop resumes and personal narratives. Ed. also provides students with guidance on how to dress, speak, and act professionally. All Academy Coordinators who worked with Ed in this work-based learning experience complimented the structure and format of the Career Development Conferences. Both Coordinators and teachers also saw the value of the Ed foundation program managers coming into the schools to work with students on their executive skills. Because this is Ed's second year of providing internships, Ed was limited in offering five internship positions to each Academy for a total of 35 internships. The following table (Table 4) shows the number of seniors placed in official internships through Ed:

Table 4: Number and Assignment of CA Student Internships

Academy	Number of Seniors in Academy	Number of Seniors in internships through Ed	Location of Internships
Carver AOE	11	4	Two engineering firms (3) Bicycle shop (1)
Carver AOHS	21	5	UAB Hospital (5)
Huffman AOAC	25	3	General Contractor (1) Two landscaping (2)
Jackson-Olin AOHS	17	5	UAB Hospital (5)
Parker AOUE	24	6	BCS summer school (4) Southern Museum of Flight (1) TFA (1)
Wenonah AOHT	42	5	BJCC (2) McWane Center (1) Birmingham Barons (1) Vulcan Park Museum (1)
Woodlawn AOBF	65	1	Jones Valley Teaching Farm. "We have to work on internships a little more."

Question: What are the perceived non-academic skills gained by students who choose to enroll in specific Career Academies?

Key Finding #10: Students feel they possess executive function skills, although business mentors see some executive function deficits in their student interns.

A significant majority of students who were interviewed could describe more than one non-academic, executive functioning skill gained through Academy participation. From interviews, the executive skills that the students noted were strong in their repertoire included asking business partners for their contact information for networking in the profession, public speaking, maintaining eye contact, and dressing professionally. "We had a business meeting (Ed career development conference) where we had to wear business attire and meet a lot of people We entered into a room and there were people at the table, and it was like a speed date. They told us what we could do in that field and it was good even if we did not have an interest in going into that field" (student). Another student explained: "I became more responsible. They are really trying to prepare us for the real world" (student).

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Students also expressed overall confidence in their executive skills on the student survey, as can be seen in the table below where over 80% of students agreed that they could find multiple solutions to a problem, complete long-term projects, and determine appropriate professional dress.
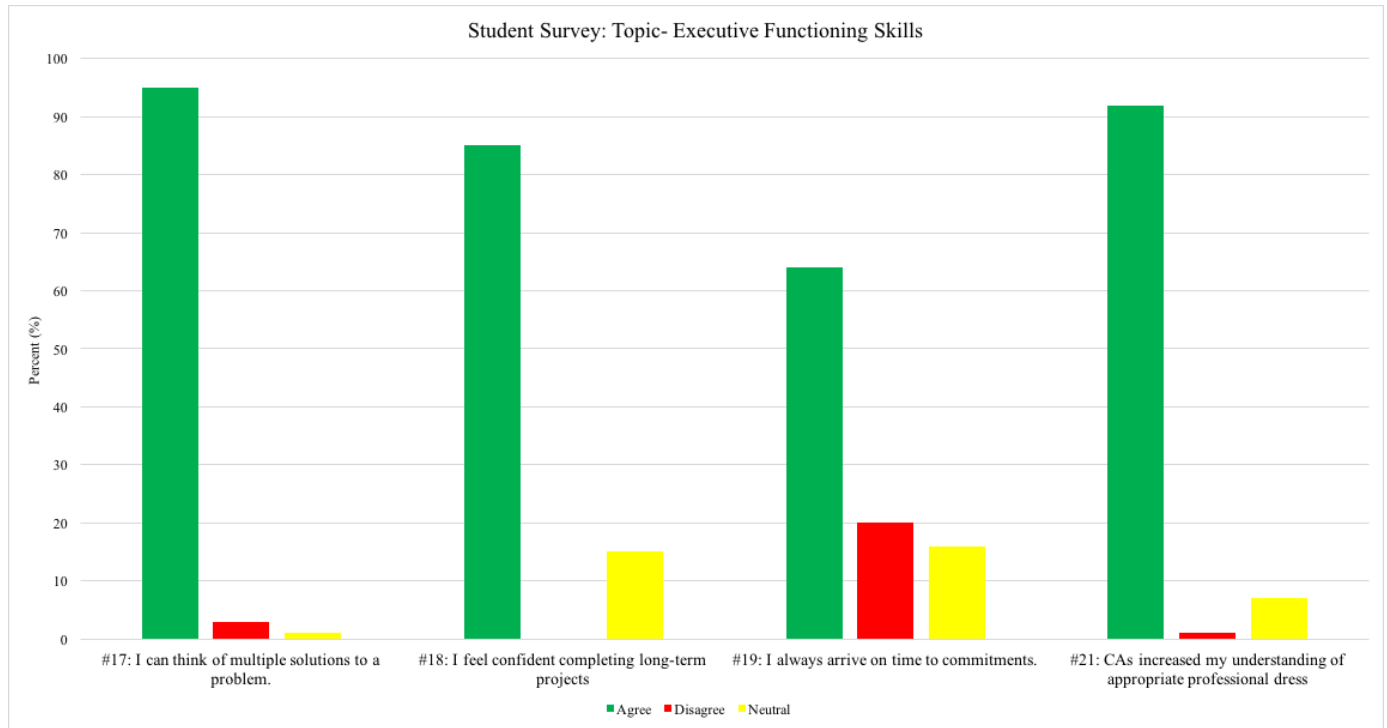
Graph #7: Students' Self-Perception of Executive Functioning Skills

The students who accept the Ed internships are assessed on their "executive skills" after the first five weeks. This evaluation is another indicator of the students' career readiness. The evaluations asked the business representatives to score the students out of five possible points. Table 5 shows the average scores of the students who interned through Ed. The table shows that students have found it difficult to attend the scheduled internship dates during the first month. Reasons given were transportation (2), balancing other commitments (1), family emergencies (1), and unknown (2). Of these students, two did not communicate their absences or their tardiness.

Student communication skills were rated lowest overall by the business mentors. One evaluation of a student intern discussed a breakdown in communication of the students' daily absences to the business mentor: "(Student's) availability is very limited… He also does not communicate about his intention to attend (or not attend) his work site assignment (business mentor)." One comment from another student's evaluation discussed a students' lack of punctuality, but recognized the student's ability to communicate: "She is not often on time for her internship but always lets me know (business mentor)."

The student intern's knowledge of their internship's industry was also evaluated, and those responses were collectively the lowest of all categories. The students did not know as much about the industry or the company as the partners had expected. However, 10 of the 12 comments regarding

students' progression indicated that the partners were pleased with their level of curiosity toward the company, willingness to learn, and incorporation of the newly-acquired business skills into students' work. "He (the student) is very personable toward customers and is willing to help out in all aspects of our shop" (business mentor). Another business mentor commented: "(Student) has taken the information given to her and incorporated it into her work here at (business name) with ease.

Table 5: Business Mentors' Evaluation of Student Interns' Executive Skills

| Executive skill evaluated	Score out of 5
Punctuality	4.08
Workload management	4.23
Contributions and effort to the office	4.23
Communication skills	3.69
Industry-specific knowledge	3.85
Company-specific knowledge	3.77

Question: How has participation in the Career Academy program shaped students' college and career perspectives, including feelings of readiness for college and/or career?

Key Finding 11: Students report increased feelings of College and Career Readiness as well as enhanced engagement in high school as a result of Academy participation.

On the student survey, students expressed overall confidence in their career and college readiness as can be seen by the graphs below.
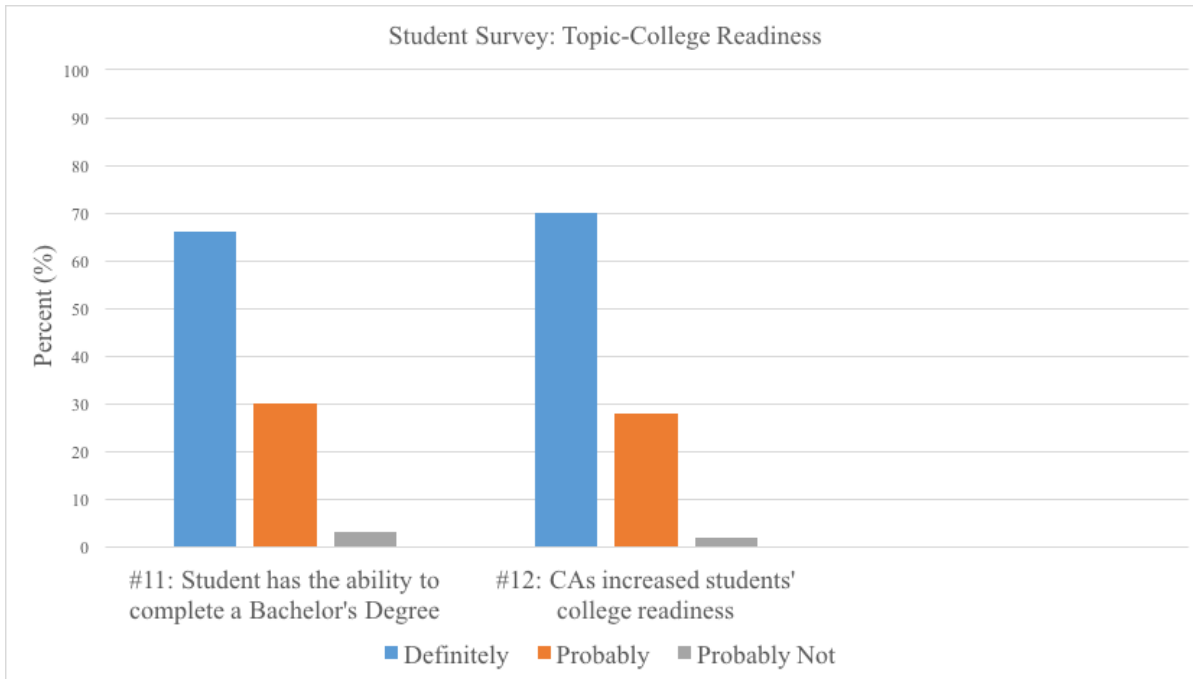
Graph #8: Students' Self-Perception of College Readiness
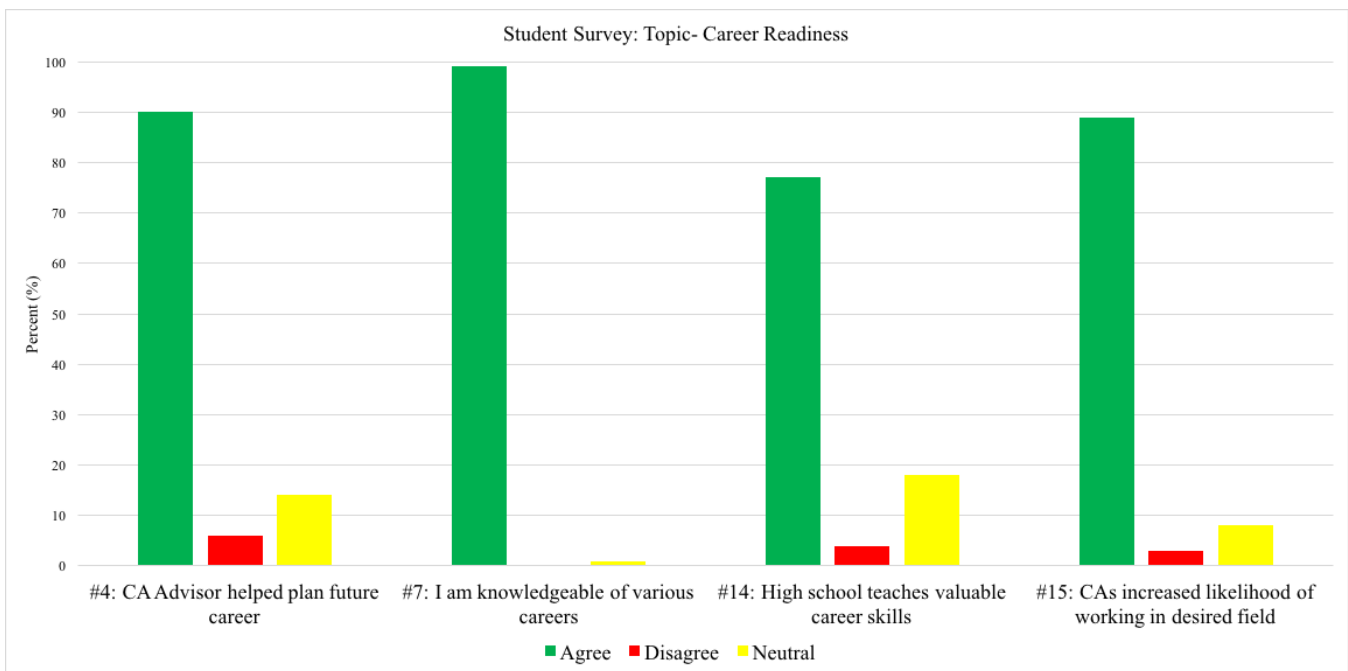
Graph #9: Students' Self-Perception of Career Readiness

Over 90% or more of students agreed that the Career Advisor had helped them plan for their future career and that they were knowledgeable of various careers they could pursue. Over 80% of

students felt that high school taught valuable career skills and that CA participation had led to an increased likelihood of the student working in her or his desired career field. In the teacher survey, one of the questions with the highest percentage of positive teacher responses asked teachers to consider if the Career Academy program focuses on preparing students for the career of their choice. All teachers but one, 94% of teachers, answered that they "agreed" with that statement. A slightly smaller percentage, 82% of teachers, indicated that the Career Academy program had been effective in providing the knowledge, skills, and training necessary for students' future career success.

More than 95% of students answered positively to student survey questions concerning college readiness. An overwhelming number of students, 93%, felt that they would meet the requirements needed for a state four-year college by the Summer of 2017. Asked whether they felt they had the ability to complete a bachelor's degree regardless of their post-high school plans, 66% of students answered "Definitely," and 30% answered "Probably." 92% of students agreed overall to the statement that participation in the career academies had increased their likelihood of attending college.

Several questions on the student survey asked students to reflect on their high school graduation plans and the effect that participation in the Career Academy had on their overall high school academic performance. All 91 students who completed the survey reported that they planned on receiving a high school diploma. Moreover, 90% of students believed that participating in the Career Academy program had increased their likelihood of graduating high school, and the same amount, 90%, agreed that participation in the Career Academy program had increased their interest to attend school.

On the other hand, student interviews revealed some concerns over college readiness, particularly concerning ACT scores. Among those interviewed, the feeling of college readiness closely fell along school lines. Carver students, both engineering and health sciences, and Parker's AOUE students felt somewhat prepared. Nearly all Jackson-Olin and Huffman students felt well-prepared for college. Although Woodlawn students expressed their readiness for college, one group was less sure and more concerned about being accepted because their grades did not correlate with their ACT scores. "I just don't get the ACT test, it's overrated - and overwhelming...Especially they base it, you have to have this score to go to this college. You can have a 4.5 (GPA) and have a 17 on the ACT and they won't let you in" (Woodlawn student).

Discussion

Factors Affecting Career Academy Implementation of Small Learning Communities

The National Foundation intends that Career Academies function as a Small Learning Community (SLC) within the larger school (NAF Design, 2017). Research has identified a number of key elements that must be present to create effective SLCs. Through our evaluation of BCS's Career Academies, we also discovered eight of the identified elements existed in varying degrees within the BCS Career Academy programs. These elements included (1) teacher professional development and collaboration, (2) SLC autonomy, (3) separateness, (4) flexible scheduling, (5) thematic focus, (6) knowing students well, (7) community involvement, and (8) student achievement (Ainscow, Juijs, &

West, 2006; Allen, 2001; Cotton, 2001; Darling-Hammond, Ancess & Ort, 2002; Kemple & Snipes, 2000; Letgers, ADams, & Williams, 2010). The above elements are imbedded within the influencing factors of Career Academy implementation. Figure 1 in the introduction illustrates the NAF implementation pillars and the factors we found that influenced the depth of implementation. We will now discuss our findings through the lens of those factors, targeting the eight SLC elements.

