Anchor

**Interdisciplinary Collaboration in the Higher Education Classroom: An Exploratory Study**

>> If somebody Online wants it talk, are they able to hear themselves on the speaker?

They can unmute themselves. We have five people including myself and the computer. But three people Online.

>> Michelle, and Gloria, and then somebody from 619. That is probably Talia. A 619 number. So it doesn't indicate who it is. Okay. Well, let's go for it.

>> INSTRUCTOR: I would like to start. Just to give you background about the study. A couple of years ago, Karen and I were both using this tool that we got from University of Dent. That looks specifically at collaborative skills and what those entail. So six different domains, no five domains, and six items under each one and adopted them in classes where we have collaborative situations. People from different disciplines taking our classes together. Talked about how to how to measure what is going on, how to track it. And originally, I don't think we were even necessarily thinking about the study but interesting in what is going on. What are people actually doing, what are they learning. And is there a way to measure it to make sense of it. To actually talk about it. And I think part of what drove this well.

>> Well, sometimes it gets stuck and it needs help. It is stuck. Okay. So part of what I think what drove this too as Marge said, we had students so in one of the classes we have students from both the rehab counseling practice and special ed program. But also another class with rehabilitation counseling and school counseling. So we put these groups together and both had these groups in our classes and we assume that people know how to work together. It is obvious when coming from different disciplines there, is different work that they need to do. A whole thing around acronyms and as we started talking about it and kind of seeing what was happening throughout the semester, I think, you know, we sort of expect that people are going to organically learn how to work together. And because of this some of the work that I have done in the Netherlands and I got this survey from a colleague in the Netherlands who had used it when he was specifically bringing people together from different disciplines to do group projects, not necessarily in different classes but working on different contexts so when he shared that to me, wow, this is interesting to get students aware and reflective about his own skills and what they needed from other people to bring in and knowing what their strength was.

So we started looking, you know, what does the literature say about collaboration. We were focused on enter disciplinary, but we see the same thing in all of our courses. Whether they are collaborating from people in other disciplines or not. But the expectations when our students are working, they are going to be working with people from other disciplines and other training.

>> So the literature shows all kinds of things. One of them is that collaborations, and that there are many barriers to it in our institutions so not just universities but other places, employment, infrastructure. These are just a few of the things that the literature shows.

>> And I think for example, what happens in a university, and this is changing, we see it change over the last decade or so as far as promotion and ten your for example, faculty is always expected to collaborate, but when they put in their paper for promotion and tenure, they want to see if that individual has done the work, even though it is collaborative work. And we have made an effort in our college to reward it. And we value that work. So looking at that differently.

And we are trying to promote that. But our universities are set up very specifically across, you know, every college has their own pile of studies and certain responsibilities and certain expectations.

And it is difficult often, logically to get it in different classes. So you run into some of these institutional barriers and say, oh, yeah, making it easy for people to collaborate. It is changing but so long engrained that it is a slow change.

I am assuming there would be more as we delve into it, but there has not been a lot of study that we can find. And we saw it from the health related fields there is a lot of writing about that. Working together across different medical disciplines. But not so much.

>> Still emerging and understanding, so there is a number of limitations overall, this has been a poorly studied area. We see the benefit in our classes of bringing people in from various disciplines and having them learn together. There is some real tangible benefits and yet, it hasn't been studied very much. And I am guessing even with these few studies that we are able to find on the topic, that there is a whole lot more to learn about the topic. It is, you know, it isn't something where people have drilled down very deeply to understand what it takes to help people collaborate across.

>> And it goes for the faculty as well. A friend and her colleague did studies around coteaching and while that has been something that we have done quite a bit in our department, that is not very common for people to coteach, and bringing in their experiences. And even with one of the classes that was in this study, for some of those classes, I was coteaching with faculty from special ed. We were modeling that collaboration at the same time that we brought in these different perspectives from our disciplines and we could model that for the students because we didn't always agree.

