SUMMARY
Medium-Term Outcomes of CoMInDS Project Activities:
Results from the 'All-Comers' Survey

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Overview of the Project

CoMInDS is the College Mathematics Instructor Development Source, a suite of resources and activities that seek to enhance mathematics departments' capacity to provide high-quality, research-based, teaching-related professional development to graduate students serving as teaching assistants. It seeks to support both department-based Providers of TAPD and Researchers who study TAPD, and thus to serve TAs who in turn teach undergraduate students . The project interacts with these groups through a variety of short and long, virtual and face-to-face workshops and meetings. It is also building an online resource suite of instructional materials and scholarly products on TAPD. The project is supported with funds from the National Science Foundation and practical support from the Mathematical Association of America.

Overview of the Report

This report describes summative evaluation results from the "All-Comers" survey, an end-of-project survey distributed to a broad range of CoMInDS participants. We sought to learn what, if anything, they took away from participating in one or more of the project's activities that involved moderate time on task: virtual and face-to-face webinars, regional meetings, email lists, and working sessions. Because these varied in goals and activities, these participants received a "lighter" and more variable touch than that experienced by participants in CoMInDS' intensive, multi-day, residential workshops.

Because the study sample is small, the results illustrate *what is possible* from the types of interventions that reached these respondents. As the project team explores alternate ways to share their expertise and resources and to engage people in fruitful learning communities around TAPD, it is useful to know what outcomes may arise from less time- and resource-intensive designs. Comparison with results for intensive workshop participants (Laursen & Lynds, 2018) will place these results in context and enable richer interpretation.

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Medium-Term Outcomes of CoMInDS Project Activities:
Results from the 'All-Comers' Survey

This report describes results from what we call the "all-comers" survey, an end-of-project survey that sought to reach as many participants in CoMInDS activities as possible. While the same survey questions were indeed administered to all comers, in this report we omit responses from people who went to an intensive summer workshop, and focus on the outcomes for people who experienced a "lighter" and more variable touch by the project.

Because the study sample is small, the results should not be viewed as generalizable to all project participants, but rather as illustrating what is possible from the types of interventions that reached these groups. At this time, we report results but do not provide extensive interpretation. Comparison with forthcoming results for CoMInDS' summer workshop participants will place these results in context and enable a richer and more meaningful interpretation.

1. Study Methods

The survey items were developed by Laursen, drawing on items used previously for the pre- and post-workshop surveys and on two focus group conversations with 9 CoMInDS team members. The focus groups shared observations and generated ideas for longer-term outcomes of the different project activities—whether observed, potential or hoped-for—and these ideas strongly informed the gains items that were developed for this survey. Items about active teaching practices, and about local cultural norms around teaching, were adapted from Hora and Anderson (2012). Classification of department size was based on the AMS surveys, where large departments award 8 or more PhDs per year, medium departments award 4-8 PhDs per year, and small ones award fewer than 4 PhDs per year. Since TAs are usually near the start of a graduate program, these values were doubled to account for PhD completion rates near 50%, based on data from the Council of Graduate Schools (Sowell, 2008).

The survey sample included 187 individuals who participated in one or more of several CoMInDS activities, including regional workshops, webinars, and researcher working groups that met face to face or online. This list was provided by project leaders who were responsible for different activities; it was cross-linked so that participants were not duplicated and so that the number of CoMInDS activities could be tallied by individual. The all-comers sample deliberately excluded 67 individuals who participated in one of the intensive, residential summer workshops, who were separately surveyed to allow longitudinal comparison with workshop data. Identifiers were not needed in this survey.

The online survey was launched in November 2017 and sent to 187 email contacts provided by the CoMInDS team. Reminders were sent in early December and early January 2018; the survey was closed in February. Of all invitations, 128 were opened (68%); one bounced and 54 went unopened In all, 31 people provided a full or partial response, for a net 17% response rate (24% of those who opened the email). This is a low response, likely due to a combination of factors. Many participants experienced a less intensive project activity, compared to the summer workshops; they are thus less likely to identify the activity with CoMInDS or to feel a sense of obligation or loyalty to respond to a survey. Some also expressed confusion about why they were on the list, particularly those involved in the CMI researcher group and RUME working groups, which were pre-existing.

For this survey, we defined the terms for respondents and use them in the same way here:

- TA for all graduate teaching assistants, recognizing that different institutions may use different titles

- TAPD for professional development focused on teaching that is offered to graduate TAs in math at the respondent's institution
- Providers for people who deliver or help deliver TAPD at their institution
- Researchers for people who study TAPD or closely related topics

CoMInDS uses the terms Providers and Researchers in a formal way to describe the important target groups of their activities, so we use those terms in this report. To estimate the population size of the Provider and Researcher groups, the project-provided participant list was sorted by the type of activity in which people participated. We counted as Researchers all those who participated in a face-to-face meeting of the College Math Instructor working group at the RUME conference, a virtual meeting, or the CMI listserv (though some also engaged in activities targeting Providers); everyone else was considered a Provider. With this sorting, there were 143 Researchers and 44 Providers on the list.

Using the participant list, we also counted the number of activities in which each individual had participated, to be compared to the number of self-reported activities from survey respondents. For the Providers, these lists are exactly comparable: the survey listed the same activities as the project tracked. For the Researchers, the survey included more answer choices than did the project participant list, including some informal activities such as contributing a resource to the Resource Suite.

2. Who Responded?

Respondents to the survey included both TAPD Providers and TAPD Researchers. Twenty people chose one role or the other (14 Providers, 6 Researchers), four people indicated they played both roles, and five people indicated neither of these but reported other roles as retired Providers, brand-new Providers, or people who worked in other forms of teacher education.

Figure 2.1: Respondents held Provider or Researcher roles—or both
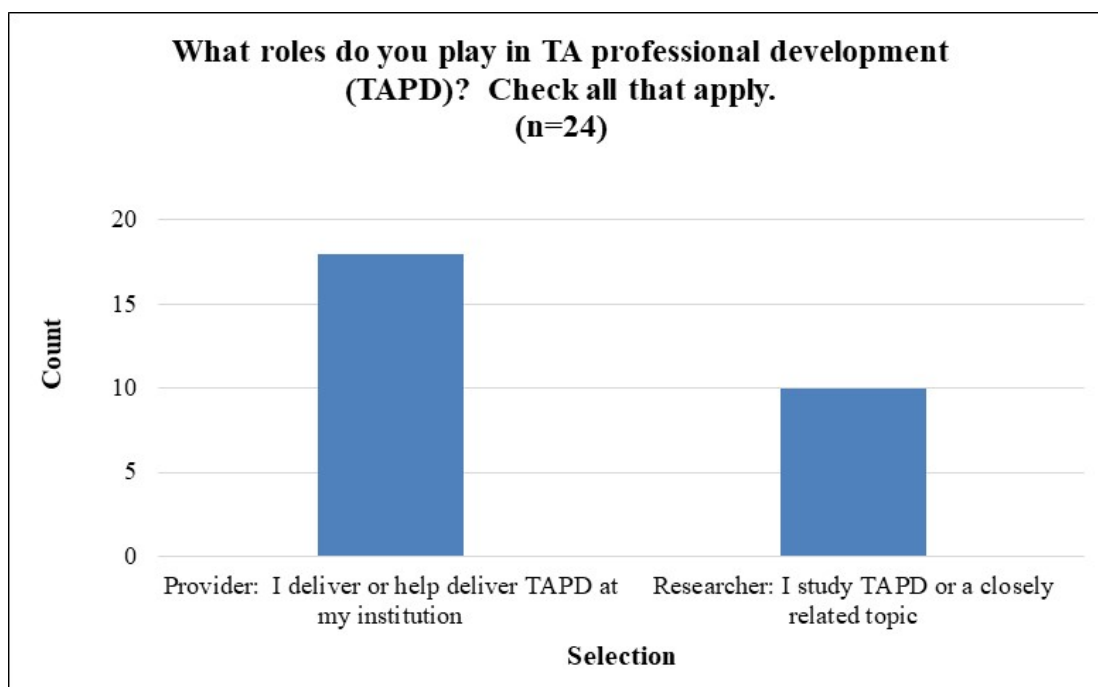
From the CoMInDS participant lists, the entire sample included 143 Researchers and 44 Providers. While our definition may not align exactly with participant self-descriptions, we can roughly estimate the response rate as 43% of Providers and 7% of Researchers on the all-comers list (counting the five who did

not self-classify as Providers, consistent with their written description). This lends credence to our hypotheses in Section 1 about response rate. Namely, the CoMInDS brand appears to have less resonance or loyalty from Providers who experienced a lighter-touch activity than for those who attended a summer workshop (among whom the response rate was near 50%). But the brand has better resonance with Providers than with Researchers, likely due to the merger of CoMInDS' Researcher activities with a pre-existing CMI researcher group that already had an established identity.

Across the combined Provider-Researcher groups, the respondents were predominantly women, White, not Hispanic or Latino/a, from PhD-granting institutions. Respondents reported their demographics as:

Gender: 16 women, 7 men, 2 declined to report (25 responses).

Citizenship: 24 US citizens, US nationals or permanent residents, one who was not (25 responses)

Ethnicity: 19 not Hispanic or Latino/a, 0 Hispanic or Latino/a, 2 declined to state (21 responses)

Race (using Census categories; participants could mark all that apply): 18 White, 2 Asian, 0 Black or African American, 1 American Indian/Alaska Native and White, 0 Native Hawaiian/Pacific Islander, 2 declined to state (23 responses)

Institutional type: 20 from PhD-granting institutions, 6 from BS/BA institutions (26 responses).

Because of the uniformity on most variables, and the small size of the sample overall, we do not analyze any of the questionnaire responses by any of the demographic variables.

To understand the professional contexts of these respondents, we asked some questions about the nature of their jobs.

Figure 2.2: TAPD was one of many work priorities
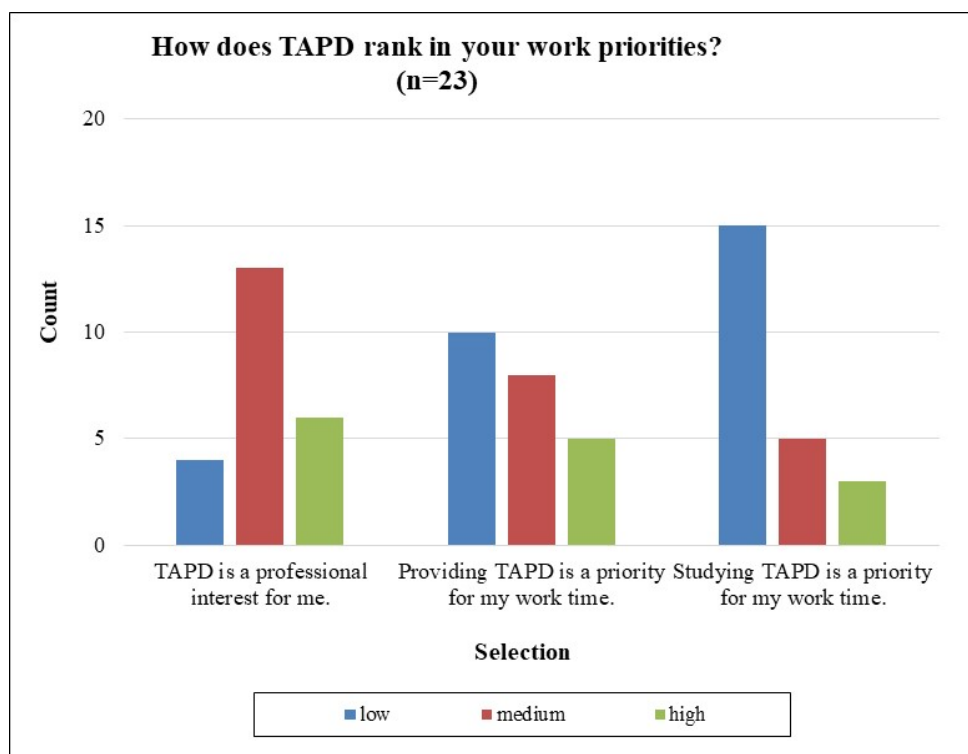
While there was high variability among individual responses, Figures 2.2 and 2.3 show that TAPD was a mid-level or low priority for most, and that teaching and course coordination ranked high among other calls on their time. This is consistent with project leaders' understanding that these are busy people for whom TAPD is one of many demands.