School Policies

Although all Academy programs operated under the umbrella of the NAF standards, variations among the schools resulted in fluctuating outcomes.

At the school level, two interrelated policies emerged that influenced the depth of the CA program implementation. These included scheduling and teacher collaboration policies. SLCs are more than schools or communities with a small number of students (Cotton, 2001). They are small communities of students and teachers who are, as a group, scheduled together (Sammon, 2000). Our observations revealed some frustration among the teachers and coordinators whose schools did not group their CA students outside of technical classes. One Coordinator was given permission to change CA students' schedules after the year began. Other coordinators expressed disappointment because they were "not sitting at the table" to make decisions regarding the CA student schedules. Students also indicated their disappointment with not being grouped in a cohort. "I feel it is a help and a hurt because some kids are in normal classes who don't want to learn and sometimes they distract and make a lot of noise and those who want to learn can't learn. But it's not all bad" (Student).

The lack of scheduling students as a group had far-reaching consequences for the Career Academies. Students described a loss in their feeling of cohesion, which could be due to diminished feeling of distinction of being in a separate group (Cotton, 2001; Darling-Hammond, Ancess, & Ort, 2002; Sammon, 2000). One student recognized that "if we are together, we can help each other out." Unfortunately, cohesion and positive peer pressure becomes diminished when students do not attend classes as a cohesive cohort (Kemple & Snipes, 2000).

When school leaders do not prioritize maintaining students in cohesive cohorts, this causes teachers to not have a common planning time. A lack of a common planning time takes away from curriculum integration and overall Academy training. However, when the Academies were first implemented in the schools, all (or most) of the content teachers also enjoyed common planning time in which they could collaboratively plan integrated project-based learning, interact collectively, and build a cohesive network of educators. These outcomes all foster SLC success (Darling-Hammond, Ancess, & Ort, 2002). With common planning time, teachers also have the opportunity to develop more personalized instruction by discussing individual student needs and strengths with other teachers (Preston, Goldring, Guthrie, Ramsey & Guff, 2016) while learning professionally from each other (Letgers, Adams, & Williams, 2010).

When students are not grouped as cohorts, teachers cannot teach them as Academy cohorts. Training of teachers becomes difficult because all teachers teach CA students, as observed by a Coordinator: "We can't teach the whole school (Coordinator)!" Training of teachers is also diminished as a result of new teachers not willing to accept the added responsibility. Three schools noted that the content-area teachers who teach the CA students were not trained and/or willing to add the extra time required to be a CA content teacher. When Academies lack cohesive student cohorts, common planning time, and motivated teachers, the Small Learning Community vision breaks down (Allen, 2001).

District Policies

Four factors either originated at the district level or could be addressed at the district level to smooth the variations found within the different academies. The first factor, and by far the most impactful to students, is hiring and retaining qualified teachers. "Unlike within the general school setting, Academy teachers are key players in the creation of the academic environment" (Conchas, 2002). Addressing district policies of hiring and retaining teachers was beyond the scope of this project; however, "the single most important indicator in determining student academic performance is the quality of instruction provided by teachers" (Shakrani, 2008). Teachers leaving the profession most often cite lack of professional support in the form of planning time (Borman, 2008). On the other hand, professional support that includes participating in a school mentoring program, school-based teacher networks, communal professional development and collaboration are contributing factors in retaining quality teachers (Borman & Dowling, 2008; Leland & Murtadha, 2011; Watlington, Shockley, Guglielmino & Felsher, 2010). Another contributing factor in teacher retention and building peer cohesion is communal professional development (Ainscow, Muijs, & West, 2006; Leland & Murtadha, 2011). Teachers commented that they received varying amounts of professional development targeting Career Academy design and curriculum. NAF provides comprehensive professional development, but teachers expressed mixed signals regarding this NAF element. The teachers with increased amounts of professional development through NAF spoke more about learning from their colleagues.

A second factor with extensive repercussions is a functioning Advisory Board. Without an Advisory Board, the success of the Academy fell entirely on the Coordinator's shoulders, none of whom was hired as an industry-specific expert. The structure of Career Academies is predicated on community business partnerships that provide advice on curriculum, exposure to the industry, student mentoring, and professional contacts (Conchas, 2002; Stern, Dayton, & Raby, 2010). The Advisory Board is, not only the community's venue to connect with the students, but an essential component to an effective high school (Preston, Goldring, Guthrie, Ramsey, & Guff, 2016; Sander, 2003) and an effective career academy (Orr, Bailey, Hughes, Karp, & Kienzl, 2004). Actively involving the business community through the role of Advisory Board joins the school with the community, resulting in a true partnership (Sanders, 2003). "They [student interns] are working with folks in an organization, getting the hands-on experience with people who have high expectations for what they are doing, and doing so in the pursuit

of learning" (Ed. Staff Member). Students who missed the culminating piece of the Career Academy experience missed their chance to practice newly-acquired executive skills in real-life situations that also served the purpose of developing students through constructive learning opportunities. Moreover, businesses missed their chance to experience the opportunities inherent in understanding the realities of local community youth. "An African-American, young man interviewed with one of our board members who was blown away by the boy's intelligence and motivation who just has the odds stacked against him. It was an eye-opening moment for him, and I think a lot of our partners have that moment. We are trying to break the "pull yourself up by your bootstrap" mentality. I think our partners are realizing that they [the students] have no boots" (Ed Staff Member).

Linking academics to career is the fundamental theory behind the Career Academy structure. Work-based learning activities require transportation. In the interviews, transportation to work-based site visits was one of the most frequently mentioned factors that hindered industry site visits and Academy program implementation. Three Ed members commented on the difficulty of employing school transportation for work-based, site experiences. School buses must be used between 8:30 a.m. and 2:00 p.m., with the bus drivers assigned to field trips by a seniority method. This caused frequent late arrivals to the business sites, and at least three times a site visit was cancelled because the bus did not show up. One Academy teacher observed that she would like to expose her students to more work-based sites than were scheduled with Ed, but she had no funds for transportation. She noted that "people are more than willing to accommodate us and give us a reduced price . . . but we just don't have any money, and transportation charges us the full price. . . . To go downtown we have to pay $300–$400. A lot of things we want to explore is [sic] not in the city limits so will cost in the thousands."

Transportation issues continue when students became interns. Once accepted, the students and business representative created a schedule for the internship hours. Students were responsible for transporting themselves to the internship site. The majority of students did not possess their own transportation, and in a city without a refined mass transit system, it was difficult to schedule work hours around bus schedules. Three students who participated in the student interviews revealed that transportation had prevented the students from completing an internship. In internship evaluations, students' lack of transportation also factored into increased incidents of tardiness and absences among student interns.

NAF Policy

NAF does not require schools to reach seventy-five students per cohort, but does strongly recommend that schools increase in their numbers until they reach that goal. Schools with smaller student bodies cannot realistically reach that number because they lack the resources to satisfy the NAF standards of scheduling students together and scheduling teachers with common planning if they attempt to reach three groups of twenty-five students. Coordinators were concerned, however, that without that elusive number of students they could never reach distinguished status for their Career Academy.

External Factors

A crucial factor hindering full implementation of Career Academy work-based learning was communication. Included in miscommunication is not receiving a change in schedule in a timely manner, not receiving signed field trip permission forms, and not meeting deadlines. Each of these areas are discussed in detail below.

When Ed planned a work-based site visit for a school, they scheduled months in advance for a certain time period with a certain number of students at a certain place of business. Members of Ed's staff cited examples when school officials did not notify Ed. with enough anticipation that the school schedule had changed. This caused the field trip to either be canceled or the number of participating students to be significantly reduced. There also were occasions when the bus arrived significantly later than scheduled, or not at all. When those miscommunications occurred, the businesses were forced to reschedule due to the last-minute time or date changes. Sometimes, businesses simply felt that they wasted employees' time by having them prepare for students who did not show. Ed, too, was affected by incurring unnecessary transportation costs and rescheduling their manager's calendar, which affected other scheduled activities. "Logistics [at the school end] are really hard. There is a lot of uncertainty about how any particular day will go in schools. It is not unusual for us to find out when we show up that something can't happen because something else is happening that we didn't know about" (Ed).

Another communication need that stood out in our interviews was students not meeting deadlines for paperwork to both the Academy Coordinators and Ed. Two Ed members and three Coordinators commented on the difficulty in obtaining student field-trip permission forms in a timely manner. This resulted in either a number of students not participating in the visit, or in some cases, complete cancellation of the site visit. The Coordinators complained about the students' lack of urgency in meeting deadlines; however, three Coordinators also acknowledged either extending internal deadlines, or completing students' paperwork themselves to meet Ed's deadlines. Ed also mentioned Coordinators calling to request extensions to deadlines on behalf of the students.

Academic Impacts

The present study compares student learning outcomes between career academy students and non-career academy students at each school. The career academy program was intended to provide participants with unique learning opportunities. All academy students received specialized instruction in their academy classes as a cohort, and in some academies, students also attended the same core content classes as a cohort. Additionally, academy classes were supposed to provide students with specific college and career information that was relevant to students' career interests. Table 5 summarizes any statistically significant differences in mean scores between academy students and Non-Academy students at the six high schools that had a 12th grade academy class.

Table # 5: Comparing Significant Differences Between Career Academy and Non Academy Students

School	Test (s) (with statistically significant differences in mean ACT scores)	Did Academy Students Outperform Non-Academy Students "Yes" or "No"-including name of Academy if relevant	Magnitude
CARVER	ACT Science ACT Reading ACT English Plan English Plan Reading Plan Science Plan Math	Yes- CARVER AOE 2017 only " " " " " " " "	+ 3.1 + 3.5 + 4.3 + 2.9 + 3.3 + 3.1 + 3.9
HUFFMAN	None (no statistically significant differences on any test)	N/A (no statistically significant differences)	N/A
JACKSON-OLIN	ACT Science Plan Math	Yes- JACKSON-OLIN AOHS 2017 " "	+ 2.4 + 1.6
PARKER	None (no statistically significant differences on any test)	N/A (no statistically significant differences)	N/A
WENONAH	ACT Math Plan English Plan Reading Plan Science Plan Math	Yes- WENONAH AOHT 2017 " " " " " " " "	+ 1.2 + 3.4 + 4.9 + 2.5 + 2.3
WOODLAWN	ACT English ACT Reading ACT Science ACT Math Plan English Plan Reading Plan Science	Yes-WOODLAWN AOBF 2017 " " " " " " " " " " " "	+ 1.9 + 1.9 + 1.6 + 1.1 + 2.3 + 1.1 + 1.0

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As can be seen in the table, in four of the six high schools (Carver, Woodlawn, Jackson-Olin, and Wenonah), Academy students consistently outperformed their Non-Career Academy peers on at least one ACT and ACT Plan section. Science was the ACT section in which Academy students outperformed their non-Academy peers most often, while Academy students outscored their Non-Career Academy counterparts on each of the four sections of the ACT Plan with equal frequency.   At the other two high schools (Huffman and Parker), there were no significant differences in ACT or ACT Plan Scores between Academy and Non-Academy students.

RECOMMENDATIONS

Addressing the NAF Standard: Student Recruitment and Enrollment

Recommendation 1: Create Career Academy fairs that showcase all Career Academies to every eighth grader.

This Career Academy fair can be in conjunction with the high school fairs that every high school puts on for their feeder middle schools. Some Career Academies already do this, but only for their specific Academy. If the students and parents are aware of all the opportunities that BCS provides in its high schools and how to apply for the Academies in eighth grade, they will be more informed upon reaching high school. This may also provide an opportunity for the middle school teachers and administrators to learn about their students' post-middle school curricular options. Although transportation may continue to be an issue with most students, some students will be more likely to make the switch after being exposed to the different academies through the Career Academy fairs, especially as the name and success of the Career Academies become increasingly well-known. While recruiting for the Career Academies is not in the Coordinator's job description (Job Description, Site Coordinator of Career Academies, 2016), Coordinators, working together, can divide the responsibilities among themselves for the annual fair and use it to showcase the success of their students.

Recommendation 2: Fill the ninth grade gap year with a corresponding CTE course for interested students.

This recommendation ties directly into recruiting rising ninth graders for Career Academies whose Academy coursework does not officially begin until 10th grade. If a student knows about the Career Academy in eighth grade and receives an application to apply for the corresponding CTE course that is an introduction to the school's Career Academy, the student is more likely to retain interest in the Academy program. By intentionally grouping students interested in an Academy into a ninth grade CTE class, the students can begin a year earlier as a cohesive cohort, a bond that is so critical to student success in this program. In reviewing the district website, it appears that the district has already started to address this concern of the gap year by providing a Freshman Academy or Career Preparedness coursework to 9th grade students.

Addressing NAF Standard: Personalized Environment

The Academy Coordinators are working hard in their schools, but they give the impression of doing it on their own. The NAF structure, if developed thoroughly, spreads the responsibility of the Career Academy operations across the entire Career Academy leadership team of Coordinator, teachers, and Advisory Board members. The following recommendations can be supported by renewed district emphasis on consistency in Academy implementation.

Recommendation 3: Attract and retain critical field teachers to the Career Academy Program.

Two academies lack a certified teacher in the classroom who possesses industry experience. These teaching positions have remained unfilled for two years or more. BCS should find a solution to this pressing issue. Students in classrooms without an experienced teacher suffer achievement (Shakrani, 2008, Watlington 2010) as well as the non-cognitive feelings of a lack of trust in the replacement teachers (Coordinator interview). This is an issue that affects all students in all BCS high schools and can help BCS address the related, systemic issue of excessive teacher turnover. The easiest, although possibly most-costly solution, is to provide additional stipends for Career Academy teachers to bring the Academy teacher salary closer to what she or he would earn in an industry position. However, research on this attempt has been shown that simply increasing pay will not attract qualified teachers or retain those who are recruited. Rather, districts and schools that prove successful in retaining teachers are those that create an environment that is supportive and encouraging to teachers in which teachers' receive ongoing professional development, and mentorship (McCreight, 2000; Shakrani, 2008; Shockley, Guglielmino, & Watlington, 2006).

Considering the specific lack of CTE-qualified professionals, one Coordinator suggested that BCS ask for an exemption from the CTE certification requirements mandated by the state of Alabama or remove that particular career Academy from under the CTE umbrella. This way, BCS could train an existing teacher or an industry professional who possesses sufficient content knowledge but lacks the mandatory certification credential required to become a CTE teacher in Alabama.

Recommendation 4: Intentionally schedule Career Academy students to remain as a cohort in core content classes

Through the qualitative student, teacher, and Coordinator interviews, it was concluded that the extent to which students remained with their Career Academy cohort in their non-Academy, core classes varied from Academy and school. In several academies, students did not remain together for most of the core content classes, or their core content classes often featured non-Academy students. Apart from conflicting with NAF standards, this also minimizes some of the academic and social support benefits that small learning communities, such as career academies, have been shown to offer as evidenced by research. Logically, since not all students with the same career interests share similar academic abilities and extracurricular interests, Career Academy students might not all take the same core content or

elective classes that are offered through the AP/honors and general education paths. However, Career Academies that focus on math, such as Engineering, Business and Finance, and Architecture and Construction should have similar levels of math competency or expectations. Thus, many of these students could be grouped together. Academy of Health Sciences should likewise group students into cohorts that take the same science classes. Lastly, because so much of the career preparation involves writing, all students should take English classes with their Career Academy cohort as well.

In the qualitative interviews, students repeatedly and overwhelmingly affirmed that they benefitted from feeling increased communal support and camaraderie as part of being in their particular Career Academy. Several students described their relationship with their Academy peers as similar to the experience of feeling part of a "big family." Almost all students considered their Academy membership to be a sense of pride, and the overwhelmingly positive student responses on the student surveys further triangulate these findings. Thus, as much as possible, Career Academy students should remain in their cohort in at least two of their core classes. In cases where there are not enough students in one Academy to make a full class, academies can group Academy students together and fill the remaining seats student from another Academy or non-Academy students (if the school only has one Academy). This way, students still share common experiences with their cohort and feel part of a small learning community.

