The Special Education Teacher Pipeline in Pennsylvania: Year 1 Report

Roddy Theobald
Equia Aniagyei-Cobbold
Marcy Stein

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Roddy Theobald
American Institutes for Research / CALDER

Equia Aniagyei-Cobbold
American Institutes for Research / CALDER

Marcy Stein
University of Washington Tacoma

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Abstract

This report provides data about the special education teacher pipeline in Pennsylvania and projects associated with the Pennsylvania Bureau of Special Education's Attract, Prepare, and Retain (APR) efforts. We first used administrative data from the Pennsylvania Department of Education to provide a historical portrait of the special education teacher pipeline in the state. These data provide a baseline picture of special education teachers in the state and the motivation for the APR projects. To provide formative feedback on the APR projects, we also surveyed students and educators participating in three such projects: Developing Future Special Educators Grants, Mentoring, and Learning Communities/Networking. These data provide some early evidence about how participants view their experiences with these projects.

Executive Summary

This report summarizes findings from the first year of a long-term research project on the special education teacher pipeline in Pennsylvania and projects associated with the Pennsylvania Bureau of Special Education's Attract, Prepare, and Retain (APR) efforts. In this executive summary, we highlight five key findings from the first year of the project.

Baseline Data on Special Education Teachers in Pennsylvania

Key finding 1. The supply of newly credentialed special educators in Pennsylvania decreased substantially in the 6 years prior to the COVID-19 pandemic.

Data from the Pennsylvania Teacher Information Management System (TIMS) show that the number of initial special education licenses issued by the state decreased from 2014 to 2020, ranging from a high of 2,225 in 2015 to 1,663 in the most recent year (2020). This decline motivates the "Attract" portion of the APR projects, which seeks to encourage more students to pursue a career in special education.

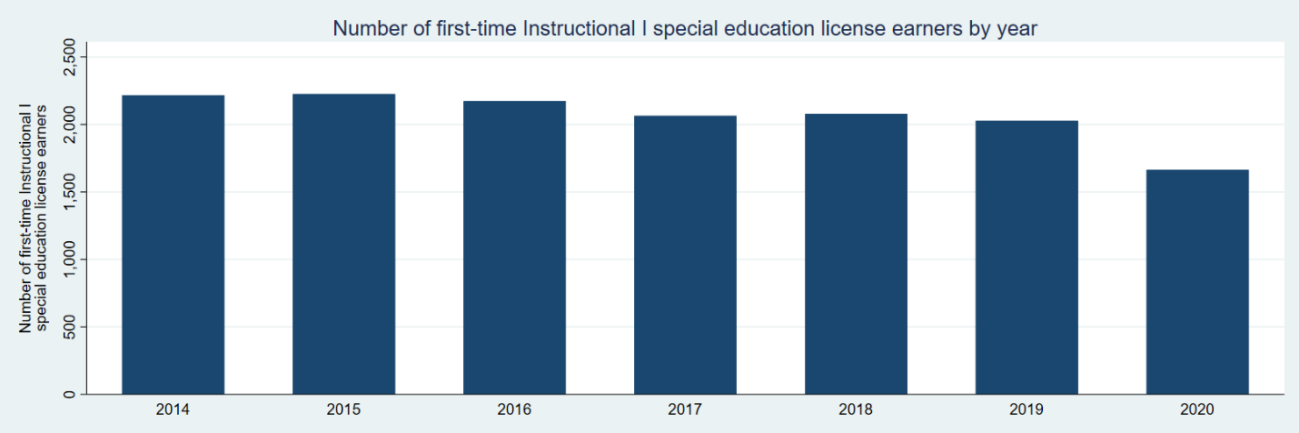

Figure 1. Number of first-time special education licenses in Pennsylvania from 2014 to 2020

Key finding 2. Attrition and mobility rates of special education teachers in Pennsylvania are higher than comparable rates for general education teachers in the state.

Using annual staff files, we calculate annual attrition and mobility rates for teachers in Pennsylvania from 2014 through 2020. As shown in Figure 2, the attrition rate of special education teachers (dotted black line) was between 7% and 10%, about a percentage point higher than the attrition rate of other teachers (solid black line). Two to three percent of special education teachers each year move into a different teaching position (either within the same school or across different schools) the following year, about 1% move into a nonteaching position, and about 8% leave their current school after the school year. The yearly turnover rate—attrition plus mobility—for special education teachers (top line in Figure 2) was between 14% and 21% between 2014 and 2020. Teacher turnover motivates the "Retain" portion of the APR projects, which seek to keep more current special educators in their current positions.

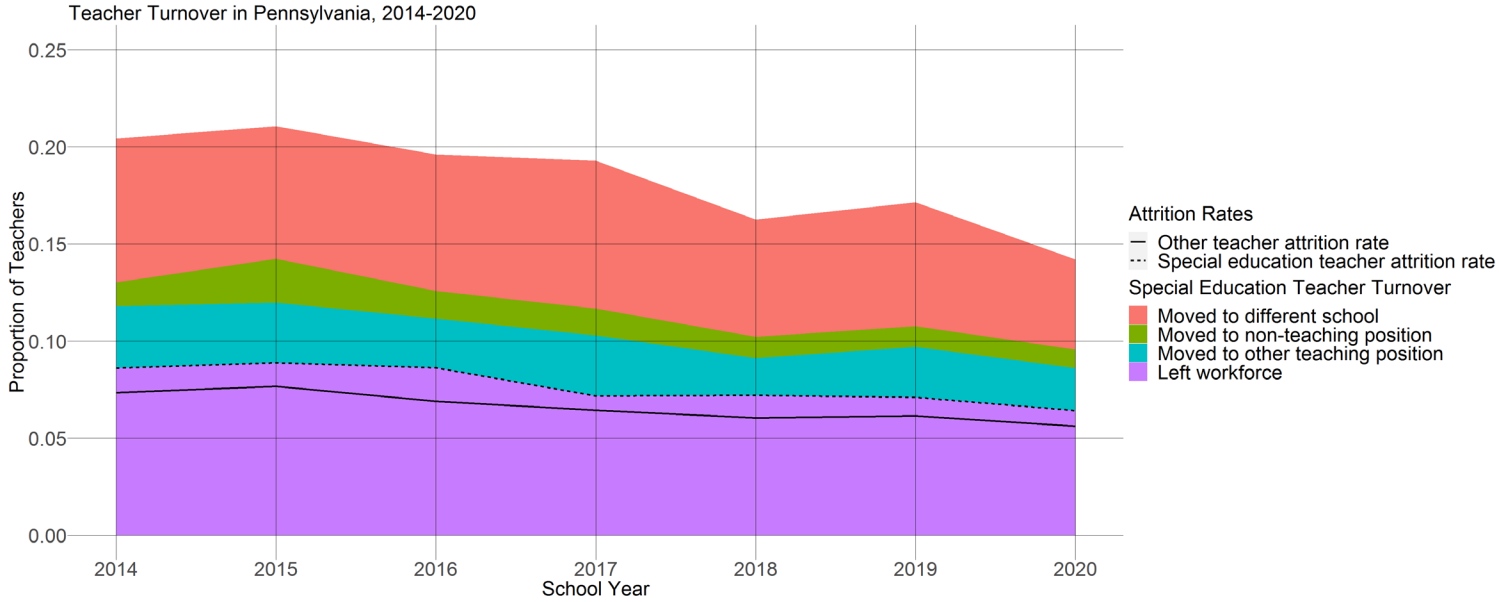

Figure 2. Teacher turnover by school year from 2014 to 2020

Participant Perceptions of Three APR Projects

Key finding 3. Following their participation in the Developing Future Special Educators Grant, survey participants were more likely to express an interest in a career in special education than before they enrolled in the program.

We surveyed student participants before and after they participated in programs developed through Developing Future Special Educators Grants. These grants were intended to engage secondary/postsecondary students in working with students with disabilities to inspire them to pursue a career as a special educator. Forty-five percent of survey respondents reported an interest in pursuing a career in special education after participating in one of these programs, compared to 32% of respondents surveyed before participating in these programs.

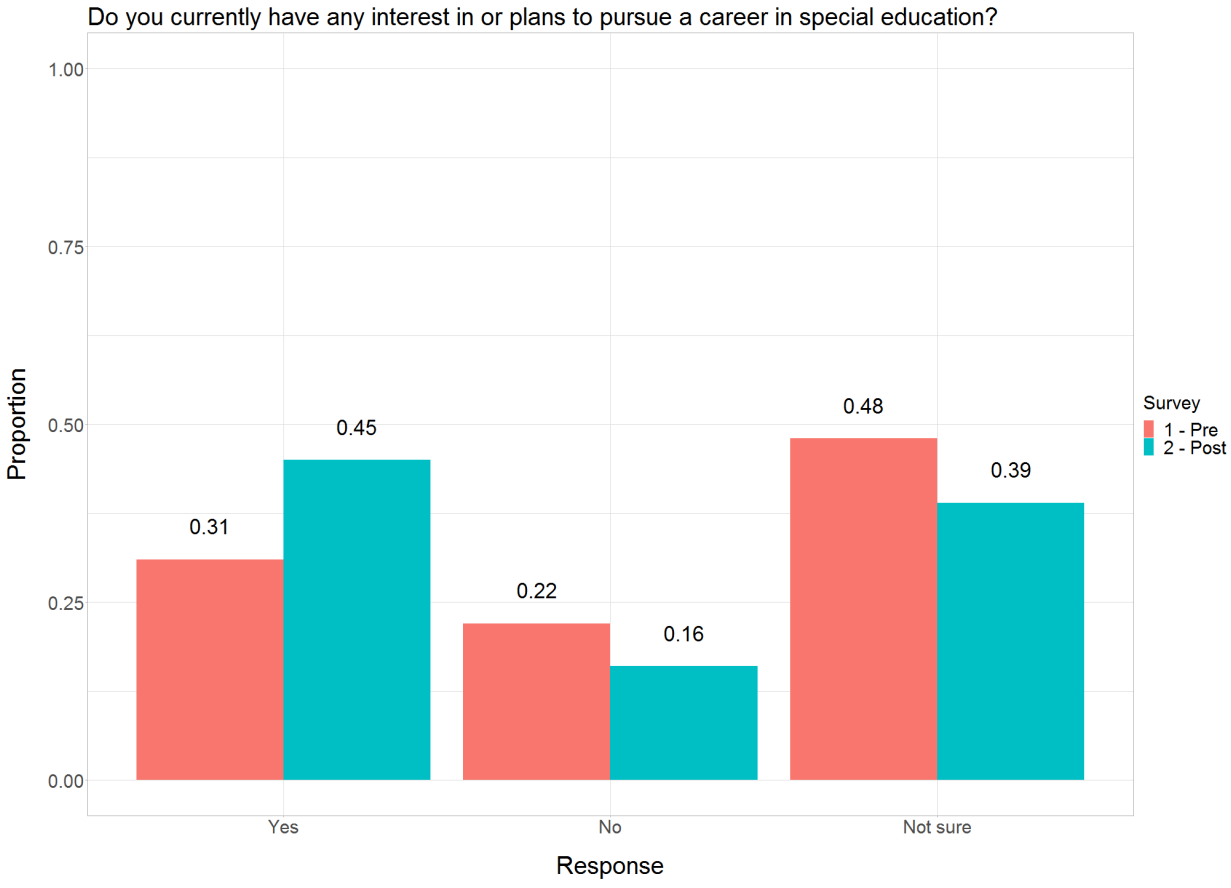

Figure 3. Participants' reported interest in or plans to pursue a career in special education

Key finding 4. Special educators participating in the Bureau of Special Education's Mentoring Project say the program improved mentees' professional development.

We surveyed mentors and mentees who participated in the Bureau of Special Education's Mentoring Project for school psychologists, special education administrators, and special education teachers. Of the survey respondents, 100% of mentees and 98% of mentors agreed or strongly agreed that the program positively impacted the professional development of the mentee.

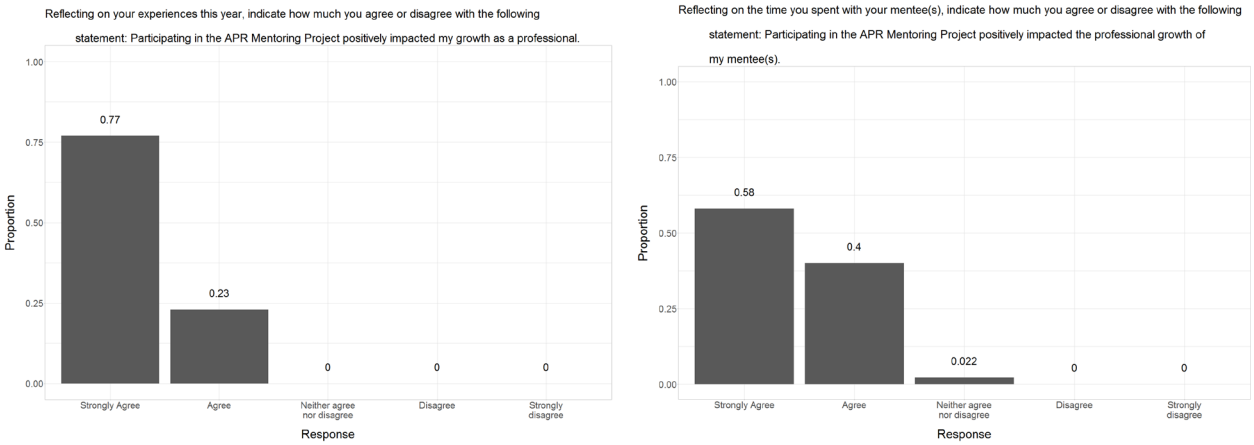

Figure 4. Mentees' (left panel) and mentors' (right panel) perceptions of program impact

Key finding 5. Most participants in the Learning Communities/Networking Initiative reported that the session they attended was relevant to their needs.

