



**Bass Connections Annual Evaluation
2020-2021**



Executive summary

Bass Connections is a university-wide initiative that brings faculty, graduate and undergraduate students, and external partners together to address complex societal challenges in collaborative, interdisciplinary research teams.

This report summarizes key findings from the 2020-2021 Bass Connections annual program evaluation, which seeks to understand the experiences of team leaders and undergraduate and graduate students who participated on one of the program's 70 year-long project teams.

This was the largest year yet for Bass Connections in terms of participation and, due to COVID-19, it was a unique and often challenging year for participants. Despite needing to adapt their research plans and team interactions to remote environments, as noted in this report, this year's teams provided students and faculty with a unique opportunity to continue learning and contributing to important research questions. The work of many of these teams culminated in [meaningful research outputs](#) including an immersive art exhibit to visualize sea level rise along the North Carolina coast, a pilot of a text-based mental health resource for college students, a new algorithm to map energy infrastructure in the developing world, policy recommendations to improve access to healthy food for all children in North Carolina, and new strategies to reduce hypertension disparities in Durham.

Key findings from this year's evaluation of the impact of the program on participants, and links to key sections of this report, include:

[Finding 1: Bass Connections helps undergraduate and graduate students form connections, engage in social issues and develop new skills](#)

- [Relationship building](#)
- [Academic engagement](#)
- [Skill building in research](#)

[Finding 2: Bass Connections provides undergraduate students a unique opportunity to develop research and critical thinking skills](#)

- [A unique opportunity for undergraduate students](#)
- [Undergraduate student skill development](#)

[Finding 3: Graduate students gain experience working in diverse teams, managing projects and communicating with a team](#)

[Finding 4: Team leaders benefit from research outputs and new relationships](#)

[Finding 5: Bass Connections teams engage in high levels of teamwork, with some gaps in organization, commitment and expectations](#)

- [Clarity of project goals, roles and timelines](#)
- [Teamwork](#)

Finding 6: Most team leaders and students are highly satisfied with their Bass Connections experience; some participants, particularly graduate students and members of particular teams, face challenges

- [Satisfaction by team](#)
- [Positive drivers of satisfaction](#)
- [Satisfaction challenges](#)
- [Impact of COVID-19](#)

Conclusion and future opportunities

Overview and methodology

Since the Bass Connections program began in 2013-2014, we have administered an annual end-of-year survey to participants to understand factors that influence team success and the impact of the program. Each participant group – team leaders, graduate students and undergraduate students – receives a different survey version that includes common questions across all three participant groups as well as questions specific to each group. The majority of survey questions are repeated each year to allow for trend analysis. Survey topics include overall satisfaction, factors for team success and the impact of the program on participant development. Responses from this annual survey provide an important barometer of the program’s impact and areas for improvement.

The undergraduate student survey is administered as a pre-post survey in which students complete a self-assessment of their skills and abilities in research, teamwork and communications at the beginning and end of the program year. These results are benchmarked against a comparison group of similar Duke students who are matched on the basis of gender, race/ethnicity, class year, citizenship status, first generation status, student athlete status, transfer status and Duke admitting program. By readministering the same survey to both groups, we were able to assess self-reported gains for both populations over the course of the year. In addition to the general skill assessment questions asked of both the Bass Connections undergraduate participants and the comparison group, the post-survey administered to the Bass Connections undergraduate participants also includes several end-of-year survey questions about their experience in the program.

Response rates

In total, 308 surveys were completed. Response rates for each survey population were as follows:

Survey population	Surveyed	Respondents	Response rate
Undergraduate	588	122	21%
Graduate and professional	170	100	59%
Faculty and staff	163	86	53%
Total	921	308	33%

Team leader respondents include both faculty and staff members leading a team. Graduate student/postdoc respondents (referred to hereafter as “graduate students”) include 55 master’s students (55%), 33 doctoral students (33%), 9 medical students (9%) and 3 postdocs (3%). These numbers are roughly proportionate to the distribution of each group in the survey pool, which included approximately 54% master’s students, 27% doctoral students, 9% MD students and 10% postdocs.

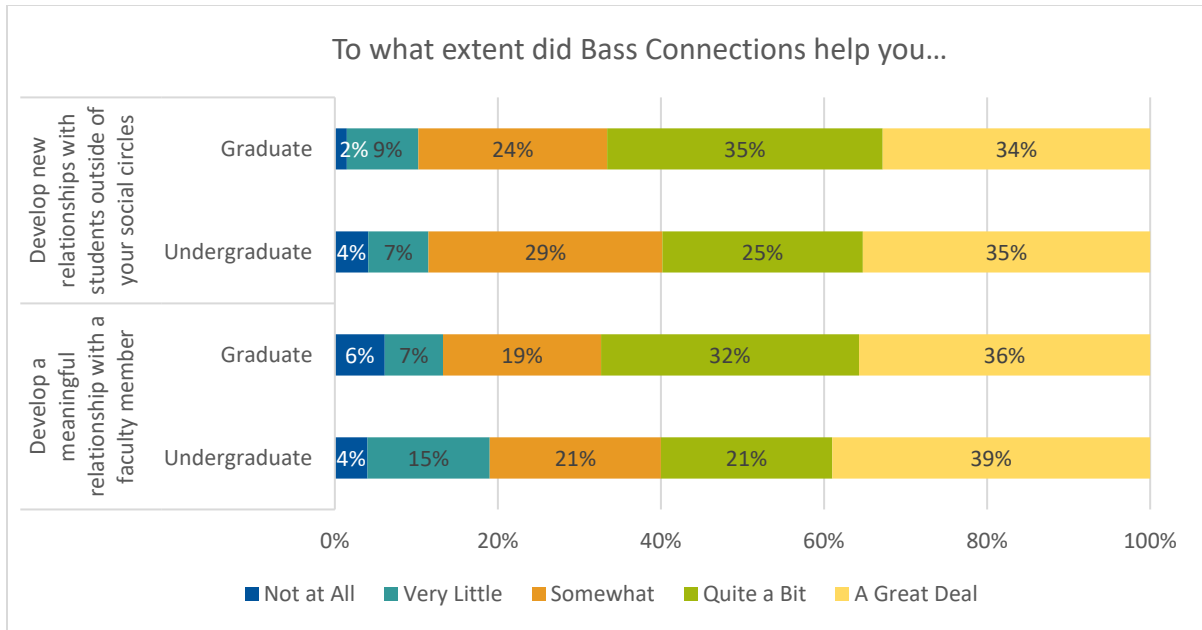
The undergraduate student pre-post analysis referenced in this report includes responses from only those respondents who completed both versions of the survey in order to ensure a direct one-to-one comparison (88 Bass Connections participants and 45 comparison group participants). The response rate for both surveys combined was 19% for Bass Connections participants and 8.3% for the comparison group.¹ This difference in response rates is to be expected since the comparison group was invited to participate by the Office of Assessment as part of a general study, whereas Bass Connection participants were informed that the study was related to Bass Connections, a program with which they had some relationship.

Finding 1: Bass Connections helps undergraduate and graduate students form connections, engage in social issues and develop new skills

Relationship building

The end-of-year survey finds evidence that Bass Connections creates unique opportunities for students to “connect” across levels and academic fields. Indeed, more than 60% of graduate and undergraduate students reported that Bass Connections helped them “a great deal” or “quite a bit” to: 1) build new relationships with peers outside of their current social circles; and 2) develop a meaningful relationship with a faculty member. Graduate students, who tend to be more isolated within their field of study, reported the most favorable responses on both of these survey questions. Factors that can influence relationship building between students and faculty members include participants’ availability and commitment to the project and one another, interpersonal skills, team structure and team size.

¹ 542 Bass Connections participants and 542 comparison group students received the pre-survey. Of the Bass Connections students, 83 dropped the program, leaving 459 students eligible for the post-survey. 100 new students also joined Bass Connections during the year and were invited to participate in the post-survey but were excluded from this analysis since they did not receive the pre-survey.



