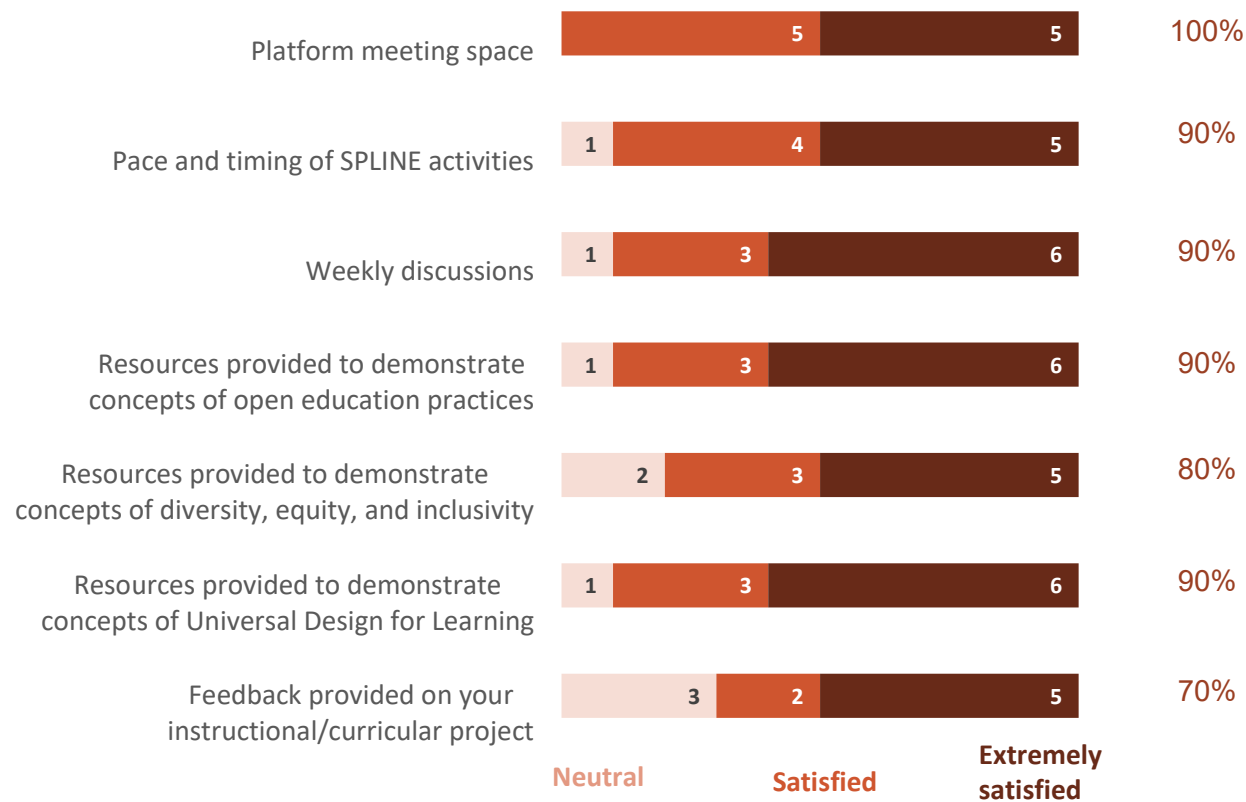


SPLINE Post-Survey Findings

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Figure 1. Satisfaction ratings across components of the SPLINE program.



10 out of 10 participants felt the exchange of ideas that took place during SPLINE will influence their future work.

Open-ended feedback for how the exchange of ideas would influence their future work:

“ I found the exchange of ideas with other participants and mentors in SPLINE to be so valuable, and this will absolutely influence my future work as both an educator and as a content creator. The group of people had so many different backgrounds and perspectives, and the resulting exchange of ideas broadened my own understanding of these topics.

“ It was a welcoming place to share and work on challenging ideas, with good group norms setting, and have already used some of the principles and learnings in my other work.