Finally, we surveyed participants in Learning Communities/Networking sessions intended to connect special education personnel including teachers, school psychologists, and speech language pathologists to peers in similar roles across the state. Among survey respondents from these programs, 96% agreed or strongly agreed that the session they attended was relevant to their needs.

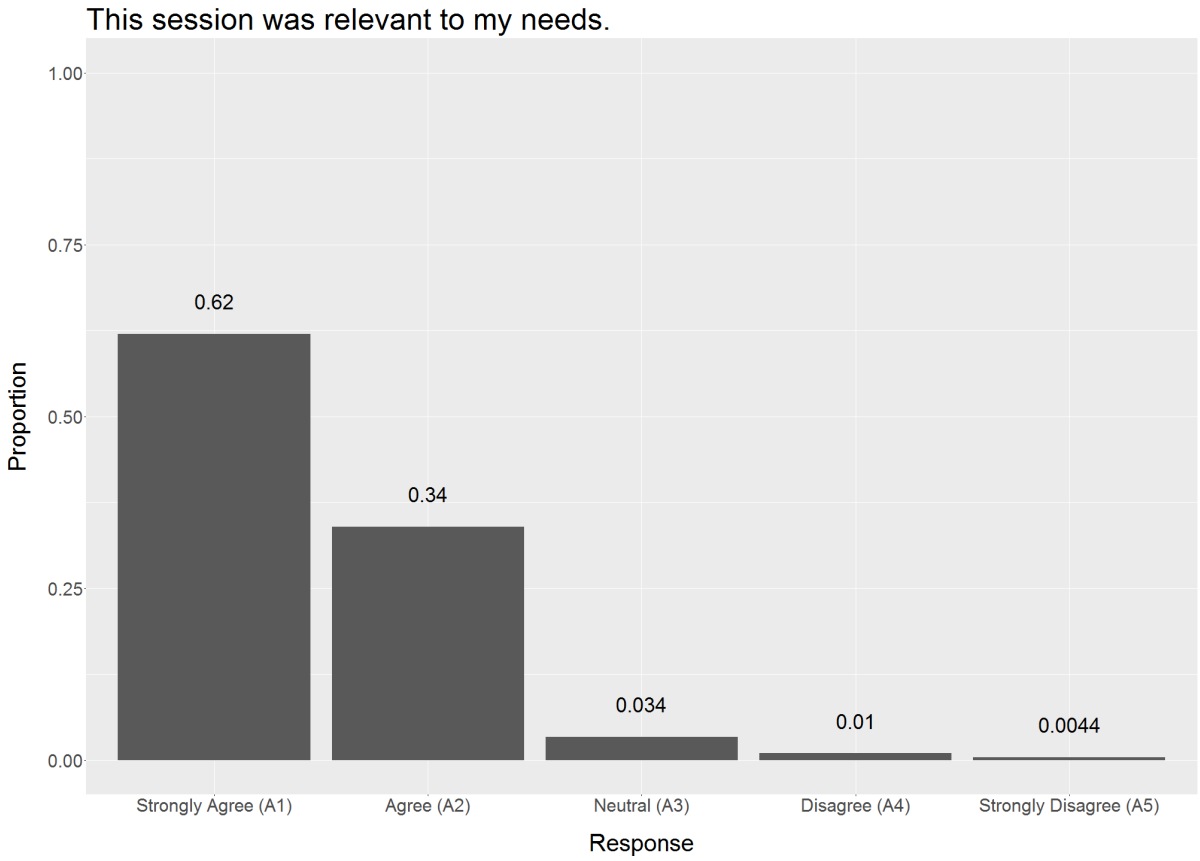

Figure 5. Learning Communities/Networking participant perceptions of session relevance

Summary

Our baseline analysis of administrative data underscores the motivations behind Pennsylvania's APR projects: The state needs to attract and retain more special education teachers to better serve students with disabilities statewide. Early feedback from participants involved in the Developing Future Special Educator Grant, the APR mentoring project, and the Learning Communities/Networking sessions suggest these new programs are relevant and beneficial to prospective and current special educators. Future analyses will examine whether participants in these projects are more or less likely to enter and remain in the state's teaching workforce, and the extent to which these and other ongoing or emerging APR projects have moved the needle in terms of improving outcomes for students with disabilities in the state.

Background on Special Education Teacher Career Paths in Pennsylvania

To situate the survey analyses of Pennsylvania's Attract, Prepare, and Retain (APR) projects, we use administrative data from the Pennsylvania Department of Education (PDE) to provide a descriptive and historical portrait of the special education teacher pipeline in the state. This administrative data work is governed by IRB approval 2022-E040 through PDE.

We first use the Teacher Information Management System (TIMS) to describe the number of new Instructional I (i.e., initial) special education licenses issued in each year from 2014 through 2020. We focus on these years because of a change in licensure policy in 2013 (licenses changed to cover only elementary or secondary rather than K–12) and because we have teacher workforce data through 2021 (i.e., we can potentially connect all license recipients in this time frame to later outcomes). As shown in Figure 1.1, the number of initial special education licenses issued by the state decreased over this period, from a high of 2,225 in 2015 down to just 1,663 in the most recent year (2020).

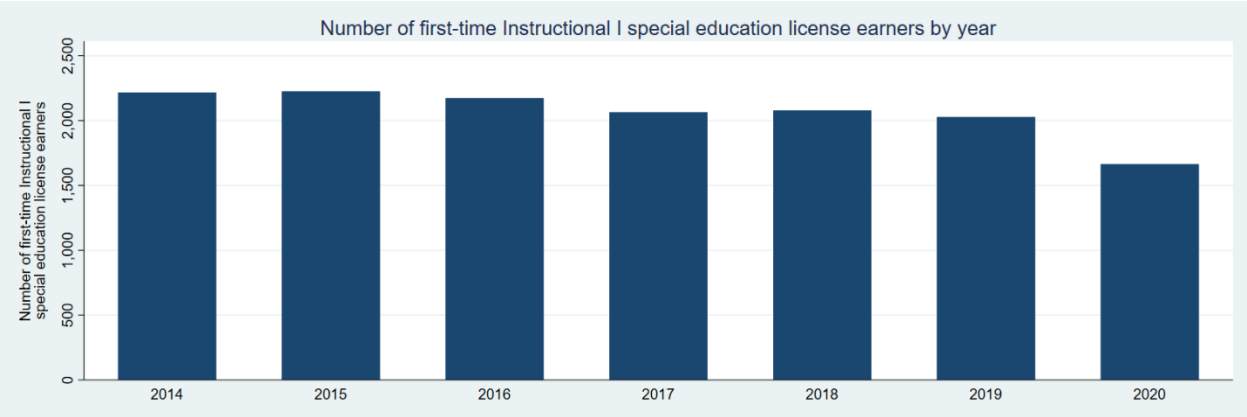

Figure 1.1. Number of first-time Instructional I special education license earners by year

As noted by Fuller (2022), this decline is actually smaller than for many other subject areas in the state, but it still motivates the "Attract" portion of the APR projects, which seeks to encourage more students to pursue a career in special education.

We next connect the TIMS data in Figure 1.1 to school staff files provided by PDE. These files provide data on all public school staff in the state, but for the purpose of this analysis we focus on the teachers in this file. In Figure 1.2, we calculate proportion of initial special education license recipients who are later observed employed as public school teachers in the state. A small proportion of these license recipients (5% to 12% depending on the year) already were employed as teachers at the time they received their initial license—for example, they may have been teaching on a temporary or emergency license—whereas the other bars in Figure 1.2 represent the proportion of initial special education license recipients who were employed as teachers within one and three years of receiving their license.

We can calculate 3-year hiring rates for individuals who received their initial special education teaching license between 2014 and 2018; over this period, the 3-year hiring rates increased from 2014 (47%) through 2018 (59%). We can calculate 1-year hiring rates for all of the years in Figure 2; over this period, the 1-year hiring rates similarly increased over the full time span (from 23% in 2014 to 32% in 2020). We cannot know from available data where the 40% to 50% of individuals who receive special education licenses but never teach in the state end up going, but these individuals could have been teaching in private schools, teaching in another state, or never entered teaching at all. That said, these rates of workforce entry are considerably lower than what has been found in other states like Washington (e.g., Theobald et al., 2021), and may be explained by Pennsylvania traditionally being a disproportionate "exporter" of teacher education program graduates (e.g., Fuller, 2022).

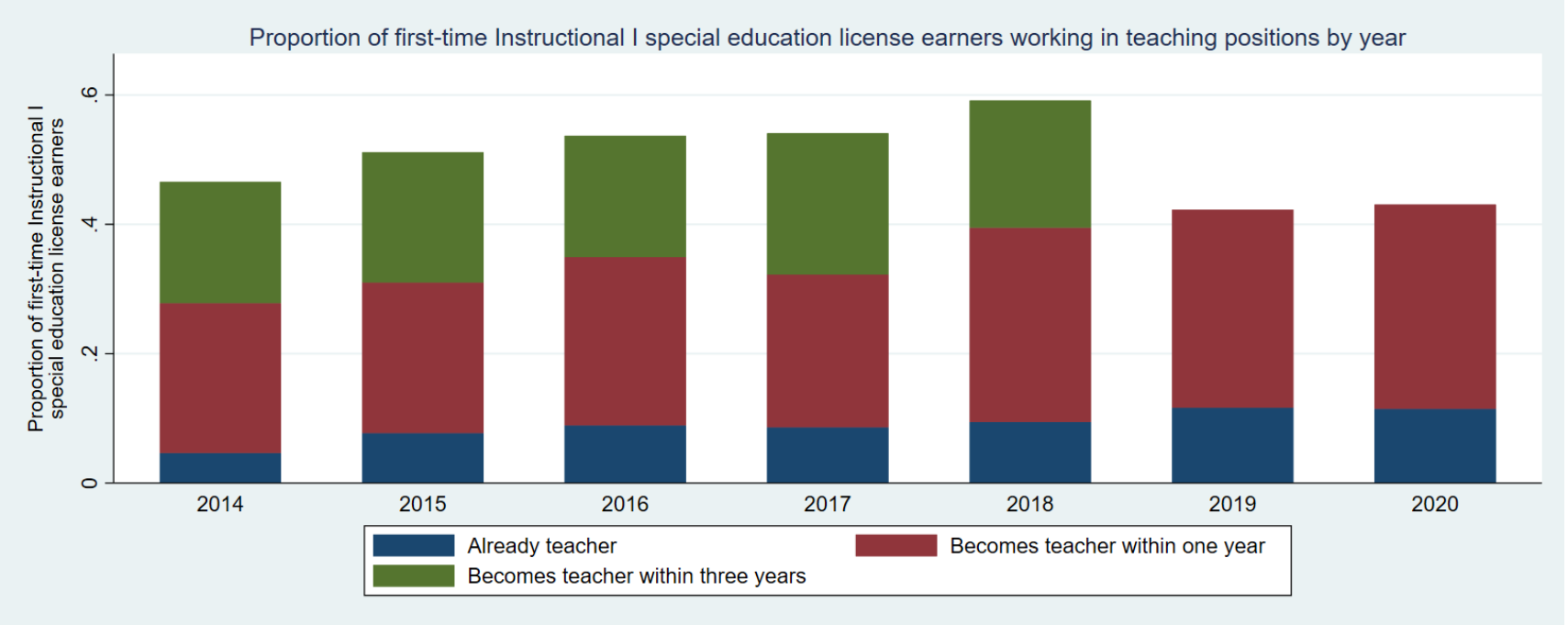

Figure 1.2. Proportion of first-time Instructional I special education license earners working in teaching positions by year

We now focus specifically on special education teachers in the state. As shown in Figure 1.3, between 17,000 and 20,000 teachers in the state are identified as being in special education positions in a given year, which is roughly 15% of the overall teaching workforce in the state, a percent that is comparable with what has been reported in other states like Washington (Theobald et al., 2021).

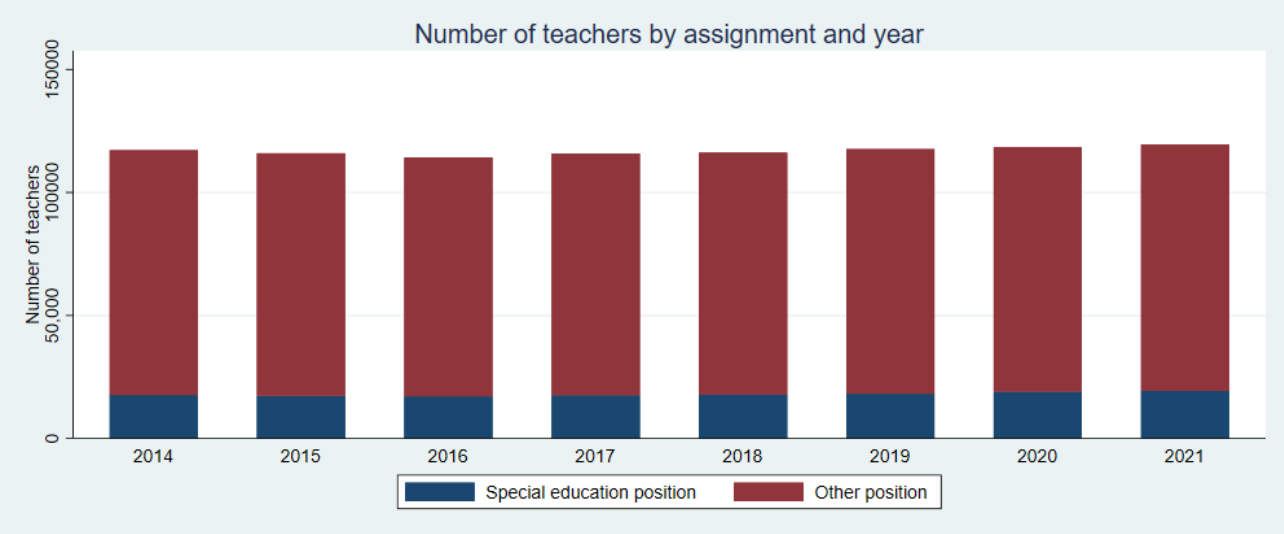

Figure 1.3. Number of teachers by assignment and year

We use the staff files to calculate annual rates of turnover for special education teachers in the state, defined as moving to a different school, moving to a nonteaching position, moving to another (e.g., general education) teaching position, and leaving the workforce altogether (i.e., the attrition rate). In Figure 4, we first benchmark these rates against the annual attrition rates of other teachers (solid black line), which was between 5% and 8% after every school year from 2013–14 (labeled 2014 in Figure 4) through 2019–20 (labeled 2020). In each of these years, the attrition rate of special education teachers (dotted black line) was about a percentage point higher than the attrition rate of other teachers. In both cases, though, attrition rates declined from a high of 8% for other teachers and 9% for special education teachers after the 2014–15 school year to between 5% and 6% for both other and special education teachers after the 2019–20 school year (i.e., after the first school year of the COVID-19 pandemic). These attrition and mobility rates are slightly lower than or comparable to those reported in Arkansas (Camp et al., 2022), Massachusetts (Bacher-Hicks

et al., 2023), North Carolina (Bastian & Fuller, 2023), South Carolina (CERRA, 2022), Washington (Goldhaber & Theobald, 2022), and nationally representative estimates (e.g., Diliberti & Schwartz, 2021).