>> Lots of benefits. I mean, so here is an area that isn't done very much and studied very much and yet the literature shows there are real benefits to it. In terms of efficiency resources, capacity, et cetera. relationships, networks, the ability to coauthor things across disciplines and lots of good things can come of it. >> And you will see a lot of these references are old because that's what we found. But there was a study in 2015 that did show an increase more recently over the last, well, she is talking about over the last 40 years. But this is what we were talking about, this is more what is happening at universities even our university has funded multidisciplinary research. They just built a big interdisciplinary, so faculty can be in the same learning spaces so we have seen changes around this area. >> And thinking about the world as it is right now and connectivity across professions across, social platforms, et cetera. The whole issue of collaboration I think is more pertinent now than ever. We identified specific characteristics of successful, disciplinary collaboration and they are listed here. And we will give you a second to look at those.

>> Probably leadership and management, effective communication, personal rewards, training and development. Appropriate resources and procedures, appropriate skills mix. Positive and enabling climate, individual characteristics, clarity of a shared vision, quality and outcomes and respecting and understanding roles.

>> So in terms of methodology, I mentioned earlier, that we have a total between three classes of 80 students who participated. And they participated by doing the pre and post test which is the survey tool that we've been talking about. And also reflections both pre and post on their own growth in the area of interdisciplinary collaboration which is this slide here. >> And so the again, this was part of the course so we didn't add this into, you know, and asking them to do something outside of the course. This was actually built into the course content and the course curriculum and one of the other things we did which is not part of the study, but the survey was originally set up to rank these different items so the six items within each of the five domains and we will show you them in a minute. The idea was to do two versions of this survey. So the original survey was done to identify out of each domain. So you needed to rank those as the importance of what you thought other people should bring to your collaborations. So a ranking, I really need people to be on time, or really need people to be able to communicate without jargon. So a lot of those where we wanted them, I would have the students rank those first about what they wanted from somebody else.

And then we had the same survey and had them rate themselves on each of those items, a one to five scale. Where am I on this scale? Is this a skill that I have? Is this a skill that I need to work on. And often, they would rate themselves and you know, more in the three to five range. Good at these skills and then they did it at the end. And we have them identify goals around a couple of those areas that they could work on during the semester. So that was how it was built into the class.

>> How do they feel about the idea of collaboration? I would guess maybe there is distress of the other discipline. The feeling, of I don't understand your training and things like that.

>> Yeah. There is a sense and I don't know if you saw this Karen, but in my class, the class that was included in the study, there was a sense that from either discipline that were better, and we have it all together and we don't really know about you. People are coming from this sense of superiority and distrust. And through the semester, people have an opportunity to work together, to get to know each other personally, to break down some of those barriers, get rid of some of the jargon and start communicating.

I can't say it was 100% successful, but people came a long way.

>> And a long with filling out these surveys, they did reflection. So at the beginning they wrote a reflection on how they rated themselves as they did and working on the goals that they were going to work on during the semester. We didn't think everybody was going to be at five by the end of the semester, and with a lot of students, it is a mindset that I have to improve at every one of these and be good at every one of these. No, it is important to figure out which ones you are good at and what do you need from somebody else to complement your skills. Which is a hard concept for graduate students to grade themselves down, like it was going to work against them. But that is what we were seeing.

>> One of the interesting things that happened with the reflections and we will think about this at the end of the presentation, but students would talk about how they rated themselves high at the beginning and then drop the scores at the end because they realized how much they had to learn in those areas.

When it happened, I thought oh, goodness, we were not going to get significance if everybody is dropping their scores down.

>> But that is where the qualitative reflections came in, then they had the self-awareness. If I know, if I need somebody else to come in which is going to pick up that kind of skill.

>> So lower scores is actually a good thing?

>> Yeah.

>> Probably more honest. We kept stressing, when you fill these out, be honest, you are not going to be graded on the score.

>> Maybe they don't know what they don't know.

>> Exactly. And we saw a lot of that in reflections. I didn't realize that because I was so worried that I wanted to show I was good at these things. So they filled those out at the beginning and the end of the semester. And we did look at, you know, a quantitative analysis of those scores and how they compared and any difference between the beginning and the end. The qualitative analysis is what gave us a lot more information. And so everybody did one to two, the reflection that was required was one to two pages at the beginning and then again at the end. So quite a bit of data to look at. And then three main themes came out of that.