Student comments provide further context on the positive and negative relationship dynamics that emerge on teams:

I got to meet other students with similar interests to me, and as a result we've started collaborating on several projects both within Bass Connections and outside it. [Undergraduate student]

I really enjoyed being able to work with students across all backgrounds who I normally would not be able to conduct research with in my psychology classes. I also liked getting to know postdocs, staff, and graduate students better. [Undergraduate student]

My team leader switched in the middle of the semester and there was not a set timeline of deliverables, so it was somewhat disorganized (though both team leaders tried their best to make expectations clear). Additionally, our faculty leader was not very involved the first semester and put a lot of expectations on us second semester, which put a lot of pressure on us students. [Undergraduate student]

[On the most meaningful part of their Bass Connections experience] Meeting and working with graduate and undergraduate students from other departments. Doctoral programs can really silo students, unfortunately. [Graduate student]

[On the most meaningful part of their Bass Connections experience] Being able to interact with my team leader and team members. I have learned so much from all of them and they not only intellectually stimulate my interests but also provide other kinds of emotional support. [Undergraduate student]

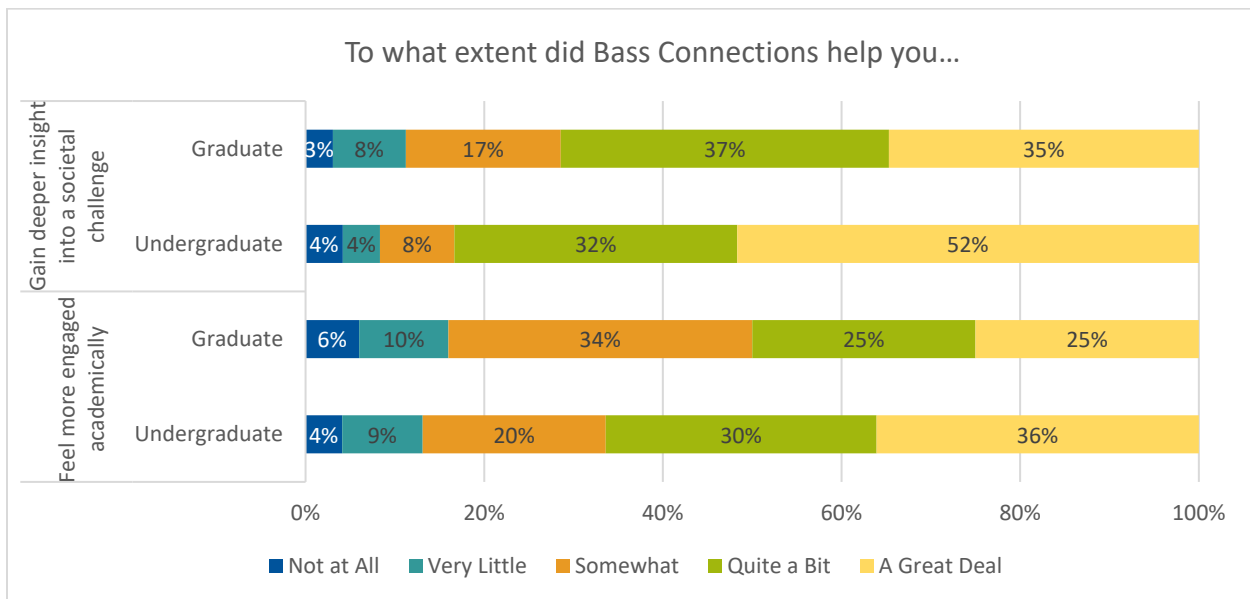
Our faculty advisor was pretty disorganized and not very responsive to emails or other forms of communication. This deteriorated the quality of the experience and slowed our progress. As a consequence, we were expected to scramble much more at the end of the term in order to accommodate the faculty member's poor planning. [Graduate student]

I really enjoyed getting to work with excellent faculty. They gave me a lot of freedom to organize and plan things the way that worked best for me and for the undergraduates on the team. I think my connection with the faculty and some of the students has been the most meaningful part. [Graduate student]

I worked on a team that did not only include students but individuals from all walks of life. I found this form of team-based learning and work is optimal in my opinion. [Undergraduate student]

Academic engagement

A pillar of Bass Connections is the commitment to tackling complex societal challenges. Over the years, students have consistently reported that this applied approach to research contributes to their understanding of how to do research outside of a controlled setting, helps them find meaning in their studies and informs their future trajectories. When asked about the extent to which the program contributed to their **academic engagement**, 66% of undergraduate students and 50% of graduate students, agreed that it did either “quite a bit” or “a great deal.” In addition, 84% of undergraduate and 72% of graduate students reported that the program helped them gain a **deeper insight into a societal challenge** by either “quite a bit” or “a great deal.”



Student comments provide further context on how the program contributes to students’ engagement with academics and their application to societal challenges:

Feeling like you could take ownership of the project. Unlike other classes where you are simply doing assignments and taking exams, Bass Connections feels like you are contributing something meaningful towards a goal and learning at the same time. [Undergraduate student]

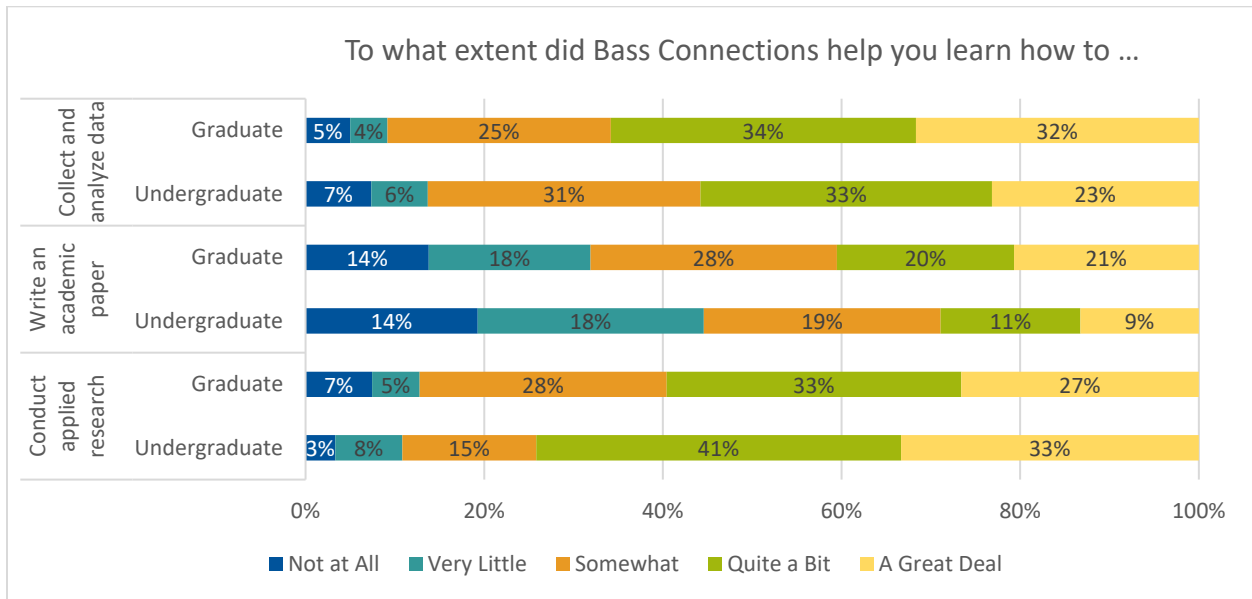
I developed a lot of content knowledge and got to speak to a lot of interesting people in the field. I also was able to look at the problem we studied from outside of my typical area of study so I saw the problem in a different light. [Graduate student]

I love that we were so engaged and interactive despite the virtual world COVID has created. This is due in part to my intrinsic love of the topic my Bass Connections team covers, but we all are enthusiastic about what we're learning and researching so that aided my learning. [Undergraduate student]

I felt that the engagement with Durham community members was a special part of the project in terms of bridging the access gap between Duke and Durham. [Undergraduate student]

Skill building in research

The majority of undergraduate and graduate students agreed that the program contributed to their understanding of **how to conduct applied research** and **how to collect and analyze data** (either qualitative or quantitative). Far fewer students agreed that the program helped them learn how to write an academic paper. This is likely because many teams do not aim to produce academic papers, and for those that do, this task is not always assigned to all students. The variability in responses for each of the items below likely relates to the variability in research methods used by teams, and the varying foundational knowledge of individual students before joining the team.