Ensuring a minimum of two core content classes that students share as a cohort will allow the Coordinators and teachers to plan the required project-based instruction that NAF requires, specifically outlined in the Coordinator's job description (Job Description, Site-Coordinator of Career Academies, 2016).

One concern that was raised in grouping students in cohorts involves NAF's expectation that each Career Academy increase in size until there are 75 students in each cohort. For some of the smaller schools, that is an unrealistic number because of the size of the school and school resources (particularly certified teachers). For those schools that cannot increase in size, the district should request that the number be waived so that the school can concentrate on implementing the Career Academy standards adequately for the current number of students.

Addressing NAF Standard: Academy Leadership and Professional Development

Recommendation 5: Ensure all teachers who are recruited to lead the Career Academy cohorts understand and accept the added responsibilities.

Teachers who instruct Career Academy students have the added responsibilities of integrating Career Academy themes into their content, creating and implementing project-based learning, directly teaching or supporting students in learning executive skills, chaperoning them on field trips, and finding time to assist students on work they missed while participating in work-based experiences. Not all teachers are willing to increase their workload, but those who volunteer need to be supported with specific expectations, encouragement, and ongoing training. A significant step toward supporting Academy teachers to meet their varied responsibilities is to provide teachers with a common planning

period. Apart from being a tenet of the NAF Academy Model, common planning time has been shown to improve learning outcomes particularly in schools that follow a small learning community model in which teachers are placed in vertical learning teams that share the same set of students (Legters, et al, 2010; Legters, et al, 2013). A possible condition of teachers' receiving common planning time would be for Academy teachers to collectively plan at least monthly. An even more ideal situation would be for Academy educators to meet weekly. Through this regular collaboration, the core content teachers will gain a deeper knowledge of the Career, as well as foster their own learning in project-based instruction (Borko, 2004).

Yet, as evidenced by teacher responses during qualitative interviews and on the teacher survey, establishing the practice of regular collaboration to integrate instruction and develop personalized student learning supports is not the universal norm in the BCS Career Academies. Although some teachers report that they are able to find time to collaborate during professional development sessions or informal conversations outside the regular school day, establishing a common planning time will provide further opportunities for the teachers to collaborate while also bringing in teachers who cannot participate in an active vertical instructional team.

Simply requesting that academies implement common planning time has not been enough to ensure that building-level administrators carve out a designated common planning time for Academy teachers. Not only should common teacher planning time be a requirement for all academies, but BCS district officials should meet with building level administrators and Career Academy Coordinators prior to the beginning of the instructional year. During this meeting, these educational leaders can collaboratively establish a schedule that all groups perceive to be manageable and beneficial to both Academy and non-Academy students.

Addressing NAF Standard: Advisory Board membership, support for learning, and support for sustainability

Recommendation 6: Ensure that each Academy builds an active and robust Advisory Board.

The Coordinators who built their Academy's Advisory Boards or who came into the position with a strong Advisory Board benefited from their support, suggestions, resources, and industry expertise. Unfortunately, other Coordinators lack that support as a result of an ineffective Advisory board. According to the Coordinator job description, 42% of their responsibilities involve the Advisory Board, beginning with "establish(ing) a Career Academy Advisory Board" (Job Description, Site Coordinator of Career Academies, 2016)." Ideally, the Advisory Board facilitates the successful implementation of the Career Academy experience for students.

NAF emphasizes that career academies should be democratic institutions incorporating the diverse, professional perspectives and experiences of the community. NAF further stipulates that all career academies should have an active, collaborative Advisory Board that meets regularly concerning the needs of the Academy students and the Academy program. An active Advisory Board helps connect the professional community with the educational community of the Career Academy. The Advisory

Board can serve as valuable resources for increasing the number of internships and professional mentors available for students. This way, all students, rather than a fraction, can receive the essential opportunities and resources that result from having an internship and business mentor. Arguably, the internship and business mentor face of the Academy program truly distinguishes Academy program from other CTE and elective programs.

In order to support the Coordinator's position and create a more vibrant program, we urge that BCS district officials continue to prioritize working with principals and Academy Coordinators to secure active Advisory Boards. These Advisory Boards need to meet regularly (at least monthly at the minimum). The Boards should consist of the Academy's industry representatives as well as community members. The district should train the Coordinator in how to leverage the Board's business contacts to help the Academy obtain resources, academic and career support, internship opportunities, and mentors for the students. Maintaining an active Advisory Board is a critical part of a Career Academy Coordinator's position, and should be treated accordingly. District officials can help ensure the development of active, well running Advisory Boards at each of the academies by providing ongoing support, training, and feedback to Career Academy Coordinators regarding the progress of their respective Advisory Boards.

Addressing NAF Standard: Provide Work-Based Learning to include Internship Completion that Align with Students' Career Goals.

Recommendation 7: Support the Career Academy Program by ensuring sufficient transportation is available for Work-Based Learning.

A common theme in the qualitative interviews between students, educators, Ed, and business partners, featured the problem of the current school transportation infrastructure in providing on-time and cost-effective transportation of students to their Academy Work-Based Learning experiences. Currently, transportation and financial barriers prevent Ed and Coordinators to effectively complete site visits and job shadowing. Furthermore, many students report difficulties in completing internships that are beyond walking distance from their school.

In fact, most internship opportunities prove to be outside of walking distance from BCS high schools. Transportation comes under the auspices of the district, so only the district can support the school by making it a priority to efficiently transport the Career Academy students to their work-based learning. A suggestion would be for district officials to arrange in the summer all of the Ed-sponsored, work-based learning experiences (such as site visits, shadowing, college tours, and conferences) with the districts' bus representative, conveying the expectation that buses will punctually arrive to schools and their designated destinations. To assist the Coordinators in providing additional off-site visits for Career Academy students, we suggest that the Coordinators also arrange for their tours in the summer. Coordinators can attend the same meeting with the bus representative. This will enhance the Coordinators' ability to communicate the Academy's proposed schedule.

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Recommendation 8: Support the Coordinator and Ed in Providing a Formal Internship Experience to All Students

The final bullet in the Career Academy Coordinator position description states that the Coordinator will "assist in coordination of meaningful high school internship experiences… for BCS students" (Job Description, Site-Coordinator of Career Academies, 2016). As noted earlier, fewer than half of students reported that they participated in a formal internship experience, and students' qualitative interview responses further reiterated that many students do not fulfill the NAF requirement of completing a formal internship for financial compensation or course credit. While Ed continues to grow their internship program, BCS should encourage Ed to work directly with the Coordinator and the Advisory Boards in bolstering their network of businesses in the given Academy's industry. In doing so, every Academy student can have increased opportunities to complete a formal internship. Ideally, these internships should involve ongoing partnerships with Advisory Board contacts in which Academy students can continue the work of earlier Academy interns. This would decrease the need for Ed and Academy Coordinators to continually find new internships partners for students, while also encouraging sustainability of the internship projects. The Advisory Board contacts that helped develop the internship opportunities could work with Ed to participate in the interview and evaluation process of the internship experience.

Because Coordinators know their students personally, they would be aware of those students who joined for the opportunity to learn general career skills rather than exposure to that particular industry. In those cases, the Coordinator could work with the Advisory Board, Ed, and other Coordinators to find internships more aligned with all students' interests. Another option could include Coordinators helping to establish general internships that prepare students for a professional office or other relevant work environment.

Recommendation 9: Encourage two-way communication between Ed and the Career Academy Coordinator while teaching students how to manage deadlines.

In the interviews with the different Academy stakeholders and participants, the subject of communication and meeting deadlines continued to arise. Because executive skills include effective communication skills and the ability to adhere to deadlines, students should be educated and supported so that they adequately acquire these skills. Students should first receive extensive modeling. After students receive significant time to practice, educators and business mentors should hold students accountable for displaying adequate communication and project management skills. Some executive skills, despite being essential to academic and career success, have remained elusive to many young adults regardless of education level. According to Schultz (2008), communication skills incorporates multiple factors; communication skills are also found to be the most lacking among graduates from universities. These skills are vital to success in a professional environment, from making a positive impression in the interview to becoming a team player when hired (Heckman & Kautz, 2012; Schutz,

2008). Coordinators possess a powerful way to model executive functioning skills to Academy students. Coordinators should communicate established deadlines, enforce those deadlines, and provide reasonable consequences to students who do not meet them.

One way Coordinators can facilitate Academy students' meeting deadlines is to collaboratively work with Ed and businesses to meet deadlines that correspond with the high school calendar. Districts typically decide on the next year's schedule in the late spring, and the Coordinators are experienced enough to recognize their particular school's ebb and flow of school-wide functions and student attendance. For example, when one site visit was scheduled by Ed the day after MLK Jr. holiday, the Coordinator mentioned to us to anticipate reduced student attendance because at her school, many students were absent the day after the MLK Jr. holiday. Thus, the Coordinators, a representative from BCS, and Ed should come together before the end of school to plan out the schedule for the following year, identifying days that are particularly conducive to successful work-based learning visits. Additionally, the sooner Ed can get dates to the BCS transportation office, the sooner the district can ensure that those times and dates are scheduled and that the bus drivers understand the rigidity of arrival times.

The principal for each school should be provided with a copy of all the planned Ed school visits and Academy off-site work-based days. This way, the principal can quickly communicate with the Academy Coordinator if a last-minute change occurs. If a pre-existing conflict arises beforehand, Ed can cancel the bus and not incur additional financial expenses. In a similar vein, students need to be provided at the beginning of the school year with a hard copy of all scheduled events as well as the deadlines for various applications and resumes. These events should also be posted in multiple places, both as paper and electronic copies. Students then have the opportunity to work ahead on projects or assignments, especially those that might come at an inopportune time in that student's schedule.

As mentioned earlier, both the Coordinators and Ed expressed frustration that the students did not follow deadlines. According to Leithwood, et.al (2004), leadership in schools is second only to classroom instruction that contribute to what students learn. The Academy Coordinator is a school leader that directly impacts students' academic and career learning. If, collectively, Coordinators hold all students accountable to the published deadlines, beginning with incoming ninth graders' application to the Career Academies, Coordinators will send the message to students that punctuality and planning are valuable skills. Students will also receive the message that they will be treated as young professionals who are responsible for keeping deadlines and communicating early any complications that might arise. Because life happens, there should also be an emphasis of immediate communication if a need for a deadline extension occurs. Two Coordinators were not as upset with students not meeting the deadlines as they were with the students not telling them in a timely fashion, which prevented an alternative arrangement. By the same token, businesses with student interns were more frustrated by the lack of student communicating than by the fact that students were absent.

Success in life depends on personality traits that are not well captured by measures of cognition, but that affect cognitive tasks. (Heckman & Kautz, 2012). As students learn the importance of communication and meeting deadlines, both from the Coordinators modeling these traits and by being

placed in situations where they can practice them, the students will further graduate prepared for college and career success.

CONCLUSION

This evaluation of Career Academies in Birmingham City High Schools provides an overview of the range of implementing the NAF standards by Academy, and the factors that influence the schools in full and consistent implementation, individually and collectively. Our project questions directly addressed the implementation but then proceeded beyond the implementation to ask what outcomes may be associated with student participation in the Career Academy program, despite any deviations in implementation. We also delved into the students' perceptions of knowledge and skills gained as a result of their participation. We compared students' perceptions to the normed standards of ACT scores as well as to community members' perceptions of the career skills gained students' gained.

Our findings highlight the positive aspects and results of Birmingham's Career Academy program, while also depicting some of the challenges faced by the district. Based on the findings, we provide specific recommendations so that BCS can modify the implementation of the Academy program in hopes that all Academy students obtain college and career readiness.

We hope that the results of this study guide the efforts of the BCS central office and individual school leaders to fulfill their Academy mission of "providing students with a safe learning environment that promotes intellectual growth and career exploration" (Academies of Birmingham, 2017). Beyond the school, we hope that the business community will continue to work with the schools and Birmingham Education Foundation to provide the funding, resources, mentorship and work-site experiences fundamental to the success of a Career Academy program. By working collectively, Birmingham Career Academies and Ed foundation can collectively work for the purpose of "demanding excellence for our kids, because they deserve it" (Birmingham Education Foundation, 2017).

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Appendix A: Statistical Tests

Differences in Mean ACT and ACT Plan Scores- Carver H.S.

	School/Program	Mean
ACT English	CARVER AOE 2017	18.82
	CARVER AOHS 2017	15.76
	CARVER Non	14.50
ACT Reading	CARVER AOE 2017	18.82
	CARVER AOHS 2017	16.00
	CARVER Non	15.31
ACT Science	CARVER AOE 2017	20.09
	CARVER AOHS 2017	15.35
	CARVER Non	16.43
ACT Math	CARVER AOE 2017	16.91
	CARVER AOHS 2017	14.82
	CARVER Non	15.32
Plan English	CARVER AOE 2017	14.91
	CARVER AOHS 2017	12.82
	CARVER Non	12.17
Plan Reading	CARVER AOE 2017	16.00
	CARVER AOHS 2017	14.82
	CARVER Non	13.55
Plan Science	CARVER AOE 2017	17.91
	CARVER AOHS 2017	15.59
	CARVER Non	15.14
Plan Math	CARVER AOE 2017	15.64
	CARVER AOHS 2017	13.47
	CARVER Non	14.33

Tests Showing Statistical Significance of Differences in Means- Carver H.S.

Source	Dependent Variable	Sig.
School Program	ACT English	.005
	ACT Reading	.036
	ACT Science	.004
	ACT Math	.118
	Plan English	.016
	Plan Reading	.041
	Plan Science	.003
	Plan Math	.899

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Carver High School

      For comparative purposes, students were grouped into three groups: Academy of Engineering (AOE) students), Academy of Health Sciences (AOHS) students, and Non-Academy students. On the official ACT tests, the difference in means between the three groups of students significantly differed on the following tests: ACT English, ACT Reading, ACT Science, Plan English Plan Reading, and Plan Science. On each of the tests, Carver AOE students significantly outperformed Carver's AOHS and Non-Career Academy students.

Differences in Mean ACT and ACT Plan Scores- Jackson-Olin H.S.

	Schools/Program	Mean
ACT English	JACKSON-OLIN AOHS 2017	15.70
	JACKSON-OLIN Non	14.46
ACT Reading	JACKSON-OLIN AOHS 2017	16.35
	JACKSON-OLIN Non	14.97
ACT Science	JACKSON-OLIN AOHS 2017	18.25
	JACKSON-OLIN Non	15.85
ACT Math	JACKSON-OLIN AOHS 2017	15.55
	JACKSON-OLIN Non	14.94
Plan English	JACKSON-OLIN AOHS 2017	13.50
	JACKSON-OLIN Non	12.34
Plan Reading	JACKSON-OLIN AOHS 2017	14.40
	JACKSON-OLIN Non	13.11
Plan Science	JACKSON-OLIN AOHS 2017	15.90
	JACKSON-OLIN Non	14.72
Plan Math	JACKSON-OLIN AOHS 2017	14.55
	JACKSON-OLIN Non	12.98

Tests Showing Statistical Significance of Differences in Means- Jackson-Olin H.S.

Source	Dependent Variable	Sig.
SchoolsProgram	ACT English	.160
	ACT Reading	.081
	ACT Science	.003
	ACT Math	.199
	Plan English	.098
	Plan Reading	.078
	Plan Science	.063
	Plan Math	.017

Jackson-Olin High School

Similar to Carver students, Jackson-Olin AOHS and Jackson-Olin Non-Academy students only significantly differed on the ACT Science subsection. Academy students on average scored nearly 2.5 points higher than Non-Academy students

Differences in Mean ACT and ACT Plan Scores- Huffman H.S.