Figure 2.3: Most respondents had teaching and course coordination duties
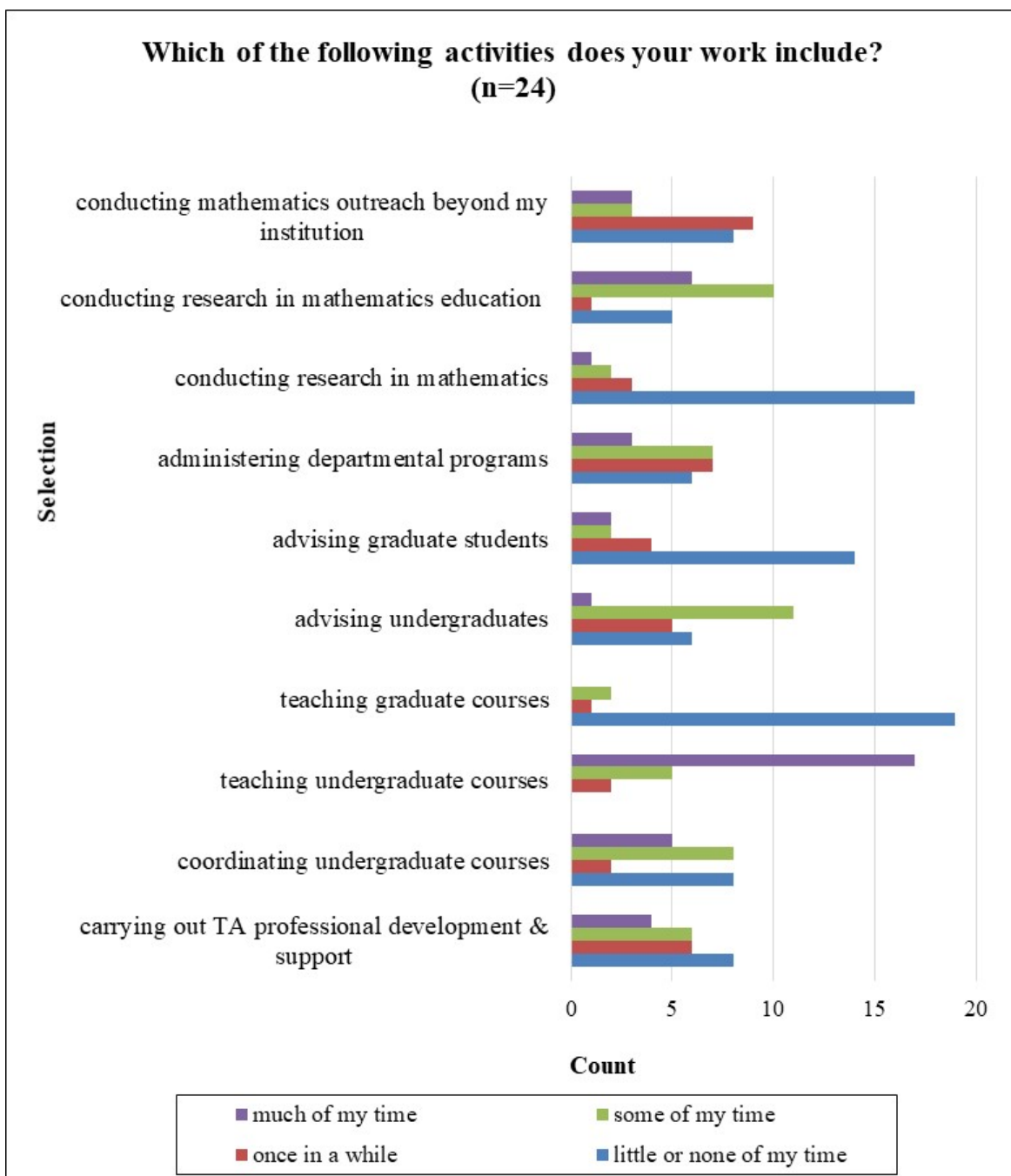
Two people added open-ended responses to explain their administrative duties, such as hiring graders, writing grant proposals, running a learning center, and training undergraduate learning assistants.

We asked respondents to report their own teaching methods, to gain a sense of their interest and expertise in the active engagement pedagogies that are emphasized in CoMInDS workshops. This information also helps to contextualize their answers about departmental teaching norms (Section 5). Most used lecture and instructor problem-solving fairly often, but many reported using small group work, whole-class discussion, and student problem-solving in their own classes. Clicker use was seldom reported, consistent with other observations of mathematics teaching (Hayward, Weston & Laursen, 2018).

Figure 2.4: Most reported using active engagement teaching sometimes or often
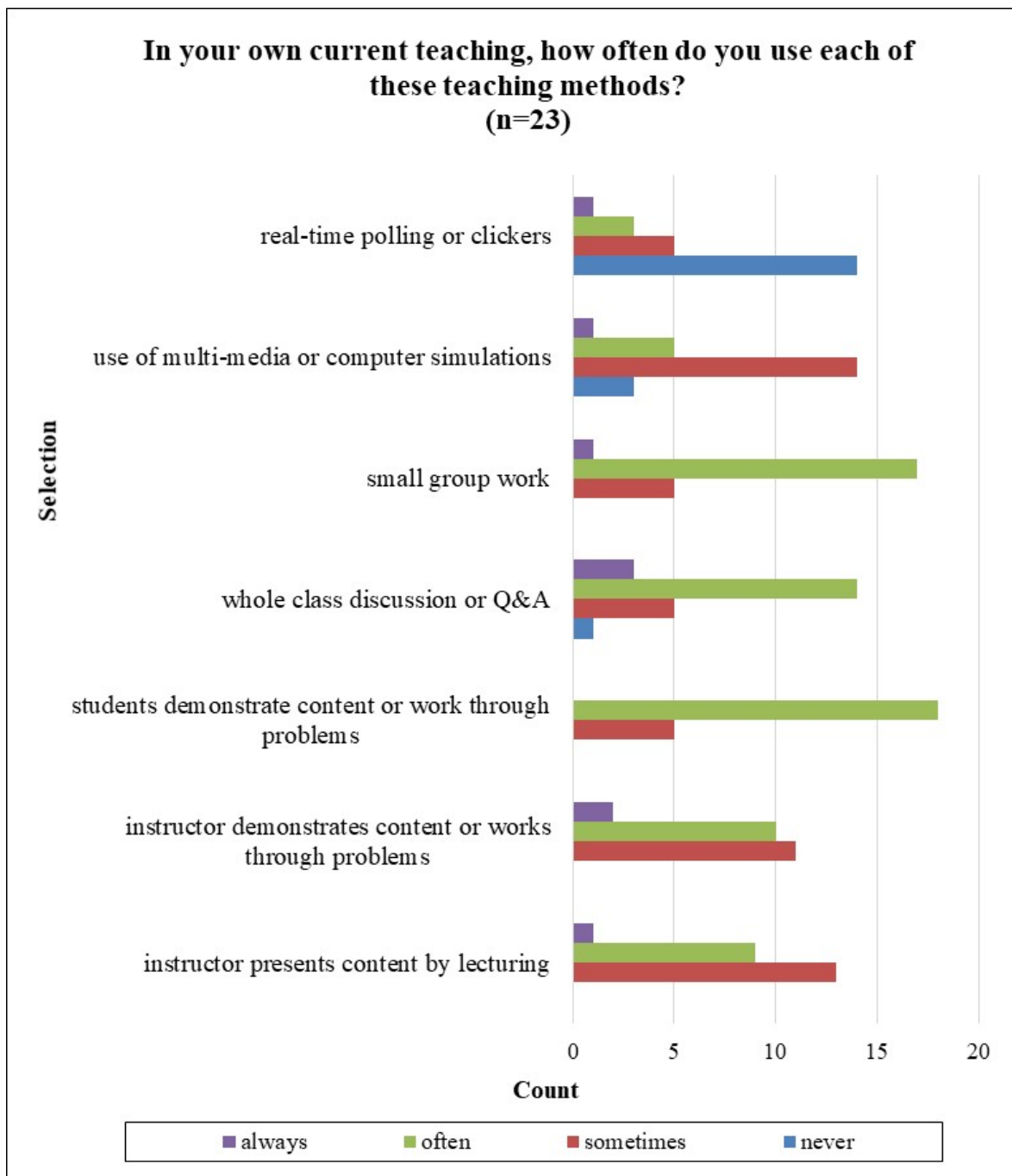
3. Provider Participation and Outcomes

The Providers who responded had participated in a wide range of activities, which took place from 2.5 to 0.25 years prior to the survey. Some participated in no Provider activities (a response expected from Researchers) and nobody reported attending the two summer workshops, which shows that we successfully separated these participants into the other survey. The mean level of participation reported by these respondents was 1.5 activities, which compares well to the mean participation of all Providers on the all-comers list, 1.6 activities. The highest participation levels (reporting 3 or 4 of the listed activities) were seen from people who participated in the Boston-area regional workshops and mentoring group.

Figure 3.1: Responding Providers engaged with diverse CoMInDS activities
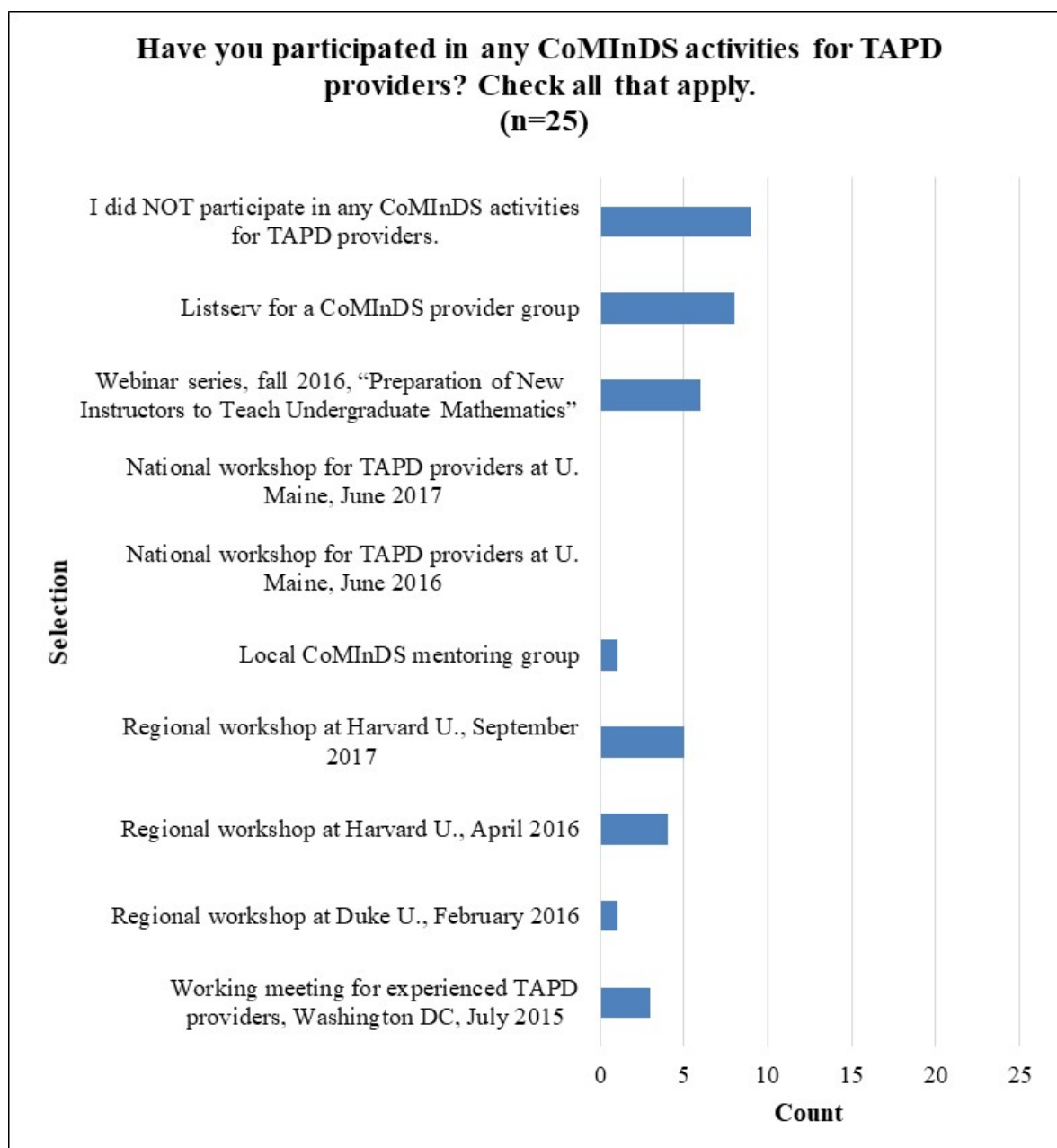
We examined outcomes of these activities for Providers, by asking people to report their gains from participating. These were grouped into five broad groups of possible outcomes that were identified from analysis of the focus group discussions:

1. Thinking about TAPD – clarity and understanding about TAPD goals and important ideas that underlie effective TAPD (4 items)

2. Programming for TAPD – practical resources and ideas for local programs (3 items)

3. Approaches to improving TAPD – ideas for improvement or evaluation (4 items)

4. Connecting to others – meeting and understanding commonalities with other Providers (4 items)

5. Professionalism – sense of oneself as an effective educator working in a professional domain (4 items)

Ratings on the gains scale were converted to numerical means using a scale of zero (no gain) to 4 (great gain). In Figures 3.2-3.6 the distribution of responses is plotted for each group of gains.