Selected comments provide context on how the program contributes to student skill building:

The most meaningful part was being able to contribute to a research project where the undergraduate students had more of a say in research directions and the goal of the project. I am also extremely appreciative of the friends and faculty I've been able to meet through Bass Connections. [Undergraduate student]

I enjoyed the chances we had to physically prototype and create something from scratch that we had imagined. I appreciated the professor guidance and input, and the technical skills I've strengthened. [Undergraduate student]

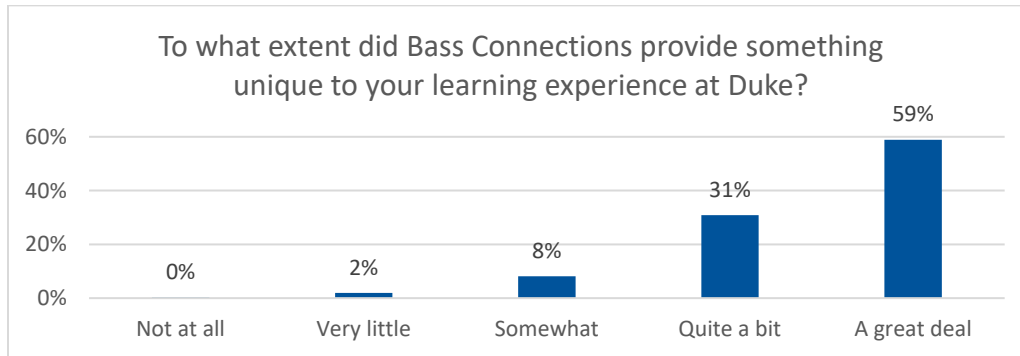
Publishing an academic paper was the most rewarding experience and, in the process, developing writing and leadership skills. [Graduate student]

I had never worked with IRBs and had never written a policy proposal, so these were challenges for me that turned out to be extremely rewarding. [Undergraduate student]

Finding 2: Bass Connections provides undergraduate students a unique opportunity to develop research and critical thinking skills

A unique opportunity for undergraduate students

When asked, the majority of undergraduate participants agreed that the program provided something unique to their experience at Duke, as shown in the chart below:



Comments from undergraduate students highlight the ways in which the program provides unique opportunities, including:

Bass Connections not only served as a platform to expand my research experiences and presentation skills, but it also provided a strong support system for my sophomore year.

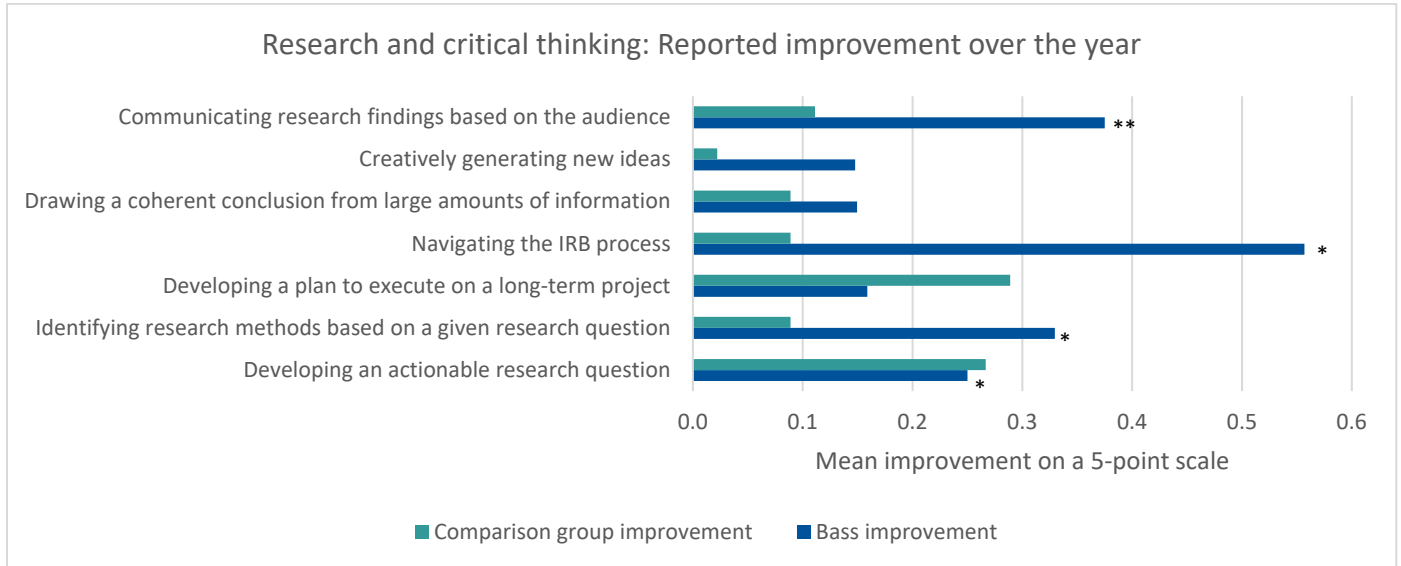
The most meaningful part of my Bass Connections experience was connecting with students and faculty across the university. My work on Bass has spurred other projects with students from the team that I would otherwise not have been involved in. Having access to faculty and graduate students that are keen to build relationships and explore new ideas is also a great resource.

I got to work in a niche field – yoga – that is going to be a major part of my career. This isn't possible otherwise to any meaningful extent. Plus, we integrated mindfulness into each class and I felt truly valued as a person and a team member. The relationships I formed with faculty members easily wins my most meaningful Bass Connections experience. The team leader I worked with was extremely kind, outgoing, trusting, and supportive. She offered me multiple other opportunities to grow and expand my research and presentation abilities.

Undergraduate student skill development

As noted in the [methodology section](#), undergraduate students completed a “pre-participation” and a “post-participation” survey that was also administered to a comparison group of Duke students. This section summarizes self-reported gains for Bass Connections participants vs. the comparison group over the course of the year.

When asked to assess their abilities related to seven critical thinking and research skills on a five-point scale, **Bass Connections respondents reported greater average improvements over the comparison group in 5 of 7 areas, with statistically significant gains noted for 4 items. The comparison group did not report any statistically significant gains.** Asterisks denote the degree of statistical significance with two asterisks denoting the highest confidence level (* $p < .05$, ** $p < .01$).