“ I really valued the SPLINE community and will definitely be relying on this community for future questions and to bounce ideas with. This has been such a positive and exciting part of my summer I am so thankful to have been a part of this experience. I will try my best to advocate for more use of UDL, DEI, and OER in my department and will apply aspects of these models to my work.

“ I loved the discussions we had as a part of SPLINE and feel that it was a great space to discuss new ideas and foster learning. It was great to hear what others are doing and how they incorporate or hope to incorporate what we have learned.

“ YES!! I think UDL will be featured in a future STEM Education proposal to NSF.

“ Absolutely! The fact I had to look at my work through lenses of frameworks I was not aware of, made my work better and to a point more cohesive/organized.

“ Yes, it was great to hear from both experts and people working in different areas of education (both in and out of the classroom). I feel like I learned a lot of useful things I can apply to my own work.

“ I learned a lot from our weekly discussions, from both the other fellows and mentors alike. There was always something to take away from our discussions. Each week I felt inspired to modify my work for the better.

Figure 2. Thematic coding of responses to explanations for what was the most useful aspect of the SPLINE program.



Open-ended feedback for participants responses for most useful aspect of the SPLINE program:

“For me, the most useful aspects of SPLINE were 1) the chance to interact with amazing people, including mentors and participants, and 2) the unique overlap of topics. I felt like the wide range of content and the focus on finding the connections between these really spurred creativity. I thought that the mentors did an excellent job up front of setting up expectations for dialogue that encouraged contributions from all mentors. I also really enjoyed the pace--weekly meetings seemed often enough to keep the momentum going, but were not an overwhelming time commitment.

“Doing all three subjects was ambitious but very useful for seeing their synergies, and keeping engaged over the whole time frame, because there was always something new coming.

“Having a cohort of colleagues with

“The most useful aspect of SPLINE was hearing others work and sharing our own work after applying aspects of UDL, DEI, and/or OER. Getting feedback and giving feedback really helped me with internalizing the different frameworks and think about applying them in a variety of ways.

“UDL was the least understood topic for me coming into SPLINE and so I felt that I gained the most learning about UDL. All the topics were useful - but since I was coming in with very little background on UDL, it was the most useful for me. The most useful aspect of the design of SPLINE was definitely the weekly discussions with our group.

“I liked the networking and wished it didn't have to end. I am will incorporate the UDL and DEI in my courses and hopefully research.

“I loved having guest lectures like for OER []. Perhaps because they provided hard examples on their work and their use of the frameworks presented.

“The scheduled meeting to engage with the topics

“I found it very useful to get specific suggestions for resources and tips for implementation, as some of these frameworks can be overwhelming to study on my own (I'm not sure I'd know where to start). I also liked having a dedicated time to think about these frameworks and develop a concrete work project around them.

“The UDL assignments and discussions were probably the most useful aspect, followed by the discussion of our long-term projects. The feedback was incredibly useful.

Open-ended feedback for suggestions of change for the SPLINE program:

“ I think it would have been great for all the SPLINE participants to meet at least once throughout our time together. I think this would have been great to address barriers or nervousness about reaching out to individuals on our own.

“ I would suggest meeting once/week at first (maybe the first month) and then when we were getting into the thick of doing project work, perhaps go to once every two weeks so we had more time to put into our projects. I would also like to see this as a year-long project and perhaps bring in ways to meet with the rest of the groups.

“ I wish there was a day for ALL of us to meet, but I recognize that was almost impossible. I wish there was a gigantic Zoom Happy Hour where could have met the other participants in the other sections.

“ The only thing I'd change is to have a way for all of the fellows to meet each other in a meeting at the beginning. Perhaps the first meeting can be altogether and then the following meetings can be in the smaller groups, which was very effective. I think it would help to meet everyone to provide more comfort with commenting on everyone's submitted work.

“ I was sad to see this network end, and I might add a follow-up meeting or two ('reunion'?) a few months to a year later to hear updates on everyone's projects and get/give feedback.