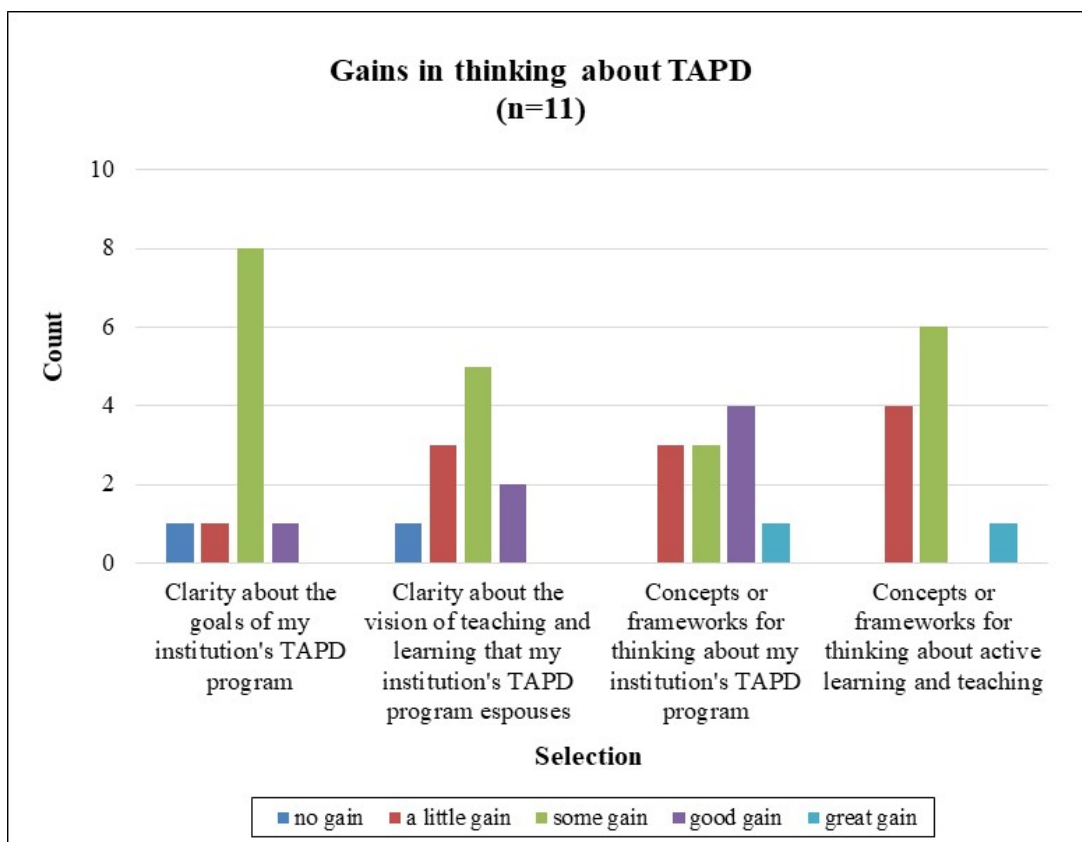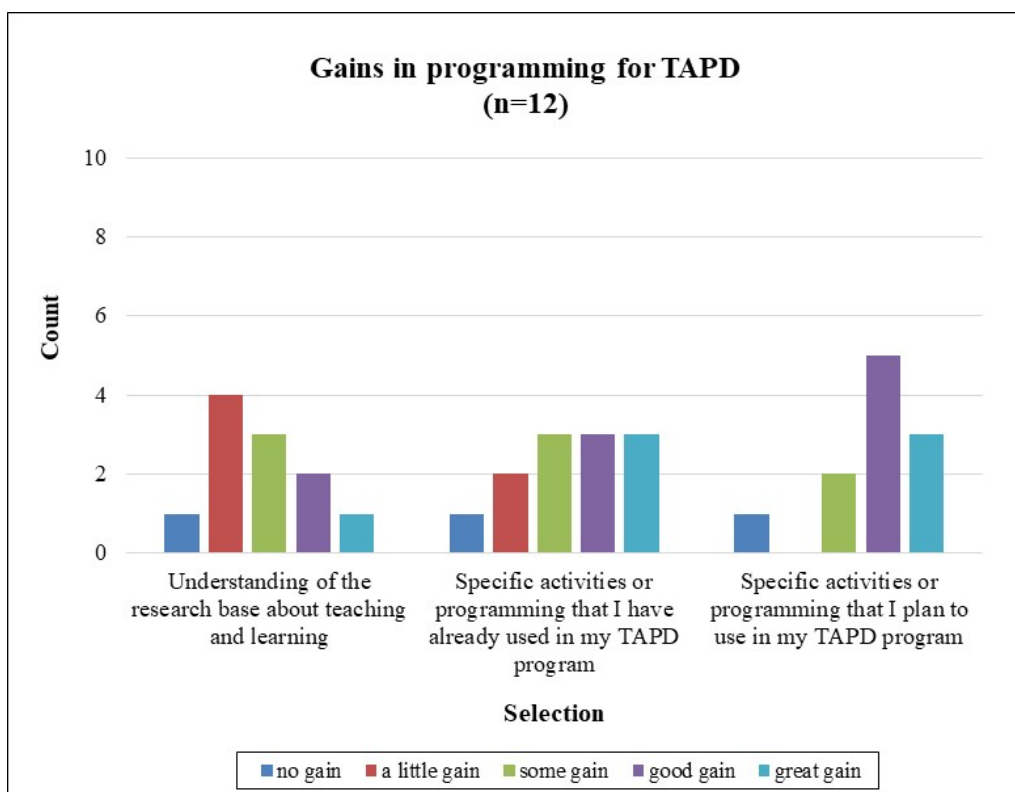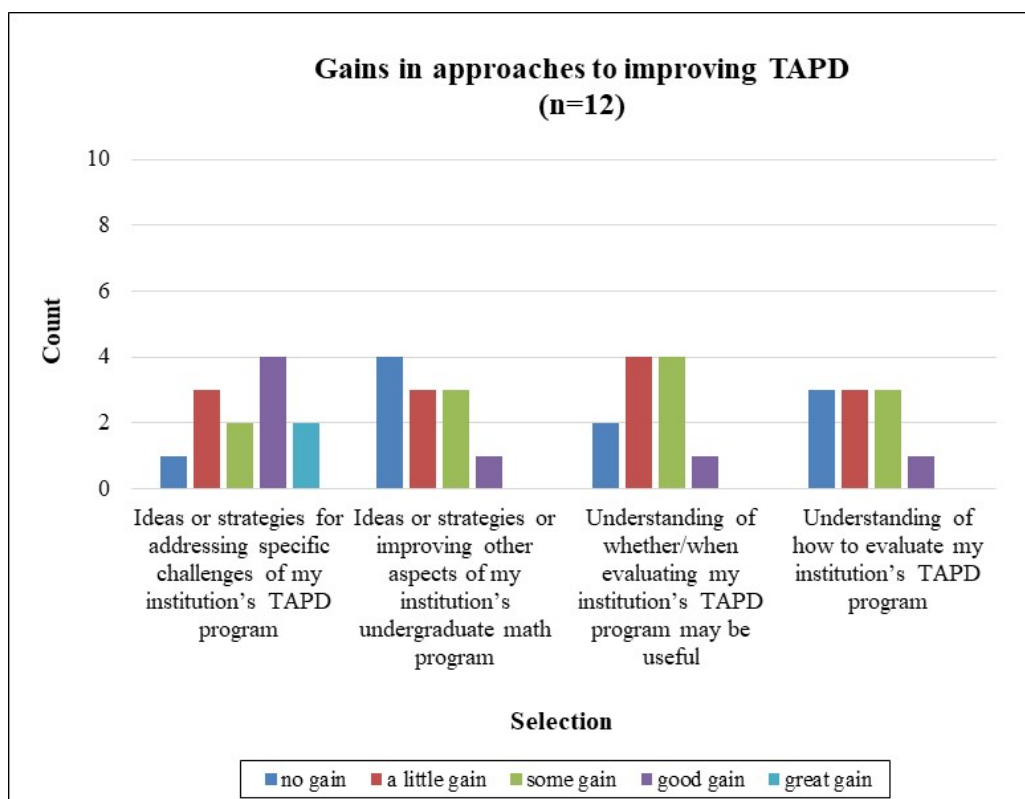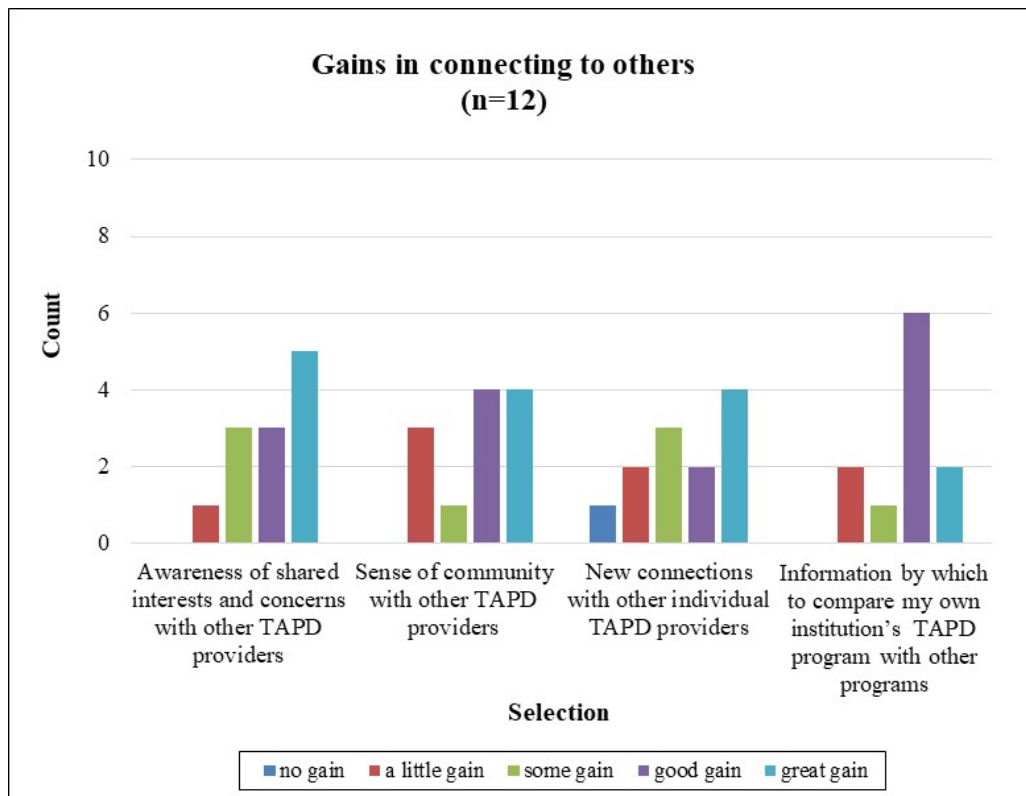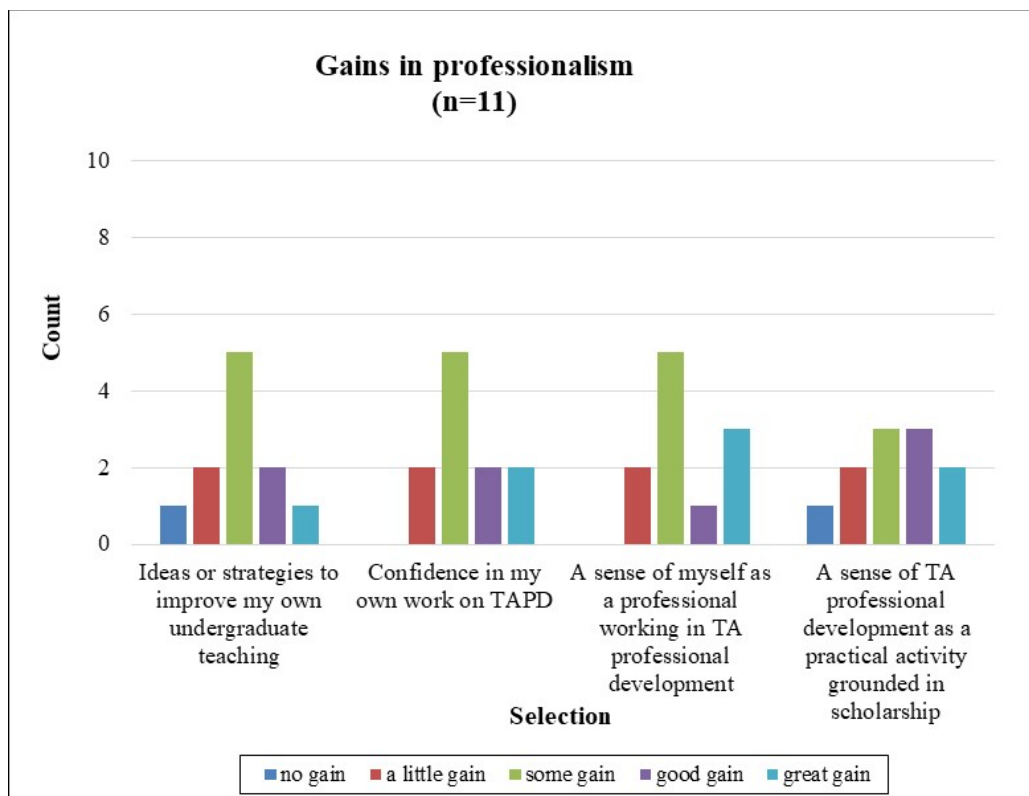**Figure 3.2: Provider gains in *thinking about* TAPD**

Figure 3.3: Gains in *programming* for TAPD

Figure 3.4: Gains in *approaches to improving* TAPD.