>> And I should take a moment to thank Mark for helping the qualitative group with the quantitative analysis. It was interesting and a great growth opportunity for me to brush up my rusty skills.

So here are the domains. Includes the six.

>> Do you want me to read it?

>> Yeah. Let's do that. That way it is captioned.

>> Form late concrete goals from one's own discipline which are understood by colleagues. Assess the contribution of others. Collaborate with colleagues constructively, select relevant information and prioritize, use existing information, express one's point of view.

And we found significance in our T test. So people did ultimately scoring themselves higher. Even in spite of the fact that they knocked the scores down. But nice significant there.

>> And part of it was I think putting the awareness on it. And connecting that with some goals if they had goals in this area and you know, having just finished students staffing, I don't know if you noticed but, there was a lot of this language that people were talking about that I was thinking, okay. Maybe -- so domain two is involving and stimulating colleagues. The six items are clearly inform colleagues. Make spontaneous appeals to colleague. Stimulate and increase the efficiency of consultation. Value, stimulate and support others' contribution, articulate one's own views and ask for clarification. And give feedback in a respectful and useful way.

>> A sidebar question, you said you got these questions from an institution in Belgium?

>> Yeah. It was English.

>> Okay.

>> And they were significant as well between the pro and post test as well.

>> And so you can see these items are pretty generic. They weren't specific to our field. So that is why I think it worked well translating it. Generally it was used for the same purpose, so this could translate across any group work, really.

>> And domain three was communicating with and informing colleagues and included six items including ( Indiscernible ) translate jargon that is understandable and accessible language. Use language effectively, very Bali and in writing. Communicating effectively, taking into account to characteristics of colleagues. And reflect on one's own communication and adjust when necessary. And this like the preface two domains, we found a significant relationship between the two. And when people scored higher in the post test overall.

>> And again, I think they have this awareness, when we did this acronym activity, and they had to use other's knowledge because they were from both disciplines and they needed each other to be able to figure it out. Domain four was learning and reflection. Identifying and use opportunities for learning aimed at strengthening one's own competencies for collaboration. Actively pursue missing knowledge. Ask for feedback. Deal adequately with feedback from colleagues. Put one's own views into perspective. Criticize and evaluate opinions and assertions. And we hear this in staffing a lot.

>> As I mentioned earlier, I think that a study like this is relevant to probably any university professor who is trying to get people to work together. People from the same discipline, people from different disciplines and all of those which seem relevant. Our last domain is five acting purposefully and tactfully. Be tactful and prudent when engaging with others when drawing and formulating conclusions and recommendations. Peak openly and positively with clients about work with other disciplines. Proactively deal with difficulties and challenges. Be on time for meetings. Carry out duties in a timely way in according to accepted standards. There was significant difference between pre and post test.

>> I am wondering when they did this as a pre test, if that guided their behavior over the course of the semester.

>> I hope so.

>> I should be on time. I should be tactful. Almost the survey is a list of things they should be doing.

>> Exactly which is why we wanted them to pick out goals so we, at the time, we had them do two goals and we could pick out of these. We wanted them to talk about a goal that could improve their skills. So if it was something that they rated lower right away, it was easy for them to pick out.

I also think in looking at the beginning when we did the other survey in ranking prioritizing. For example, if people had, so special ed teachers for example, it was much more important for them when they were waiting for people to come in who were more itinerant people. And if they were late, then things, you know, everything blew up because the teachers had to be back to classes and same for the itinerant people. They were on a strict schedule. So being on time was important in that context.

Whereas meeting with people in your own office, that may not be high on your list. So interesting to dig down a little bit and find out, these things are important, but only important for certain people at certain times. So again, it brought a lot of awareness to some of these areas and what it looked like to somebody else.

>> And one of the things that people learn from this is what is important to me is not necessarily important to you. And to value the way they would learn to support each other. So this section, provided you with the fact that this is a qualitative component. And three things that emerged. Two process themes and one outcome. So a lot of process learning was going on so just to start with, some students expressed anxiety about participating in the in the class. And most people expressed anxiety in those pre reflections.