	School/Class	Mean
ACT English	HUFFMAN AOAC 2017	13.05
	HUFFMAN Non	14.13
ACT Reading	HUFFMAN AOAC 2017	14.85
	HUFFMAN Non	15.32
ACT Science	HUFFMAN AOAC 2017	15.80
	HUFFMAN Non	16.05
ACT Math	HUFFMAN AOAC 2017	15.05
	HUFFMAN Non	15.26
Plan English	HUFFMAN AOAC 2017	12.40
	HUFFMAN Non	13.36
Plan Reading	HUFFMAN AOAC 2017	13.90
	HUFFMAN Non	13.28
Plan Science	HUFFMAN AOAC 2017	15.05
	HUFFMAN Non	15.31
Plan Math	HUFFMAN AOAC 2017	13.25
	HUFFMAN Non	13.56

Tests Showing Statistical Significance of Differences in Means- Huffman H.S.

Source	Dependent Variable	Sig.
SchoolClass	ACT English	.256
	ACT Reading	.640
	ACT Science	.782
	ACT Math	.697
	Plan English	.223
	Plan Reading	.478
	Plan Science	.687
	Plan Math	.699

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Huffman High School

Huffman's Career Academy students on average scored slightly below students who were not in the Career Academy on all ACT subject areas, but the differences were not statistically significant.

Differences in Mean ACT and ACT Plan Scores- Parker H.S.

	School/Class	Mean
ACT English	PARKER Non	14.59
	PARKER AOUE 2017	15.62
ACT Reading	PARKER Non	15.14
	PARKER AOUE 2017	14.86
ACT Science	PARKER Non	16.61
	PARKER AOUE 2017	16.62
ACT Math	PARKER Non	15.25
	PARKER AOUE 2017	15.29
Plan English	PARKER Non	12.23
	PARKER AOUE 2017	13.38
Plan Reading	PARKER Non	12.85
	PARKER AOUE 2017	13.14
Plan Science	PARKER Non	15.23
	PARKER AOUE 2017	14.86
Plan Math	PARKER Non	13.43
	PARKER AOUE 2017	13.67

Tests Showing Statistical Significance of Differences in Means- Parker H.S.

Source	Dependent Variable	Sig.
SchoolClass	ACT English	.255
	ACT Reading	.755
	ACT Science	.995
	ACT Math	.934
	Plan English	.100
	Plan Reading	.712
	Plan Science	.526
	Plan Math	.725

Parker High School

There existed some differences in mean scores between Academy of Urban Educator (AOUE) students and Non-Career Academy students at Parker-particularly in English where AOUE students averaged more than one point higher than their Non-Academy counterparts. Yet, similar to Huffman, Parker's differences in mean scores were not statistically significant.

Differences in Mean ACT and ACT Plan Scores- Wenonah H.S.

	School/Class	Mean
ACT English	Wenonah AOHT2017	15.40
	Wenonah Non	14.26
ACT Reading	Wenonah AOHT2017	16.93
	Wenonah Non	15.86
ACT Science	Wenonah AOHT2017	17.53
	Wenonah Non	16.86
ACT Math	Wenonah AOHT2017	16.07
	Wenonah Non	14.84
Plan English	Wenonah AOHT2017	15.80
	Wenonah Non	12.40
Plan Reading	Wenonah AOHT2017	18.93
	Wenonah Non	14.05
Plan Science	Wenonah AOHT2017	17.00
	Wenonah Non	14.53
Plan Math	Wenonah AOHT2017	14.93
	Wenonah Non	12.65

Tests Showing Statistical Significance of Differences in Means- Wenonah H.S.

Source	Dependent Variable	Sig.
SchoolClass	ACT English	.259
	ACT Reading	.404
	ACT Science	.435
	ACT Math	.025
	Plan English	.000
	Plan Reading	.000
	Plan Science	.003
	Plan Math	.015

Wenonah High School

In one ACT subject area, Wenonah Hospitality and Tourism students significantly outperformed their Non-Academy peers by a difference of more than one point. This was consistent with the 10th grade ACT Plan Math scores, in which Academy students also significantly outperformed non-Academy students.

Woodlawn High School

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Differences in Mean ACT and ACT Plan Scores- Woodlawn H.S.

	School/Class	Mean
ACT English	WOODLAWN AOBF 2017	14.79
	WOODLAWN Non	12.90
ACT Reading	WOODLAWN AOBF 2017	16.06
	WOODLAWN Non	14.19
ACT Science	WOODLAWN AOBF 2017	17.19
	WOODLAWN Non	15.55
ACT Math	WOODLAWN AOBF 2017	15.55
	WOODLAWN Non	14.49
Plan English	WOODLAWN AOBF 2017	13.56
	WOODLAWN Non	11.31
Plan Reading	WOODLAWN AOBF 2017	13.79
	WOODLAWN Non	12.66
Plan Science	WOODLAWN AOBF 2017	15.73
	WOODLAWN Non	14.40
Plan Math	WOODLAWN AOBF 2017	13.56
	WOODLAWN Non	12.63

Tests Showing Statistical Significance of Differences in Means- Woodlawn H.S.

Source	Dependent Variable	Sig.
SchoolClass	ACT English	.003
	ACT Reading	.002
	ACT Science	.003
	ACT Math	.010
	Plan English	.000
	Plan Reading	.042
	Plan Science	.002
	Plan Math	.097

In Woodlawn high school, there occurred a significant difference in mean scores between Academy of Business and Finance (AOBF) students and Non-Academy students on all subject areas of the ACT. In all ACT test subjects (English, reading, math, and science), the mean scores for AOBF students were significantly higher than Non-Academy Students. On average, Woodlawn Academy Students scored more than 1.5 points higher than non-Academy students on the ACT English, Reading,

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and Science tests. Academy students also scored more than 1 point higher on the ACT Math than Non-Academy students. Therefore, we can conclude that participation in the AOBF at Woodlawn was associated with significantly higher ACT English, Reading, Science, and Math scores.

APPENDIX B: SUMMARY OF TEACHER RESPONSES TO TEACHER SURVEY

Q1 - In which Career Academy do you instruct?
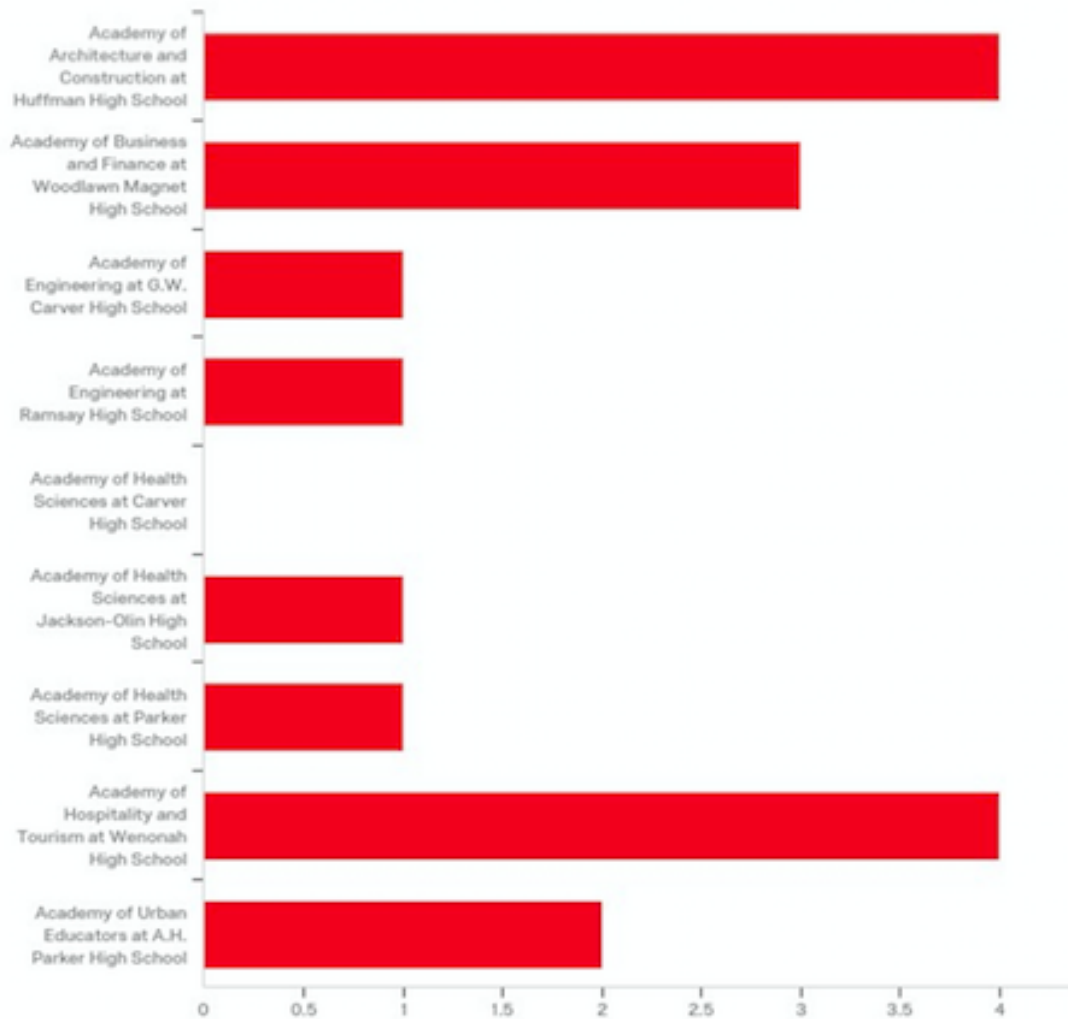
Q2 - In the past 12 months, how many hours did you spend on professional development activities specific to the career academy area you teach?
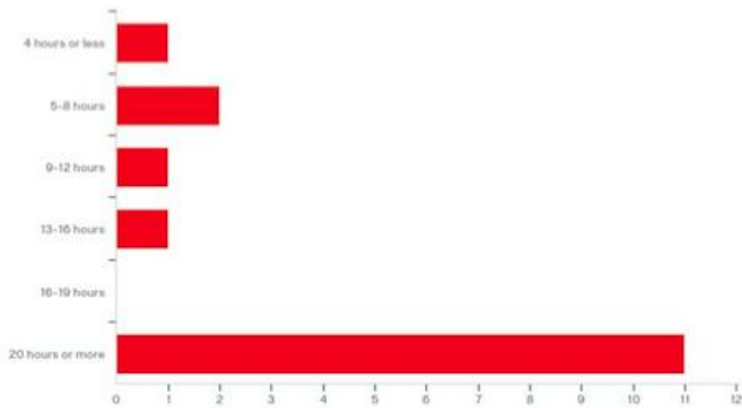
#	Answer	%	Count
1	4 hours or less	6.25%	1
2	5-8 hours	12.50%	2
3	9-12 hours	6.25%	1
4	13-16 hours	6.25%	1
5	16-19 hours	0.00%	0
6	20 hours or more	68.75%	11
	Total	100%	16

Q3 - Do you have work experience in the career industry in which you teach, APART from teaching?
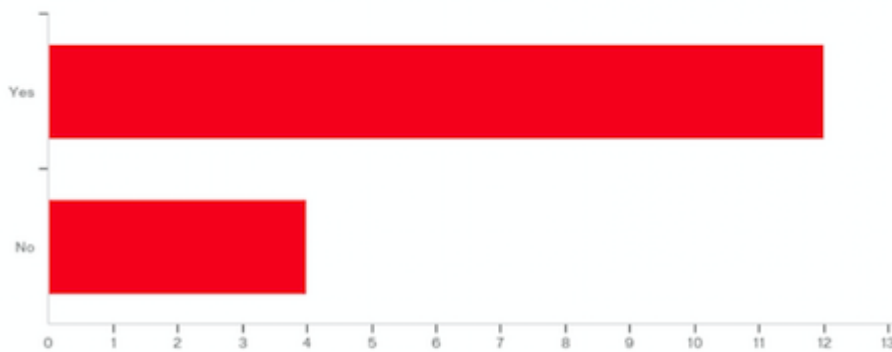
#	Answer	%	Count
1	Yes	75.00%	12
2	No	25.00%	4
	Total	100%	16

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Q4 - The curriculum for this Academy is well-aligned with the occupational theme associated with this Academy. Do you agree?
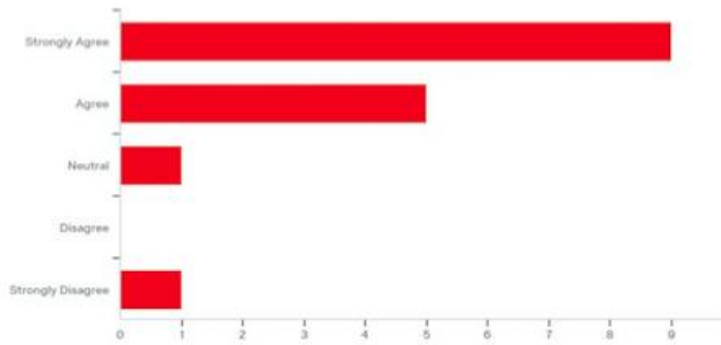
#	Answer	%	Count
1	Strongly Agree	56.25%	9
2	Agree	31.25%	5
3	Neutral	6.25%	1
4	Disagree	0.00%	0
5	Strongly Disagree	6.25%	1
	Total	100%	16

Q5 - The expectations/standards for fully implementing the Career Academy model have been clearly communicated to me.
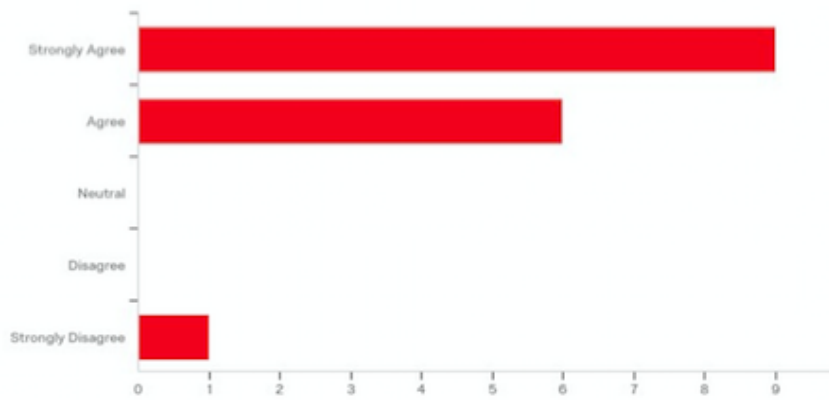
#	Answer	%	Count
1	Strongly Agree	56.25%	9
2	Agree	37.50%	6
3	Neutral	0.00%	0
4	Disagree	0.00%	0
5	Strongly Disagree	6.25%	1
	Total	100%	16

Q6 - This Career Academy feels like a small learning community or a school within a school.
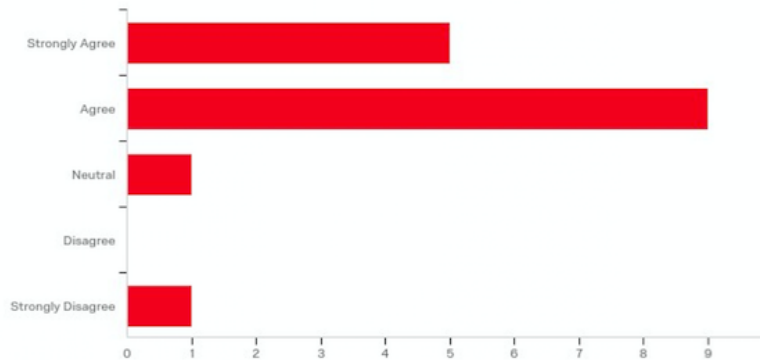
#	Answer	%	Count
1	Strongly Agree	31.25%	5
2	Agree	56.25%	9
3	Neutral	6.25%	1
4	Disagree	0.00%	0
5	Strongly Disagree	6.25%	1
	Total	100%	16