Figure 3.5: Gains in *connecting* to others

Figure 3.6: Gains in *professionalism*

Respondents could also write in gains that were not otherwise mentioned. Three people did so, and their responses emphasize synergies among the different gains.

- I think the biggest thing for me about CoMInDS is connecting to colleagues and sharing ideas. In this, the program is invaluable. Thank you!

- After the workshop, I implemented three very good ideas I got from the workshop and I was happy I did. I also value the sharing of Robin Gottlieb of her broad and rich experience in all aspects of TA training and the wisdom that comes from many years of work; for example, someone told her, when the dean's office summons you (of course there is a problem), be ready to ask for something (resources)! :)

- I learned a lot from listening to other people describing and discussing their own TAPD, what they do, what worked and what didn't, what improvements they'd made etc. It contributes to several of the above categories, but there's more to it than that, somehow.

Table 3.1 shows the mean gains ratings for Providers who answered the all-comers survey, using a scale of 0 (no gain), 1 (a little gain), 2 (some gain), 3 (good gain), to 4 (great gain).

While the number of responses is too low to make meaningful statistical comparisons, the patterns in response suggest that the strongest gains for Providers from these lighter experiences are in making connections. Gains in professionalism and programming were moderate, while gains in thinking about TAPD and how to improve it were least reported by these groups of participants.

Connecting to others > professionalism ~ programming > thinking ~ improving

It will be interesting to compare these gains with those reported by participants in the more intensive summer workshops for Providers.

**Table 3.1: Mean Gains for Providers, by Item and Item Group**

		Mean (10-12 responses/item)
Gains in thinking about TAPD (means represent *some* gain)	Clarity about the goals of my institution's TAPD program	1.8
	Clarity about the vision of teaching and learning that my institution's TAPD program espouses	1.7
	Concepts or frameworks for thinking about my institution's TAPD program	2.3
	Concepts or frameworks for thinking about active learning and teaching	1.8
Gains in programming for TAPD (means represent *some* to *good* gain)	Understanding of the research base about teaching and learning	1.8
	Specific activities or programming that I *have already used* in my TAPD program	2.4
	Specific activities or programming that I *plan to use* in my TAPD program	2.8
Gains in approaches to improving TAPD (means represent *a little* to *some* gain)	Ideas or strategies for addressing specific challenges of my institution's TAPD program	2.3
	Ideas or strategies or improving other aspects of my institution's undergraduate math program	1.1
	Understanding of whether/when evaluating my institution's TAPD program may be useful	1.4
	Understanding of how to evaluate my institution's TAPD program	1.2
Gains in connecting to others (means represent *good* gain)	Awareness of shared interests and concerns with other TAPD providers	3.0
	Sense of community with other TAPD providers	2.8
	New connections with other individual TAPD providers	2.5
	Information by which to compare my own institution's TAPD program with other programs	2.7
Gains in professionalism (means represent *some* gain to *good* gain)	Ideas or strategies to improve my own undergraduate teaching	2.0
	Confidence in my own work on TAPD	2.4
	A sense of myself as a professional working in TA professional development	2.5
	A sense of TA professional development as a practical activity grounded in scholarship	2.3

Scale: 0 (no gain), 1 (a little gain), 2 (some gain), 3 (good gain), 4 (great gain).

4. Researcher Participation and Outcomes

The Researchers who responded had primarily taken part in online or face-to-face activities of the CMI working group associated with the RUME conference. One person had participated in no Researcher activities, and a few had contributed to the CoMInDS resource suite. The mean level of participation was 2.2 activities. This is higher than the mean participation of all Researchers on the project list, 1.3, and suggests that the responses from the Researcher group are biased toward those who participated more frequently and were thus perhaps more likely to recognize the connections between CoMInDS, the CMI working group, and the survey they received. One respondent reported participating in seven activities.

Figure 4.1: Researchers engaged with the CMI working group and RUME conference
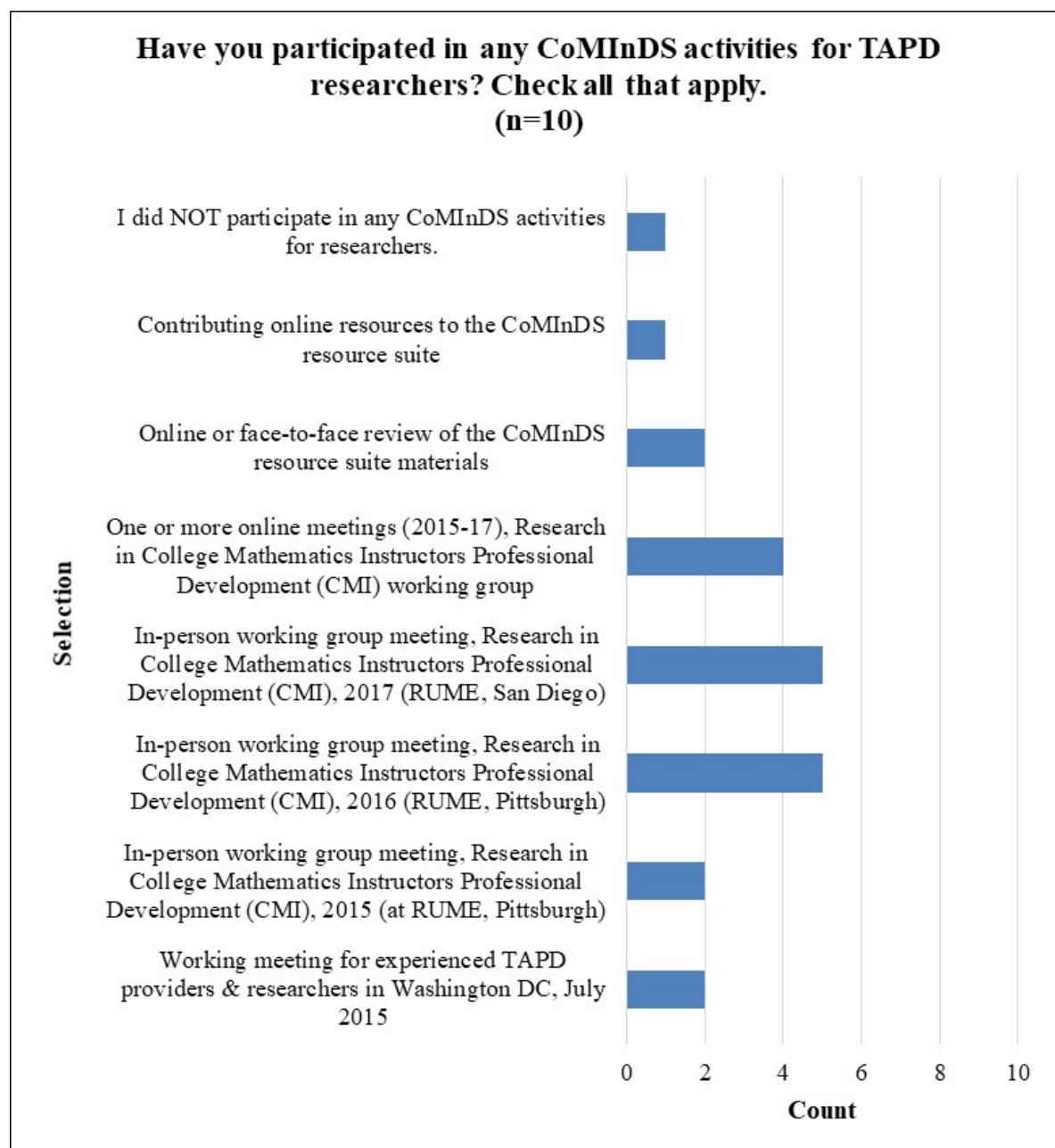
We examined outcomes of these activities for Researchers, by asking people to report their gains from participating. These were grouped into four broad groups of possible outcomes that were identified from analysis of the focus group discussions:

1. Thinking about TAPD research – clarity and understandings about TAPD scholarship (3 items)

2. Connecting to others – meeting and finding shared interests with other Researchers (4 items)

3. Connecting research to practice—understanding the needs and interests of TAPD Providers in research findings, making connections to Providers (4 items)

4. Professionalism – sense of oneself as an effective educator working in a professional domain (4 items)

These categories were roughly parallel to those in the Provider gains sections, but the items were phrased differently in language specific to Researchers. Responses to the gains items were converted to numerical means using a scale of zero (no gain) to 4 (great gain). In Figures 4.2-4.5 the distribution of responses is plotted for each group of gains. In interpreting these graphs, it is important to keep in mind that the sample is small.