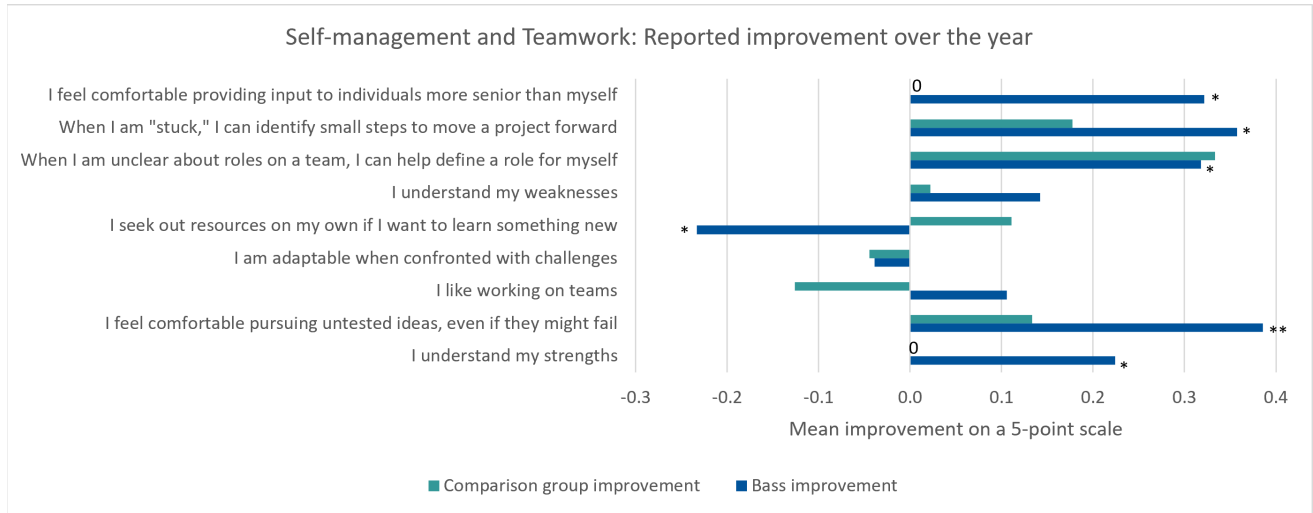


Results were more mixed when students were asked to assess their skills and abilities related to teamwork and time management. Of these 10 survey items, Bass Connections participants reported improving in 7 of 10 areas, compared to 5 of 10 areas for the comparison group, but only one gain was statistically significant: “communicating my ideas to faculty/students from different fields of study.” Both populations reported declines in several items over the year. This finding is inconsistent with our findings from 2019-2020, in which no declines were registered for either survey group.² This may be chance, or it may indicate that some students (in both groups) felt that they regressed over the past year, likely due to their experiences during COVID. To better understand the discrepancy in findings between this year and 2019-2020, we would need to repeat this process in 2021-2022.

Mean improvement in skill/ability	Bass	Comparison group
Communicating my ideas to faculty/students from different fields of study	0.34*	0.20
Constructively navigating frustrating situations within a team	0.08	0.20
Defusing group conflict	-0.24	0.00
Engaging in constructive debate	-0.03	0.00
Giving constructive feedback to other team members	0.01	-0.07
Building on the ideas of others to move a team forward	-0.03	0.01
Mentoring other students in areas where I have more knowledge	0.07	0.00
Effectively prioritizing tasks	0.01	0.29
Taking initiative to pursue new ideas	0.10	0.27
Asking for help when needed	0.22	-0.02

² [Bass Connections 2019-2020 Program Evaluation Report](#)

When asked to what extent they agreed with nine statements related to self-management and awareness, **Bass Connections participants reported greater improvements over the comparison group in 6 of 9 areas, including 5 items with statistically significant gains.** However, Bass Connections participants also reported declining in two areas: seeking out new resources on their own to learn something new, and adaptability in the face of challenges. The comparison group also reported a decline on the latter item (adaptability), as well as the extent to which they agreed that they liked working in teams. Our hypothesis is that these declines relate to COVID-19 burnout, but it is worth testing this assumption in future evaluation efforts.



Finding 3: Graduate students gain experience working in diverse teams, managing projects and communicating with a team

Graduate students were asked to rank the top three skills they developed by participating in Bass Connections, with 1 being the greatest impact. Respondents most frequently reported benefiting from working with team members from diverse areas of knowledge and organizing and managing projects.

Graduate student skills	Rank 1	Rank 2	Rank 3	Total
Working with team members from diverse areas of knowledge	10	28	39	77
Organizing and managing projects	16	26	33	75
Communicating with a team	14	20	27	61
Mentoring others	14	28	18	60
Demonstrating leadership on a team	9	14	36	59
Content knowledge/expertise related to our team topic	11	10	27	48
Research skills (e.g., literature review, research design, data analysis)	6	20	18	44
Ability to connect my academic experiences to broader social issues	5	22	15	42
Comfort working with faculty	4	4	21	29
How to collect/analyze data	4	6	12	22
Presentation skills	1	8	9	18
Solving complex problems	1	4	12	17

Working with external stakeholders	2	6	3	11
How to write an academic paper	-	-	9	9
Developing new networking connections	1	-	6	7
How to develop a grant proposal	1	-	3	4

Graduate students commented:

[On the challenges of their Bass Connections experience] Managing and leading undergraduates. This has been both the most challenging aspect of my Bass experience, and also one of the most rewarding. I very much enjoy the relationships I've been able to develop with undergraduates. And I enjoy the skills and knowledge I've developed managing students who are earlier in their academic and career development. The same reasons that this has been rewarding is why it's been challenging. Communicating with students is a challenge for everyone, trying to get students comfortable with ambiguity, trying to push students to take the next intellectual step, etc.

Having the opportunity to use my leadership experience and use tools I have learned to improve the project implementation.

I appreciated the opportunity to engage in a research project beyond my regular studies. It was a good way to connect with faculty and my peers, and to grow my professional network and experiences.

I think the fact that we were all virtual made it difficult for us to work together as a team. We didn't have clear roles. I also was under the impression that as a graduate student, I would get some leadership opportunities and that did not take place. I didn't do any work that was different from the undergraduate students, so I felt like I wasn't developing any skills that I didn't already have.

The biggest challenge I had as a graduate student was taking a back-seat role and stepping into a more advisory/mentorship role. The undergraduates are capable of more than I initially gave them credit for and it was really hard sitting back and letting them take the lead.

Finding 4: Team leaders benefit from research outputs and new relationships

Team leaders most commonly reported that the top three benefits of participation included generating meaningful research outputs, developing new relationships across the university and developing new expertise in a research topic.

Top benefits for team leaders	Rank 1	Rank 2	Rank 3	Total
Our team generated working papers, paper submissions or publications	8	20	54	82
I developed new relationships with faculty and students in other parts of the university	18	28	24	70
I developed new knowledge/expertise related to our research topic	10	18	42	70
I improved my ability to mentor undergraduate students	10	20	33	63

Our team generated new findings for further research	14	22	21	57
I established or strengthened an external partnership	11	14	18	43
Ability to connect my academic experiences to broader social issues	5	22	15	42
The funding/student effort helped me seed a new research project or grant	4	12	21	37
I improved my ability to lead teams	6	14	12	32
I improved my ability to scope and organize complex research projects	4	8	18	30
I improved my ability to mentor graduate students	1	16	9	26

When asked to comment on the most valuable aspects of participating, many team leaders noted the opportunity to engage with students and develop new relationships:

[On the most meaningful part of Bass Connections] Working with a diverse team of faculty, staff and students, all of whom were dedicated to the team and our research. Over my multiple years of running a Bass Connections team, student dedication has been exemplary. I have valued the deep and authentic relationships with students and colleagues.

[On the most meaningful part of Bass Connections] Collaborating with other faculty, staff and students not just across Duke, but also across the other research universities in the area. Forming relationships with faculty and students from NCCU and NCSU was especially enlightening and important.

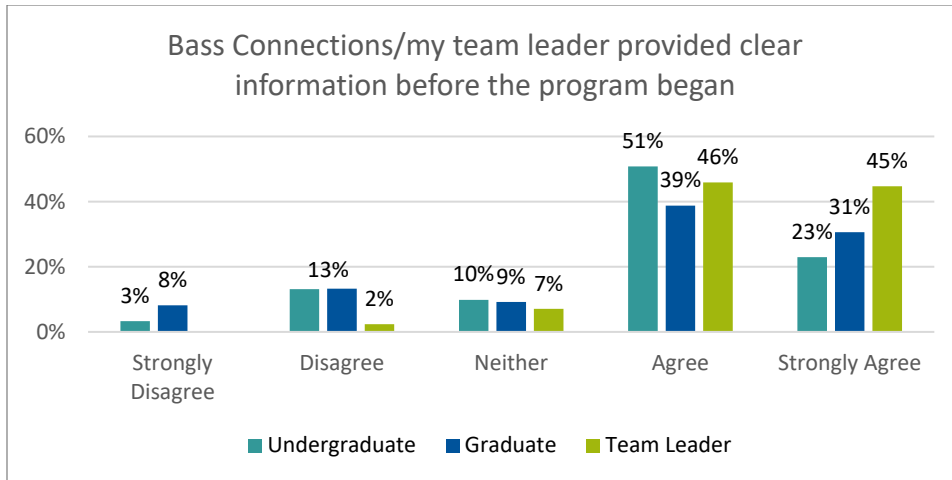
Seeing students come in with little knowledge on a topic and produce publication-quality outputs by the end of the year has been tremendously meaningful to me both as a mentor and as a researcher. The student growth and collaboration, even in a fully-remote setting was absolutely impressive.