Other rates of special education turnover are shown above the dotted line for the special education teacher attrition rate. Between 2% and 3% of special education teachers each year move into a different (e.g., general education) teaching position the following year, about 1% move into a nonteaching position (e.g., administration), whereas about 8% switch schools after the school year. The top of the red region in Figure 1.4 represents the overall turnover rate of special education teachers in each year, which was more than 20% after both the 2013–14 and 2014–15 school years but dropped below 15% after the 2019–20 school year.

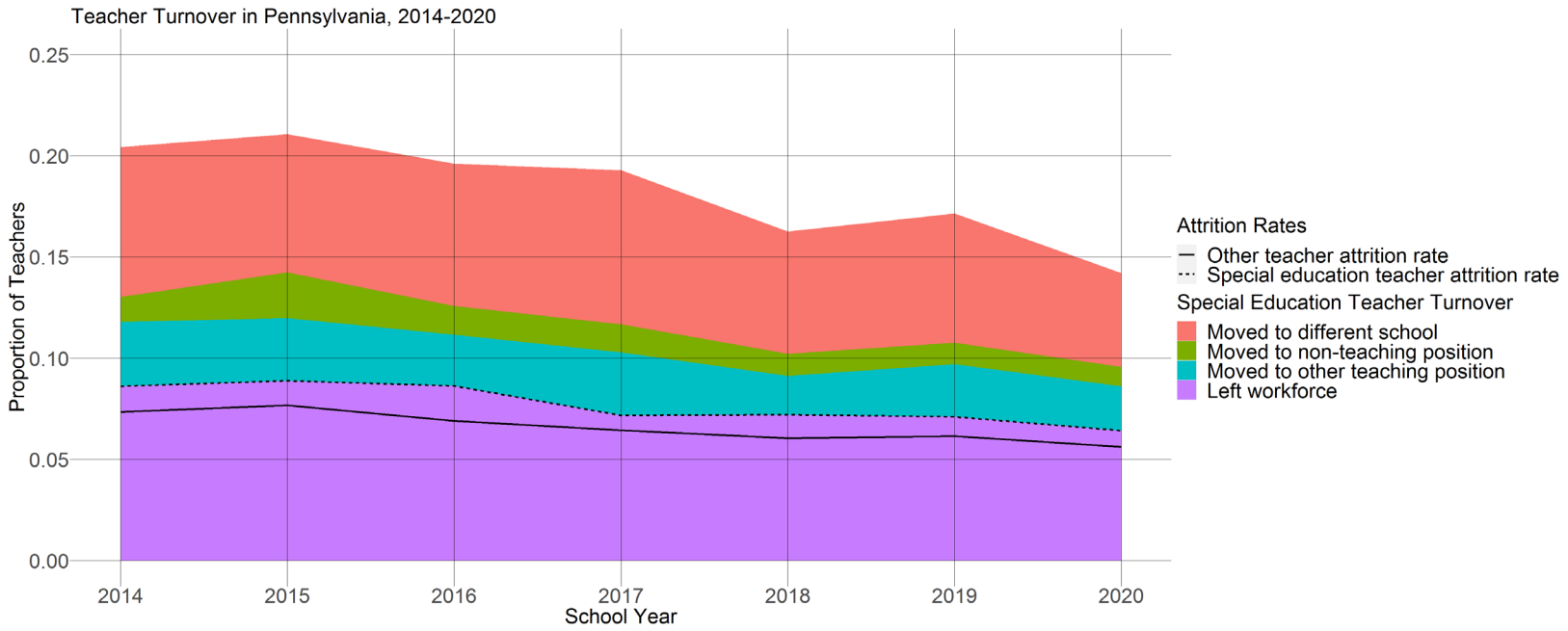

Figure 1.4. Teacher turnover by school year

Finally, because of the focus of the Bureau of Special Education's APR initiatives on early-career special education teacher retention, we focus specifically on first-year special education teachers in the 2013–14, 2014–15, and 2015–16 school years and map out the trajectories of the first 5 years of their career in the Sankey chart in Figure 1.5. In their first year, all of these individuals are public K–12 teachers in special education. But then the flows in the Sankey chart show how these teachers move into and between positions in the subsequent 4 school years. For example, after their first year of teaching, about 80% of these teachers stay as special education teachers for a second year, about 8% move into general education or other public school positions, and about 12% leave the workforce entirely. But about half of those teachers who left after their first year come back to teach in special education in the following year. That said, the flows out of special education teaching positions are consistently higher than the flows into these positions, so by 4 years after their first year as a special education teacher (i.e., Year 5 in Figure 1.5), only about 70% of these teachers are still in special education teaching positions, about 10% are in other teaching or staff positions, and about 20% are no longer employed in Pennsylvania public schools. Together, Figures 1.4 and 1.5 help motivate the "Retain" portion of the APR projects, which seek to keep more current special educators in their current positions.

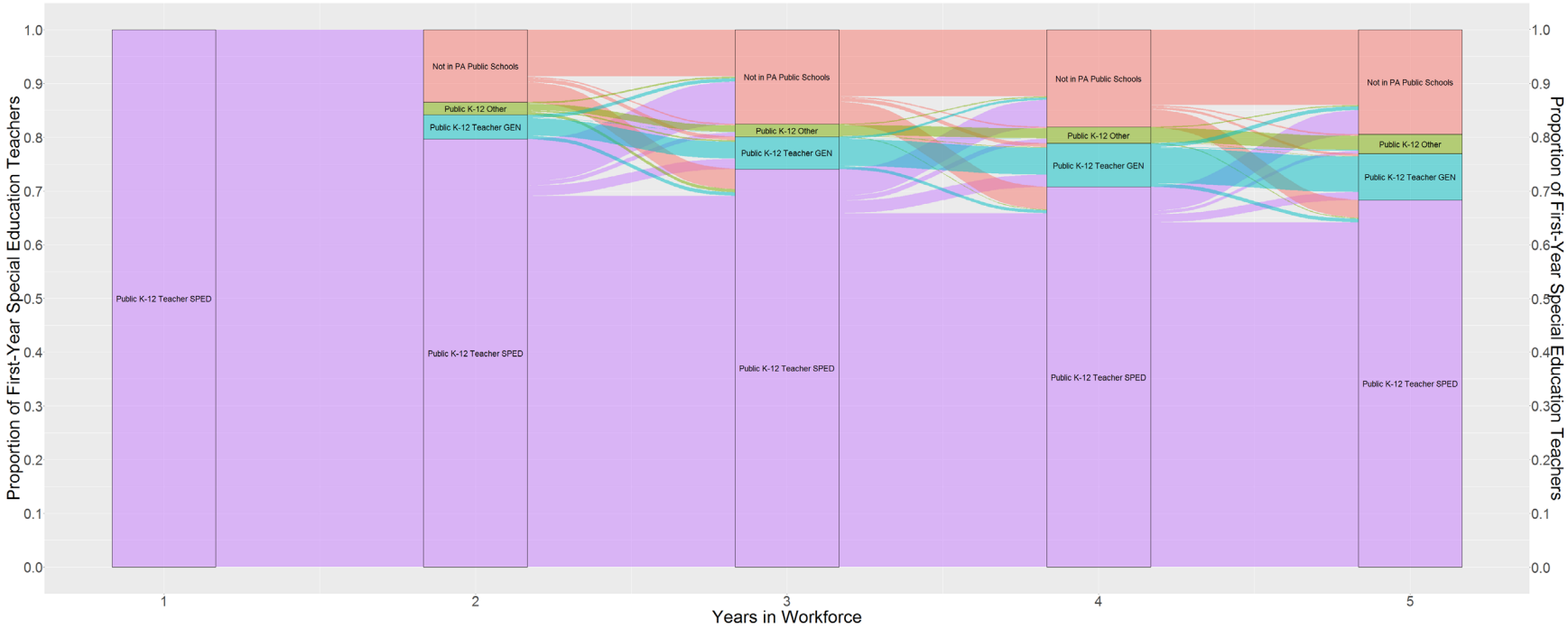

Figure 1.5. Early-career pathways of first-year special education teachers

Developing Future Special Educators Grant

The goal of the Developing Future Special Educators Grant is to attract secondary/postsecondary students to pursue careers in special education by providing experiential learning opportunities (ELOs) aligned to special education career pathways. Specifically, grants were awarded to applicants who established or expanded ELOs designed to engage students in authentic ways to support, assist, and/or work with students with disabilities. ELOs also included dual-enrollment courses in special education, field trips to visit colleges, and presentations provided by special education personnel. In this first year, grantees received professional development and technical assistance on presuming competence, person first language, and career pathways as a means to instruct and prepare their secondary/postsecondary students on working with students with disabilities.

To provide formative data on participants' perspectives of their experience in these ELOs, we surveyed students both before and after their participation. IRB approval for the surveys was provided by the American Institutes for Research (AIR), and surveys were distributed through grant coordinators at each program. We received survey responses from 440 students before their participation in the program but only 239 students after participation. Because we did not collect personally identifiable information about program participants under the terms of our IRB approval, we are unable to explore why the sample of survey respondents after participation is only 42% as large as the sample of respondents before participation, but an important limitation to the remainder of the formative analysis in this section is that postsurvey respondents may not be representative of all students who participated in these ELOs or who responded to the presurvey.

We start with information collected only as part of the presurvey. As shown in Figure 3.1, about two thirds of respondents said they participated because the activity was interesting to them, about half reported that they want to find out more about working in special education, and about 40% said that someone in the school recommended the program to them.

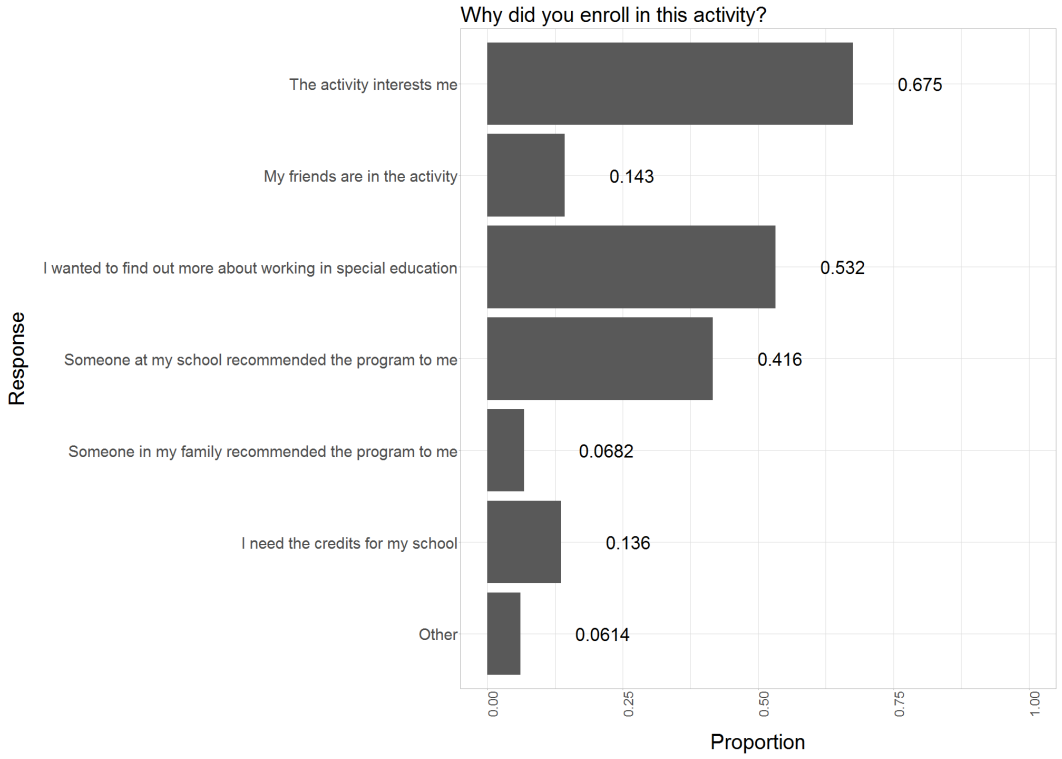

Figure 3.1. Presurvey, reasons for participating in program

We next turn to questions asked of participants before and after participating in the activity; for this, we limit the analysis to respondents from programs that implemented a presurvey and postsurvey. As shown in Figure 3.2, 45% of respondents to the postsurvey reported that they were interested in or plan to pursue a career in special education, compared to 31% of respondents to the presurvey. This difference is statistically significant at conventional levels ($p < .001$).