“ More lectures with examples of using these frameworks. A dedicated mentor that checks in before the asynchronous meeting. This mentor can be a faculty or a participant, to keep tabs on each other. I would like to gather more feedback on the content I post. I tried to provide feedback to other people's work. I would like to see more informal educators (from museums/science centers) to feel that I am not alone since everyone is a faculty. And I think those are my suggestions, nothing to bad really. I really enjoyed it!

“ Maybe multiple phases so we could apply each of the three methods to a specific assignment with a more detailed review of materials. I would like to have left with a "product" enhanced by the experience.

“ It would be great if there were more points to check-in or receive feedback on our individual projects. Maybe it would have been nice to discuss our specific projects more often in the small groups, instead of just in the last session? I know we had the opportunity to post in the forum and comment on other people's posts, but the forums were rather slow (I assume everyone was busy). Maybe if it had been part of the weekly assignments to comment on the posts, more people would have done it? I understand the need for flexibility and not wanting to impose too much on people's schedules though!

“ With the ambitious pace and scope, I might look to set expectations for participants up front, given everyone is starting from a different place, on how much one might be able to complete during the time frame (including time to make attempts, fail, and try again based on learnings), and how much might be worked on later in order to go deeper.

“ not sure - still thinking - I really appreciated the three pillars, the cohort, and the access to leaders in these areas, but I am not sure I fulfilled the expectations or invested as much as needed in the process.

Additional comments

““ I will be using my SPLINE stipend to support my project and bring it to teachers in Puerto Rico. I hope to provide some relief to these teachers and in return work in partnership to bring my hands-on activity to the classrooms in PR

““ I'm so grateful for the chance to participate! SPLINE was such a meaningful use of my time.

““ Thank you all - so appreciated this opportunity and your leadership - hope I can return the favor somehow, someday.

““ Thank you so much for this great opportunity! I regret that I was not able to fully participate in all of the meetings and assignments, but want you all to know that this is a hugely important and impactful program that I hope continues!

““ Thank you. I am grateful to be part of the project.

““ Thanks so much for doing this! It was a great experience!

Universal Design for Learning



Open-ended feedback for how participants will utilize UDL in their work:

- “ I was already generally familiar with the ideas but I am still working on implementing them in my classes and in my project materials. This network greatly deepened my understanding of the UDL framework and gave me more tools for implementing these strategies.
- “ The SPLINE experience around UDL, which included the mentoring, assignments, doing the homework, and the group discussions around the UDL guidelines, increased my understanding a lot and will guide how I can put this into practice in my work.
- “ Increased my understanding and awareness of UDL
- “ Before SPLINE I haven't heard of UDL or thought about using it in my teaching and other areas of my work. Though I don't feel an expert, I do feel confident in utilizing aspects of UDL and sharing with colleagues.
- “ Although I don't teach directly, I think UDL will be useful in building professional development opportunities for faculty and students as well as working with undergraduate students.
- “ Yes, I am now approaching my instruction to be as accessible to all learners. Instead of just focusing on the average, I am trying to focus on the margins (very bottom and very top) of learners and that will reach the maximum numbers of learners.
- “ I was not aware of the UDL framework and throughout the meetings I was able to see my work through that lens.
- “ I was not very familiar with UDL before doing SPLINE. Now that I know more about it, I can see multiple areas where implementing it could be beneficial to my work and plan to try/propose some ideas moving forward.
- “ I was unaware of UDL guidelines prior to SPLINE; therefore, the guidelines will be considered in my work going forward. UDL guidelines will be considered because it will help me to consider various types of learners when designing my work.

Figure 3. Agreement level with UDL statements before (●) participating in SPLINE and after (●).