Finding 5: Bass Connections teams engage in high levels of teamwork, with some gaps in organization, commitment and expectations

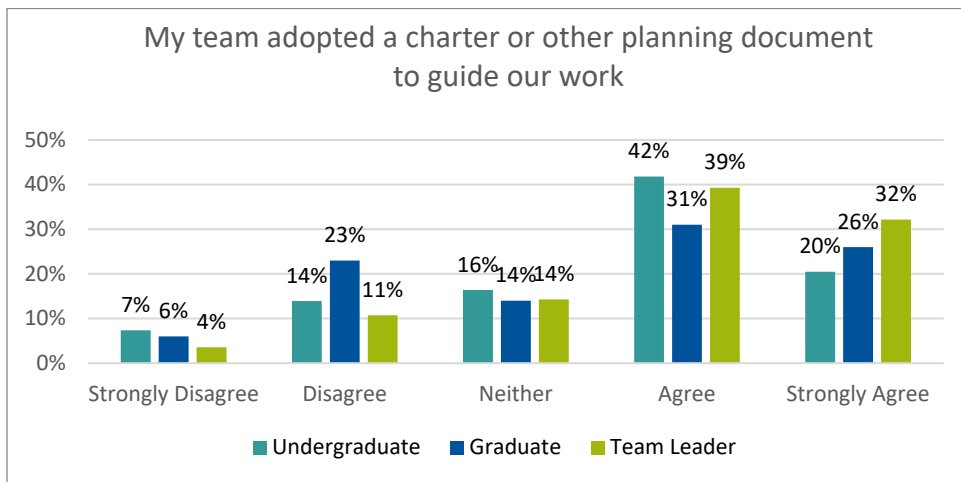
Over the past eight years, our evaluation surveys and focus groups have consistently shown that team success is strongly related to the extent to which a team is well-organized including setting clear goals, roles and timelines. To encourage these behaviors, Bass Connections provides teams with a robust set of team resources and other guidance and support to help teams establish a strong foundation for their work. As shown in the charts below, a small, but important, minority of participants continue to report that their teams lack these key features.

Clarity of project goals, roles and timelines

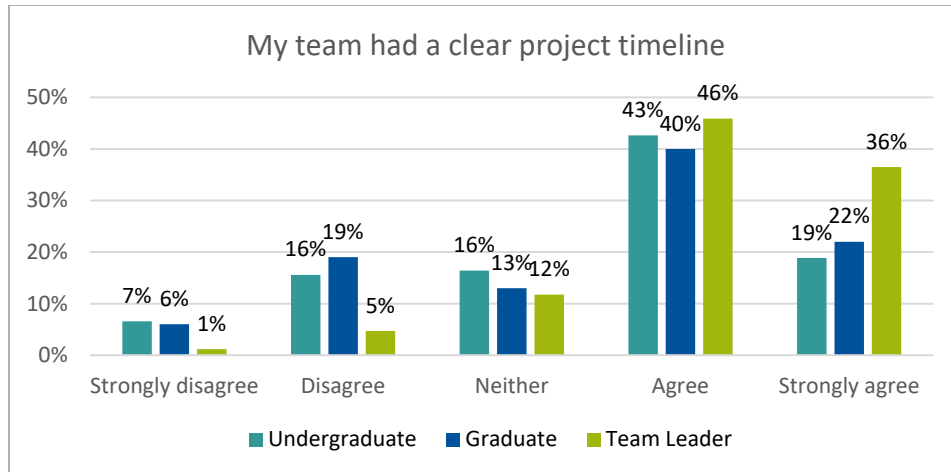
When asked about communications before the program began, 91% of team leader respondents agreed that Bass Connections provided clear information before the program began, while 74% of undergraduate and 70% of graduate students agreed that the program and their team leader provided the same clarity. A fair number of graduate students (21%) and undergraduate students (16%) disagreed with this statement, indicating that there is more work for Bass Connections to do in partnership with team leaders to communicate to students at the onset.



Bass Connections encourages teams to adopt a project charter or other planning document to guide their work. A majority of respondents (71% of team leaders; 57% of graduate students; 62% of undergraduate students) reported that their team adopted such a document, with a sizeable minority disagreeing. The discrepancy between students and team leader responses to this item may indicate that team leaders create such documents but do not always share them with students, or it may be that the responses for each population do not represent the same teams.



Similarly, a majority of respondents (82% of team leaders; 62% of undergraduate and graduate students) agreed that their team had a clear project timeline. Again, a sizeable majority of students disagreed with this statement – the difference in responses between team leaders and students may indicate that while team leaders may have a timeline in their mind, they have not effectively communicated this timeline to students.



Comments provide further context on project planning and goal setting best practices and challenges:

My team leader and I actually developed a syllabus for the course with weekly reading assignments and lecture topics. We took turns lecturing and also inviting in guest speakers from the community. I think these guests really helped reinforce for our team members just how important the work they were doing was. [Graduate student]

This entire project was really emotionally, mentally, and spatially challenging for me. The leadership was really unclear about the roles, responsibilities, and tasks for all the graduate students and faculty leaders, and there never was any sense of a clear, defined timeline or project deliverables or even what the purpose of the experience was. I think the concept is really good overall, and the experience is a good way to foster collaboration, but the leadership really dropped the ball on this specific experience. [Undergraduate student]

Not having a clear direction, being unprepared for writing about topics on which I have little to no knowledge of, being unable to meet my teammates in person or actually connect with our project's faculty team members. I'm not sure how good of a job I did or what quality of work I produced. Our project team wasted an unbelievable amount of time and waited until the final four weeks to start working on deliverable items, which was crazy and had a serious, negative impact on the quality of the work I was able to produce and negatively impacted the way I feel about the project team. Overall, our project team was quite unorganized and I don't feel like I accomplished a lot. [Undergraduate student]

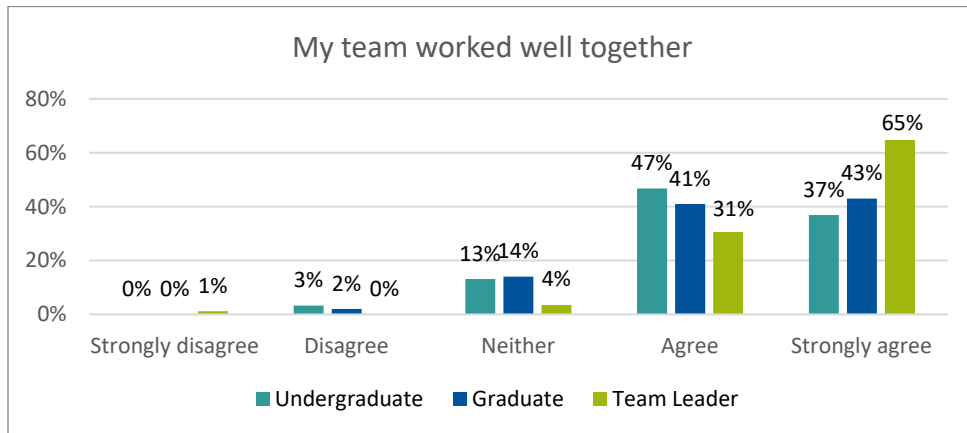
The lack of a clear or actionable focus made it difficult to identify next steps. Throughout this Bass Connections, our team lacked clarity on the larger stakeholder layout and therefore we were confused about our project's impact. [Undergraduate student]