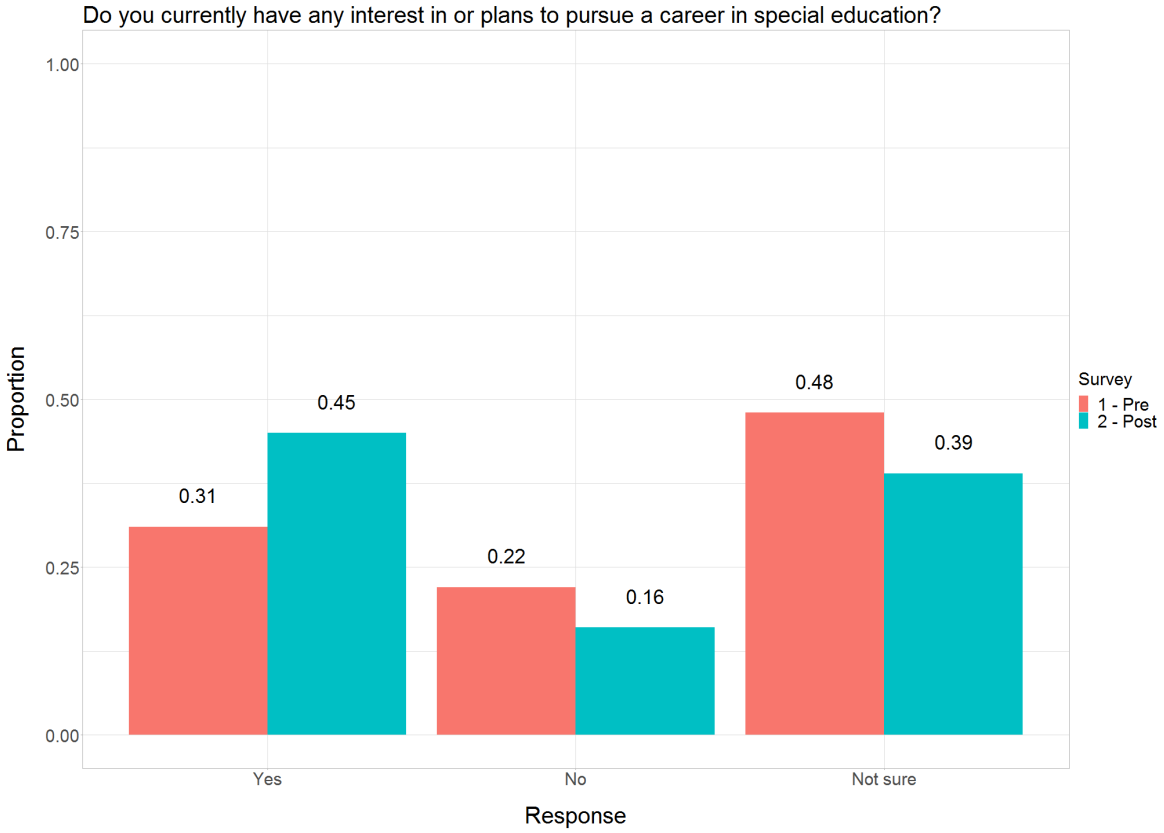

Figure 3.2 Participants' interest in or plan to pursue a career in special education

When we asked respondents about the type of job they were considering if they were interested, the majority of respondents said they were interested in prekindergarten (PK)–12 special education teaching roles (Figure 3.3), and we did not see significant differences in role interest between the pre- and postsurveys conditional on overall interest shown in Figure 3.2.

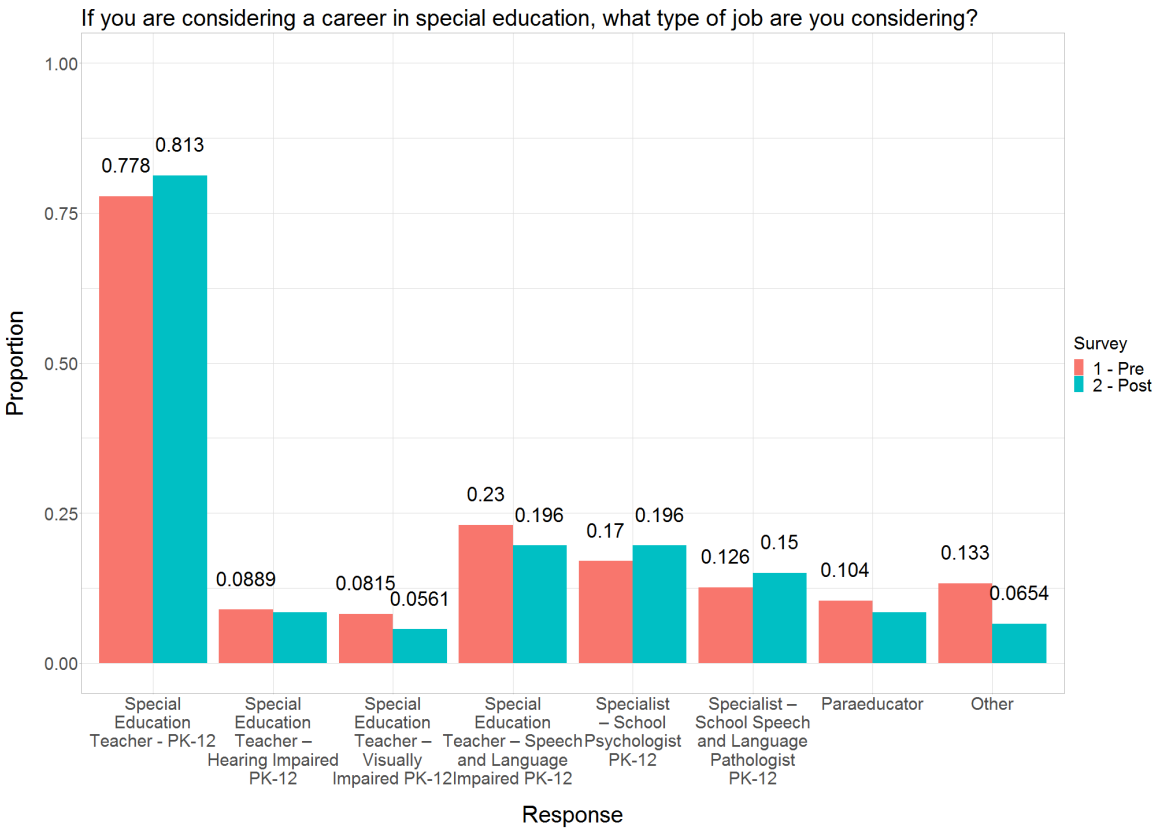

Figure 3.3. Participants' interest in specific special education roles

We also asked parallel questions on the pre- and postsurveys about participants' familiarity with terms often used in special education: person-first language, presuming competence, Universal Design for Learning, Free Appropriate Public Education, and Least Restrictive Environment. As shown in Figure 3.4, in all cases a higher proportion of respondents on the postsurvey reported being "extremely familiar" with these terms, and a lower proportion reported being "not at all familiar" with these terms, relative to respondents to the presurvey. All of these differences are statistically significant at conventional levels.

Figure 3.4. Participants' familiarity with specific terminology

Likewise, we asked three questions of respondents on the pre- and postsurveys about their familiarity with topics related to colleges that prepare students for a career in special education: specific colleges, admissions requirements, and financial aid options. As shown in Figure 3.5, a higher proportion of postsurvey respondents reported being extremely familiar with

these options, and a lower proportion reported being “not at all familiar” with these options relative to respondents to the presurvey. As above, all of these differences are statistically significant at conventional levels.

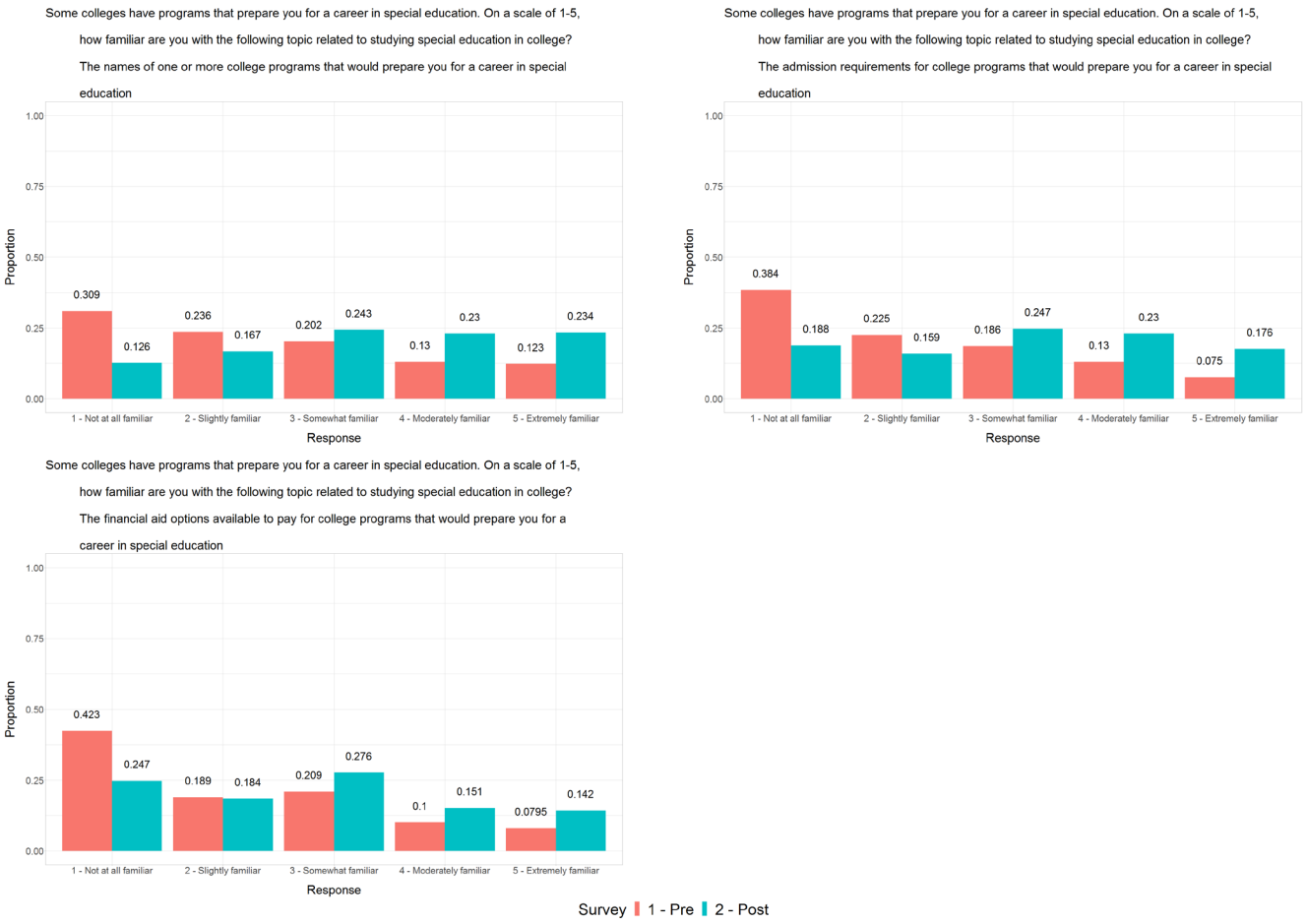

Figure 3.5. Participants’ familiarity with topics related to studying special education in college

We also asked participants about their familiarity with specific special education teaching roles. As shown in Figure 3.6, a higher proportion of respondents on the postsurvey reported being “extremely familiar” with all four of these special education teaching roles, and a lower proportion reported being “not at all familiar” with these options relative to respondents to the presurvey. As above, all of these differences are statistically significant at conventional levels.

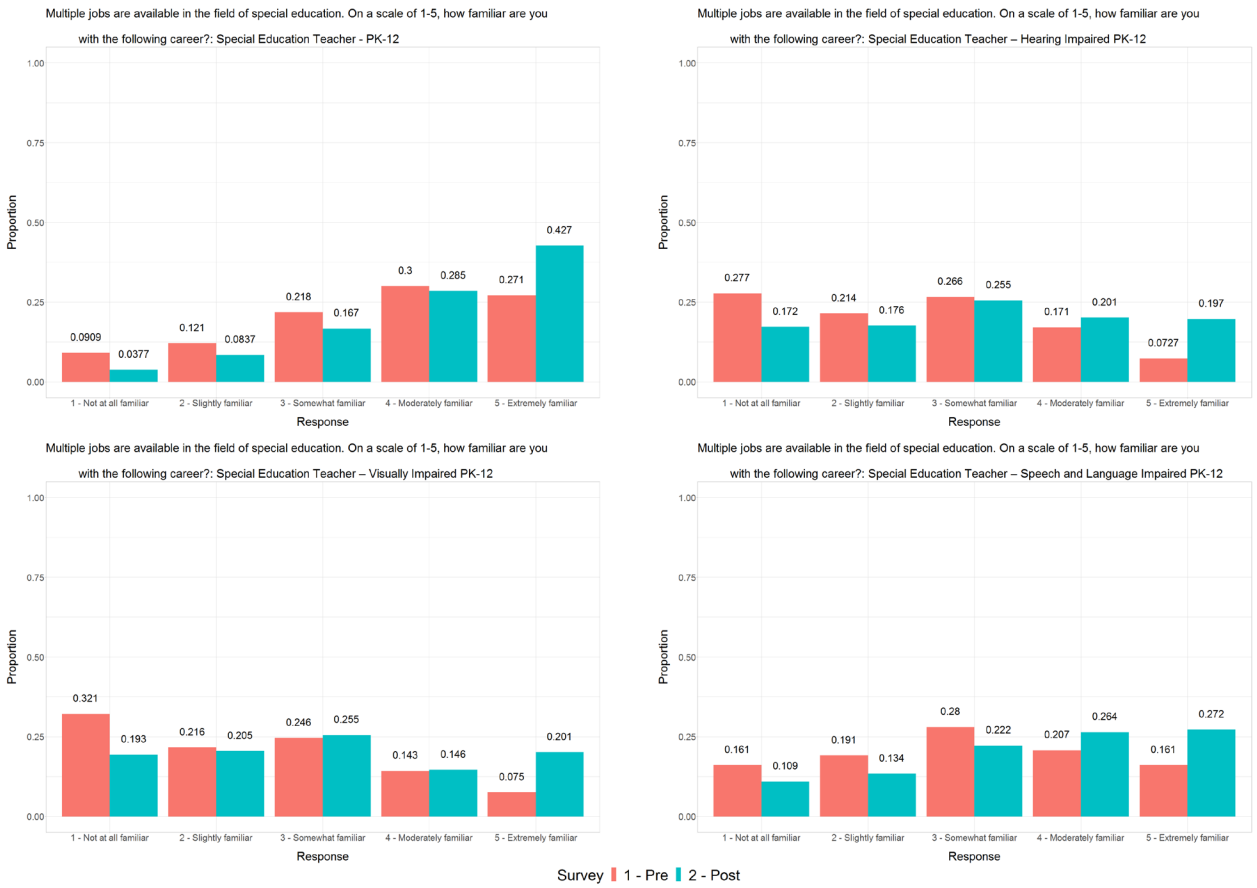

Figure 3.6. Participants' familiarity with specific special education teaching roles

Likewise, we asked participants about their familiarity with other special education roles: School Psychologist, Speech and Language Pathologist, and Paraeducator. As shown in Figure 3.7, a higher proportion of respondents on the postsurvey reported being extremely familiar with all three of these roles, and a lower proportion reported being "not at all familiar" with these options relative to respondents to the presurvey. As above, all of these differences are statistically significant at conventional levels.