Q7 - This Career Academy has strong partnerships with employers in fields related to the Academy.
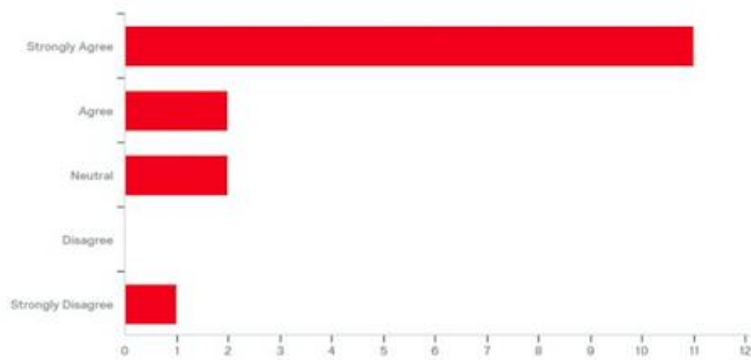
#	Answer	%	Count
1	Strongly Agree	68.75%	11
2	Agree	12.50%	2
3	Neutral	12.50%	2
4	Disagree	0.00%	0
5	Strongly Disagree	6.25%	1
	Total	100%	16

Q8 - Students in this Career Academy have ample opportunity to participate in work-based activities (e.g., internships, shadowing) with employee partners.
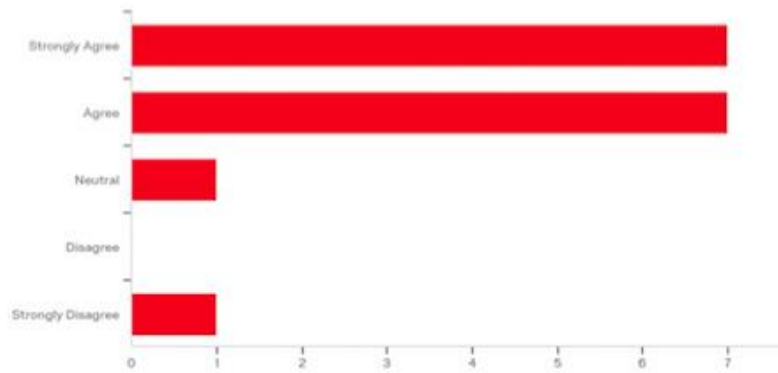
#	Answer	%	Count
1	Strongly Agree	43.75%	7
2	Agree	43.75%	7
3	Neutral	6.25%	1
4	Disagree	0.00%	0
5	Strongly Disagree	6.25%	1
	Total	100%	16

Q9 - This Career Academy's advisory board is actively involved in the Academy (e.g., providing work-based learning opportunities to students, providing technical assistance and professional development to Academy staff).
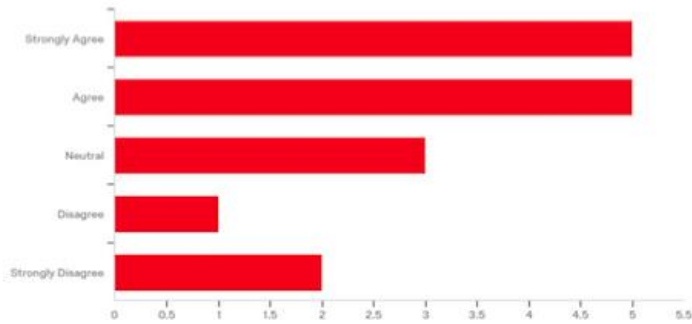
#	Answer	%	Count
1	Strongly Agree	31.25%	5
2	Agree	31.25%	5
3	Neutral	18.75%	3
4	Disagree	6.25%	1
5	Strongly Disagree	12.50%	2
	Total	100%	16

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Q10 - Career Academy courses focus on preparing students for college.
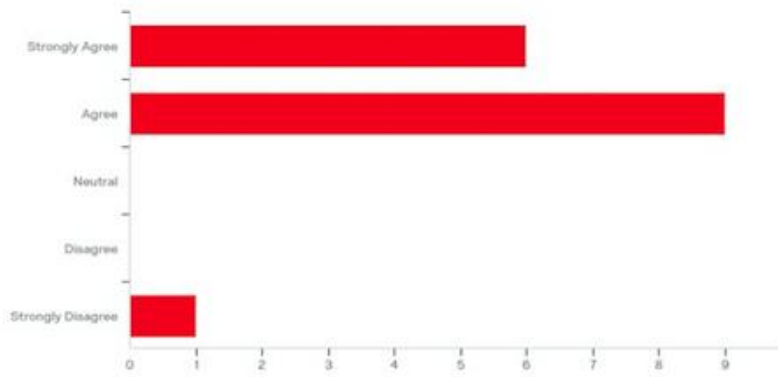
#	Answer	%	Count
1	Strongly Agree	37.50%	6
2	Agree	56.25%	9
3	Neutral	0.00%	0
4	Disagree	0.00%	0
5	Strongly Disagree	6.25%	1
	Total	100%	16

Q11 - Career Academy courses focus on preparing students to enter the career of their choice.
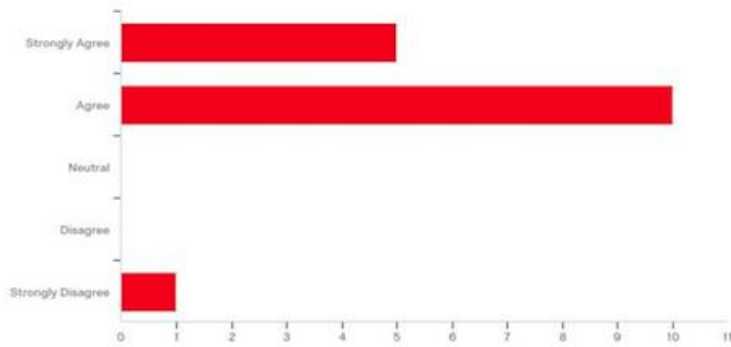
#	Answer	%	Count
1	Strongly Agree	31.25%	5
2	Agree	62.50%	10
3	Neutral	0.00%	0
4	Disagree	0.00%	0
5	Strongly Disagree	6.25%	1
	Total	100%	16

Q12 - Graduates of the Career Academy program at your school have the skills and
knowledge necessary for college success.
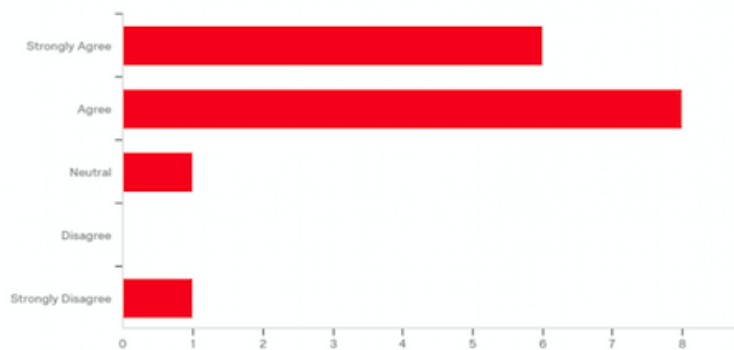
#	Answer	%	Count
1	Strongly Agree	37.50%	6
2	Agree	50.00%	8
3	Neutral	6.25%	1
4	Disagree	0.00%	0
5	Strongly Disagree	6.25%	1
	Total	100%	16

Q13 - Career Academy graduates have the knowledge, training, and professional skills necessary for success in their chosen career and/or skilled trade.
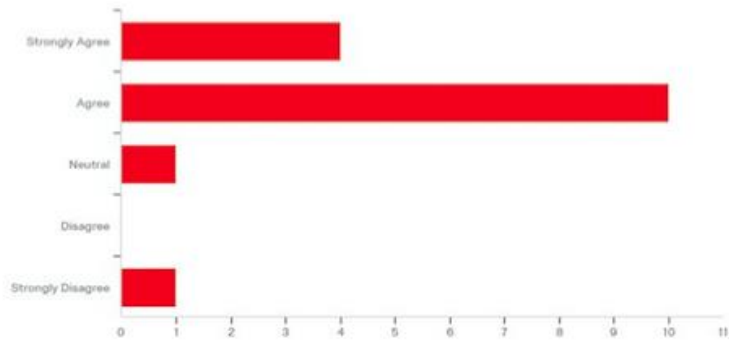
#	Answer	%	Count
1	Strongly Agree	25.00%	4
2	Agree	62.50%	10
3	Neutral	6.25%	1
4	Disagree	0.00%	0
5	Strongly Disagree	6.25%	1
	Total	100%	16

Q14 - Do teachers in your Career Academy have a shared planning period during the school day?
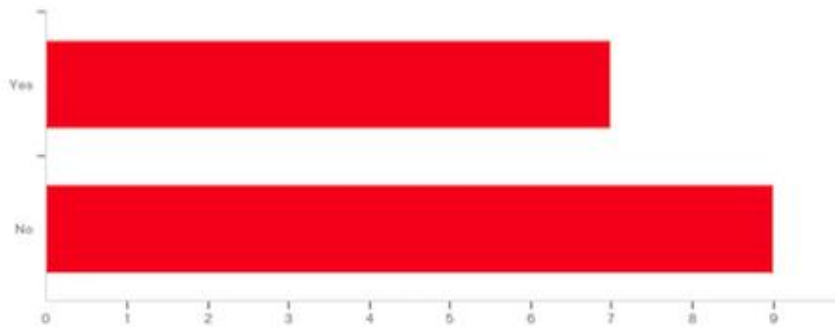
#	Answer	%	Count
1	Yes	43.75%	7
2	No	56.25%	9
	Total	100%	16

Q15 - How often does your Career Academy conduct formal staff meetings with the
Career Academy Advisor/Counselor for collaborative planning?
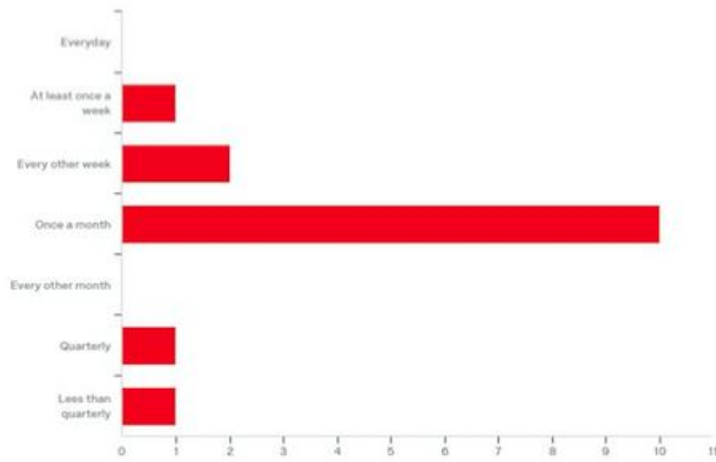
#	Answer	%	Count
1	Everyday	0.00%	0
2	At least once a week	6.67%	1
3	Every other week	13.33%	2
4	Once a month	66.67%	10
5	Every other month	0.00%	0
6	Quarterly	6.67%	1
7	Less than quarterly	6.67%	1
	Total	100%	15

Q16 - I meet regularly with teachers in core content classes to discuss curriculum integration.
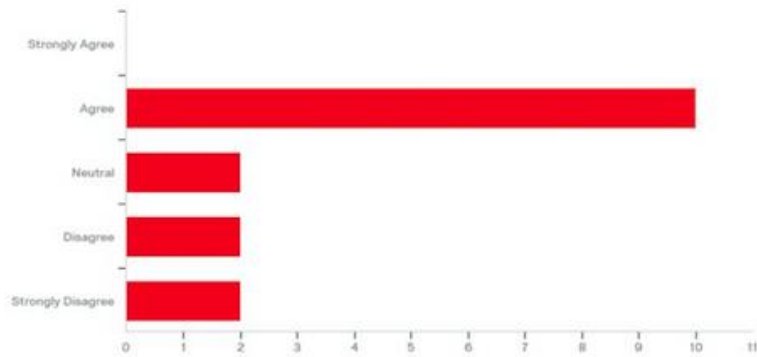
#	Answer	%	Count
1	Strongly Agree	0.00%	0
2	Agree	62.50%	10
3	Neutral	12.50%	2
4	Disagree	12.50%	2
5	Strongly Disagree	12.50%	2
	Total	100%	16

Q17 - During professional development and/or collaborative planning meetings for the Career Academy at your school, how often do you and the other Academy teachers work on the following?:
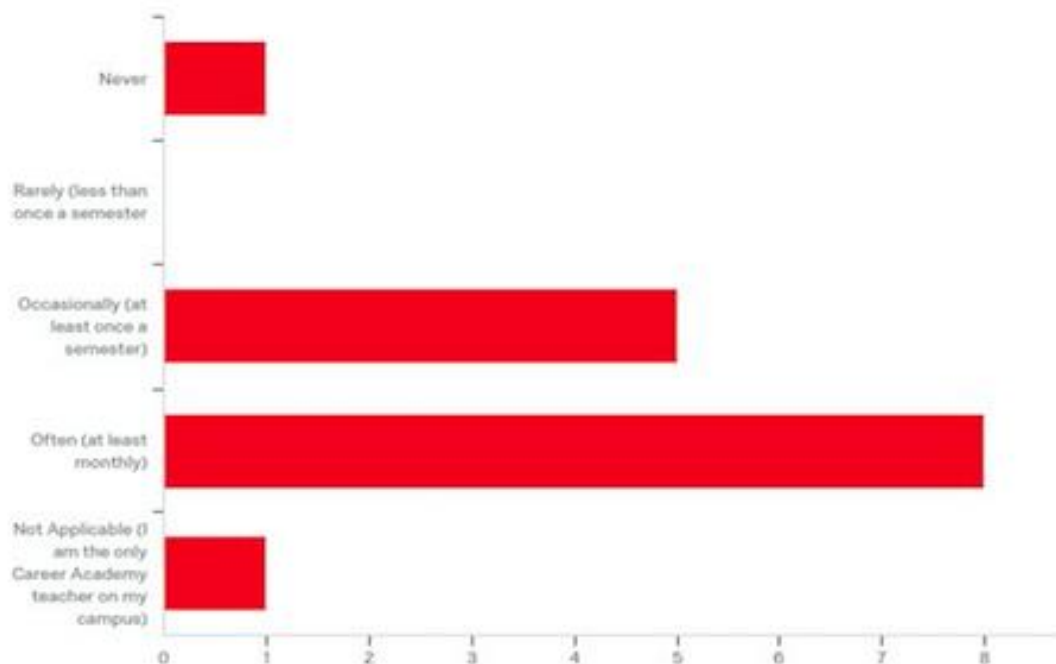-Designing instructional integration.
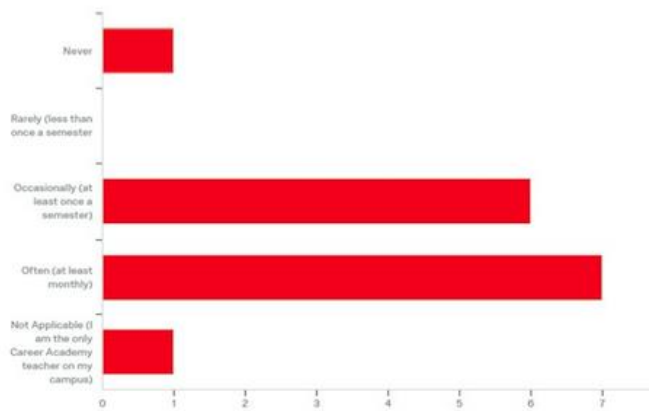
#	Answer	%	Count
1	Never	6.67%	1
2	Rarely (less than once a semester	0.00%	0
3	Occasionally (at least once a semester)	40.00%	6
4	Often (at least monthly)	46.67%	7
5	Not Applicable (I am the only Career Academy teacher on my campus)	6.67%	1
	Total	100%	15