Over a number of years of leading Bass Connections projects, there's been a tension between wanting to push students to take ownership over a project, and wanting to guide the students clearly towards successful outcomes. In the past we've walked the line on how to guide the students on that and have found that structure and clear guidance, talking through rationale behind choices and asking for input and feedback works well. This is a constant challenge though: do we give students more of a chance to fail, or lead

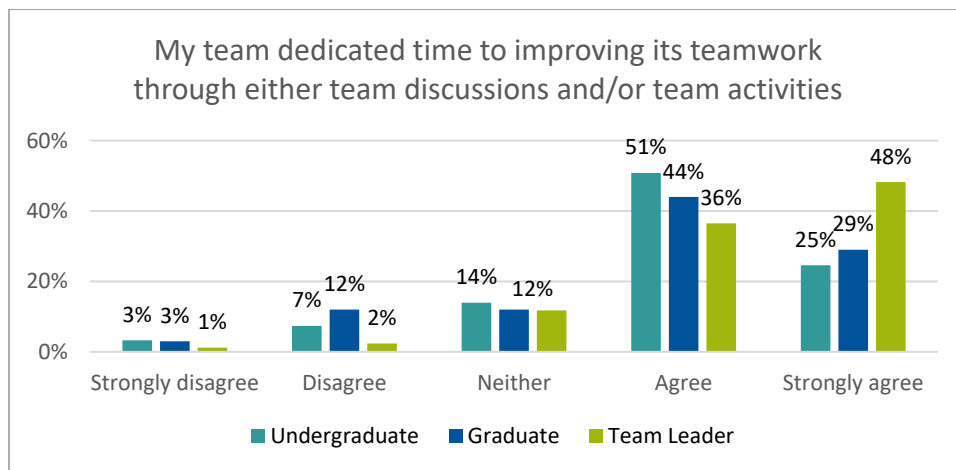
by example and help them understand best practices for success. We've adopted the latter strategy, but guidance on how best to walk that line would certainly be welcome. [Team leader]

Teamwork

Collaborative research is at the core of the Bass Connections model, providing opportunities for students to learn how to work in teams and for teams to strengthen their research. The inherent risk of this model is that it strongly links the success of the research project with the effectiveness of the team. Consistent with previous years, the majority of participants agreed that their team worked well together (96% team leaders; 74% graduate students; 84% undergraduate students), with very few respondents strongly disagreeing.

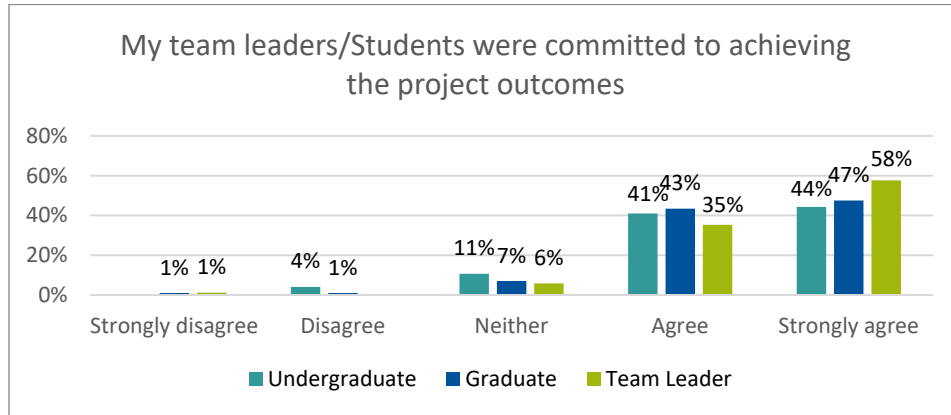


Recognizing the importance of team culture, Bass Connections strongly encourages teams to be intentional about building a high functioning team through the use of team ground rules, ice breakers and team outings. Similar to last year (and despite COVID-19), the majority of participants agreed that “My team dedicated time to improving its teamwork through either team discussions and/or team activities.” A fair number (15%) of graduate students disagreed with this statement.



A vast majority of participants agreed that there was a strong commitment to the project outcomes among both team leaders and students. When student respondents were asked to what extent they agreed that their team leaders were committed to achieving the project outcomes, 90% of graduate

students and 85% of undergraduate students agreed/strongly agreed. Likewise, 93% of team leaders agreed/strongly agreed that students were committed.



Comments on teamwork and commitment include:

I really enjoyed getting to know my team and work on a project that I am really passionate about. I also feel really proud of the work we accomplished, and especially excited that our stakeholders will be able to use our work to actually help the people our work was targeting. [Undergraduate student]

The always challenging work of building team cohesion and trust was compounded this year by existential stress (pandemic, racial injustice and social unrest, a contentious election) and the fact that we couldn't rely on typical social interactions to help build a sense of belonging. How to build trust and accountability came up several times in meetings with grad students who were themselves leading subteams; more instruction and support for building team cohesion would be welcome (for project leads as well as for grad students). [Team leader]

This project was always the lowest priority for the students among other commitments. Scheduling time to meet was difficult since this was not part of their course selection process – this needs to be fixed as dealing with students on scheduling takes too much time. Students seemed to need constant guidance on each step of the process, so progress was exceptionally slow. ... The entire experience was more work than I thought it would be from a faculty perspective with no teaching credit or other benefits. [Team leader]

Students really poured themselves into the project. This was clear to our external partners, who were very impressed by the quality of products and ideas. Helped us open doors, and I expect will translate into good outcomes or letters for students as they proceed in their careers too. [Team leader]

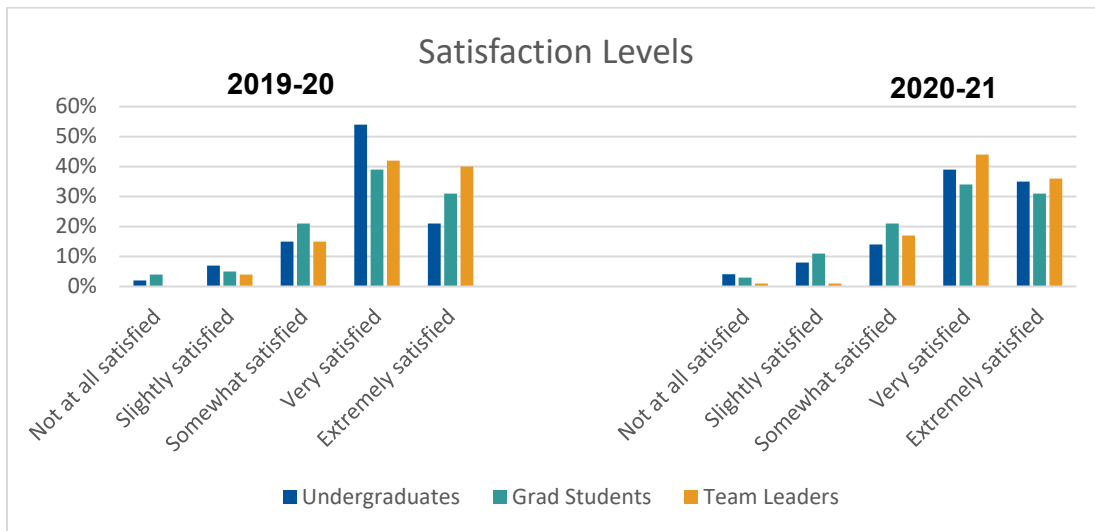
[On the challenges of their Bass Connections experience] Trying to find time to do it outside of class because it doesn't count towards my major. [Undergraduate student]

Finding 6: Most team leaders and students are highly satisfied with their Bass Connections experience; some participants, particularly graduate students and members of particular teams, face challenges