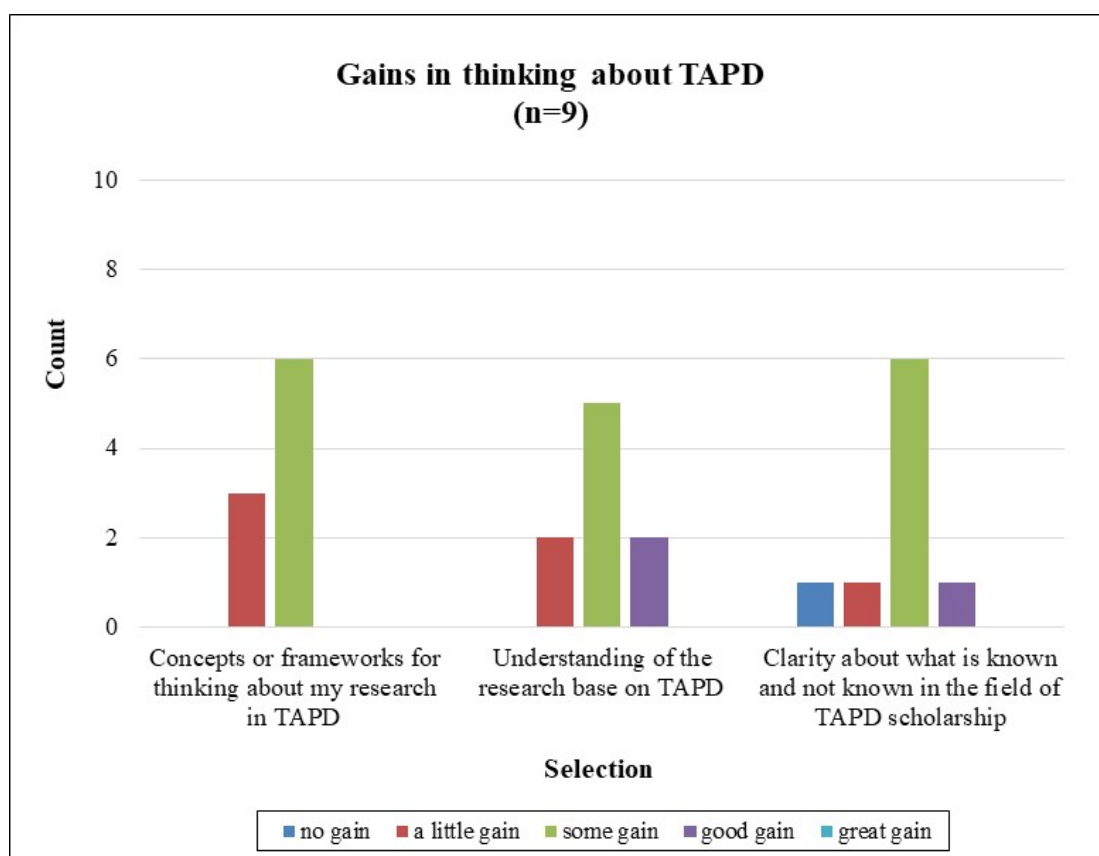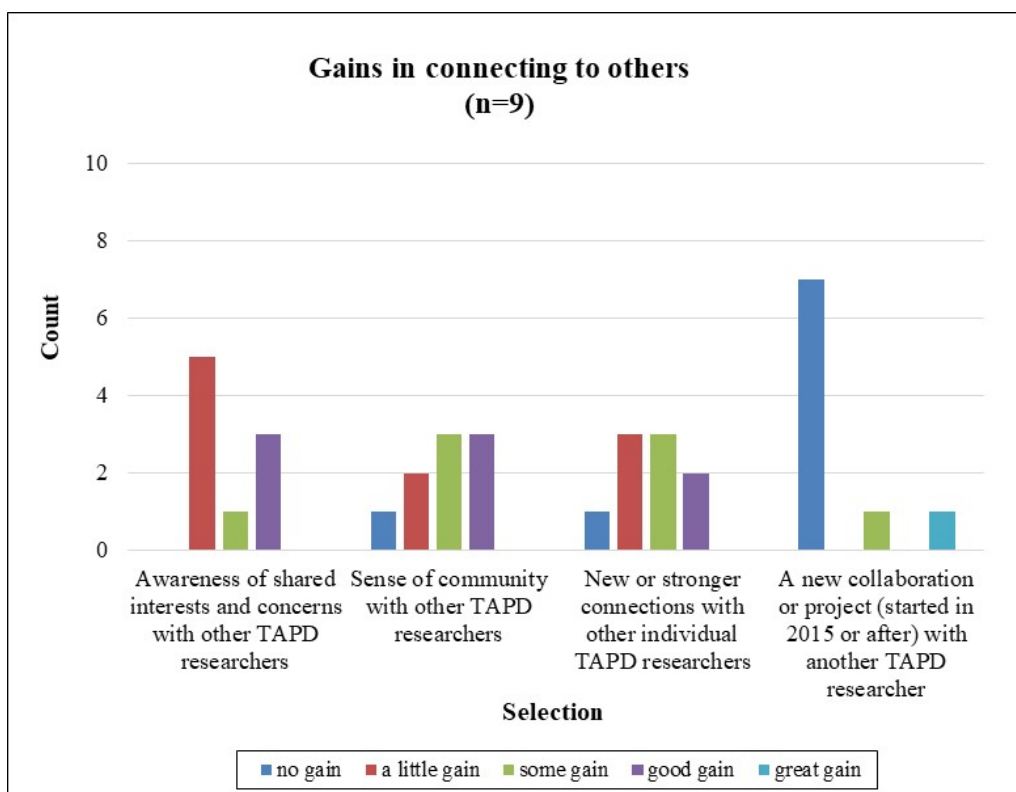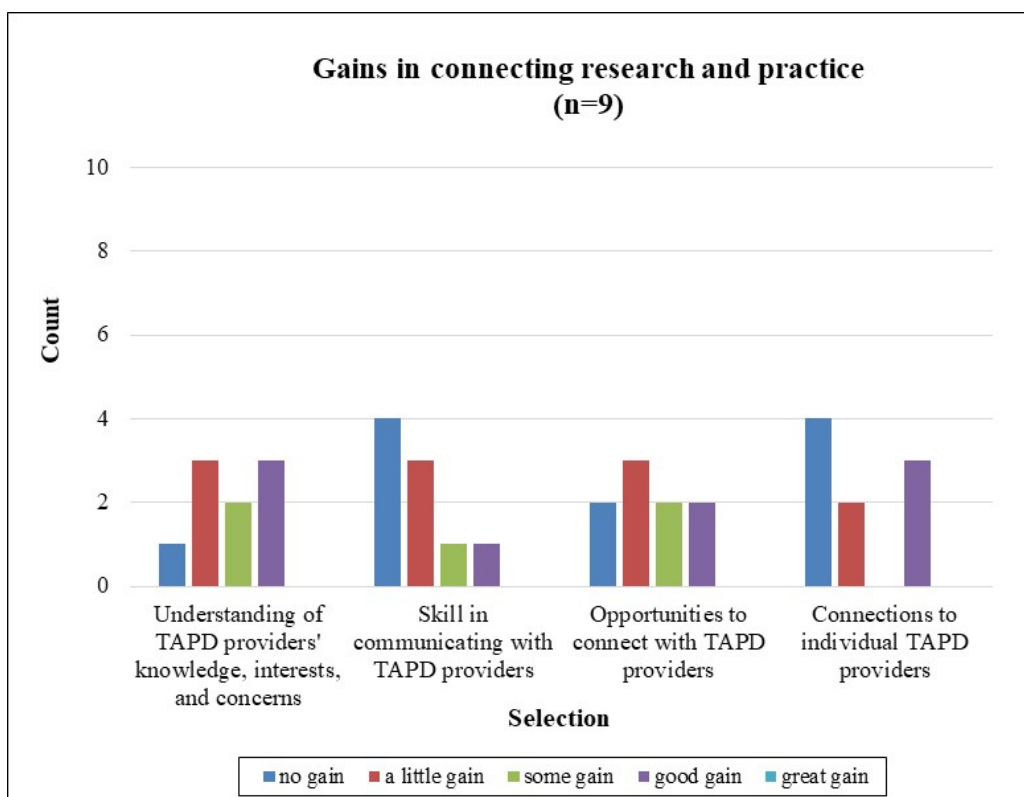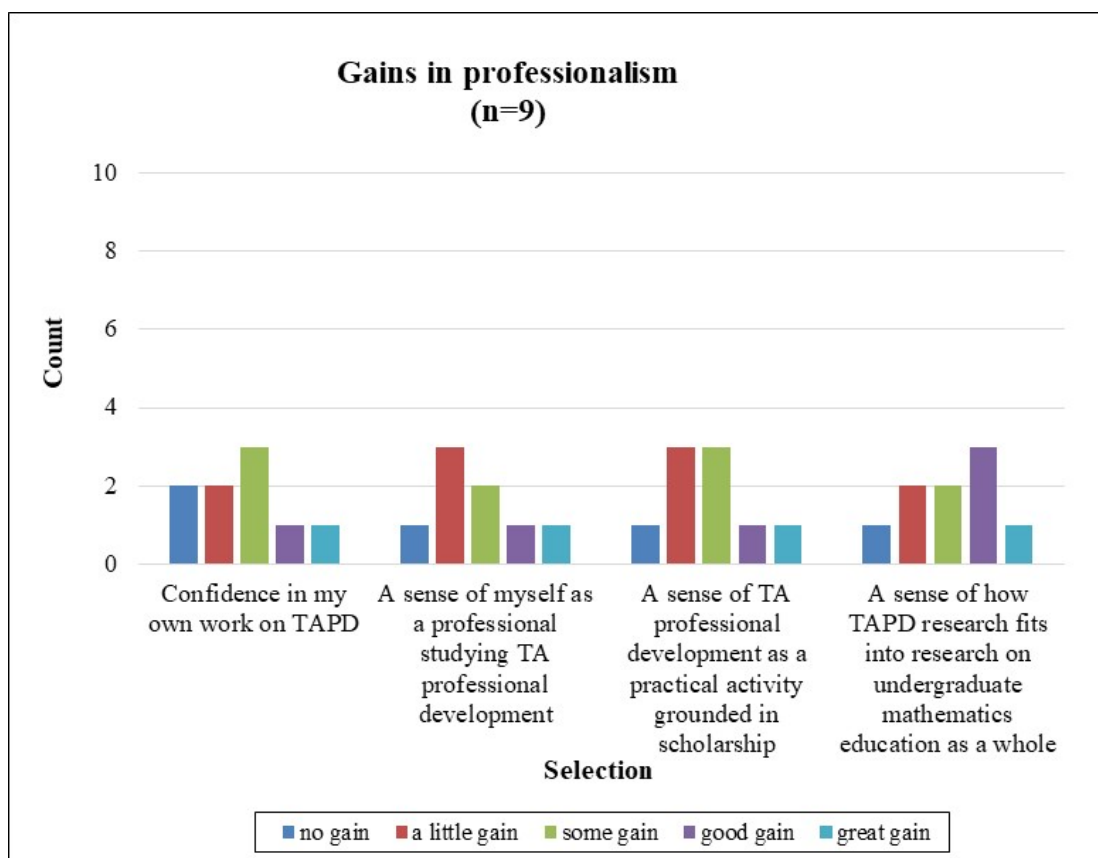**Figure 4.2: Researcher gains in *thinking about* TAPD research**

Figure 4.3: Researcher gains in *connecting to others*

Figure 4.4: Researcher gains in *connecting research and practice*

Figure 4.5: Researcher gains in *professionalism*

No one responded to the open-ended prompt for additional gains not covered elsewhere.

Table 4.1 shows the mean gains ratings for Researchers who answered the all-comers survey, using a scale of 0 (no gain), 1 (a little gain), 2 (some gain), 3 (good gain), to 4 (great gain).

Table 4.1: Mean Gains for Researchers, by Item and Item Group

		Mean (8-9 responses/item)
Gains in thinking about TAPD research (means represent *some* gain)	Concepts or frameworks for thinking about my research in TAPD	1.7
	Understanding of the research base on TAPD	2.0
	Clarity about what is known and not known in the field of TAPD scholarship	2.3
Gains in connecting to others (means represent *a little* to *some* gain)	Awareness of shared interests and concerns with other TAPD researchers	1.8
	Sense of community with other TAPD researchers	1.9
	New or stronger connections with other individual TAPD researchers	1.7
	A new collaboration or project (started in 2015 or after) with another TAPD researcher	0.7
Gains in connecting research to practice (means represent *a little* to *some* gain)	Understanding of TAPD providers' knowledge, interests, and concerns	1.8
	Skill in communicating with TAPD providers	0.9
	Opportunities to connect with TAPD providers	1.4
	Connections to individual TAPD providers	1.2
Gains in professionalism (means represent *some* gain)	Confidence in my own work on TAPD	1.7
	A sense of myself as a professional studying TA professional development	1.8
	A sense of TA professional development as a practical activity grounded in scholarship	1.8
	A sense of how TAPD research fits into research on undergraduate mathematics education as a whole	2.1

Scale: 0 (no gain), 1 (a little gain), 2 (some gain), 3 (good gain), 4 (great gain).

While the number of responses is too low to make meaningful statistical comparisons, the patterns in response suggest that the strongest gains for Researchers from these lighter experiences are intellectual in nature—gains in research ideas and frameworks and how these connect to the broader field. In contrast with the Providers, who reported connections as most important, connections were less important for this group.

thinking about TAPD research ~ professionalism > connecting research to practice ~ connecting to others

As context, it is important to note that the CMI group includes scholars who have pre-existing connections through the RUME organization and activities. This result should not be read as saying that connections are less important for Researchers.
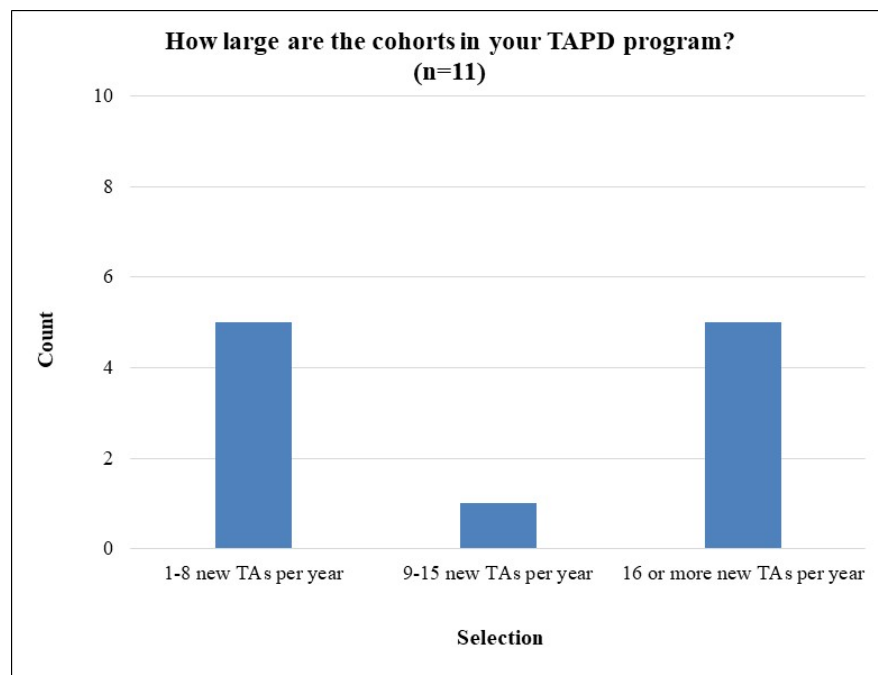
5. Participants' TAPD Programs

To gain a sense of the diversity of TAPD programs represented in the data, we asked respondents to describe factual and perceived features of their own program. Figures 5.1-5.2 show the distribution of program age and size.

Figure 5.1: Most TAPD programs are pre-existing but not long-lived
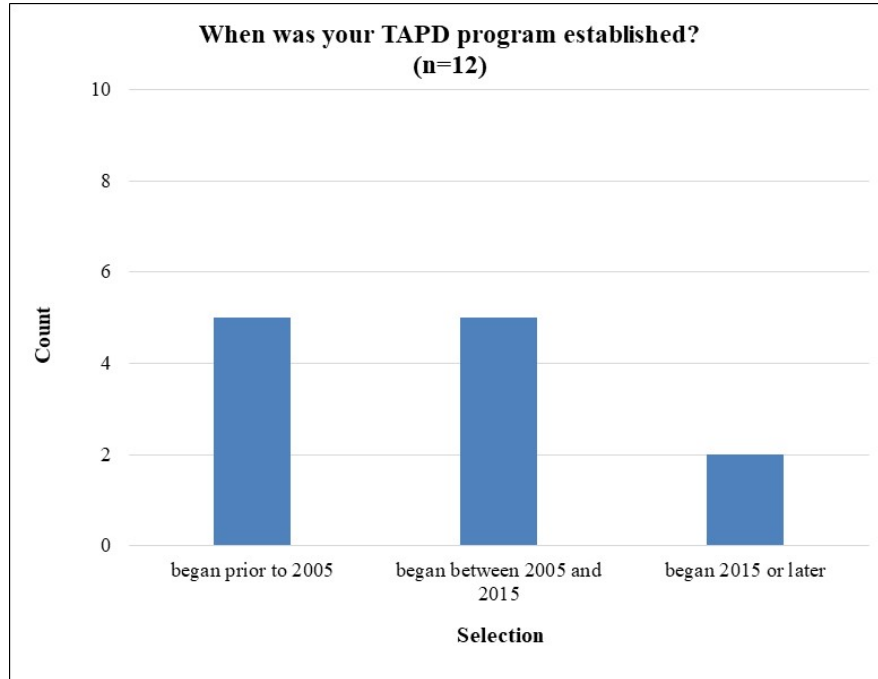
Figure 5.2: TAPD programs were diverse in size

We asked respondents to describe the level of support for TAPD that they perceived from key stakeholders. Figure 5.3 shows the reported support from chairs, deans, faculty in and outside the department, and the TAs themselves. Most respondents reported some to a lot of support from local stakeholders, with less support from faculty outside mathematics.