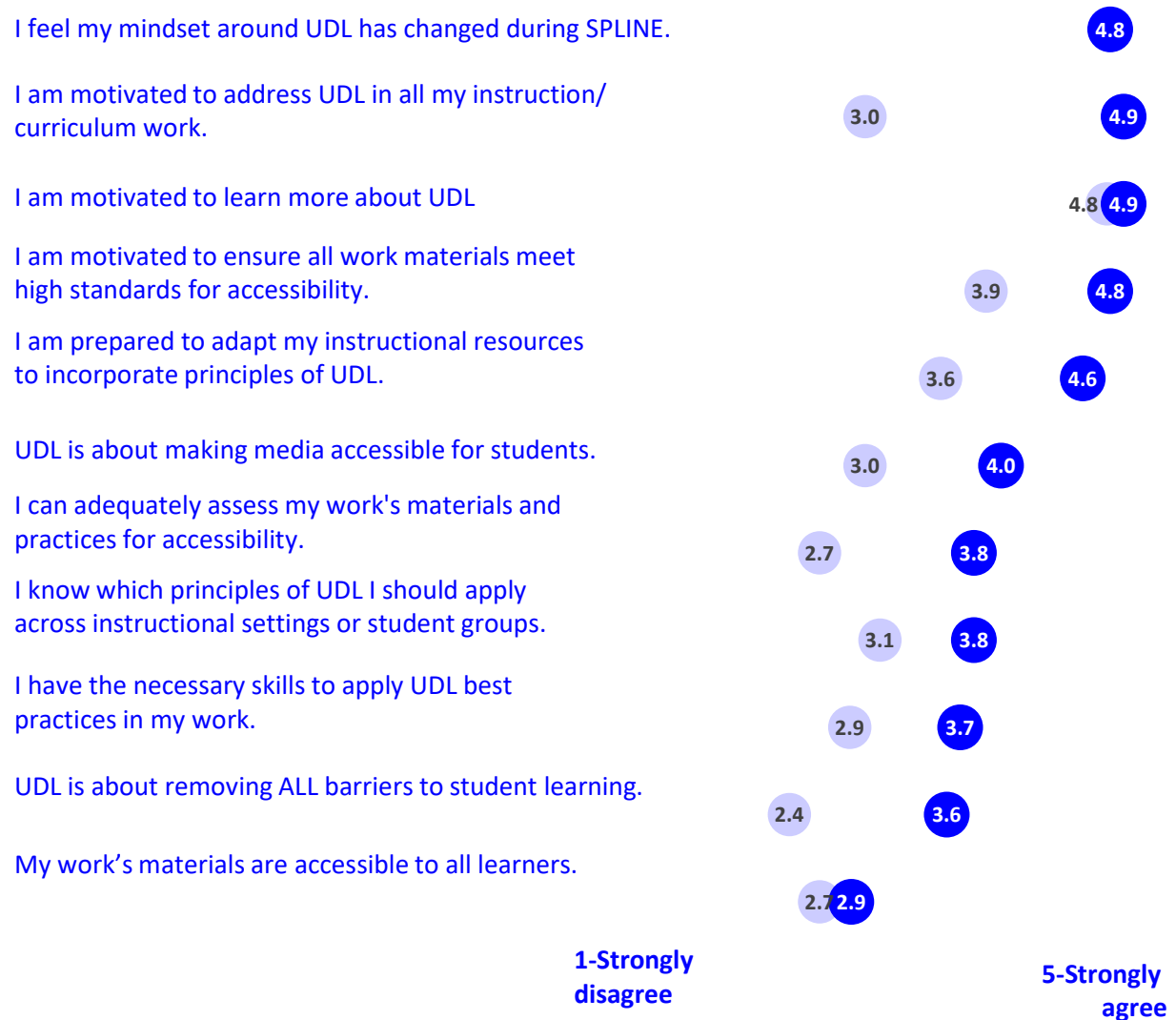


Table 1. Descriptive statistics for agreement with statements of UDL using a scale of 1 (*strongly disagree*) and 5 (*strongly agree*) before (pre) and after (post) participating in SPLINE