>> And this is just to make sure, this is the first theme as my place in the group.

>> And an example is before beginning the course, a feeling of anxiety comes with the unknown. A feeling that is comparable to entering a dark room at night. This feeling was due to not really anticipating the extent of what would be required of me as a student to accomplish by the end of the semester. So one example of the anxiety that people experienced.

>> So students also indicates strongly that communication whether it was verbal, written, electronic, and interpersonal was critical to the success of their projects. So without clear communication, I can easily become frustrated and shut down. Knowing this I tried to make an active effort to communicate clearly with my group members throughout the process. This also helped to develop a broader understanding as we each bring our own experiences and strengths to the group.

>> A third sub theme was the dynamics of each team varied from very good to poor. And it was interesting because as we read it, analyzed these, you could get a sense for the learning that happened whether that outcome was good or bad. If people were able to reflect on that. This person said, I felt that our collaboration, that in our collaboration there were some feelings that did not make sense and came out of what was seemed to be nowhere to me. I had wished that misunderstandings and needs had been communicated before they escalated to an unnecessary level.

>> We've all seen that. Many of the difficulties groups experienced stemmed from not openly airing concerns within the group. I am wondering if this unresolved conflict did not happen because of the group dynamics which may not have fostered a safe place for identifying and expressing needs in the group. I heard the different needs of each member separately but they were never talked about as a group. I think in the future it would be very important to be able to communicate needs as a group. And not just on an individual person to person level. So not bringing it up and discussing it. I remember that group.

>> Students appeared to grow in their ability to manage uncomfortable emotions that often arise in groups. One person said I had to ask one member to reevaluate her responses and this was uncomfortable for me. And students' ideas of leadership became more nuanced. I learned that the leader is not always the one that speaks the most or provides the most ideas. Yet a leader is a listener and a supporter of ideas that create and benefit the entire group.

>> Second theme is the process having to do with managing the project. Starting with one sub theme some students carefully assessed the communication patterns of the group as a whole. And a quote here was we have used constant communication through e-mail and Google docks to collaborate and produce a PowerPoint. We have met a few times outside of class and plan to meet once more.

>> This is an example. At the outset the instructions were daunting. We couldn't understand the project or agree on the expectations so I tried to dissect the instructions and created another document outlining the expectations as I understood them. Everyone said this helped. It seemed to simplify it a bit.

>> Another is groups learned how to deal with complicated issues together as well.

>> Our group, project was -- we determined that the pieces we were breaking into were so intertwined that we had to deal with it as a whole.

>> And to manage a project well, each person must know his or her role and be able to execute it. The quote is the responsibility of holding the finished product of a team's effort was slightly intimidating but knowing that it was accomplishing --

>> Here are some outcomes, takeaways that students got out of the experience. And students often came to realize that all group members brought something important to the collaboration. The quote here, each team member had a strength that contributed to the project. I think I was very punctual. And driven while another members was very detailed oriented.

>> Students recognized that there was much more to interdisciplinary collaboration than they first supposed. The quote is when I completed the post self-evaluations, I realized that I had graded myself much harsher than when I completed the pre self-evaluation. During the pre self-evaluation, I used many fours and fives to grade my competencies after completing the post self-evaluation. There was this realization, like you said, Chuck, I didn't know what I didn't know.

>> Most of the students commented on their own specific goals set at the beginning of the class and their progress toward completing those goals. Quote, a few of the goals I had for this project and this semester were take ownership of my own strengths and play an active role within the group accordingly and communicate and inform the group. Speak my own opinions and not back away from conflict. I believe I accomplished some aspect of these goals and learned a lot more about myself in the process.

>> And the last one is post reflections indicated important learning about how to approach collaboration. The quote is in summary the fear of collaboration I previously possessed was not founded in truth but rather in the perception of how difficult it appeared to be when it actually after a little practice the collaboration process --

>> Thoughtful quotes here that the student's shared.