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Q18 - During professional development and/or collaborative planning meetings for the Career Academy at your school, how often do you and the other Academy teachers work on the following?:
-Coordinating work-based learning strategies.
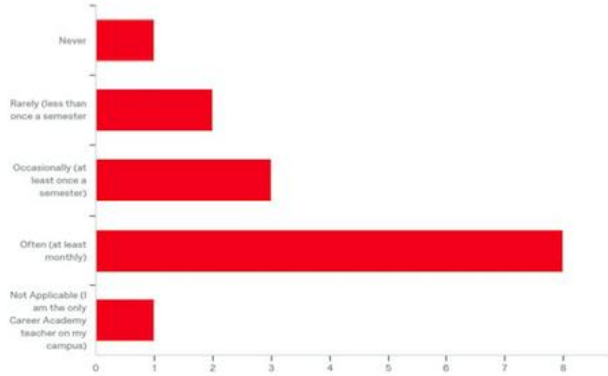
#	Answer	%	Count
1	Never	6.67%	1
2	Rarely (less than once a semester	13.33%	2
3	Occasionally (at least once a semester)	20.00%	3
4	Often (at least monthly)	53.33%	8
5	Not Applicable (I am the only Career Academy teacher on my campus)	6.67%	1
	Total	100%	15

Q19 - During professional development and/or collaborative planning meetings for the Career Academy at your school, how often do you and the other Academy teachers work on the following?:
-Developing career-related instruction
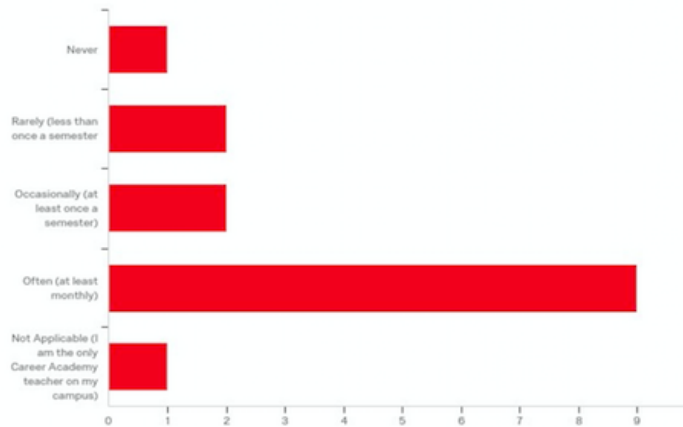
#	Answer	%	Count
1	Never	6.67%	1
2	Rarely (less than once a semester	13.33%	2
3	Occasionally (at least once a semester)	13.33%	2
4	Often (at least monthly)	60.00%	9
5	Not Applicable (I am the only Career Academy teacher on my campus)	6.67%	1
	Total	100%	15

Q20 - During professional development and/or collaborative planning meetings for the Career Academy at your school, how often do you and the other Academy teachers work on the following?:

-Developing personalized student supports

#	Answer	%	Count
1	Never	6.67%	1
2	Rarely (less than once a semester	0.00%	0
3	Occasionally (at least once a semester)	33.33%	5
4	Often (at least monthly)	53.33%	8
5	Not Applicable (I am the only Career Academy teacher on my campus)	6.67%	1
	Total	100%	15

Appendix C: SUMMARY OF STUDENT RESPONSES TO STUDENT SURVEY

Q1 - Which type of high school credential do you plan to earn?
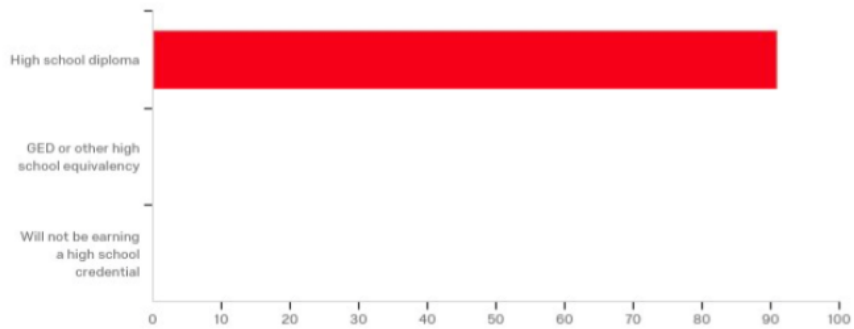
#	Answer	%	Count
1	High school diploma	100.00%	91
2	GED or other high school equivalency	0.00%	0
3	Will not be earning a high school credential	0.00%	0
	Total	100%	91

Q2 - Participation in the Career Academy program has increased my likelihood of graduating high school.
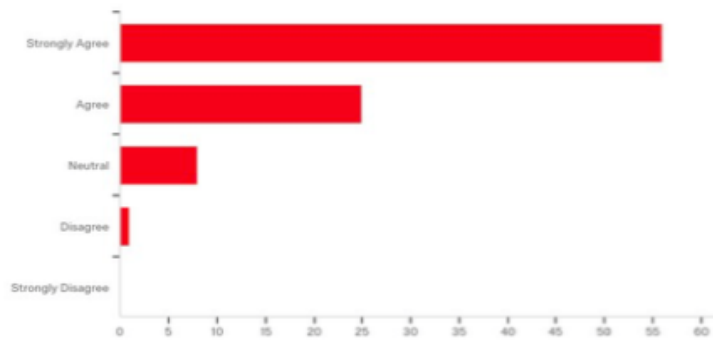
#	Answer	%	Count
1	Strongly Agree	62.22%	56
2	Agree	27.78%	25
3	Neutral	8.89%	8
4	Disagree	1.11%	1
5	Strongly Disagree	0.00%	0
	Total	100%	90

Q3 - Participation in the Career Academy program has increased my interest in attending school.
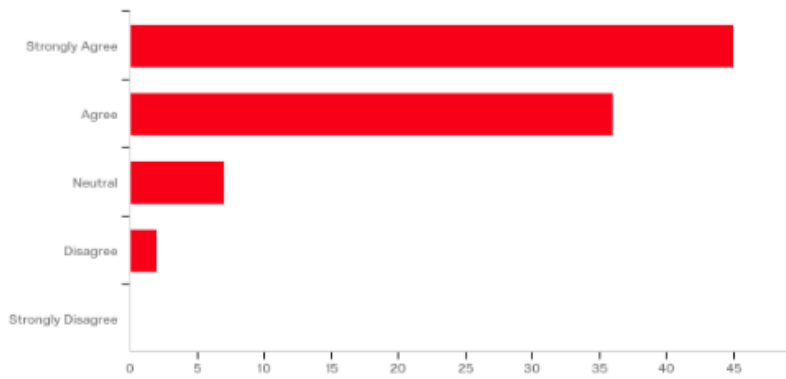
#	Answer	%	Count
1	Strongly Agree	50.00%	45
2	Agree	40.00%	36
3	Neutral	7.78%	7
4	Disagree	2.22%	2
5	Strongly Disagree	0.00%	0
	Total	100%	90

Q4 - The Career Advisor or my Counselor in school has regularly helped me plan for my future career.
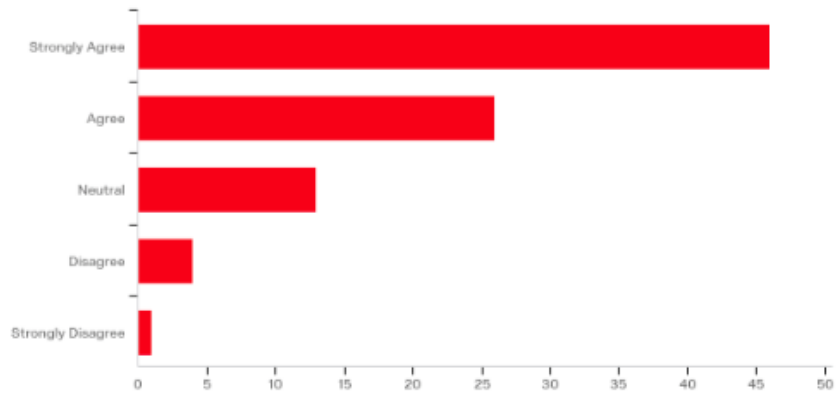
#	Answer	%	Count
1	Strongly Agree	51.11%	46
2	Agree	28.89%	26
3	Neutral	14.44%	13
4	Disagree	4.44%	4
5	Strongly Disagree	1.11%	1
	Total	100%	90

Q5 - My core content classes (English, math, etc.) are integrated into my career academy courses.
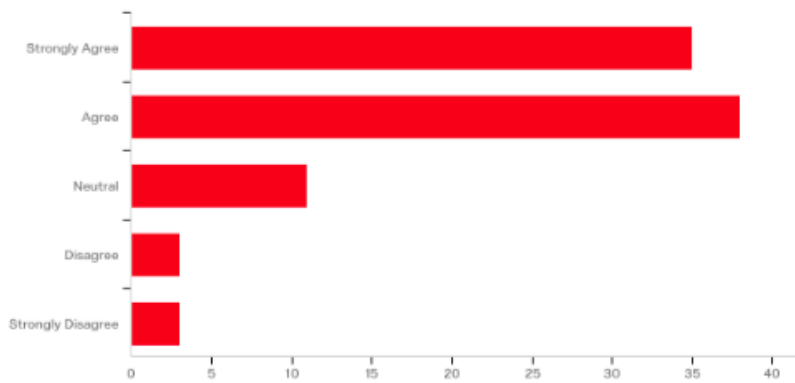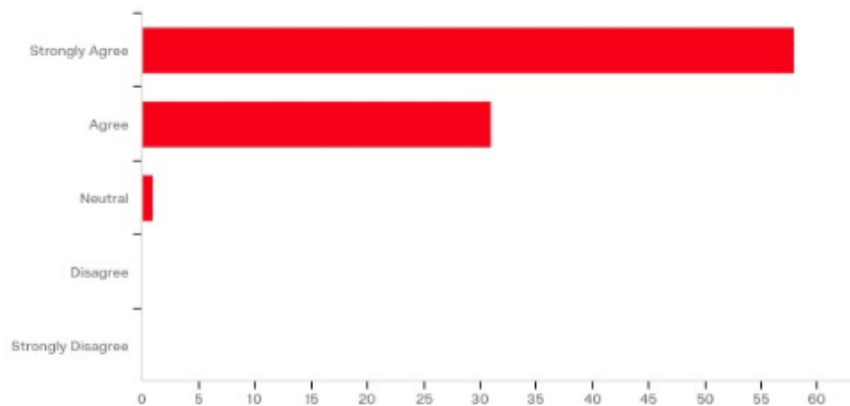

#	Answer	%	Count
1	Strongly Agree	38.89%	35
2	Agree	42.22%	38
3	Neutral	12.22%	11
4	Disagree	3.33%	3
5	Strongly Disagree	3.33%	3
	Total	100%	90

Julie Shively and Adam Weiss

Q6 - In eighth grade, my school provided me with information about different high school career academy options and how to apply to the career academies.
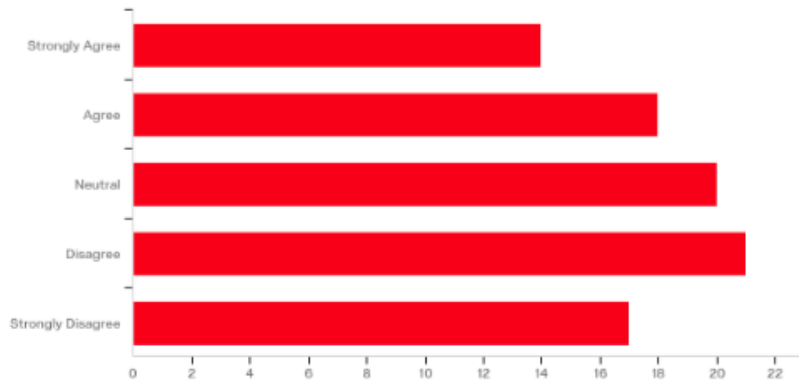
#	Answer	%	Count
1	Strongly Agree	15.56%	14
2	Agree	20.00%	18
3	Neutral	22.22%	20
4	Disagree	23.33%	21
5	Strongly Disagree	18.89%	17
	Total	100%	90

Q7 - I am knowledgeable of various careers I can pursue after graduation.

#	Answer	%	Count
1	Strongly Agree	64.44%	58
2	Agree	34.44%	31
3	Neutral	1.11%	1
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	90

Q8 - I have had, or am currently in, an internship acquired through my career academy program that compensates me financially or with course credit.
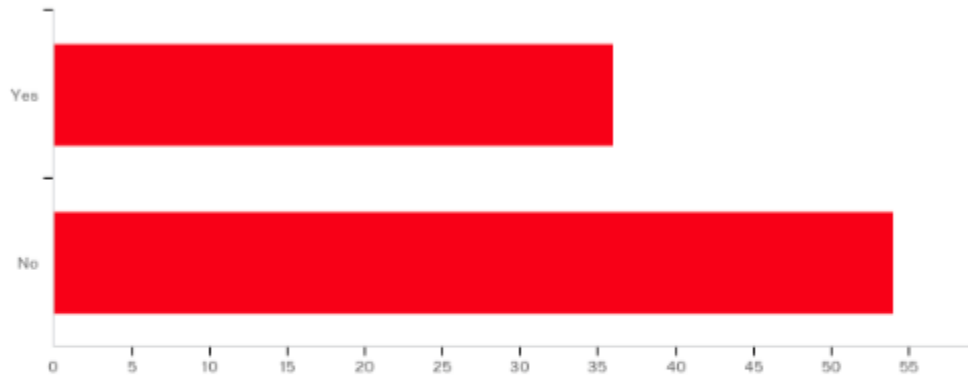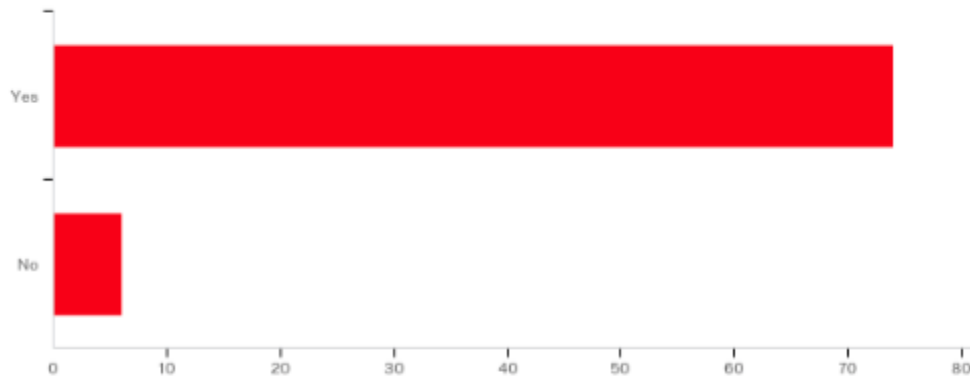

#	Answer	%	Count
1	Yes	40.00%	36
2	No	60.00%	54
	Total	100%	90

Q9 - My plans after high school are to:
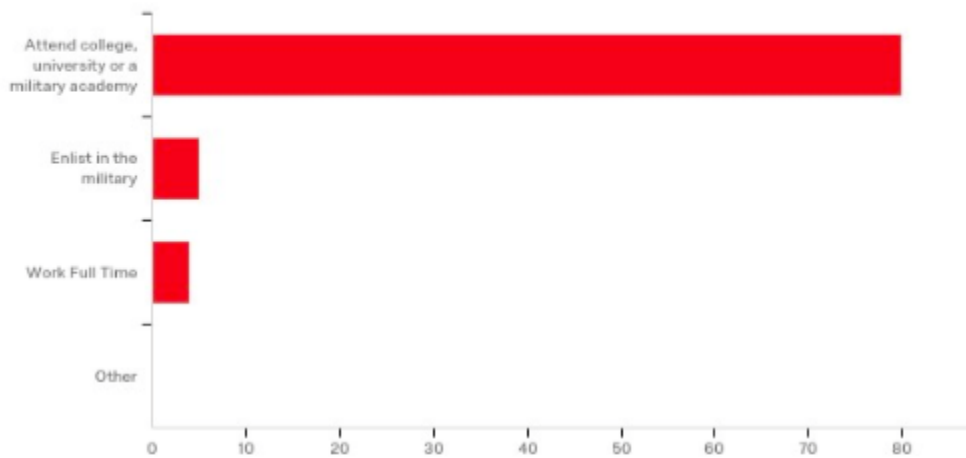
#	Answer	%	Count
1	Attend college, university or a military academy	89.89%	80
2	Enlist in the military	5.62%	5
3	Work Full Time	4.49%	4
4	Other	0.00%	0
	Total	100%	89