	<i>N</i>	Pre		Post		Diff
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
My work's materials are accessible to all learners.	9	2.67	1.00	2.90	1.10	0.23
Universal Design for Learning is about removing ALL barriers to student learning.	9	2.44	1.33	3.60	1.51	1.16
I have the necessary skills to apply Universal Design for Learning best practices in my work.	9	2.89	1.27	3.70	0.67	0.81
I know which principles of Universal Design for Learning I should apply across instructional settings or student groups.	9	3.11	1.45	3.80	0.63	0.69
I can adequately assess my work's materials and practices for accessibility.	9	2.67	1.00	3.80	1.03	1.13
Universal Design for Learning is about making media accessible for students.	9	3.00	1.73	4.00	1.15	1.00
I am prepared to adapt my instructional resources to incorporate principles of Universal Design for Learning.	9	3.56	1.81	4.60	0.70	1.04
I am motivated to ensure all work materials meet high standards for accessibility.	9	3.89	1.76	4.80	0.42	0.91
I am motivated to learn more about Universal Design for Learning.	9	4.78	0.67	4.90	0.32	0.12
I am motivated to address UDL in all my instruction/curriculum work.	9	3.00	2.00	4.90	0.32	1.90
I feel my mindset around Universal Design for Learning has changed during SPLINE.	---	---	---	4.80	0.42	---

Inclusion Diversity Equity



Open-ended feedback for how participants will utilize inclusive pedagogy in their work:

“I believe that this is the topic I gained most from in this network, likely in part due to the fact that this was the area I knew the least about. This network dramatically changed the way I consider these issues in my own classroom and gave me many new strategies for increasing equity in my courses and project materials.

“My experience on IP centered on reading and hearing from mentors, which increased my exposure/understanding; there may have been less opportunity for experimentation and interaction to try to apply it concretely to my work (although I may have missed the session where this happened).

“Yes, emphasized the importance of DEI work in undergraduate education

“Inclusive pedagogy has been central to my ideas and the way I function in the workplace. However, SPLINE made me feel more confident in using this pedagogy and in learning about other resources to support this method.

“Absolutely - I will be using Inclusive Pedagogy in both my own teaching, as well as professional learning opportunities that I provide for faculty and for undergraduate students. I also hope to incorporate Inclusive Pedagogy more effectively in my work [].

“Yes, I now know that I need to do more to reach all learners.

“Even before SPLINE, I was interested in learning more about inclusive teaching and how it could be applied to my work. I would like to take what I've learned from the program and use it moving forward.

“I looked at inclusive pedagogy in a different way after the SPLINE sessions. While I believe I had the best intentions in mind in the past while trying to be inclusive, I neglected a few groups and did not consider how receptive they'd be to my teaching or program style.

Figure 4. Agreement level with inclusive pedagogy statements before (●) participating in SPLINE and after (●).



*For this item, lower ratings reflect a more positive attitude towards inclusion, diversity and equity

Table 2. Descriptive statistics for agreement with statements of inclusive pedagogy using a scale of 1 (*strongly disagree*) and 5 (*strongly agree*) before (pre) and after (post) participating in SPLINE

	Pre			Post		Diff
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Inclusive pedagogies lower academic standards.*	9	1.33	1.00	1.10	0.32	-0.23
I know which principles of inclusive pedagogy I should apply across instructional settings or student groups.	9	3.11	1.54	3.50	0.71	0.39
I have the necessary skills to apply Inclusive Pedagogy best practices in my work.	9	2.78	1.39	3.60	0.70	0.82
I am confident I can develop learning materials that meet the needs of a diversity of students.	9	2.67	1.22	3.80	0.63	1.13
I can adequately assess my materials and practices for inclusion.	9	2.33	0.50	3.80	1.03	1.47
I need more help to apply Inclusive Pedagogy best practices in my work.	9	4.56	1.33	4.30	0.95	-0.26
Sometimes I don't know if my materials will draw in all learners.	9	3.00	2.00	4.30	0.67	1.30
I am prepared to adapt my instructional resources to incorporate principles of inclusion.	9	4.00	1.58	4.50	0.71	0.50
Universal Design for Learning and inclusive pedagogies share the same underlying goal.	9	2.56	1.67	4.50	0.71	1.94
Genuine dialogue between instructor and student is at the heart of inclusive teaching.	9	2.78	2.11	4.80	0.42	2.02
A student that feels they belong in a classroom and discipline, and identifies as a scientist, is most likely to succeed.	9	2.78	2.11	4.80	0.42	2.02
I am motivated to address inclusive instruction in my work.	9	4.11	1.76	4.90	0.32	0.79
True inclusive teaching requires me to better understand myself.	9	3.89	1.76	4.90	0.32	1.01
I am motivated to learn more about inclusive pedagogy.	9	4.56	1.33	5.00	0.00	0.44
I am motivated to ensure all materials meet high standards for inclusion.	9	4.11	1.76	5.00	0.00	0.89
True inclusive teaching requires me to better understand my students.	9	4.11	1.76	5.00	0.00	0.89
I feel my mindset around inclusion, diversity, and equity has changed during SPLINE.	---	---	---	4.80	0.63	---