>> And here are more. What immediate these classes unique was that they required students from different disciplines to work together. This required learning new jargon, translating ideas into new language and gaining an appreciation for the strengths and values of a different discipline and the quote we used here, we are all stakeholders that provide those critical transition services that help our client/students have a chance of attaining a more meaningful life. I feel that the early transition services that are in place within the secondary school level are valued and considered vital in the eyes of a rehab counselor. I feel that we, special education teacher and rehabilitation counselors have a clear understanding of the distinction between our roles and how we can come together to meet an individual goals for a more fulfilling life.

>> And students also reflected on the value of collaboration toward obtaining goals. Progress was on all of these goals was made because of collaboration with someone else whether in a one-on-one situation or in a group. No progress would have been made toward these goals without collaboration. It became clear to me through this reflection how key collaboration is in making and effecting change in our field and in the world at large.

>> This is the last one students reflected on how the collaborative assignment increased their knowledge of other disciplines opening their eyes to new disciplines and their associated resources. And the quote, the areas where I am still struggling a little are in truly understanding all of the information that is available out there for my students. Although we learned so much this semester from guest speakers and classmates, it is a still a lot of information. But at least I know that it is out there and I can find it now.

>> You pulled all of the responses together. Were there any patterns in terms of differences and responses from either group or were they all kind of similar in terms of how they would respond?

>> I think they were actually pretty similar.

>> Yeah.

>> Because they never have an opportunity to do this. This is the first time, I mean, and we would ask, this is the first time that they had classes where they were in classes together with people in a different major.

>> And yet they are expected to work together.

>> Whether it was school counselors or rehab counselors or special ed and rehab teachers, they are expected to work together. And most of them came in with little knowledge about each other's systems. And that ends up with a lot of finger pointing from both sides. Well, you know, I did all this work and they are not doing it. And they came to a much better awareness of wow, we are all operating under a lot of constraints and also operating under a lot of different rules. School rules and adult world rules are different. And most of them had no idea about those unique challenges and I'm sorry that this semester is the first semester I haven't had that mix. But I have had it for five or six years and there is a real difference what people benefited the knowledge they gained and the connections they made. So they established some networks that many of them are all still using because we hear from them and even though we didn't have special ed transition teachers enrolled with us this semester, we brought them in as guest speakers. And they talked about these things. It was clear how much they gained in being in classes with people.

>> The one generalization that I could make is that students came away with a lot. They learned a lot and they were really surprised. The tone of those post reflections were interesting. And the people are like, wow, I learned this. I learned this. I learned this. And that is what you want to see especially as a university professor, that people really, really learned from this.

>> Yeah. It goes back to they didn't know what they didn't know. And they are still learning all the systems they are working in. And then to throw in something that's critical to what they do. But they don't know about it. Or they don't understand it. It is just really, it is a huge growing opportunity. And it is great to see students take advantage of that.

>> This is the final component here. And we took those ten items that we identified earlier as components of successful collaboration.

>> And that came from somebody else's research.

>> Right.

>> Is that Jacob's?

>> I think so. These are Jacob's categories. And the first one is leadership and management. Teaching collaboration should include various definitions of leadership such as facilitating conversations organizing an aspect of the project or being sensitive to interpersonal dynamics. Leadership isn't always about controlling a group, it is more nuanced.

>> And we did hear from people who typically take the lead on groups because they are afraid nobody else is going to do it as well is typically what their reasoning is. And we had people intentionally step back and say okay, I'm not going to demand that I am going to be in charge of this. And I am going to try to play a different role and we have had people do that because they realize that was that showed that they didn't trust anybody. And they felt, boy, this is my grade on the line, I better make this happen. And it kind of got, I think it helped everybody to step up.

>> It did. I think one of the takeaways is that in the post reflections, people were talking a lot about the different meanings of leadership. That leadership doesn't necessarily mean that you are control of every aspect of the project. But maybe supporting people. Maybe supporting ideas together. There are a lot of ways people can provide leadership.