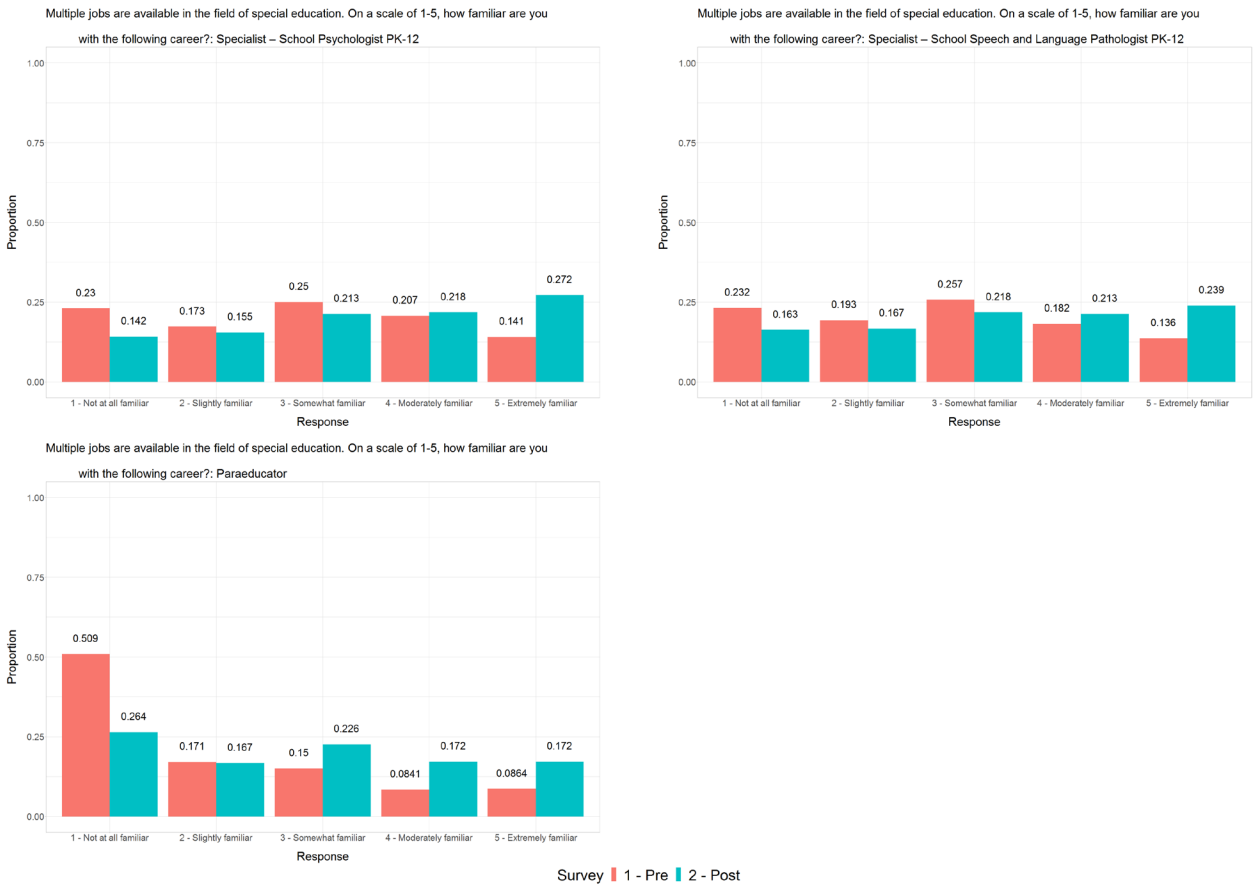

Figure 3.7. Participants' familiarity with other special education roles

We also asked a series of questions of postsurvey respondents about their experiences in these ELOs. We first asked about the extent to which three topics—career options, available career pathways and career clusters, and eligibility requirements for admission into educator preparation programs—were discussed during this activity. As shown in Figure 3.8, about 45% of postsurvey respondents said career options were discussed "to a great extent," compared to 38% for available career pathways and career clusters and 28% for eligibility requirements for admission into educator preparation programs. Only 7% to 11% of survey respondents, depending on the topic, said these topics were discussed "not at all" during their ELO.

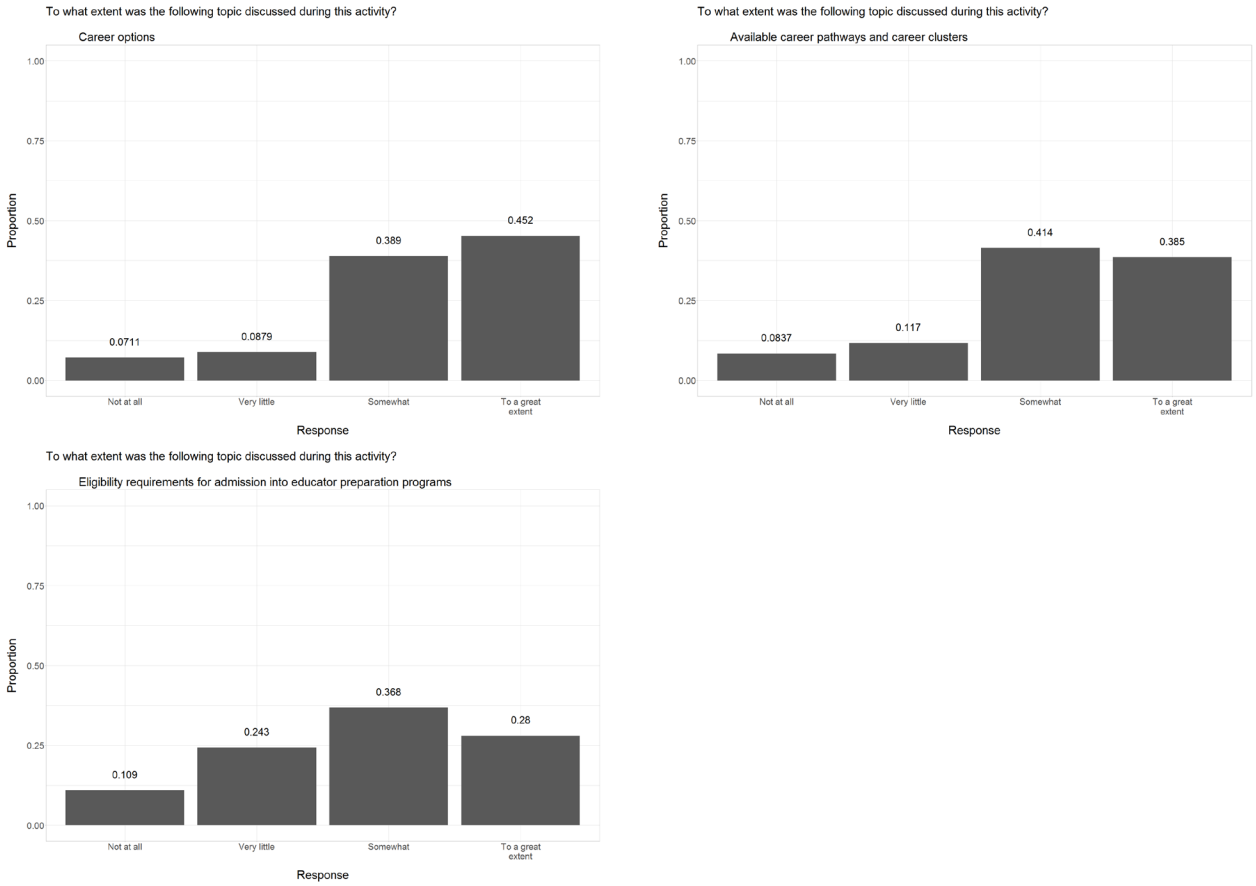

Figure 3.8. Extent to which topics were discussed during activity

Finally, we asked how, if at all, participants' understanding of these topics improved as a result of this activity. As shown in Figure 3.9, more than 70% of postsurvey respondents reported that their understanding of each topic improved "somewhat" or "to a great extent" as a result of their participation in the ELO, with the greatest reported understanding related to career options and the lowest related to eligibility requirements for admission into educator preparation programs.

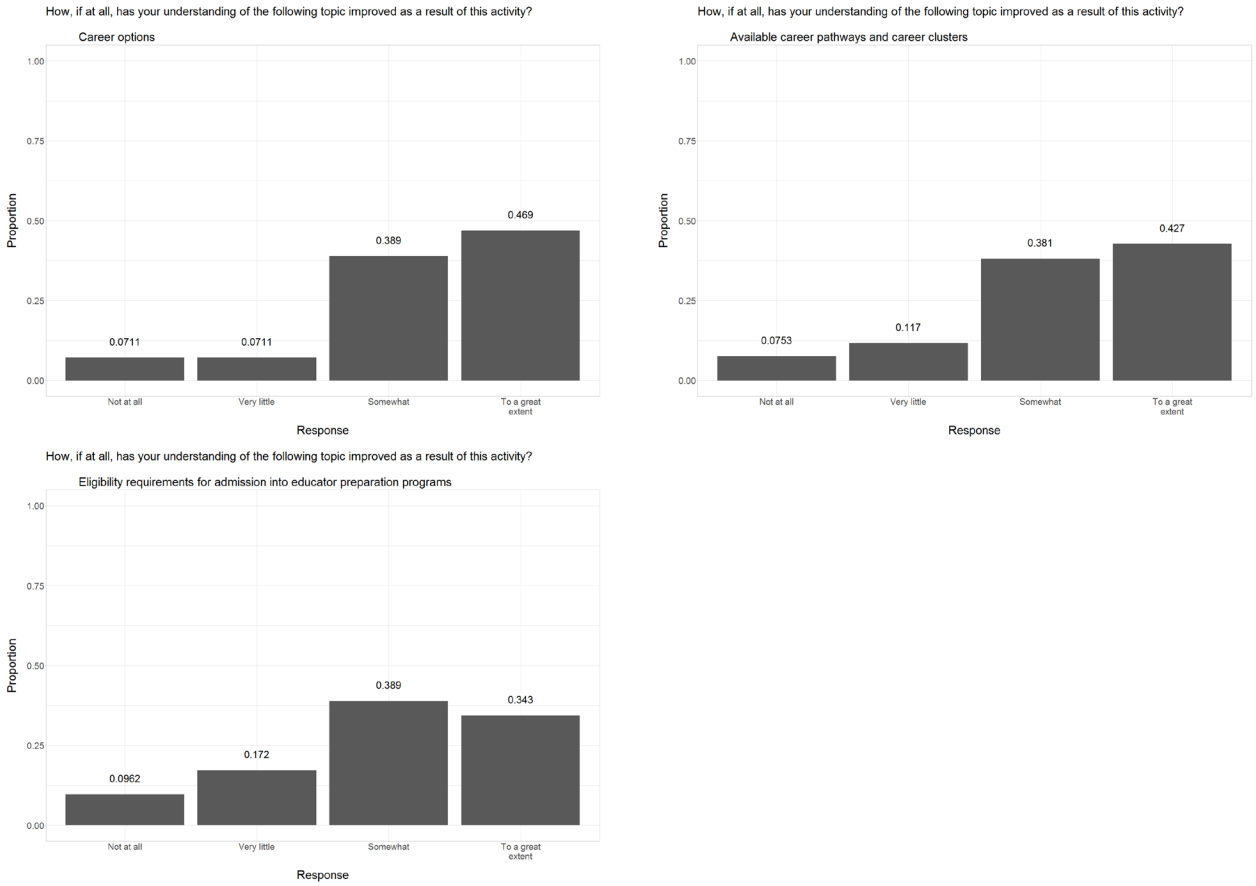

Figure 3.9. Extent to which understanding of topics improved as a result of the activity

Mentoring Project

The purpose of the Bureau of Special Education's Mentoring Project is to retain special education personnel and provide additional support to facilitate their growth as professionals. To support novice Pennsylvania special education administrators, teachers, and school psychologists with 3 or less years of experience, they were matched with mentors who had 5 or more years of experience. The mentors were expected to meet with their mentees for at least 30 minutes once a month to discuss educational practices and processes. Each month, mentors were provided with recommended topics and resources by PaTTAN consultants. Mentors received a stipend at the conclusion of the project.