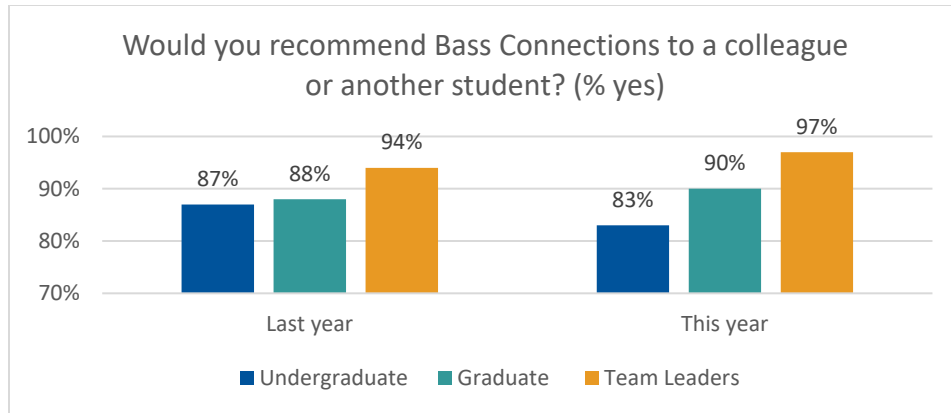
The vast majority of participants report being satisfied with their experience on a Bass Connections team – 80% of team leaders, 65% of graduate students and 74% of undergraduate students were either “very” or “extremely satisfied.”

Notably, compared to last year, the level of very/extremely satisfied graduate students declined by 5%, while undergraduate student satisfaction increased by 1%, and team leader satisfaction decreased by 2%. We find these minor variations encouraging given the unique challenges that many teams faced operating during the pandemic.

That said, graduate student satisfaction has been consistently lower than other populations over the years and requires greater attention. On average, postdocs and Ph.D. students are more satisfied than masters and medical students, but this finding is *not statistically significant*. Based on qualitative comments and prior focus groups, we believe that graduate student satisfaction lags other populations because of the wide range in experience and expectations of graduate students, as well as the variability in how much responsibility teams give graduate students.

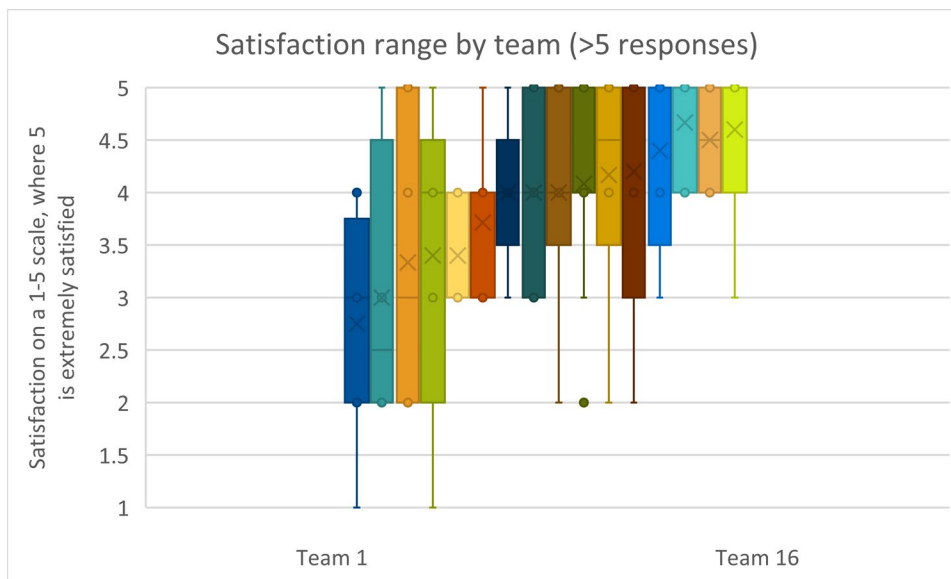


The percent of respondents who report that they would recommend Bass Connections to a colleague or another student remains high for all populations (>80%). Compared to last year’s numbers, we see an increase in recommendation rates among team leaders and graduate students, with a slight decline for undergraduate students. Interestingly, this is the opposite of the effects noted above for graduate/undergraduate satisfaction rates and likely indicates a greater degree of variability among undergraduate student sentiments.



Satisfaction by team

Student satisfaction varies by team, and to a lesser degree within teams. The chart below shows satisfaction rates for students on 16 teams that had five or more survey responses. For these teams, the average satisfaction ranges from 2.75 (team 1) to 4.6 (team 16), where 1 is “not at all satisfied” and 5 is “extremely satisfied.” There is variability within teams as well, indicating that while there are general trends in the type of experiences provided on teams, there are also factors unique to each student that influence their experience. On average, students on teams that are continuing from the prior year are more satisfied than students on new teams (4.01 vs. 3.79), but this finding is *not statistically significant*.



Positive drivers of satisfaction

Written responses to the open-ended survey questions provide a deeper understanding of the aspects of the program that are most energizing to participants. When asked, “What was most meaningful about your Bass Connections experience?,” common themes include meaningful relationships, community engagement, research enrichment, mentorship and real-world application. The quotes below are intended to contextualize these themes, which have also been mentioned in other sections of this report.

Mentorship:

The most meaningful part about my Bass Connections experience was the example/mentorship that I got from the grad students working on my team. To be able to work directly with older students on issues that they knew a little more about gave me a chance to learn in a guided way about real, applied research in the larger world. [Undergraduate student]

The most meaningful part of every research experience for me is the connection with students. Providing mentorship and guidance to this group of talented undergrads is tremendously rewarding. [Team leader]

As someone who teaches primarily in graduate settings, I have loved the chance to work with undergraduates and have been inspired by how smart, passionate, and committed they are. [Team leader]

My mentor was very good at providing support throughout the pandemic in order to help me learn. I felt like I entered with minimal knowledge and exited feeling comfortable in my capability as a researcher. [Undergraduate student]

Being able to develop working relationships with people outside my field and gain extensive mentoring experience. [Graduate student]

Research experience:

Bass Connections has allowed me a thorough foray into research, which is a unique opportunity to have as an undergraduate student. It has greatly shaped my research interests and future career paths, and I have met some of the most incredible mentors and students through this program. [Undergraduate student]

I developed a lot of content knowledge and got to speak to a lot of interesting people in the field. I also was able to look at the problem we studied from outside of my typical area of study so I saw the problem in a different light. [Graduate student]

Bass Connections allows our team to tap into university resources and connections we wouldn't otherwise have. It allows us to work on a creative, insightful interdisciplinary team with funding and research resources from the university, and to bring students into that learning process in a way that seems to truly motivate and encourage them to seek out new opportunities. [Team leader]

Teamwork:

I worked on a team that did not only include students but individuals from all walks of life. I found this form of team-based learning and work is optimal in my opinion. [Undergraduate student]

Student engaged research across disciplines has been a unique approach to research in our field, and directly aligns with the vision of our partner. The relationships across universities between students, staff, and faculty have been invaluable! [Team leader]

Experiencing how the undergraduate students were so passionate about the societal issues we were trying to address. They brought such wonderful insight that inspired me to dive deeper into the problem. They were so interested by every result. [Graduate student]

Satisfaction challenges

When asked, “What was most challenging about your Bass Connections experience?” participants commonly referenced issues with team organization, team roles, team leadership and the time commitment required from team leaders. This year, there were also numerous comments about COVID-19 (see [section below](#) for more on this theme). The quotes below are intended to contextualize these themes, which have also been mentioned in other sections of this report.