Figure 5.3: TAPD programs are most supported inside the department
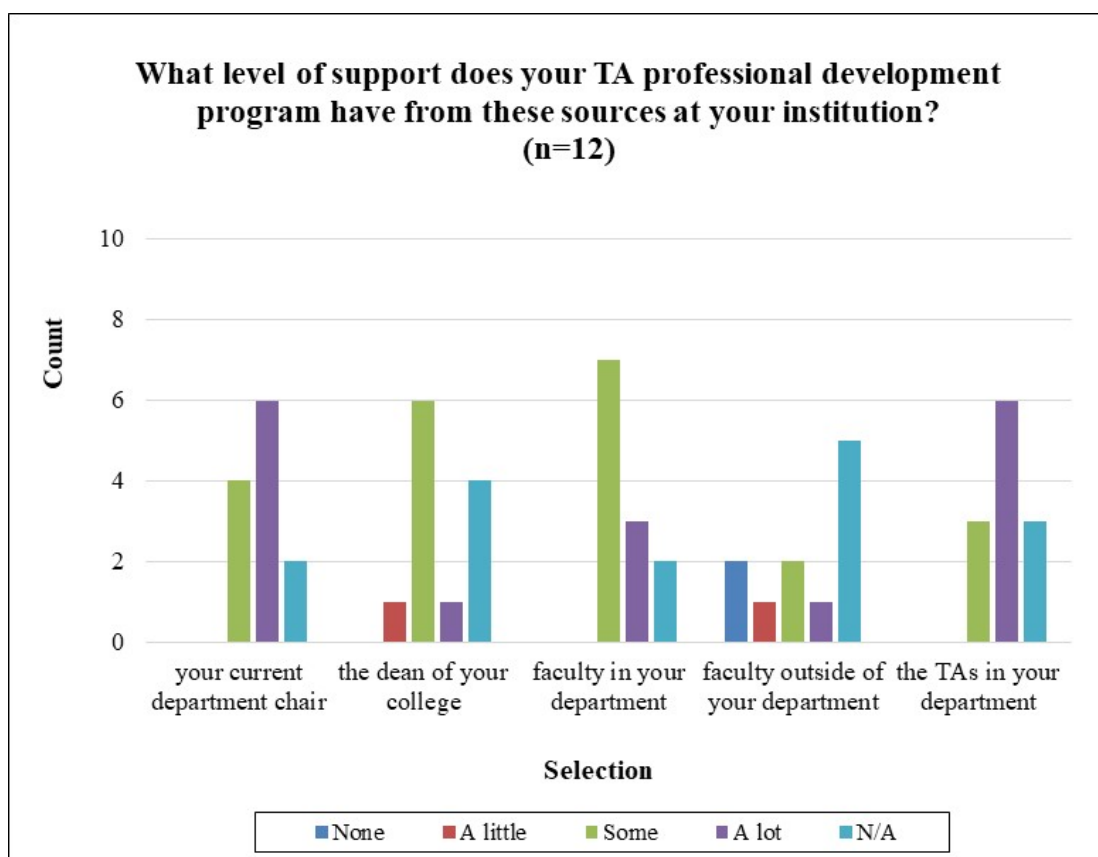
Table 5.1 shows the mean levels of support, using the scale 0 (none), 1 (a little), 2 (some), to 3 (a lot). N/A responses were omitted. TAs, chairs and faculty within the department were perceived as most supportive, while deans were less so. TAs may be an often-overlooked source of support and advocacy for TAPD program.

Table 5.1: Perceived Level of Support for TAPD from Key Stakeholders

	Mean (6-10 responses per item)
Your current department chair	2.6
Dean of your college	2.0
Faculty in your department	2.3
Faculty outside your department	1.3
TAs in your department	2.7

Scale: 0 (none), 1 (a little), 2 (some), 3 (a lot)

We asked participants if they had made any changes in their TAPD program since becoming involved in CoMInDS. Three people said they had made none; two said they were not involved in CoMInDS. Five people described changes they had made.

- Our program was well-established before I got here. I have made a few small changes, but nothing huge. There are some more changes I would like to make, but I'm limited by my own capacity & time.

- I have sought a greater role in leading TAPD (which is traditionally led by chair and graduate chair of dept.). I have used some of the activities directly or in modified form.

- CoMInDS allowed us to start thinking about equity issues.

- Incorporated some of the video case studies for College Math Instruction, took video of TA practice lectures and had TAs watch themselves and reflect, used opening activity suggestion on what you do when learning difficult math

- Yes, I have, I'm always doing that.

We also asked what changes they would like to make. Five people provided answers of substance.

- I'm really interested in installing Robin Gottlieb's "coach" program. I'd like to add more workshops for my TAs. I'd like to institute more reflection for them. I'd also like to help them develop teaching portfolios.

- I plan this year to reflect on our program, articulate a more cohesive set of learning objectives for the program (beyond just logistics of course management and basic presentation skills), and think about how to restructure our three-prong system (fall TA training, fall TF training and mentoring for current TFs) to better reflect these.

- I want an "advanced" version following our intro training for graduate students committed to and passionate about teaching and interested in pursuing a teaching-focused career.

- I teach the one-semester seminar for TAs that they take in their second semester (which is usually the semester before being instructors of record). I would like to have a two-semester sequence with better follow up when the TAs are teaching. The TAs do get some course-specific PD from course coordinators, but we need to improve ongoing PD and mentorship. TAPD is not run by just one person so the challenge is to organize a more cohesive TAPD program.

- So many ...

These responses illustrate that some positive changes to programs can result from participation in one of the less-intensive CoMInDS activities. They also serve as a useful benchmark against which the impact of other types of activities, now or in the future, can be compared.

Finally, as a measure of local culture around teaching, we probed norms around teaching as the respondent perceives them. Figure 5.4 shows the distribution of norms.

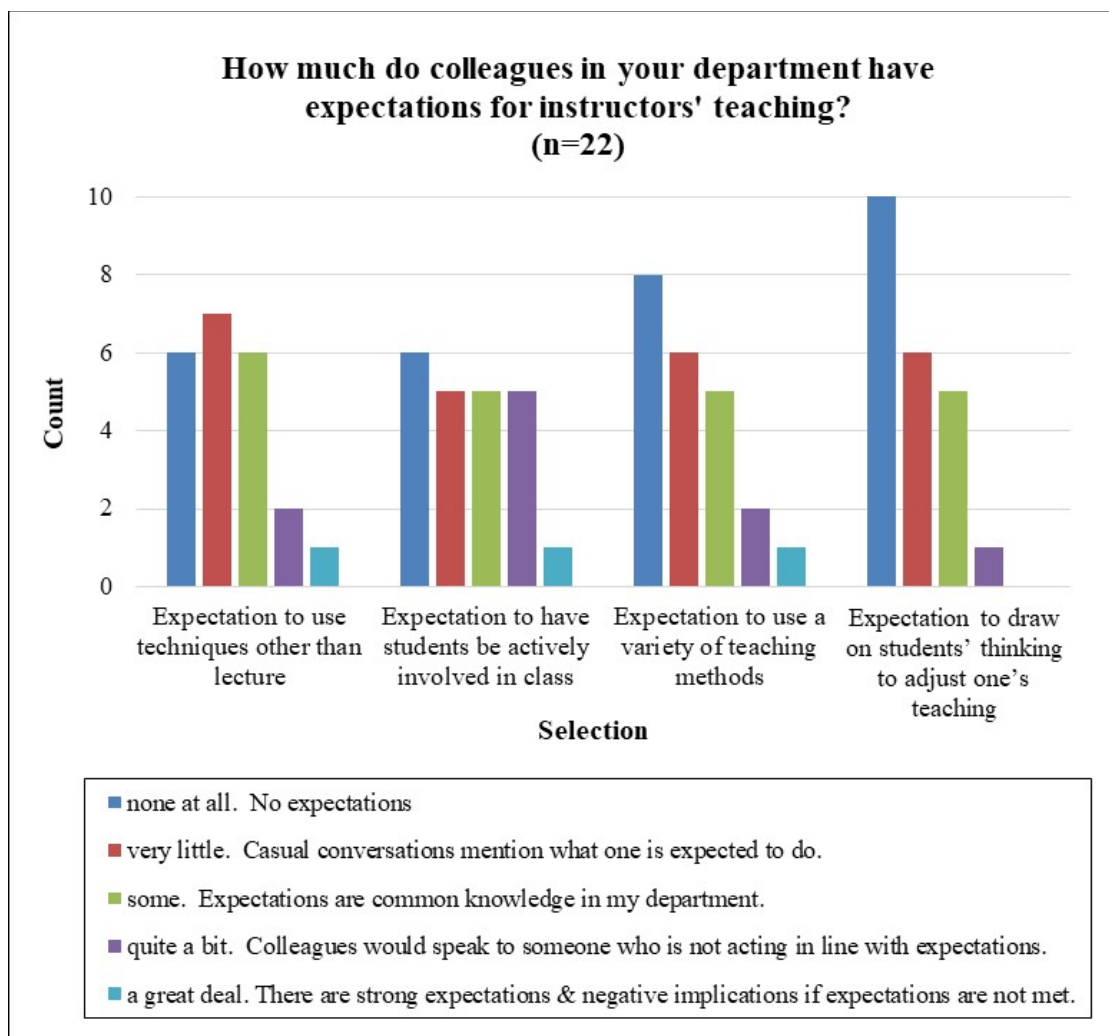**Figure 5.4: Most departments do not have strong norms for teaching**

Table 5.2 shows the means, using the scale 0 (none), 1 (very little), 2 (some), 3 (quite a bit), to 4 (a great deal). In general, respondents did not report strong departmental norms for active engagement pedagogies, but there was wide variability in the norms reported by different individuals.

Table 5.2: Departmental Expectations around Teaching

	Mean (6-10 responses per item)
Expectation to use techniques other than lecture	1.3
Expectation to have students be actively involved in class	1.6
Expectation to use a variety of teaching methods	1.2
Expectation to draw on students' thinking to adjust one's teaching	0.9

Scale: 0 (none), 1 (very little), 2 (some), 3 (quite a bit), 4 (a great deal)

6. Participants' Professional Networks

Because CoMInDS explicitly sought to help TAPD Providers and Researchers make fruitful connections, we asked respondents to describe their professional networks inside and outside their own institutions. External networks were slightly larger than internal networks. It will be interesting to compare these data with those from participants in the intensive summer workshops.

Figure 6.1: TAPD Networks *inside* the Home Institution
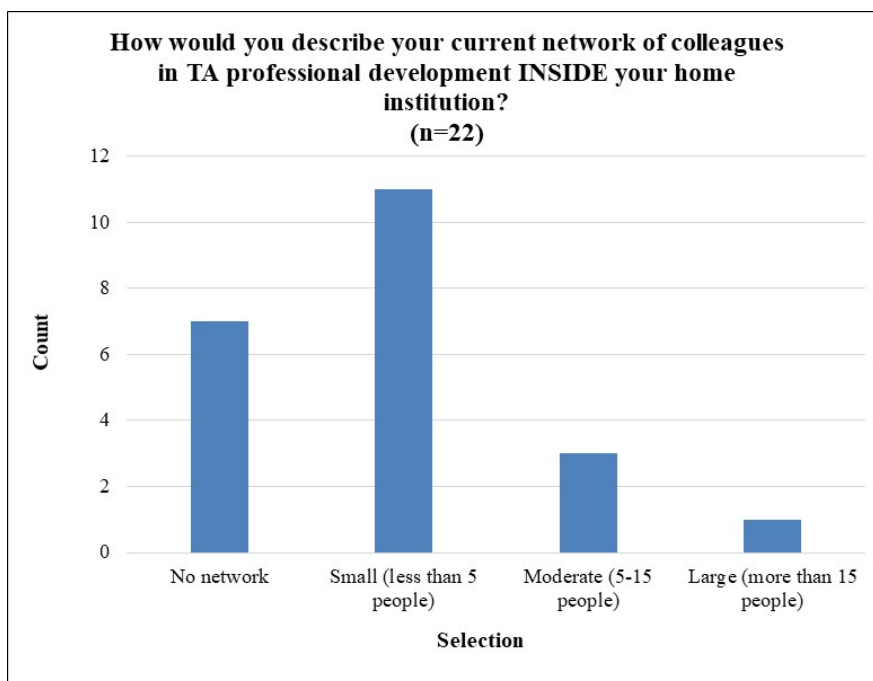
Figure 6.2: TAPD Networks *outside* the Home Institution
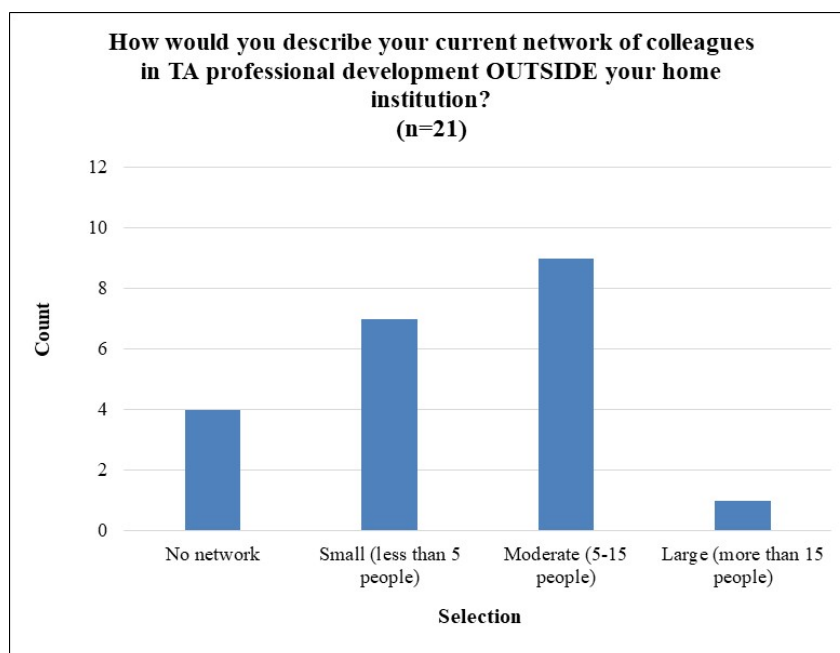
7. The CoMInDS Resource Suite