>> The second area was effective communication. To communicate effectively, collaborators need tools for collaborating between meetings such as Google docs, as well as verbal, written and interpersonal skills. The fear of giving and receiving feedback seems to be a major impediments to commune in groups. We need to spend more time in fostering these kinds of skills and competencies, and the confidence around it. How do you do that. In the rehab counseling program we are in a better position to do that because of the counseling skills. It is in as a teacher or even I wouldn't compare it to school counseling because I think that is different, but for teachers, that is not the dynamic. Teachers are usually in charge. It is a lot, you need to do this. You need to do that. And it is very interesting to hear even the language that can be very different because the context is really different. And so that was something that I know we had discussions about. I can't remember if it came out in their reflections.

>> One of the things that kind of came to light was that people reflected on the fact that they learned to do feedback. And it was uncomfortable and they did it anywhere. So doing some of these things could be really uncomfortable. But the learning comes with doing it anyway. And then you realize that yes, I can do something this hard.

>> Personal rewards, training and development is the third area and in addition to the satisfaction of a job well-done, collaborators should be made aware of the opportunities for personal growth that accompany collaboration. The interpersonal skills gained through collaborative activities are generalizable to most aspects of life.

>> Four was appropriate resources and procedures. Collaborators can and do learn to assess and create resources and procedures learning about resources from one another that can be benefit individuals served across more than one discipline or environment benefits everyone.

>> This came to light in my class that the school counselors realized that they had resources now that they now would know people in the schools who could help them on various aspects. So this stuff, you know, learning that working across discipline really does benefit everybody including them.

>> Number five. Appropriate skills mix. As evidences in the study there are numerous process involved in collaborations from very routine activities such as organizing and tracking tasks to giving feedback sensitively. So skills mix, I think we probably agree that with all of the groups that people realize that pulling their skills was really a way of giving the best possible outcome.

>> And we saw that really clearly in the mix, the special ed teachers when we ask them to write measurable goals for themselves, the teachers were all over it. They had to write goals all day long. The rehab counselors struggled. They learned a lot. They wanted to do these big goals, and how are you going to measure that? So great to say, let's use these skills.

>> Six was positive and enabling climate. The classroom or work place needs to fully accommodate group work by assuring the time and resources needed for group effectiveness as well as skill training. For example, participating and interactive activities helps people get acquainted and contributes to a comfortable and supportive environment. We did activities that they had to work together and count on each other.

>> One of those things that all of the classes had in common was a major group project where we had people work across disciplines. So they were kind of forced in the situation of learning how to create this climate.

>> Individual characteristics is number seven. As is abundantly clear from this study, people enter collaborative relationships with unique backgrounds, skills and attributes. Teaching collaboration skills needs to include an appreciation for what each individual brings to the project and what competencies and attributes they should be looking for in others to complement their own.

>> And we asked them when they got into groups to share that information. And that way they could kind of let's pool all of our stuff together. Now who is going to do that step.

>> What are your strengths. Just like we do with our clients and we teach people how to work with people to look at strengths first. Hopefully teaching people how to look at their own strengths and own needs for support.

>> Eight is clarity of a shared vision. Getting a project started must include dialogue leading to a shared vision. Likewise, collaborators should be taught to occasionally check in with the group to assure that members still agree on desired outcomes. When you look at disciplines that are so similar, that have such a reliance on each other, particularly if you are looking at special ed and rehab, we are talking about working with the same people just at different ages. Yet we look at it at two completely different worlds and it helped, what we saw is that it helped the transition teachers to understand that long-term goal. They are so center in the presents because they have so many demands and so many responsibilities to get it done now. And when they started learning, what happens beyond that it helps them to understand the importance of what they were doing and how critical it was for this shared vision. We all want the same things for the folks we are serving.

>> Yeah. Very similar, anyone working school environments versus working as a professional rehab counselor will have a different outlook.

>> Nine. Quality and outcomes. As evidenced by this research, the outcomes of collaboration are dependent on interpersonal and intrapersonal processes of the group. Although the goal is always paramount, quality is obtained through collaborative processes.