Team organization:

Disorganized communication from leadership at times including cancelled speakers last minute, poor awareness/coordination with undergraduate student schedule, and lack of decisive direction. Dedicated class-time was not used very effectively for the benefit of all team members. Incoherence of Bass Connections vs. external project timeline and goals led to frustration and difficulty maintaining engagement from undergraduate student mentees. [Graduate student]

My project at large seemed extremely disorganized. There seemed to be no cohesive organization, plan, or communication. Team leaders seemed to be on different pages at all times and thus struggled to communicate anything effectively to the students. Team leaders, grad students, and undergrads alike seemed to have pivotal gaps of knowledge of our basic project (even though this has been an ongoing project for several years). I’m still not sure what the specific objective of our project was or what my role was supposed to be. It seemed more like a disorganized class to me than it did an actual project. Expectations were unclear. I felt that there was very little unity or communication across different sub-teams too. It was very obvious that the communication between our team leaders and our community partners was extremely poor too. [Undergraduate student]

Roles on the team:

I was not comfortable with the work I was doing and I was never given an alternative. Also, the students had to direct our project and it felt like the faculty had no clear direction. [Undergraduate student]

I didn’t feel like I took a lot away from the experience. I was definitely underutilized as a grad student. We also treated the project more like an extra class than a research project. All the research got squished into a matter of 6 weeks when we had a whole year. Students ended up dropping the class I think partially because it started to feel boring. [Graduate student]

I think the growing size of our Bass Connections made it more difficult to place a role for everyone in the team. Especially considering that it started out as 3 students, expanded to 7, and will be 12 for next year. It is quite difficult to synthesize everyone’s research when everyone branches out pretty far. [Undergraduate student]

Team leadership:

I was not supported at all by the instructors. I felt as though they did not care about the work we had done and waited multiple weeks after seeing our data analysis to tell us to start over. [Undergraduate student]

Team leaders were not necessarily always on the same page. Expectations were sometimes unclear and feedback would sometimes be contradictory. [Undergraduate student]

I wish the faculty leaders had been more transparent with the team about the timeline and decisions they were making about how the work was going to go – I felt that even though we were expected to complete certain tasks, we were the last to hear about any changes that affected how they should be done. I felt that a lot of my time was wasted. [Graduate student]

Time commitment for team leaders:

Frankly, the problem with Bass Connections is that it is very time intensive for faculty, who do not get teaching credit for participating. As such, the courses have to be well aligned with other objectives and goals. In this project, we had goals and stakeholder relationships to maintain, and the course forced us to be systematic and diligent about making progress. Still, it was a big commitment. [Team leader]

Bass projects are among my favorite Duke experiences. That said: 1) The virtual world made the work more challenging in some ways 2) Preparation of showcase materials can sometimes conflict with other time sensitive project deadlines. I am not sure the best way around this, but March/April has this problem. 3) Additional salary support for faculty would be ideal if there is any way to accomplish this. In addition to the new 5K that can be applied, could not the University contribute a stipend for those teaching independent study courses? This would help to offset the constant pressure we face from our departments to cover/contribute to salary effort. I know that Bass funds are limited, but perhaps Bass could advocate that DU contribute. We have Duke students saying that Bass projects are among their most rewarding and life changing experiences – cannot Duke help support this? [Team leader]

Time. The relationships at the center of the model we built take time. The university puts a premium on a schedule that doesn't prioritize relationships, but instead on grades, research publications, and extractive modes of interaction. We never had enough time, which in turn made everyone, from faculty leads to grad students to staff to undergraduates feel like they were on the "grind train" all the time. Bass Connections can't change that, but you all can be a platform that launches a bigger university conversation about the "grind culture" at R1 universities and how it impedes reflection and deep research that moves away from "extractive research" and toward "collaborative research" practices. [Team leader]

Impact of COVID-19

Respondents from all participant populations frequently referenced the negative effects of the COVID-19 pandemic on their Bass Connections experience. Due to safety protocols and the geographic distribution of students this year, the vast majority of Bass Connections teams shifted to remote collaboration, resulting in new challenges including changes to the planned scope of research, technology issues and barriers to engagement, and geographical challenges (i.e., differing time zones). However, a number of respondents also highlighted how the program provided them an opportunity to stay connected and engaged during this challenging time.

Challenges:

Never meeting in person. I know this couldn't be avoided, but I think it really negatively impacted my experience with Bass. I just had a hard time engaging with the work since I didn't really feel like part of a team. [Undergraduate student]

The biggest challenges were those that came with it being a COVID semester. Because we weren't always able to meet in person, I felt that accountability in some cases were poor, and communication wasn't always as good as it could have been. [Undergraduate student]

Having to run meetings virtually without ever having met the students in person. It was much harder for form meaningful relationships, especially with all the external things the students had going on. [Graduate student]

The most challenging about our Bass Connections experience is the impact of COVID-19 which restricted our team not to travel to Ethiopia. Because of this, some of our team members were challenged to understand the real-world challenge and moreover they were challenged to link the theory into practice. [Graduate student]

The most challenging aspects of our Bass Connections experience were due to COVID. Our students struggled to stay motivated, and suffered from severe mental health challenges that inhibited our research and our ability to build as cohesive a unit as we had the year prior. Too, the end-of-the-year expectations (EHDx, virtual showcase, and optional poster) felt duplicative and quite cumbersome given students' general fatigue after such a grueling year. [Team leader]

By February of the second semester, our students were really burnt out. I think a lot of this is attributable to the pandemic and the fact that so many of our students were taking lots of difficult classes (they seemed to have been encouraged to do so because of the pandemic?). My team leader and I were able to adapt our expectations a bit to help students out, but it was a bummer to see them at each meeting just be so deflated. [Graduate student]

The pandemic was the most challenging part of the experience – students were prevented from continuing their wet lab research. However, we capitalized on this change by pivoting our work to bioinformatics projects and made substantial progress in both areas. [Team leader]

The most challenging aspect was COVID. Engaging and maintaining student enthusiasm and focus, building effective team dynamics, checking in with students on an individual

basis ... everything was harder and required a lot more energy. Plus, we were limited in our ability to do site visits, field research, and interviews, and these limitations set back our research agenda. I don't know what the BC leadership could do to provide better support in these circumstances; every time I needed assistance, our theme contact responded quickly and was quite helpful, which I really appreciated. [Team leader]

Silver linings:

The most meaningful thing about my Bass experience was still making a positive impact in the Durham community despite the constraints of COVID. Our team launched a program that will continue in the future and help address structural inequities. [Undergraduate student]

[On the most meaningful part of Bass Connections] Getting to know the Durham community and understanding the importance of health equity, especially with regard to the COVID-19 pandemic. [Undergraduate student]

Developing relationships with faculty and mentoring undergraduates. I will note that relationship building has been difficult in every aspect of life this year, as a result of the impacts of Covid on society. Relationships are not the same over Zoom as they are in person. And while that dynamic has been true on Bass as well, Bass has also allowed me to develop some of these relationships that I was looking for that I was not finding elsewhere. [Graduate student]

We managed to guide a team through a pandemic and complete the experience despite challenges. [Team leader]

Conclusion and future opportunities

This year's evaluation results are largely consistent with prior year findings, underscoring that the program provides meaningful opportunities for faculty and students to conduct applied research in a collaborative setting. The Bass Connections model continues to provide ample opportunities for mentoring across levels; for students to explore and discover passions; and for students to develop research, critical thinking and teamwork skills.

COVID-19 negatively impacted the research progress and general experience of faculty and students this year, although some participants also found that during this challenging time Bass Connections provided a unique opportunity to make a difference and stay connected across campus and with external communities.

As the program continues to develop, this evaluation also points to several opportunities for improvement, including:

- How can Bass Connections provide a more consistent experience for participants, especially graduate students who consistently report lower levels of satisfaction?
- A small minority of teams each year struggle with team organization. How can Bass Connections identify and best support these teams?

- While Bass Connections contributed to student skill building, these benefits were not uniform. Is there a core set of skills that all Bass Connections teams should seek to develop, or is variability to be expected and desired?
- How can Bass Connections continue to engage successful team leaders, and identify new team leaders, recognizing that leading a Bass Connections project requires a substantial time commitment?
- How can Bass Connections better equip team leaders to structure and lead their teams? For example, would team leaders be interested in training on project management and leading teams?
- Given the high interest in participating in Bass Connections amongst undergraduate students, and the demonstrated benefits for these students, how can Bass Connections continue to expand opportunities for undergraduate students to participate in collaborative, project-based learning?