The CoMInDS instructional resource suite is not fully developed and launched yet, but a pilot version is available. We asked people if they had visited the site and (if so) if they had used any resources from it.

Figure 7.1: About half of respondents were familiar with the Resource Suite
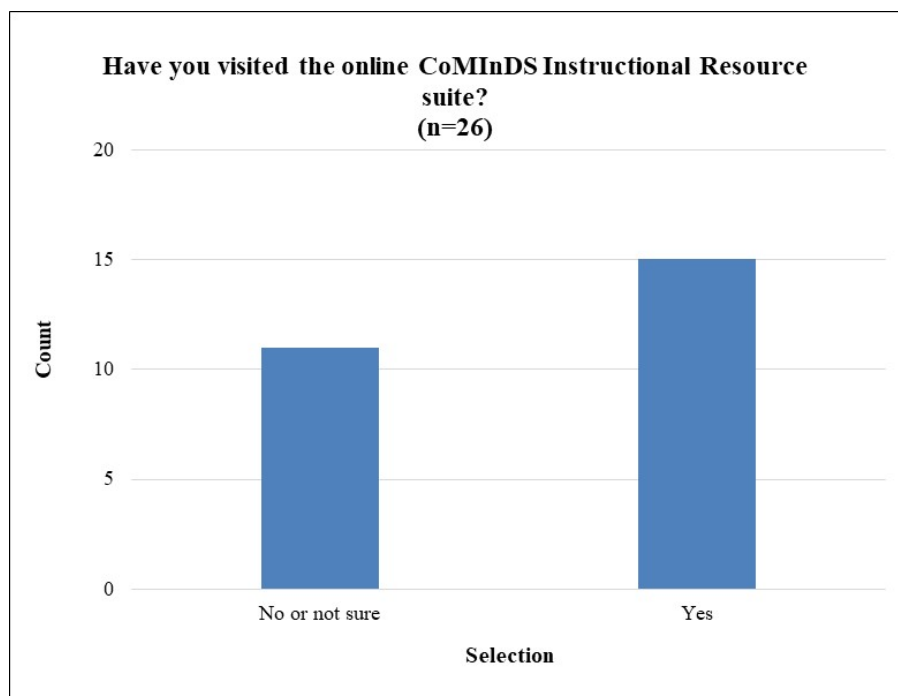
Figure 7.2: Use of the Resource Suite is modest so far
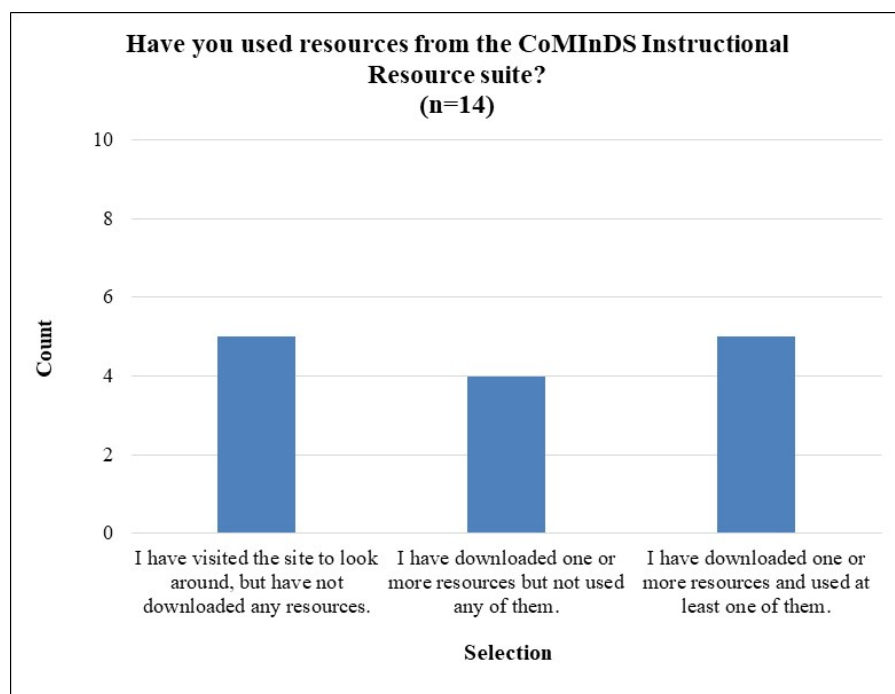
Of those who had visited the site to review or retrieve resources, impressions of its utility and relevance were generally positive, though not highly favorable. These ratings serve as a useful benchmark for the forthcoming fully-powered site.

Figure 7.3: Resource Suite visitors have largely positive impressions
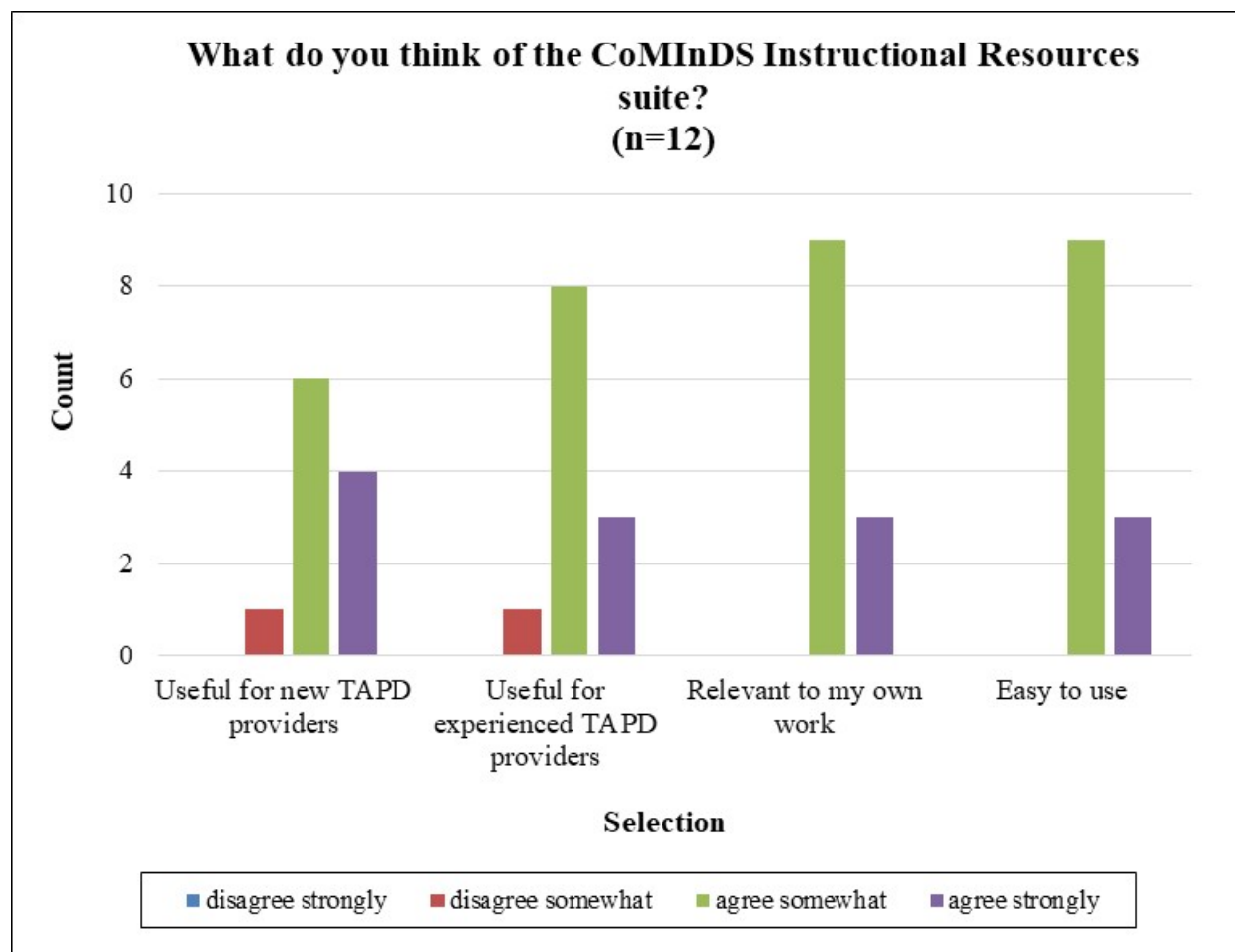
Two people offered open-ended responses to a prompt asking for ideas for improving the Resource Suite. One person noted, "It's hard to find time to just browse for things. I really find our regional meetings to be a better resource than the website." Another hoped for more extensive resources, "which I know is a continuous work in progress."

8. Gots and Needs

Two open-ended prompts invited people to describe "the best" thing from participating in CoMInDS and the thing that would "help most" in future work on TAPD

"Best" things included:

- learning about what to expect within TAPD
- I'm excited to continue contributing and downloading resources from the online resource suite.
- Building a community among practitioners and researchers

- The connection with colleagues was by far the most valuable aspect of CoMInDS.
- Knowing what other colleagues are doing.
- Seeing how experts in TA prep would structure a course, from intro to middle to end.
- Awareness and access to helpful resources and activities for TAPD and connections to a community of TAPD providers
- Meeting people, learning about their programs, and being able to discuss our own program, with its successes and challenges.

Things that would "help most" included:

- more collaboration opportunities among TAPD providers and researchers
- More explicit focus on theory of change models and ways to study effectiveness of TAPD
- More resources and a change in culture. :) The former seems unlikely; the latter seems likely, but will probably take a while.
- collaborators interested in "advanced" TA training.
- Feedback from other colleagues who are also working on TAPD.
- Better understanding of how to assess TA instruction, then how to act on such an assessment - how to remediate TAs who are doing poorly, support those growing their teaching.
- Information on up to date resources and a continued community of TAPD providers to talk to about what works, what doesn't, and how to improve
- Keeping the CoMInDS regional meetings going, once a year or so. And, I would say, an exchange program! It's probably not feasible. But it would be really helpful to spend some time at another institution, to experience what they do.

Salient in both the "best" and "most helpful" comments is the importance of and need for a strong community of like-minded peers who are interested in these issues. This is consistent with other answers on the questionnaire and in project leaders' interactions with participants.

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Appendix—Instrument for All-Comers Survey

CoMInDS Project Outcomes survey

Welcome to the CoMInDS workshop

Dear colleague,
the CoMInDS project (College Mathematics Instructor Development Source) seeks to support math departments in providing high-quality professional development (PD) to graduate student teaching assistants (TAs). CoMInDS has been supported by the National Science Foundation and sponsored by the Mathematics Association of America.

As our project comes to an end, we ask you to please take a few minutes to answer some questions about your TA professional development (TAPD) program and your participation in CoMInDS. This information will help the project team understand what you have gained -- or not -- from CoMInDS programming, and will help us plan for the future.

Your participation is voluntary. You may skip questions you do not wish to answer, or choose not to participate. Your answers are anonymous and will not be reported in any form that identifies you individually; they will be part of an aggregate analysis of all survey responses. The project team will not know how you answered individually; the data are seen only by the evaluation team. Thank you for your candid responses!

By completing this survey, in part or in whole, you are agreeing to the use of these data in understanding how to improve the CoMInDS project and reporting to our funder, the National Science Foundation.