Q10 - By the summer of 2017, do you think you will have met the minimum requirements needed for admission to a state 4-year college?
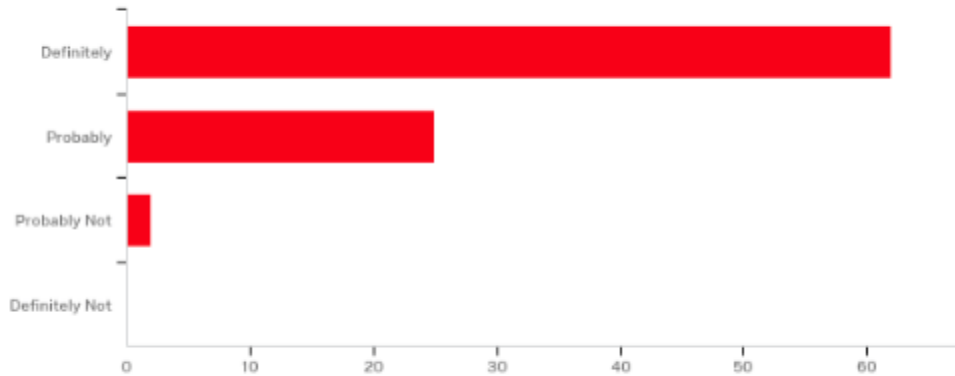

#	Answer	%	Count
1	Yes	92.50%	74
2	No	7.50%	6
	Total	100%	80

Q11 - Whatever your plans, do you think you have the ability to complete a Bachelor's Degree?
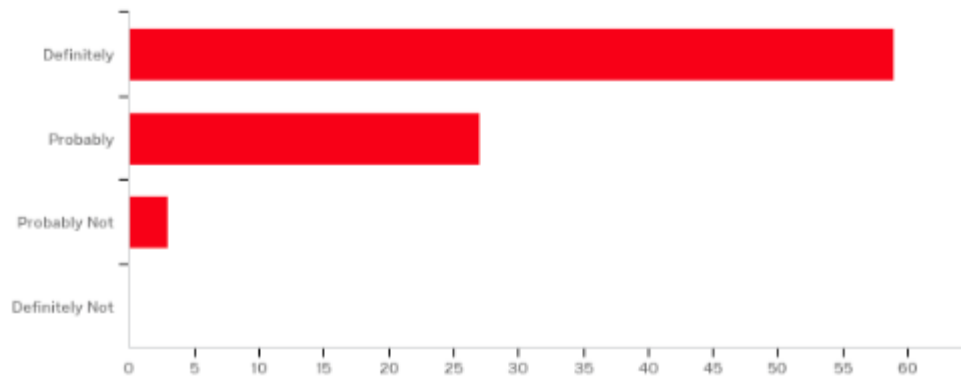
#	Answer	%	Count
1	Definitely	66.29%	59
2	Probably	30.34%	27
3	Probably Not	3.37%	3
4	Definitely Not	0.00%	0
	Total	100%	89

Q12 - Participation in the Career Academy Program has increased my readiness for college, even if I choose not to go.
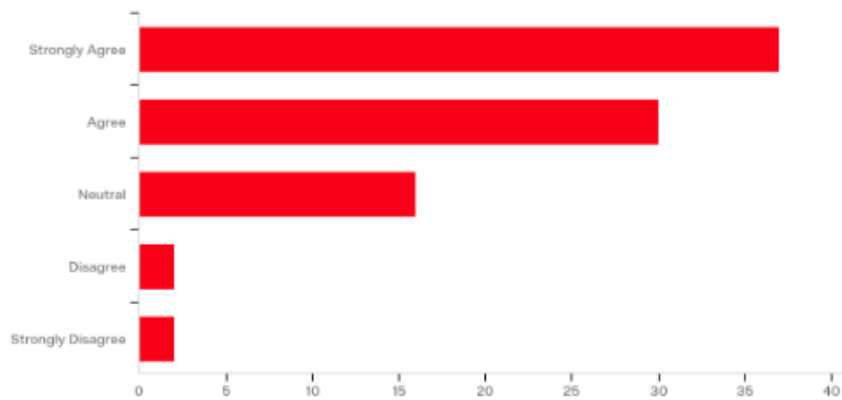

#	Answer	%	Count
1	Definitely	69.66%	62
2	Probably	28.09%	25
3	Probably Not	2.25%	2
4	Definitely Not	0.00%	0
	Total	100%	89

**Q13 - Participation in the Career Academy Program has increased the likelihood that I will attend college.**
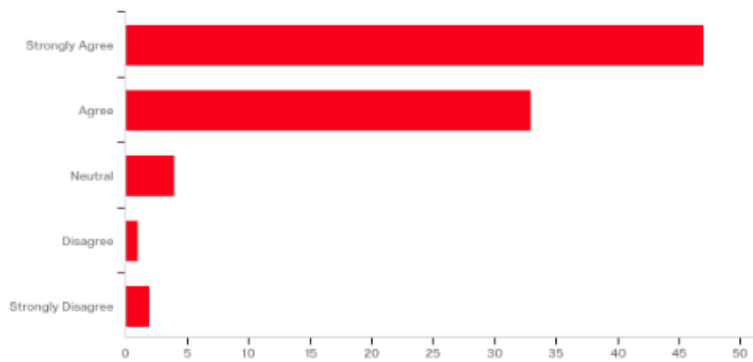
#	Answer	%	Count
1	Strongly Agree	54.02%	47
2	Agree	37.93%	33
3	Neutral	4.60%	4
4	Disagree	1.15%	1
5	Strongly Disagree	2.30%	2
	Total	100%	87

Q14 - High school teaches me valuable skills for my career.

#	Answer	%	Count
1	Strongly Agree	42.53%	37
2	Agree	34.48%	30
3	Neutral	18.39%	16
4	Disagree	2.30%	2
5	Strongly Disagree	2.30%	2
	Total	100%	87

Q15 - Participating in the Career Academy program has increased the likelihood that I will obtain a position in my desired career field (even if it is not in the same career field as my current career academy).
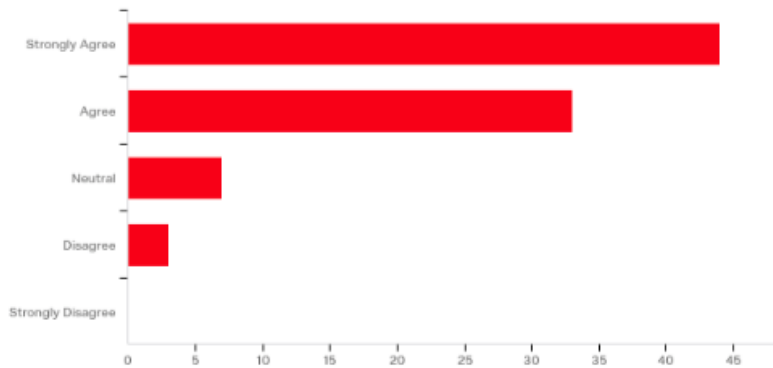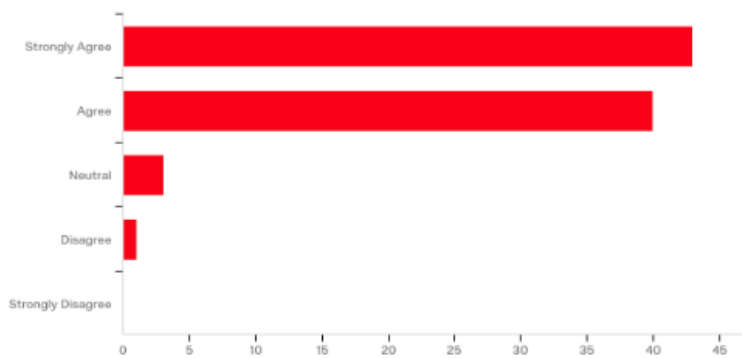

#	Answer	%	Count
1	Strongly Agree	50.57%	44
2	Agree	37.93%	33
3	Neutral	8.05%	7
4	Disagree	3.45%	3
5	Strongly Disagree	0.00%	0
	Total	100%	87

Q16 - Working hard in high school matters for success in the work force.
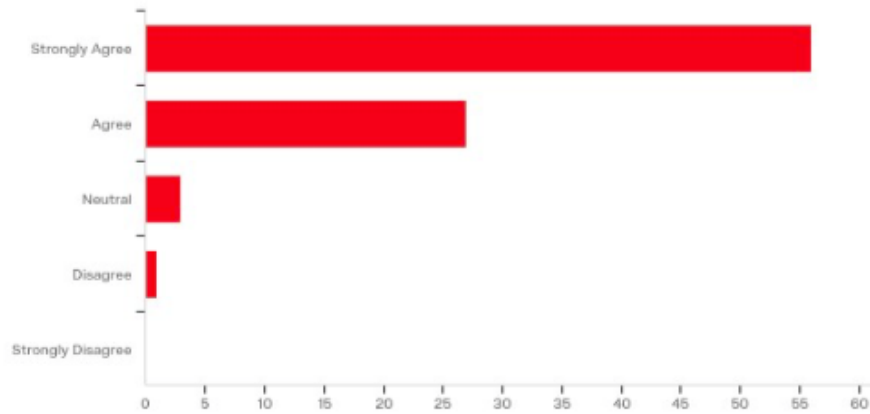
#	Answer	%	Count
1	Strongly Agree	64.37%	56
2	Agree	31.03%	27
3	Neutral	3.45%	3
4	Disagree	1.15%	1
5	Strongly Disagree	0.00%	0
	Total	100%	87

**Q17 - If the first solution to a problem doesn't work, I can think of a different one.**

#	Answer	%	Count
1	Strongly Agree	49.43%	43
2	Agree	45.98%	40
3	Neutral	3.45%	3
4	Disagree	1.15%	1
5	Strongly Disagree	0.00%	0
	Total	100%	87

Julie Shively and Adam Weiss

Q18 - I am confident in completing long-term projects or big assignments.
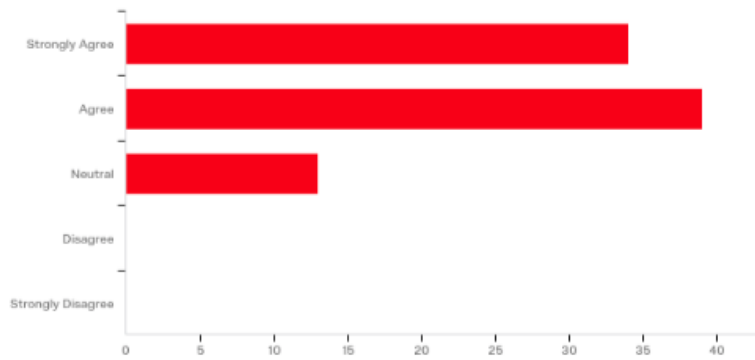
#	Answer	%	Count
1	Strongly Agree	39.53%	34
2	Agree	45.35%	39
3	Neutral	15.12%	13
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	86

## Q19 - I always arrive on time to school and to other commitments (work, internship, extracurricular activities, appointments).
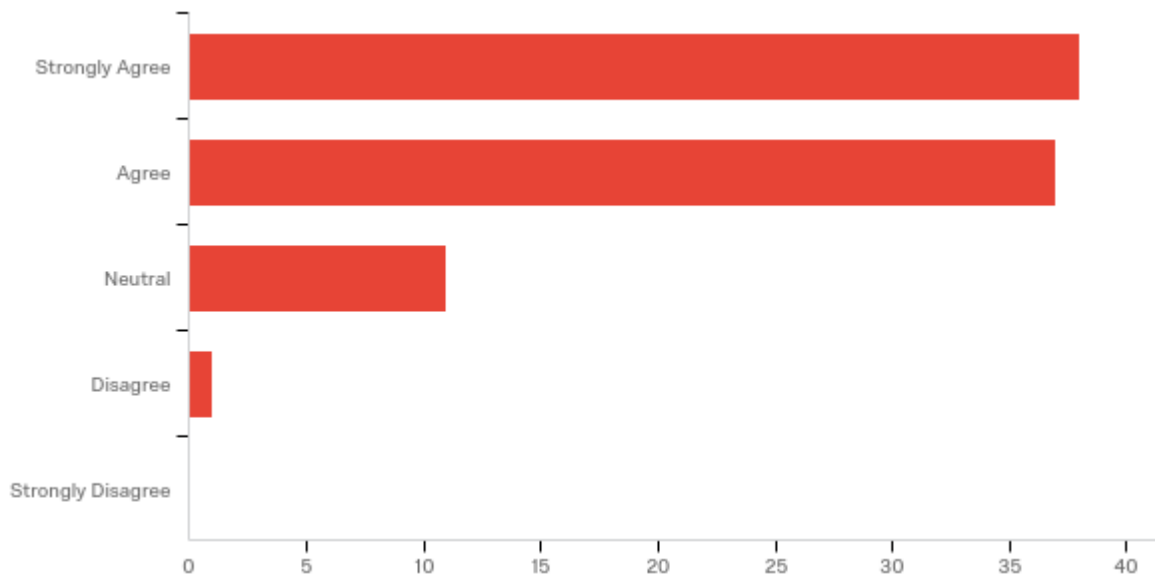
Q20 - I am absent from school and other commitments (work, internship, extracurricular activities, appointments) less than 3 days per month.
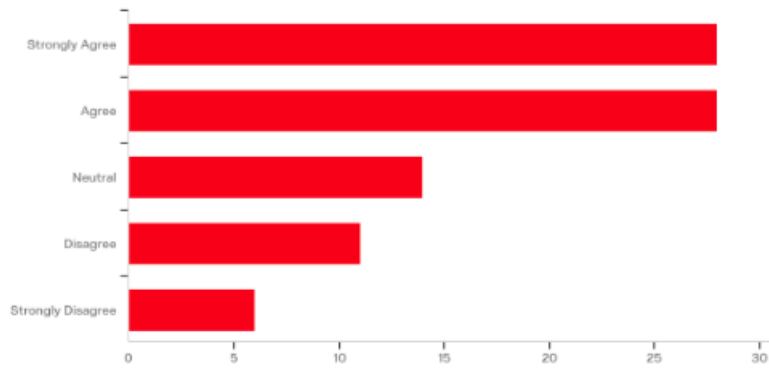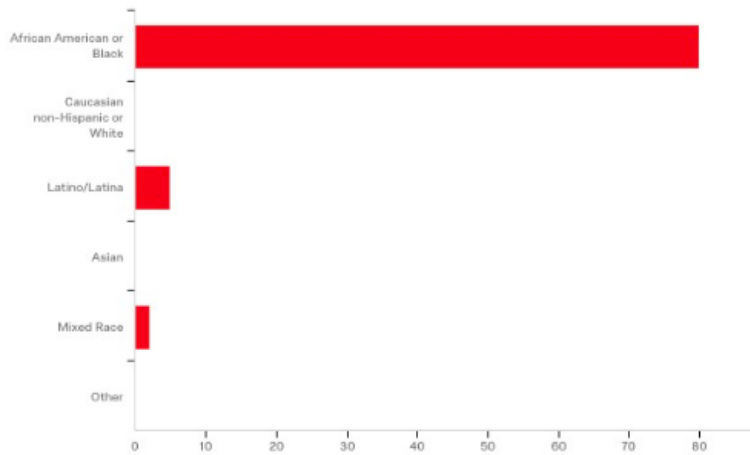