>> And ten, respecting and understanding roles. In teaching students to collaborate we noted that they came to respect one another when other conditions were satisfied. A major factor in respecting and understanding the roles of others is learning and appreciating their systems and values. So they did this survey at the beginning, the next assignment that they did was really writing about their core values and so it led to them understanding and being very articulate about their core values and how important that was to be able to really say what those are.

>> It seemed like we did a summary slides.

>> Well we have ten or five minutes or so. Maybe if you can both talk about what you want to do in terms of publication and some of your ideas with that. We were talking prior to your presentation, prior to the presentation today about some, where are you both at with that right now?

>> Well, we were talking about Nan, and started thinking about the possibility of submitting this as a qualitative paper rather than muddying the water. And you mentioned the possibility of maybe submitting two different papers. One, with a qualitative methodology, and we like the way it came together. How it supported each other. But editors are not liking it.

>> Yeah. So maybe we use the survey part as more, this is the context for it. And not worry about how they scored. And maybe this was part of the confusion. They are saying, they had a better realization of what they didn't know. But showing their scores went up overall. So that is sort of contradictory.

>> So that kind of says, okay, obviously, bringing awareness to it at the beginning helped to establish it. Well, did it help improve their skills, or just because the scores went down, doesn't mean their skills didn't improve. So maybe the quantitative piece muddied that water. Because it is contradictory.

>> And thing the qualitative findings are so compelling. Just looking at those. And getting the picture of what people were thinking as they finished the courses and how they were processing the information. Maybe that's a better way to go. I don't know. Other thoughts about that?

>> You talked about in the survey from this ranking,.

>> We didn't include that part.

>> If you are going to incorporate. You could have used just the ranking piece to save people's parameters and to see any recording of the data actually reflect their priorities in terms of what they learned or not.

>> Did you do that part?

>> No we didn't use that I was using that in addition to the others. But that is certainly another option.

>> [ Inaudible ] if you are going to publish quantitative data, the domains. Have you done an analysis?

>> No.

>> That may be worth to elevate the summary if you do the factor analysis and it actually shows that the means that they could have --

>> Right. I don't know how to do that.

>> If you ask Mark, he could do it within five minutes.

>> Well I don't know about five minutes.

>> Sorry.

>> Over this week, I am getting up to speed on another project anyway.

>> And actually, a lot of these items we used in the survey that we did for some other research that we did with cat. Because we were looking at collaboration around specifically, and so, we actually. So this became part of that. A study that was at a national basis and looked at statewide leaders across special ed and rehab and had it from 35 states that we had special ed and rehab leaders in 35 states. But we found these to be helpful including kind of our general collaboration skills and I think this one, this, I like how general this is because I think we could use it across a lot of different areas. And just using it this semester. And some of these comments I know have helped me personally to rethink some of the assignments to make those more, to help students be more intentional like about the goals. They did one goal now and we give points for them to set up the goal and give us a mid-semester project where they have to submit data on their goal and report at the end that that mid-semester progress points had points attached to. And so I am saying amazing growth in people and it comes out in the class. So it is interesting even though we don't have the mix of disciplines, they still are figuring out how to collaborate with each other. And they represent different systems because they are working in different systems. So I think, you know, we may want to look at this broad, more broadly.

>> Really looking at collaboration judge in general. And part of the context, it could be disciplines or organizations and maybe we could put it in that context and then we have lots more data that we could include.

>> For sure.

>> Thank you very much.

>> Any questions from the gallery?

>> I didn't see any questions yet. But they can voice them right now. So if you unmute your mics, anybody Online, we can hear you in the room.

>> I have become discouraged dealing with this paper but getting fresh ideas from everybody has helped us resurrect it.

>> Yeah, it is exciting.

>> Don't give up on it. I hope you guys continue to pursue public on this. It is valuable information.

>> I think the two article ideas is probably the way to go.

>> Yeah. We are just talking amongst ourselves.

>> Some individuals responded. But not all of them. The data, you want to say, actually did not know. And they learned if that.

>> There is probably a few times that we muddied the water between the findings. Although, you know, I loved the idea of doing something using most of the methods.

>> But actually, I think I don't know, I think, this is another case, she was talking....

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