Ethnography & Evaluation Research is an independent research group serving as external evaluator for the CoMInDS project. We very much appreciate your assistance. Please contact me with any questions or concerns.

--Sandra Laursen, study director

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On behalf of the CoMInDS team:

Jack Bookman

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Jessica Deshler

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CoMInDS Project Outcomes survey

Your institution and role

For this survey, we use the terms
- **TA for all graduate teaching assistants, recognizing that different institutions may use different titles**
- **TAPD for professional development focused on teaching that is offered to graduate TAs in math at your institution**

1. What roles do you play in TA professional development (TAPD)? Check all that apply.

☐ Provider: I deliver or help deliver TAPD at my institution

☐ Researcher: I study TAPD or a closely related topic

Something else: Please explain

[   ]

CoMInDS Project Outcomes survey

Your involvement with CoMInDS

For this survey, we use the terms
- **TA - all graduate teaching assistants, recognizing that different institutions may use different titles**
- **TAPD - professional development focused on teaching that is offered to graduate TAs in math**
- **Providers - people who help deliver TAPD at their institution**

2. Have you participated in any CoMInDS activities for TAPD providers? Check all that apply.

☐ Working meeting for experienced TAPD providers, Washington DC, July 2015

☐ Regional workshop at Duke U., February 2016

☐ Regional workshop at Harvard U., April 2016

☐ Regional workshop at Harvard U., September 2017

☐ Local CoMInDS mentoring group

☐ National workshop for TAPD providers at U. Maine, June 2016

☐ National workshop for TAPD providers at U. Maine, June 2017

☐ Webinar series, fall 2016, "Preparation of New Instructors to Teach Undergraduate Mathematics"

☐ Listserv for a CoMInDS provider group

☐ *I did NOT participate in any CoMInDS activities for TAPD providers.*

CoMInDS Project Outcomes survey

Your gains from participating in CoMInDS - 1

How much have you GAINED in the following areas from your participation in CoMInDS provider activities?

3. Gains in thinking about TAPD

	no gain	a little gain	some gain	good gain	great gain
Clarity about the goals of my institution's TAPD program	○	○	○	○	○
Clarity about the vision of teaching and learning that my institution's TAPD program espouses	○	○	○	○	○
Concepts or frameworks for thinking about my institution's TAPD program	○	○	○	○	○
Concepts or frameworks for thinking about active learning and teaching	○	○	○	○	○

4. Gains in programming for TAPD

	no gain	a little gain	some gain	good gain	great gain
Understanding of the research base about teaching and learning	○	○	○	○	○
Specific activities or programming that I **have already used** in my TAPD program	○	○	○	○	○
Specific activities or programming that I **plan to use** in my TAPD program	○	○	○	○	○

5. Gains in approaches to improving TAPD

	no gain	a little gain	some gain	good gain	great gain
Ideas or strategies for addressing specific challenges of my institution's TAPD program	○	○	○	○	○
Ideas or strategies or improving other aspects of my institution's undergraduate math program	○	○	○	○	○
Understanding of whether/when evaluating my institution's TAPD program may be useful	○	○	○	○	○
Understanding of how to evaluate my institution's TAPD program	○	○	○	○	○

CoMInDS Project Outcomes survey

Your gains from participating in CoMInDS - 2

How much have you GAINED in the following areas from your participation in CoMInDS provider activities?

6. Gains in connecting to others

	no gain	a little gain	some gain	good gain	great gain
Awareness of shared interests and concerns with other TAPD providers	○	○	○	○	○
Sense of community with other TAPD providers	○	○	○	○	○
New connections with other individual TAPD providers	○	○	○	○	○
Information by which to compare my own institution's TAPD program with other programs	○	○	○	○	○

7. Gains in professionalism

	no gain	a little gain	some gain	good gain	great gain
Ideas or strategies to improve my own undergraduate teaching	○	○	○	○	○
Confidence in my own work on TAPD	○	○	○	○	○
A sense of myself as a professional working in TA professional development	○	○	○	○	○
A sense of TA professional development as a practical activity grounded in scholarship	○	○	○	○	○

8. Did you make any other gains not mentioned here? Please tell us about them!

CoMInDS Project Outcomes survey

Additional TAPD roles

9. In addition to your TAPD provider role, are you ALSO a researcher studying TAPD or closely related topics?

○ no

○ yes

CoMInDS Project Outcomes survey

Your involvement with CoMInDS - Researchers

For this survey, we use the terms
- **TA - all graduate teaching assistants, recognizing that different institutions may use different titles**
- **TAPD - professional development focused on teaching that is offered to graduate TAs in math**
- **Researchers - people who study TAPD or closely related topics**

10. Have you participated in any CoMInDS activities for TAPD researchers? Check all that apply.

☐ Working meeting for experienced TAPD providers & researchers in Washington DC, July 2015

☐ In-person working group meeting, Research in College Mathematics Instructors Professional Development (CMI), 2015 (at RUME, Pittsburgh)

☐ In-person working group meeting, Research in College Mathematics Instructors Professional Development (CMI), 2016 (RUME, Pittsburgh)

☐ In-person working group meeting, Research in College Mathematics Instructors Professional Development (CMI), 2017 (RUME, San Diego)

☐ One or more online meetings (2015-17), Research in College Mathematics Instructors Professional Development (CMI) working group

☐ Online or face-to-face review of the CoMInDS resource suite materials

☐ Contributing online resources to the CoMInDS resource suite

☐ *I did NOT participate in any CoMInDS activities for researchers.*

CoMInDS Project Outcomes survey

Your gains from participating in scholarly activities with CoMInDS - Researchers 1

How much have you GAINED in the following areas from your participation in CoMInDS researcher activities?

11. Gains in thinking about TAPD

	no gain	a little gain	some gain	good gain	great gain
Concepts or frameworks for thinking about my research in TAPD	○	○	○	○	○
Understanding of the research base on TAPD	○	○	○	○	○
Clarity about what is known and not known in the field of TAPD scholarship	○	○	○	○	○

12. Gains in connecting to others

	no gain	a little gain	some gain	good gain	great gain
Awareness of shared interests and concerns with other TAPD researchers	○	○	○	○	○
Sense of community with other TAPD researchers	○	○	○	○	○
New or stronger connections with other individual TAPD researchers	○	○	○	○	○
A new collaboration or project (started in 2015 or after) with another TAPD researcher	○	○	○	○	○

CoMInDS Project Outcomes survey

Your gains from participating in scholarly activities with CoMInDS - Researchers 2

How much have you GAINED in the following areas from your participation in CoMInDS researcher activities?

13. Gains in connecting research and practice

	no gain	a little gain	some gain	good gain	great gain
Understanding of TAPD providers' knowledge, interests, and concerns	○	○	○	○	○
Skill in communicating with TAPD providers	○	○	○	○	○
Opportunities to connect with TAPD providers	○	○	○	○	○
Connections to individual TAPD providers	○	○	○	○	○

14. Gains in professionalism

	no gain	a little gain	some gain	good gain	great gain
Confidence in my own work on TAPD	○	○	○	○	○
A sense of myself as a professional studying TA professional development	○	○	○	○	○
A sense of TA professional development as a practical activity grounded in scholarship	○	○	○	○	○
A sense of how TAPD research fits into research on undergraduate mathematics education as a whole	○	○	○	○	○

15. Did you make any other gains besides these? Please describe them.

CoMInDS Project Outcomes survey

Dimensions of your TAPD program

Next we'll ask about some features of your TAPD program and teaching in your department.

16. When was your TAPD program established?

○ began prior to 2005　　　　○ began between 2005 and 2015　　　　○ began 2015 or later

17. How large are the cohorts in your TAPD program?

○ 1-8 new TAs per year　　　　○ 9-15 new TAs per year　　　　○ 16 or more new TAs per year

18. Since you became involved with CoMInDS, have you made any changes in your TAPD program? Please describe.

19. What changes would you *like* to make in your institution's TAPD program?

CoMInDS Project Outcomes survey

Dimensions of your TAPD program - 2

20. What level of support does your TA professional development program have from these sources at your institution?

	None	A little	Some	A lot	N/A
your current department chair	○	○	○	○	○
the dean of your college	○	○	○	○	○
faculty in your department	○	○	○	○	○
faculty outside of your department	○	○	○	○	○
the TAs in your department	○	○	○	○	○

CoMInDS Project Outcomes survey

Your teaching context

21. How much do colleagues in your department have expectations for instructors' teaching?

	not at all. No expectations	*very little*. Casual conversations mention what one is expected to do.	*some*. Expectations are common knowledge in my department.	*quite a bit*. Colleagues would speak to someone who is not acting in line with expectations.	*a great deal*. There are strong expectations & negative implications if expectations are not met.
Expectation to use techniques other than lecture	○	○	○	○	○
Expectation to have students be actively involved in class	○	○	○	○	○
Expectation to use a variety of teaching methods	○	○	○	○	○
Expectation to draw on students' thinking to adjust one's teaching	○	○	○	○	○

CoMInDS Project Outcomes survey

Your professional network

22. How would you describe your current network of colleagues in TA professional development INSIDE your home institution?

○ No network ○ Small (less than 5 people) ○ Moderate (5-15 people) ○ Large (more than 15 people)

23. How would you describe your current network of colleagues in TA professional development OUTSIDE your home institution?

○ No network ○ Small (less than 5 people) ○ Moderate (5-15 people) ○ Large (more than 15 people)

CoMInDS Project Outcomes survey

The CoMInDS resource suite

24. Have you visited the online CoMInDS Instructional Resource suite?

◯ No or not sure

◯ Yes

CoMInDS Project Outcomes survey

The CoMInDS resource suite 2

25. Have you used resources from the CoMInDS Instructional Resource suite?

○ I have visited the site to look around, but have **not downloaded** any resources.

○ I have downloaded one or more resources but **not used** any of them.

○ I have downloaded one or more resources and **used at least one** of them.

26. What do you think of the CoMInDS Instructional Resources suite?

	disagree strongly	disagree somewhat	agree somewhat	agree strongly
Useful for new TAPD providers	○	○	○	○
Useful for experienced TAPD providers	○	○	○	○
Relevant to my own work	○	○	○	○
Easy to use	○	○	○	○

The resource suite would be better if ...

CoMInDS Project Outcomes survey

Broad gains and future needs

27. What one or two things were *the best* from participating in CoMInDS?

28. What one or two things would help you *most* in your future work on TAPD?

CoMInDS Project Outcomes survey

Your professional context

Please tell us a bit about how TAPD fits in with the rest of your work.

29. How does TAPD rank in your work priorities?

	low	medium	high
TAPD is a professional interest for me.	○	○	○
Providing TAPD is a priority for my work time.	○	○	○
Studying TAPD is a priority for my work time.	○	○	○

30. Which of the following activities does your work include?

	little or none of my time	once in a while	some of my time	much of my time
carrying out TA professional development & support	○	○	○	○
coordinating undergraduate courses	○	○	○	○
teaching undergraduate courses	○	○	○	○
teaching graduate courses	○	○	○	○
advising undergraduates	○	○	○	○
advising graduate students	○	○	○	○
administering departmental programs	○	○	○	○
conducting research in mathematics	○	○	○	○
conducting research in mathematics education	○	○	○	○
conducting mathematics outreach beyond my institution	○	○	○	○

something else: please explain

[   ]

CoMInDS Project Outcomes survey

Your professional context - 2

31. In your own current teaching, how often do you use each of these teaching methods?

	never	sometimes	often	always
instructor presents content by lecturing	◯	◯	◯	◯
instructor demonstrates content or works through problems	◯	◯	◯	◯
students demonstrate content or work through problems	◯	◯	◯	◯
whole class discussion or Q&A	◯	◯	◯	◯
small group work	◯	◯	◯	◯
use of multi-media or computer simulations	◯	◯	◯	◯
real-time polling or clickers	◯	◯	◯	◯

CoMInDS Project Outcomes survey

Demographic information 1

This workshop is funded by the National Science Foundation, a federal agency that requires that data about participants be collected in a form that can be analyzed for differences by gender, race, ethnicity and citizenship status.

32. How do you describe your gender?

○ woman

○ man

○ non-binary

○ prefer not to answer

Please explain, if you like

[   ]

33. What is the highest degree offered in the mathematics department?

○ Two-year degree (AA or AS)

○ Four-year degree (BA or BS)

○ Master's degree (MA or MS)

○ PhD

Other (please specify)

[   ]

34. NSF requires race and ethnicity information for US citizens, US nationals, and permanent residents. Do any of these describe you?

○ Yes (I am a US citizen, US national, or permanent resident)

○ No, none of these describe me

CoMInDS Project Outcomes survey

Demographic information 2

35. Your ethnicity:

◯ Hispanic or Latino/a

◯ Non-Hispanic or Latino/a

◯ Prefer not to answer

36. Your race (please check all that apply)

☐ American Indian or Alaskan Native

☐ Asian

☐ Black or African American

☐ Native Hawaiian or Pacific Islander

☐ White

☐ Prefer not to answer

☐ Other (please specify)

[   ]

CoMInDS Project Outcomes survey

Thanks!

Many thanks for completing this survey!
We appreciate your help. Please contact me with any questions.

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