#	Answer	%	Count
1	Strongly Agree	32.18%	28
2	Agree	32.18%	28
3	Neutral	16.09%	14
4	Disagree	12.64%	11
5	Strongly Disagree	6.90%	6
	Total	100%	87

Q21 - Participating in the Career Academy Program increased my understanding of the appropriate professional dress for my desired working environment.
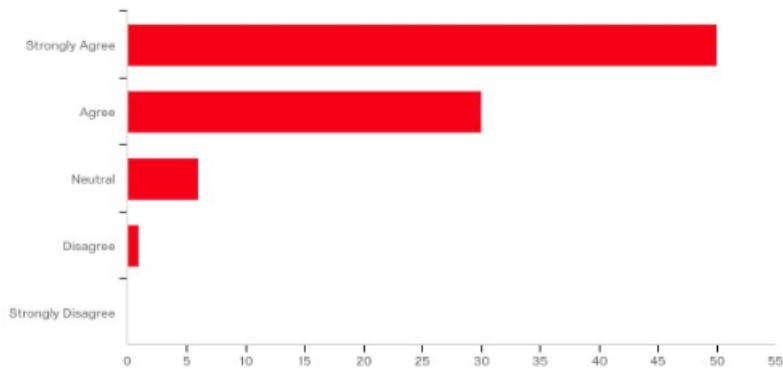
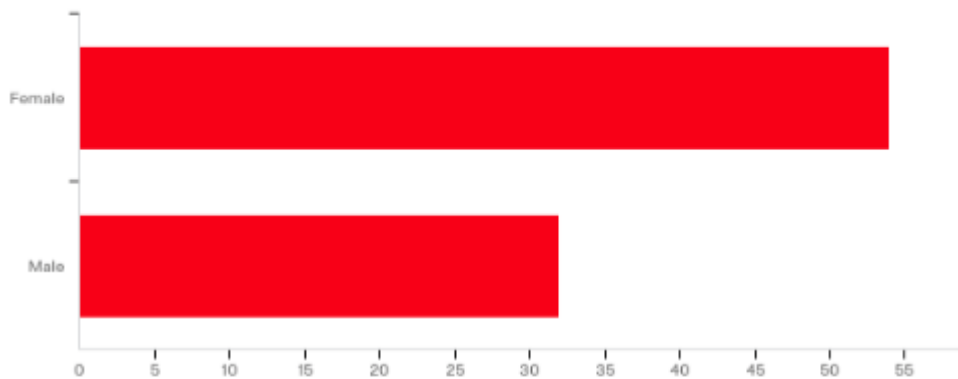| #	Answer	%	Count
1	Strongly Agree	57.47%	50
2	Agree	34.48%	30
3	Neutral	6.90%	6
4	Disagree	1.15%	1
5	Strongly Disagree	0.00%	0
	Total	100%	87

Julie Shively and Adam Weiss

Q22 - How do you describe your race/ethnicity?

#	Answer	%	Count
1	African American or Black	91.95%	80
2	Caucasian non-Hispanic or White	0.00%	0
3	Latino/Latina	5.75%	5
4	Asian	0.00%	0
5	Mixed Race	2.30%	2
6	Other	0.00%	0
	Total	100%	87

Q23 - What is your biological sex?

#	Answer	%	Count
1	Female	62.79%	54
2	Male	37.21%	32
	Total	100%	86

Julie Shively and Adam Weiss

Q24 - In which Career Academy are you enrolled?
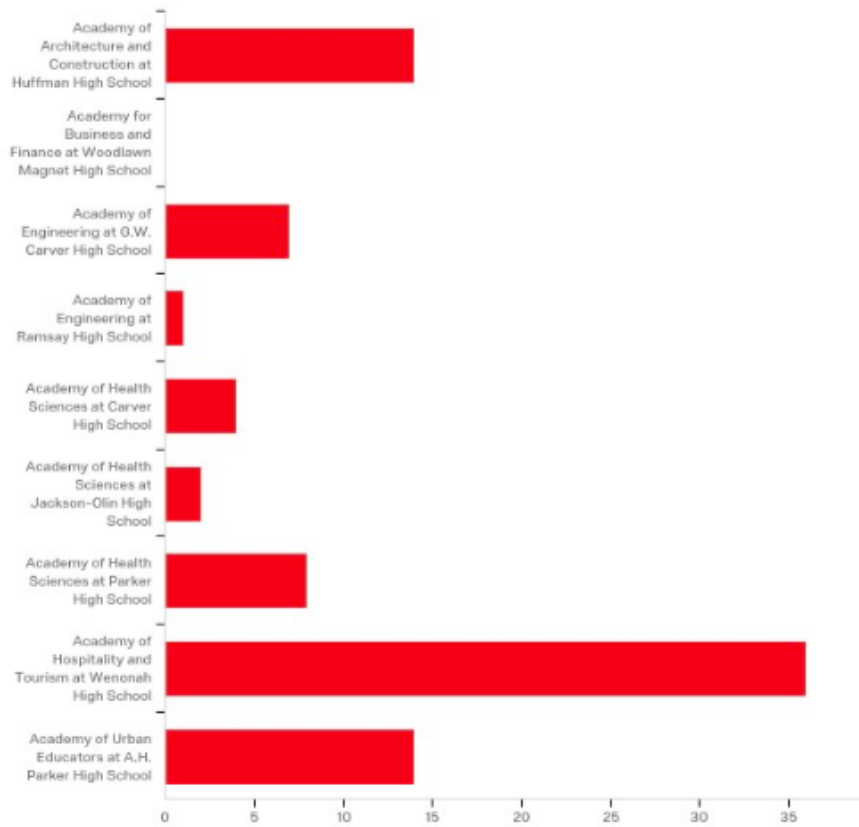
#	Answer	%	Count
1	Academy of Architecture and Construction at Huffman High School	16.28%	14
2	Academy for Business and Finance at Woodlawn Magnet High School	0.00%	0
3	Academy of Engineering at G.W. Carver High School	8.14%	7
4	Academy of Engineering at Ramsay High School	1.16%	1
5	Academy of Health Sciences at Carver High School	4.65%	4
6	Academy of Health Sciences at Jackson-Olin High School	2.33%	2
7	Academy of Health Sciences at Parker High School	9.30%	8
8	Academy of Hospitality and Tourism at Wenonah High School	41.86%	36
9	Academy of Urban Educators at A.H. Parker High School	16.28%	14
	Total	100%	86

APPENDIX D: INTERVIEW PROTOCOLS

Birmingham Education Foundation
1. Please tell us about your position at the Education Foundation (how long have you been at the Foundation, what do you do exactly, what got you interested in working for ED
2. In what capacity are you connected with the Birmingham high schools?

Support for Learning
1. How do you support the students at the Career Academies?
2. Please describe the activities you are involved in with the students. Are there any that are more engaging to the students?
3. What interaction do you see between the students and the business partners?
4. How developed do you see the partnerships between the students and businesses?

Career Readiness
1. What skills do you see that the students need to succeed in college and the workforce?
2. How do you see those skills developing in the student? Are there particular activities that lend themselves to developing these skills?
3. How do you see the program evolving or improving? What would you suggest?

NAF
1. To what extent do you think the Career Academy approach alters the high school environment to support the students academically and developmentally?
2. To what extent do you think the CA approach changes educational, employment and youth development possibilities for students?

Business Partners
Please tell us about your business, and your relationship with Career Academies.
1. How long have you been connected with Career Academies?
2. In what capacity are you connected with Career Academies? (are you connected with a school Advisory Board?)
3. Do you work with multiple schools?
4. Do you have individual students that you mentor? What was the criteria for assigning these particular students to mentor?

Support for Learning
1. Does your business provide work-related activities or guest speakers to the School? Can you describe that process? (Follow up questions: Are the activities and speakers welcome at the school? Are they well received by the students and teachers?)

2. Please describe your mentorship activities (or internship program) with the students. (Follow up: Do you believe it is successful? Why/why not?)

Career Readiness

1. What skills do students need to succeed in the workforce, particularly in your career field?
2. Do you see Career Academy students possessing these skills as they progress through the Career Academy program?
3. Does your mentorship of students include developing these skills in students?
4. What do you think the Career Academy program can do to enhance or improve student experiences so that they are more likely to succeed in the workforce after high school?

Career Academy Coordinator
General Perceptions of Career Academies and Career Academy Students

1. Tell me about the Career Academy (Academies) at the school. (Prompts: Which one/s does/do your school house? For how long has a Career Academy existed at the school? About how many students from the school participate each year in Career Academies?)
2. Can you describe any differences between Career Academy students and general track students academically or with executive skills? Follow-up: Have you noticed any unique characteristics that Career Academy students possess?
3. Career Academies are supposed to provide experiential learning to students so that their high school years prepare them for their future in college and/or career. Do you think that this program has provided these students with college and career knowledge? (give some examples)

Program Fidelity to National Academy Standards
Recruitment and enrollment

1. Can you describe the process in recruiting students to participate in your school's Career Academy (Prompt/include: do you begin with eighth or ninth graders? Is there a career or high school fair in which Career Academy teachers participate?)
2. How are parents and students notified regarding the opportunities that Career Academies provide?
3. Why do you think students choose to participate in Career Academy at your school? What might be factors that encourage students to choose the CA? What motivates students to enter and to stay in Career Academies?
4. What characteristics do students bring to the classroom that helps lead to their successes? What characteristics of students hinder their successes?

Personalized Environment

1. How are students who participate in Career Academies grouped in their courses? Are they in a cohort? Do they share academic courses as well as Career Academy courses?

2. Please talk about the scheduling of Career Academy teachers at your school. Is there a common planning among the group? Do they have the opportunity to plan and/or collaborate with academic instructors?
3. How are students advised on their career possibilities and college enrollment?

Professional Development
1. What does your training in the Career Academy program look like?
2. What is your role in the Career Academy program?

Advisory Board Operations
1. Please describe the composition and procedures of the school's Career Academy Advisory Board. (Who and how many are members? How are they chosen? How long do they serve? Is there specialized training for them?)
2. How often do you meet with Career Academy teachers and advisory board members? In what venue are the meetings?

Support for Learning
1. How are programs of study selected? Are there technical advisors and professional support?
2. Please describe the internship opportunities for students. How many participate? With which businesses have the school partnered?
3. How well do you think Career Academies provide "college or career knowledge" to students? Can you provide examples?
4. What does the school do to provide individualized or differentiated student learning and college/career plans to Career Academy students?
5. How does the school ensure sufficient academic supports for struggling students?
6. Why would students choose to leave the Career Academy program? Is there counseling with the student and/or discussions/meetings with parents during the process?

Perceptions of Program Implementation
1. Are there any aspects of the Career Academy program implementation that teachers find difficult? If so, can you describe them?
2. Are there any school or district policies, procedures, or programs that have affected the implementation of Career Academies (schedules, school or district assessments, CTE programs, teacher certification)
3. Based on your observations and experiences, what has been the primary challenge in implementing conducting the Career Academy program? Has there been an attempt to overcome and any success in overcoming those challenges?
4. What do you feel has been the impact of Career Academies on student learning and student opportunities after high school? Can you provide examples or evidence of this impact?

Career Academy Teachers
1. Before we begin, can you please tell me a little about your current position and your professional experience with Career Academies? (Prompts may include: How long have you worked as a teacher? Have you always been an educator in Birmingham City Schools? What is your background with Career Academies and/or Career Technical Education? What do you teach within the Career Academy program?)
2. How were you recruited to teach Career Academy courses? Are you certified in the area that you teach?
3. What is your annual professional development with regard to Career Academy instruction? Does it provide you with resources to better prepare you for instruction?

General Perception of Career Academy Program in the School
1. What do you think motivates students to enter and to stay in Career Academies?
2. What characteristics and experiences do students possess that help lead to their successes? What student characteristics and experiences might hinder their success?
3. What differences do you see between Career Academy students and general track students?
4. How well do you think Career Academies provide college and/or career knowledge to it students? Can you provide examples to support your opinion?
5. What do you feel has been the impact of Career Academies on student learning and student opportunities after high school? Can you provide examples or evidence of this impact?
6. Is there anything outside of your classroom control that might hinder the success of the Career Academy program in your school?

Program Implementation in Accordance with NAF Standards
Recruitment and Enrollment
1. Do you participate in recruiting students to participate in your Career Academy? If so, in what capacity?
2. Why do you think students choose to participate in Career Academy at your school? What factors might encourage students to choose a Career Academy?

Professional Development
1. Please describe your professional training and continued learning in the area of Career Academies.
2. Is common planning with core course teachers and/or other Career Academy teachers encouraged and scheduled?
3. What is your interaction with the school's Advisory Board?

Support for Learning
1. How does the program provide "college or career knowledge" to students? Can you give examples?

2. Describe your Career Academy courses' curriculum, instruction, and interface with core courses as well as career (Prompts include: Is it the NAF curriculum? Is it linked with core courses? Is there integrated instruction? What type of project-based learning and/or work-based learning is designed? Do the students have guest speakers, mentors, internship opportunities, and/or specific instruction regarding working in the career and career/executive skills?)

3. How are the students grouped for instruction? (Do you see the same groups of students throughout the Career Academy years? Do they move through the courses as a cohort or individuals?)

4. Have you adjusted or made any adaptations to the original or intended program set up? Follow up if the answer is "yes:" Why? Was it informal modifications or was it approved by someone on the Career Academy Board or in School Administration? What has been the result?

5. What does the school do to provide individualized or differentiated student learning and college/career plans to Career Academy students? What is your involvement in this process?

6. How does the school ensure sufficient academic supports for struggling students? (Follow Up questions: What is your involvement in this process? Do you find the support sufficient for students who are at risk of failing in the program?)

Career Academy Students

Please tell us a little about yourself in relation to school. (Prompts: Have you always attended Birmingham City Schools? Do you have any siblings in school? Which classes to you especially like? Do you feel you are doing well in school?)

Recruitment and Enrollment in Career Academy
1. Please tell us about your motivation for entering your Career Academy.
1. Which Academy did you choose (if there are multiple at the school)? What caused you to choose that Academy?
2. How did you learn about the Career Academy Program? (Follow up: Were your parents aware of it? (if so,) How were they made aware of it?)
3. How much of the program's curriculum and work-based activities were you aware of before you began? How did you learn of it?

Personalized Learning
1. Do you have the same peers with you in all or most of your classes, including core courses?
2. Do you see any overlap from your core courses to your Academy courses? If so, can you describe them?
3. Have you had any guidance or discussions regarding life after high school? Can you describe your experiences with learning about the college application process?
4. Are you assigned a counselor or advisor to help you with your high school experience, careers, internships, or the college application process?

Program of Study, Instructional Practices and Instructional Supports
1. Please describe your Career Academy classes. (Prompts: Are there activities or project-based or real-life learning activities? Do you have guest speakers? Do you have job site visits?
2. Do you have a business partner or mentor in your program? (Follow up) Can you describe how often you meet with your mentor and what you talk about?
3. Have you had or do you anticipate having an internship with a business or organization? If so, can you describe it? How often do you go? What have you learned?
4. Have you ever had any difficulty with a career course? (if the answer is yes: How did you overcome the difficulty? Was there any school support for you such as tutoring, workshops or additional classes?)

College and/or Career Readiness
1. Do you anticipate earning an industry certificate or credential? Are you dual enrolled in high school and college classes?
2. Do you plan to attend a college after high school? What factors influenced this decision?
3. For those planning to attend college after high school:
1. Which college do you plan to attend? Why? In what program of study do you plan to enroll?
2. Please describe your experiences in preparing for college. Do you believe you are prepared to attend college? (Prompts: have you applied to colleges? Have you completed the FAFSA process? If no, why not?)
1. For those planning to go into a career field or work after high school
1. Why did you choose to go straight into the work force?
2. What are your career plans? (Follow up: Are they associated with your courses in high school? Why/why not?)
1. Can you describe other types of skills you have learned in the program that you believe will help you in your career or college?
2. Do you believe this program has prepared you well for life after high school, even in a career that is not associated with your career Academy? Why or why not?

Julie Shively and Adam Weiss