To collect formative data on mentors' and mentees' perspectives on their experience in the mentoring program, we surveyed mentors and mentees after their participation in the program. IRB approval for the surveys was provided by AIR, and surveys were distributed by PaTTAN staff to participating mentors and mentees. We received survey responses from 91 mentors and 44 mentees who participated in the program. As with the surveys on the Developing Future Special Educators grant program, we cannot definitively say why response rates were considerably lower for mentees than mentors, but completing the survey was tied to mentor compensation at the conclusion of the program, which likely explains the higher response rate for this group. Regardless, this formative analysis comes with the important caveat that the sample of survey respondents, particularly for mentees, may not be representative of all participants in this program.

We begin by summarizing the perspectives of mentors about the program. As shown in Figure 4.1, 98% of responding mentors reported that they strongly agreed or agreed that participating in the APR Mentoring Project positively impacted the professional growth of their

mentee(s). Seventy-six percent reported that their mentee's engagement in the project was "excellent" or "very good"; only about 20% said they would have benefitted from formal training for the mentoring role, and 57% said they would have benefitted from networking with other mentors. Finally, more than 97% of responding mentors strongly agreed or agreed that they would like to serve as a mentor again next year, whereas 83% said the amount of time they spent with their mentee(s) this year was "just the right amount."

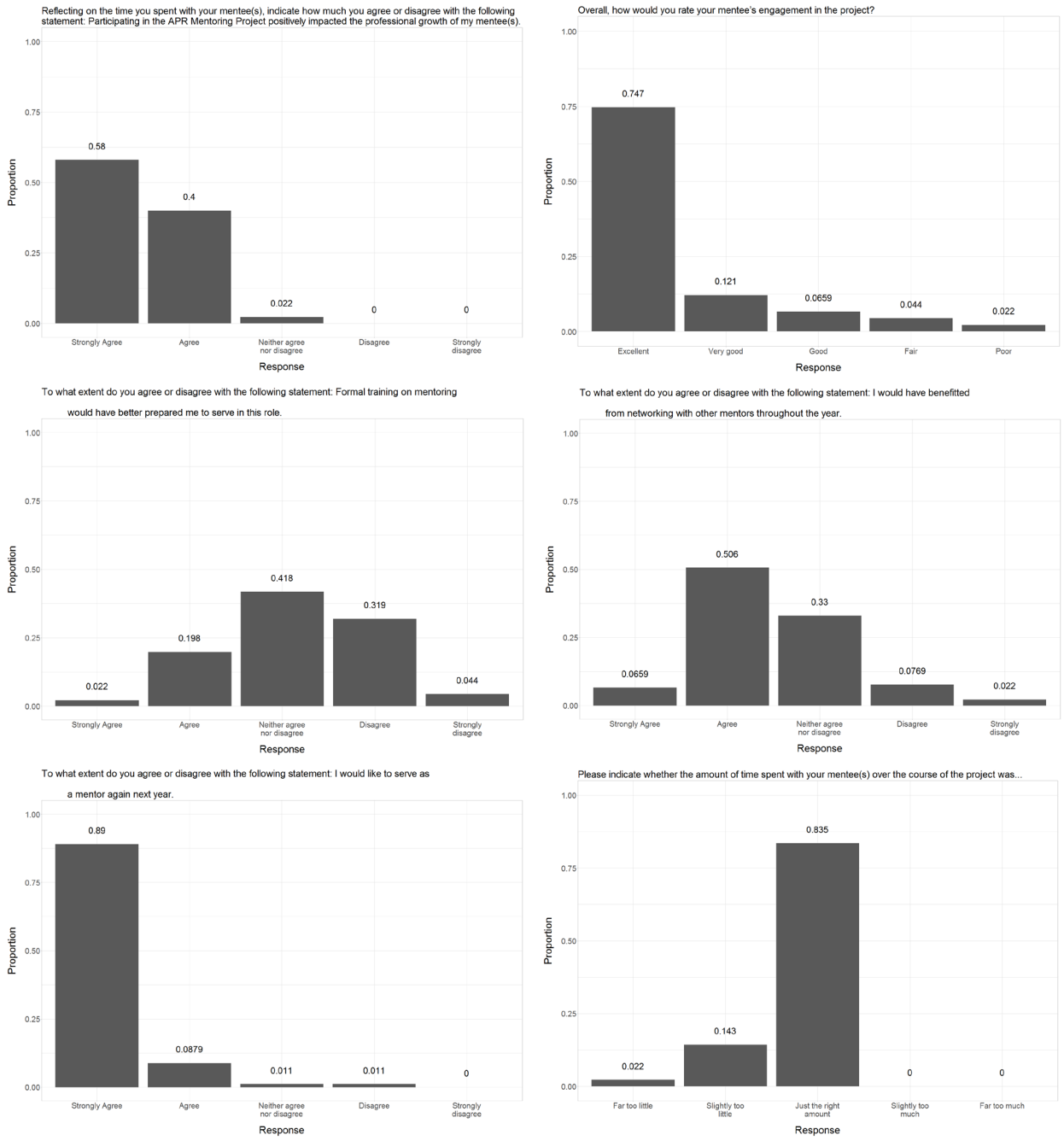

Figure 4.1. Mentors' perspectives on program

The remainder of the mentor survey asked different questions of respondents depending on their special education role. As shown in Figure 4.2, almost 60% of mentors were special education administrators. Because the sample sizes of the other three groups are relatively small (fewer than 20 total mentors), we only report aggregated responses for the special education administrators in the remaining mentor figures. Rather than describe Figures 4.3 and 4.4 in detail, we simply note that there was wide variation in the topics covered, with some (e.g., complying with IDEA) reported as "covered" by all mentors and others (e.g., reviewing the vision and mission for special education in your school) reported as covered by far fewer mentors. Finally, mentors were generally positive about their preparation to discuss these topics and the amount of time they spent on them.

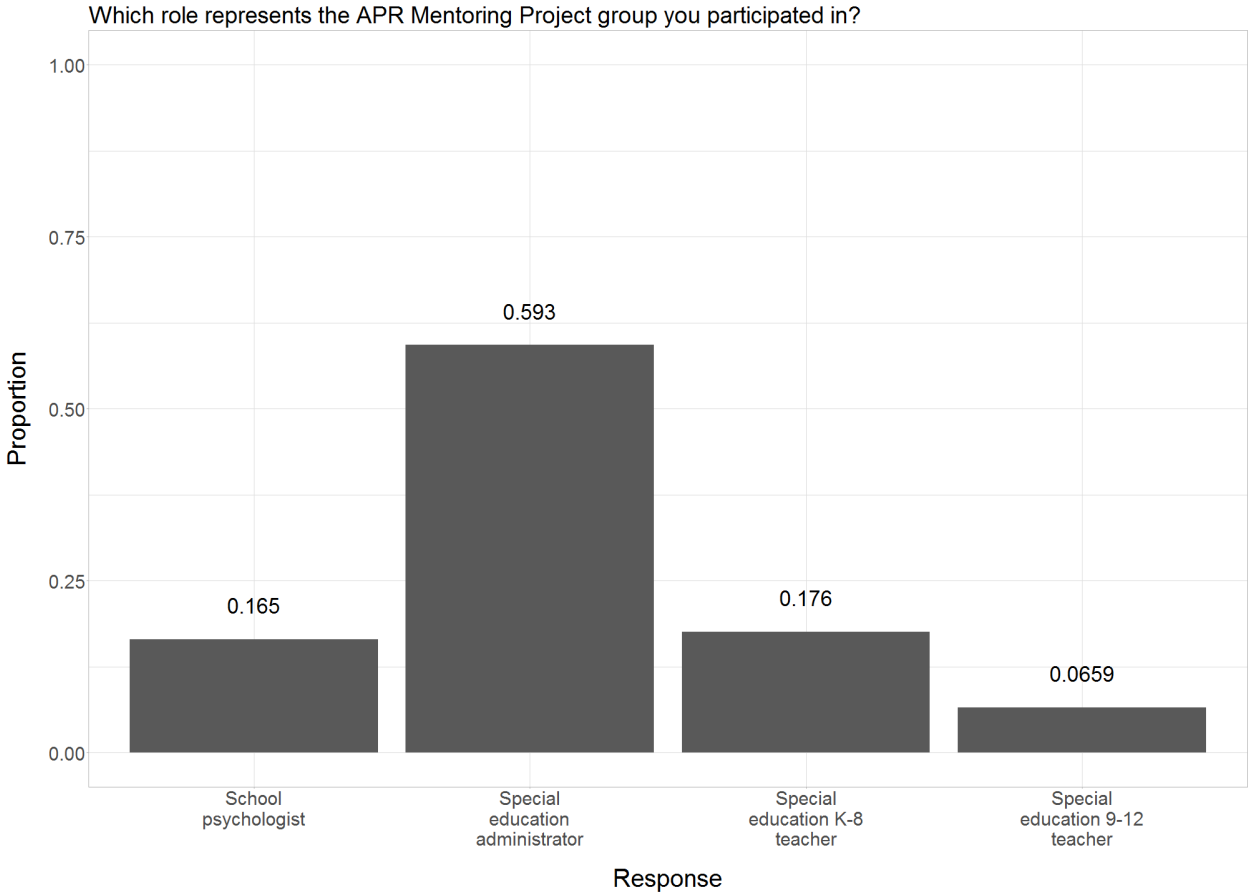

Figure 4.2. Mentor roles

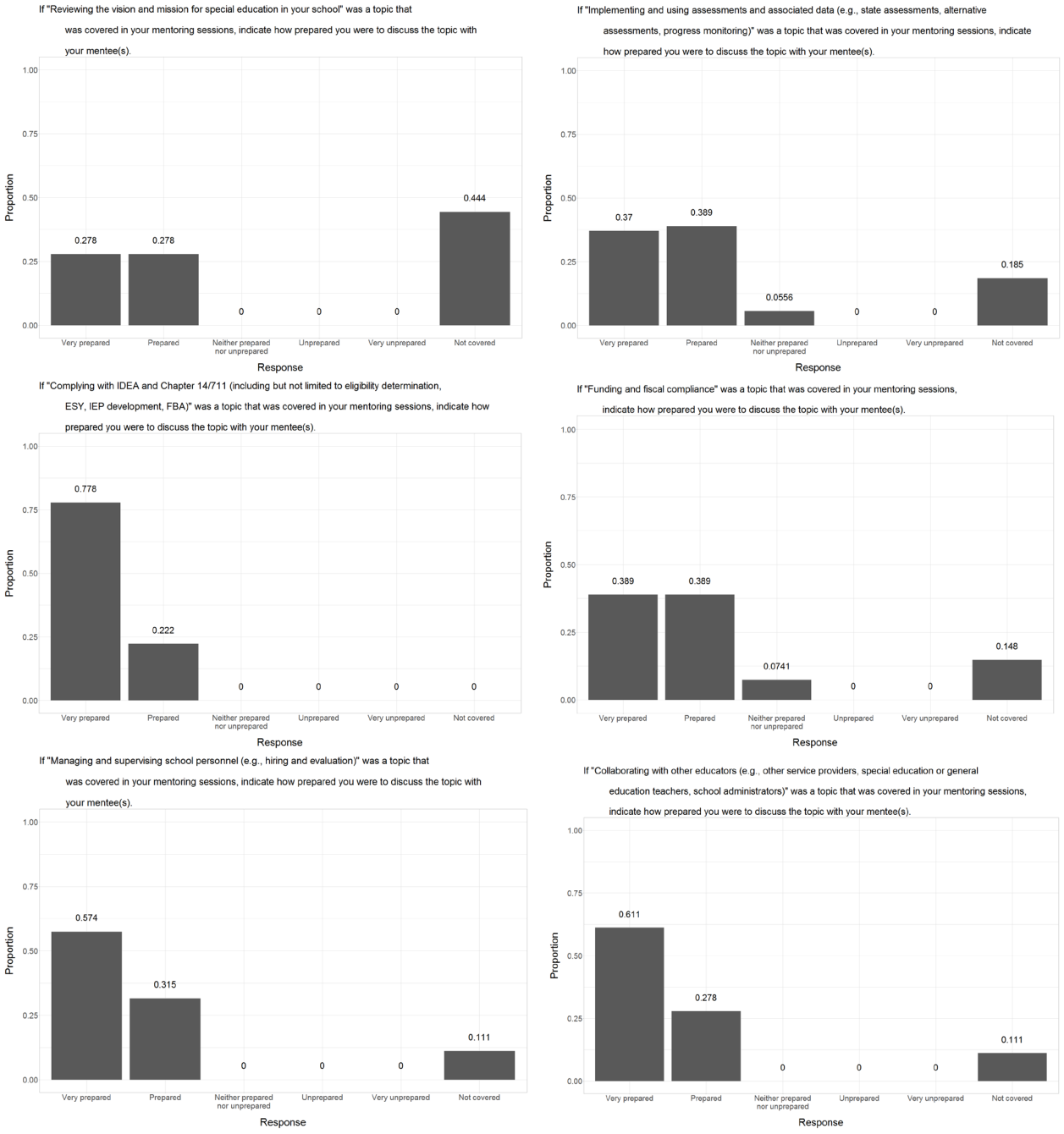

Figure 4.3. Administration mentor preparation to discuss specific topics

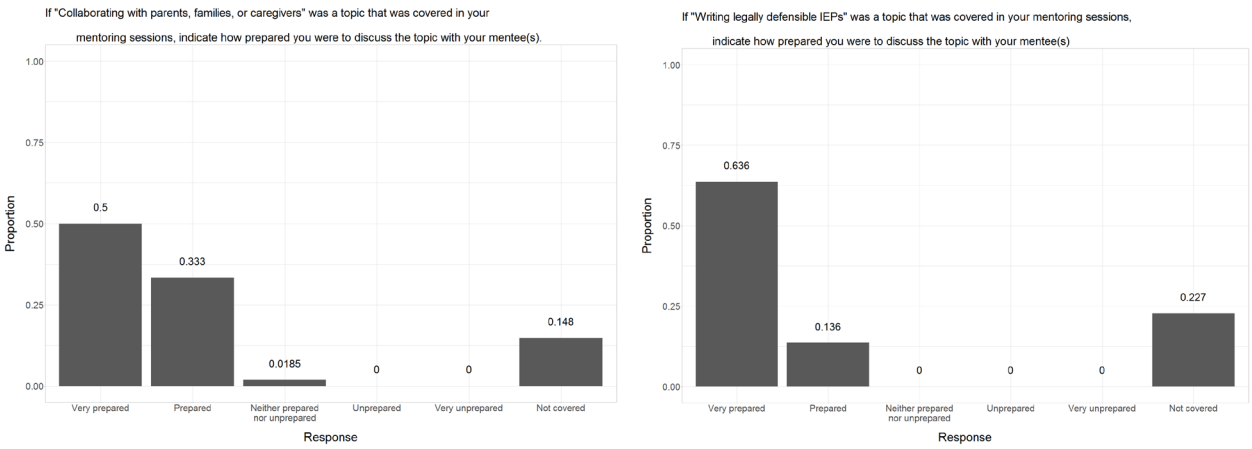

Figure 4.3. Administration mentor preparation to discuss specific topics (continued)