*For this item, lower ratings reflect a more positive attitude towards inclusion, diversity and equity

Open Education Practices



Open-ended feedback for how participants will utilize open education practices in their work:

Yes responses:

“ This component was also useful, but was also the area I had the most background in. I will continue to use OER practices in my project materials.

“ I learned a lot from the group discussions on where everyone is in terms of understanding and potential engaging with OER/OEP, and working through the definitions and crosswalks on how it is integrated with the other frameworks generally, rather than just an add-on to practice.

“ Increased my awareness and understanding of OERs

“ SPLINE introduced me to OER and I plan on incorporating aspects into my project and in other areas of my teaching. I also plan on sharing with my department to facilitate more engagement in these types of practices.

“ I work on an Open Education Resource [] and so my participation in SPLINE will have a huge impact on how OE practices will be used in my work []. As well as in my work at my institution with both faculty and undergraduate students.

“ I think I am more likely to share my materials as this helps to build community and trust with other educators.

“ I was not aware of the Open Education Practices framework and throughout the meetings I was able to see my work through that lens.

“ I considered open education to be free education and was not aware of the difference. Going forward, I will consider OER in my work to help me design programs, sustain programs and allow for them to be open for my target audience.

‘No’ or ‘Maybe’ responses:

“ I was already aware of open education practices and did not learn much more about the practice.

“ A lot of the work I do is already OER, so I'm not sure how much more I can change. I did become interested in finding more ways to promote sharing of adaptations, though this may need more thought to get approval from my organization.

Figure 5. Agreement level with statements for open education practices before (●) participating in SPLINE and after (●).



*For this item, lower ratings reflect a more positive attitude towards OER

Table 3. Descriptive statistics for agreement with statements of open education practices using a scale of 1 (*strongly disagree*) and 5 (*strongly agree*) before (pre) and after (post) participating in SPLINE

	<i>N</i>	Pre		Post		Diff
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Free instructional materials can never be as high quality or effective as those produced by publishing companies.*	9	2.11	1.69	1.50	0.71	-0.61
I am confident I can determine which instructional materials are worth sharing.	9	2.22	0.97	3.50	0.85	1.28
I need more help to make my products available as open educational resources.	9	3.67	1.66	3.70	1.34	0.03
I have the necessary skills to make my products available as open educational resources.	9	2.78	1.48	3.90	0.99	1.12
I feel prepared to contribute my instructional resources as open educational resources.	9	2.56	1.59	3.90	0.99	1.34
Engaging faculty with open educational resources can promote teaching as scholarship.	9	2.78	2.11	4.50	0.71	1.72
I am motivated to make products and processes I create (or adapt) openly available.	9	3.89	1.76	4.60	0.52	0.71
I am willing to share my teaching materials in a public setting.	9	3.67	2.00	4.60	0.52	0.93
Open educational practices are a mechanism for positive change in inclusive education.	9	4.11	1.76	4.70	0.48	0.59
I am motivated to ensure all work materials meet high standards for openness – that is, they are free, available for reuse or modification, and readily available to anyone.	9	3.89	1.76	4.70	0.48	0.81
I am motivated to learn more about open education practices.	9	4.78	0.67	4.80	0.42	0.02
I feel my mindset around Open Educational Practices has changed during SPLINE.	---	---	---	4.10	0.99	---

*For this item, lower ratings reflect a more positive attitude towards OER