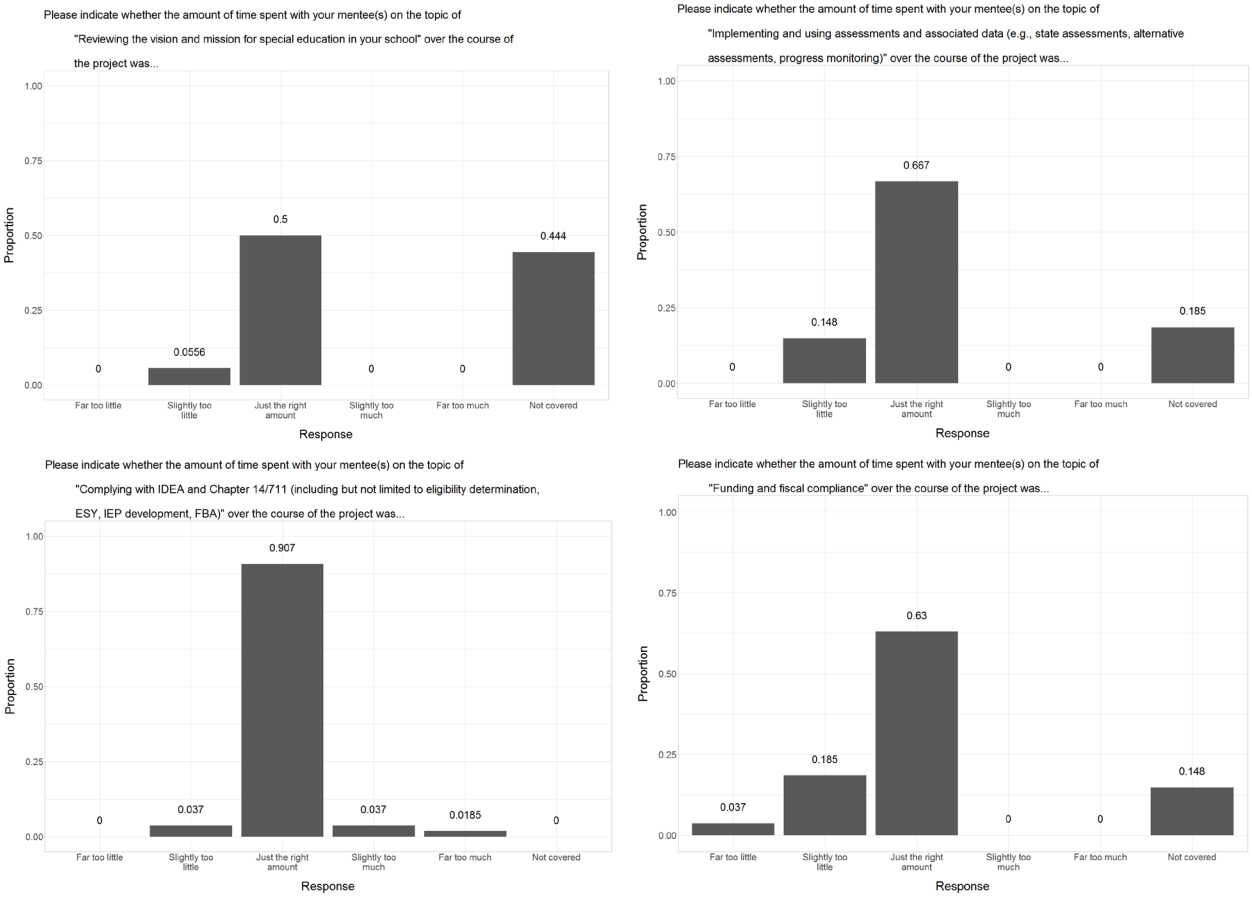

Figure 4.4. Administration mentor time spent on specific topics

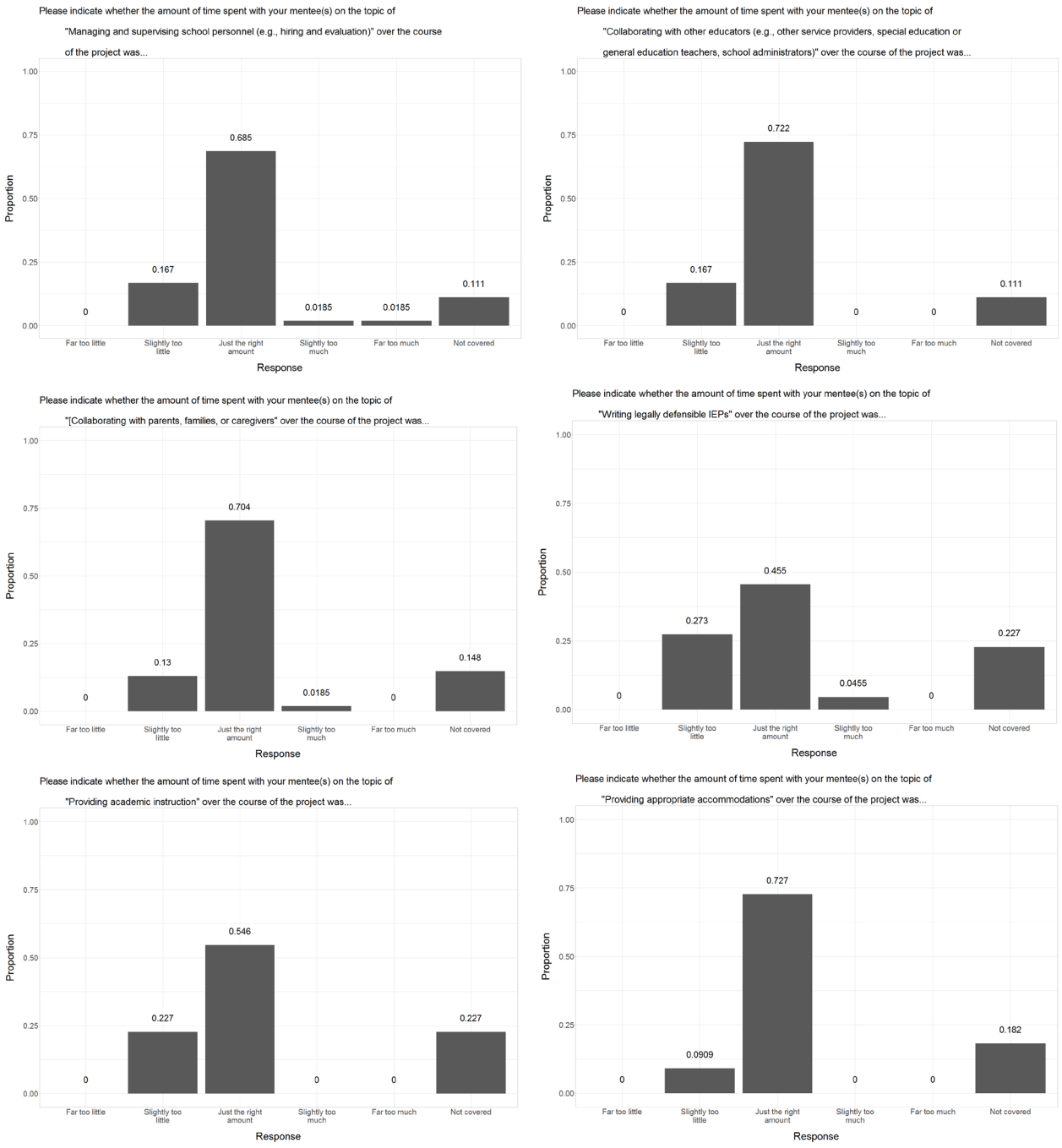

Figure 4.4. Administration mentor time spent on specific topics (continued)

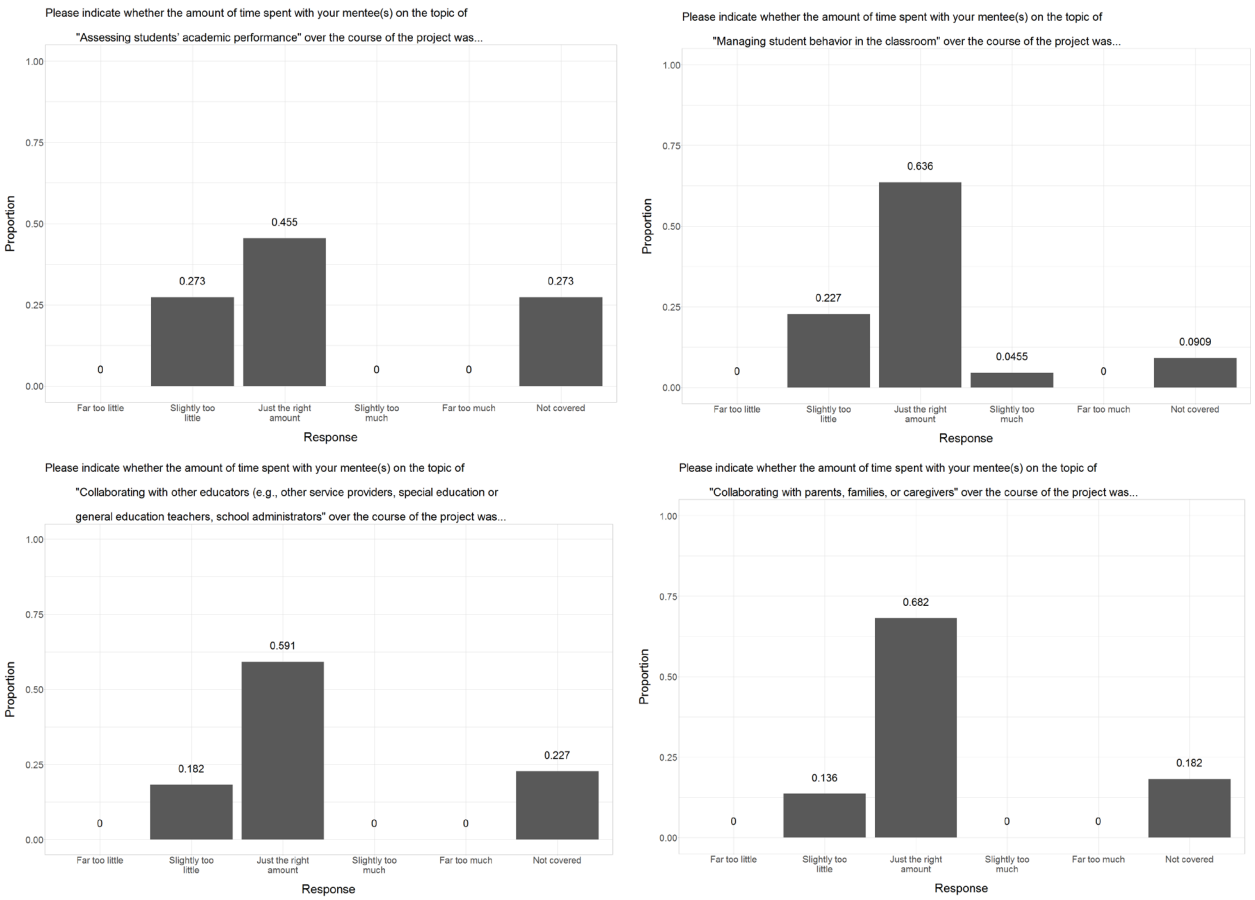

Figure 4.4. Administration mentor time spent on specific topics (continued)

Unfortunately, with only 44 responses to the mentee survey we do not have sufficient sample sizes to disaggregate survey responses by mentee role. Among all mentees, 86% of mentees recommend or strongly recommend their mentor to future project participants, 72% strongly agreed or agreed that they would have benefitted from networking, and 90% reported that they would encourage colleagues to participate in the project next year. Ninety-three percent of mentees felt that the amount of time they spent with their mentor was "just the right amount," and 100% of them strongly agreed or agreed with the statement that participating in the APR Mentoring Program positively impacted their growth as a professional.

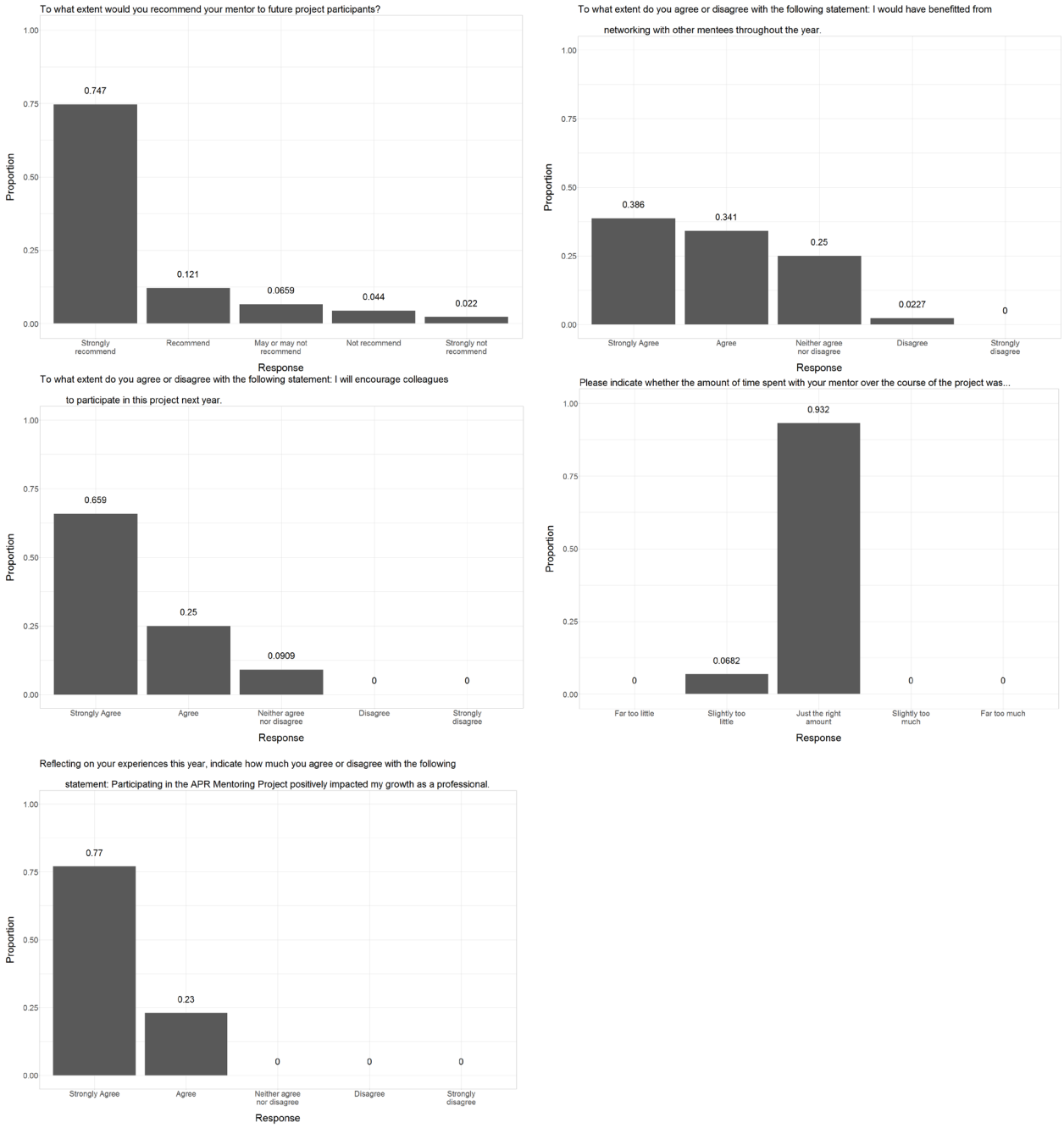

Figure 4.5. Mentees' perspectives on program

Learning Communities/Networking Project

The purpose of the Learning Communities Networking Project is to facilitate opportunities for special educators to engage in conversations with others who share similar job responsibilities as a means of providing ongoing support. The network serves as a venue for sharing effective practices, engaging in problem solving, and learning from one another.

As with the previous surveys, we distributed surveys to participants in these networking sessions. IRB approval for the surveys was provided by AIR, and surveys were distributed to participants at the end of each session. We received survey responses from 676 participants in these sessions. We do not have access to data on all participants in these sessions, but to the extent that this does not represent all participants, subsequent analyses are limited in that this sample may not be representative of all participants in these networking sessions.

We begin with basic descriptive information about participants in these networking sessions. As shown in Figure 5.1, almost half of participants were school psychologists, while another quarter were special educators. The remainder of participants were distributed across roles like Education Administrators, IU Consultants, Speech and Language Therapists, and other categories.

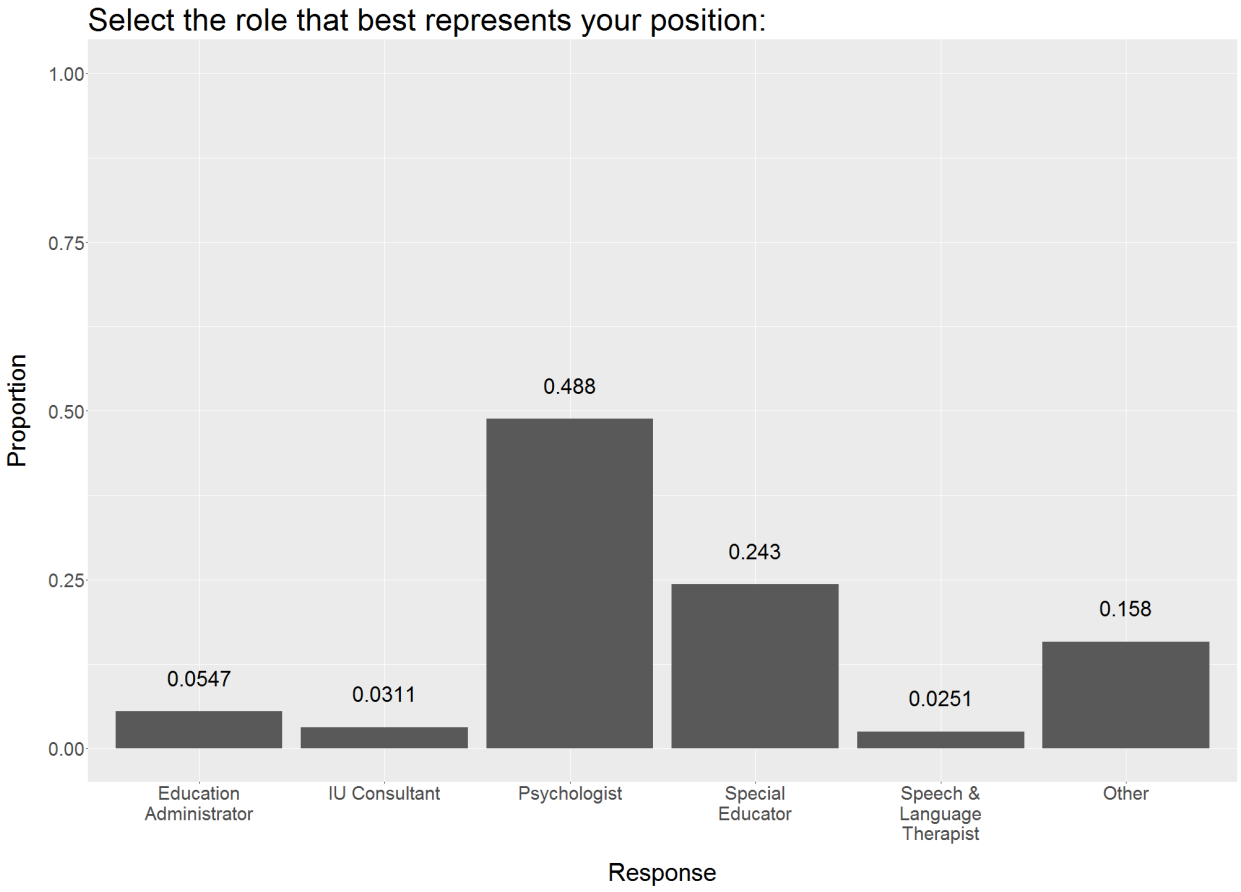

Figure 5.1. Participants' special education roles

The remainder of the questions on the survey asked participants about their perceptions of the networking session they attended. As shown in Figure 5.2, among survey respondents, the proportion who "strongly agreed" or "agreed" that the session was relevant to their needs was 96%. By the same metric, 92% reported that the session met their expectations, 94% said the information shared will be useful in their work, and 93% said time in the session was well spent.

Finally, 91% of respondents reported that the overall quality of the session was “excellent” or “very good,” whereas 88% of respondents said there was an “excellent” or “very good” chance that they would recommend the sessions to a co-worker or colleague.

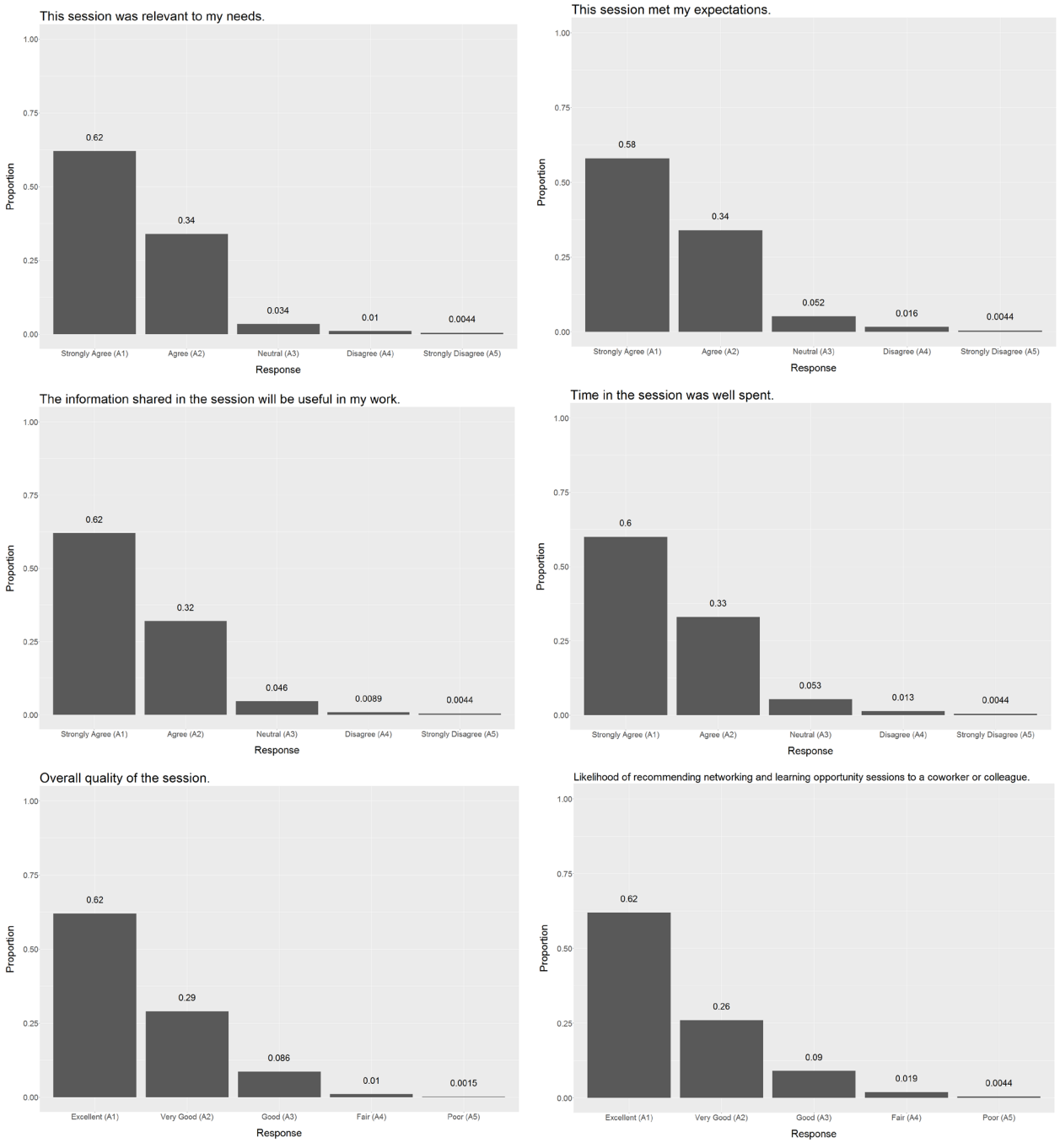

Figure 5.2. Participants’ perceptions of networking session

Conclusions and Next Steps

The findings from this formative analysis underscores the motivations behind Pennsylvania's APR projects: The state needs to attract and retain more special education teachers to better serve students with disabilities statewide. Early feedback from participants involved in the Developing Future Special Educator Grant, the APR mentoring project, and the Learning Communities/Networking sessions suggest these new programs are relevant and beneficial to prospective and current special educators.

This report summarizes the work from the first year of a long-term project on the special educator pipeline in Pennsylvania, and several next steps will expand the scope of work and our understanding of the APR initiatives. First, although the administrative data analysis in this report focused exclusively on special education *teachers*, subsequent analyses will expand the definition of "special educator" to include paraprofessionals, administrators, and other personnel who play important roles in providing special education services to students with disabilities in Pennsylvania. Likewise, the three APR projects studied in this report will be expanded to include both new cohorts and new categories of special educators, so subsequent analyses of these projects will continue to provide formative data about prospective and current special educators' perspectives about their experiences in these projects. The Bureau of Special Education is also introducing additional APR projects—including an Accelerated Program for PK–12 Special Education Teacher Certification, Learning Institutes, and paraeducator training grants that will be the focus of future work.

Finally, the ultimate goal of this project is to examine whether participants in these projects are more or less likely to enter and remain in the state's teaching workforce and, eventually, the extent to which these and other ongoing or emerging APR projects have moved

the needle in terms of improving outcomes for students with disabilities in the state. The formative analyses presented in this report are encouraging in the sense that participants' perceptions of their experiences in the initial APR programs are quite positive, and this future work will evaluate how much these perceptions translate into improve teacher and student outcomes in Pennsylvania.

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