

Experiences of Faculty in an Ongoing Teaching Development Group: Identifying Characteristics that Support Sustainability

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Abstract

To increase the likelihood of successful and sustained adoption of student-centered teaching practices, it is important to provide teaching development support to instructors as they move toward a student-centered model. This paper considers data collected during an NSF-supported faculty development effort in which ongoing discipline-based teaching development groups (TDGs) were formed in several STEM departments at a single university. Groups met on a regular basis over at least one academic year and provided a way for participants to learn about research-supported teaching strategies, share experiences in implementing these strategies, and find support as they faced challenges along the way. Of particular interest is studying how these TDGs evolved over time and whether certain factors contributed to (or hindered) sustainability. In this paper, we focus on the activities of a single TDG that remained active for more than two years. Interviews with the TDG leader and participants on an annual basis provide the data for this paper. Through descriptive coding of the data, we identify several characteristics of the TDG's structure and function that may have supported the group's sustained activity.

Keywords

Faculty Development, Active Learning, Faculty Learning Communities

Introduction

There is a wealth of literature in engineering education research, and in STEM education research more broadly, supporting the value of student-centered teaching practices (e.g., peer teaching, project-based learning, and various forms of active learning) on student learning and engagement¹. While the benefits of active and student-centered instruction are clear, the challenge of facilitating broad adoption of these research-supported teaching techniques remains. Hence, identifying effective methods to bridge the gap between STEM education research results and classroom practice is a topic of significant interest.

Increasing student engagement in learning requires increased engagement of instructors in thinking about their teaching outside the classroom². Significant research has shown the value of faculty collaboration for improving teaching³. The benefits of structures such as faculty learning communities for supporting instructors in implementing a specific instructional innovation are also well described in the research literature⁴. Research in professional development suggests that ongoing teaching development, such as faculty learning communities, is much more effective than one-time efforts^{5,6,7}. In the project studied in this paper, we created a network of faculty learning communities for STEM instructors interested in implementing active learning. As we study the effectiveness of these learning communities, we are interested in understanding

what characteristics make a learning community sustainable, and similarly, what elements allow community members to find value in continued participation. To address these questions, we consider the functioning of a faculty learning community that was active for over two years.

Background

The project focused on the formation of ongoing teaching development groups (TDGs) in several STEM disciplines. Each TDG was facilitated by a group leader who either participated in a semester of training or was a TDG member before serving as a leader. The leader recruited members, organized and facilitated meetings, and identified resources for the group to read/watch and discuss. Each group met regularly (every 2-4 weeks); group meetings focused on learning about teaching strategies and sharing teaching experiences, particularly with respect to trying new strategies. Groups often brought in outside resources (books, videos, etc.) to learn about research-based practices. The level of structure varied significantly across groups, with some groups having formal agendas and others having fully unstructured discussion.

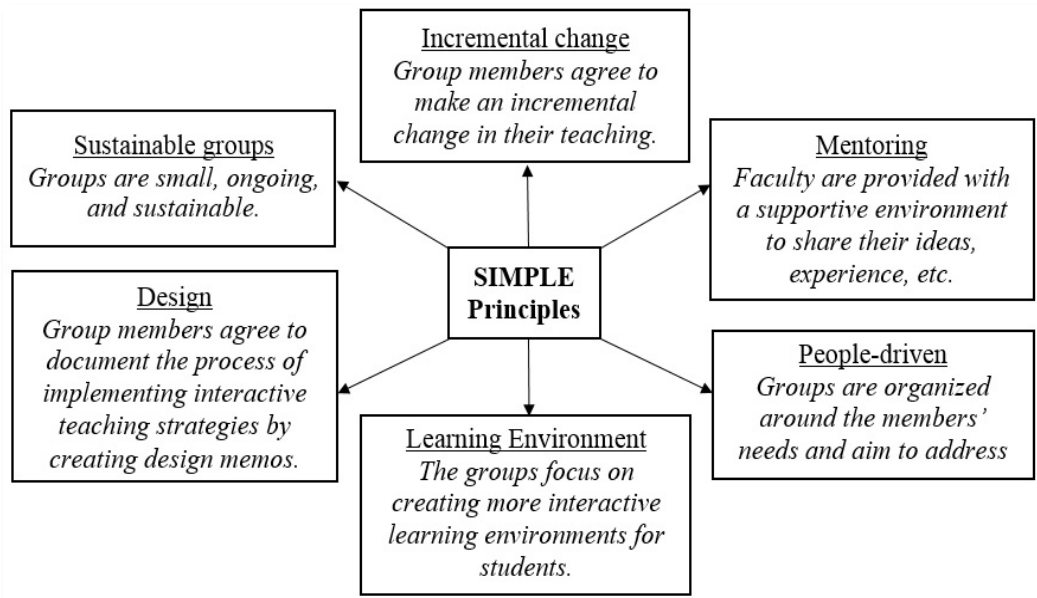


Figure 1: The SIMPLE Design Principles for Faculty Teaching Development

While groups were flexible in terms of structure, they were designed to follow the SIMPLE design principles, created based on the results of prior faculty development efforts⁸. The SIMPLE design principles for faculty development, described in more detail in Figure 1, are: Sustainable, focus on Incremental change, include Mentoring, be People-driven, emphasize interactive Learning Environments, and have a design focus. This paper focus on the sustainable principle, in particular on understanding the characteristics of a TDG, its members, and what elements of its functioning have supported ongoing participation. While eight TDGs were created as part of this project, in this paper we consider a single TDG. This TDG is of particular interest with respect to sustainability for two reasons: (1) it remained active for two years (one

year after the formal structure of the overall effort had ended), and (2) it continued into a third year even after its original leader moved to a different university.

Methods

As described above, a single TDG is included in this analysis. The TDG operated in a STEM department (we will call it Department X) within a large research university. This paper considers the TDG's activity over the first two years of its existence. (It has continued beyond two years, but the corresponding data has not yet been analyzed.) The Department X TDG had the same leader for the first two years. Prior to leading the Department X group, the leader had been a member of a group that included instructors from several STEM disciplines.

The analysis presented here is based on interviews with the leader and members of the Department X TDG at the end of year one and at the end of year two. The leader plus four members were interviewed at the end of each year. This constituted the core membership of the group during each year. (There were a few instructors who attended occasional meetings but were not ongoing participants.) Semi-structured interviews were conducted⁹. The interviews were transcribed, and descriptive coding¹⁰ was used to identify common characteristics that supported the leader and members' continued participation in the group.

Results and Discussion

Several factors were identified as providing sustained value for participants who continued to be active in the TDG over the two years considered for this paper. One of the most prominent characteristics noted in the interviews was that group members felt they continued to learn and gain new ideas through ongoing participation in the TDG. During the first year of its existence, the Department X TDG used chapters from *How Learning Works*¹¹ to guide each meeting's discussion. In the second year, they chose to move to a new book: *Teaching and Learning STEM: A Practical Guide*¹². Several members noted that the change to a new book was an important part of keeping them engaged in the TDG. In the words of one participant, "Yeah, I think there was a real risk of fizzle if we hadn't found another easy source of reading. That by the middle of the fall, the group members who had been with us since last year were expressing some sort of, 'OK, we've kind of run the course on this Ambrose book.' Like, they're ready for something else." The books used to guide the groups' discussion created structure, and as one member noted, "I think it's a good idea to get to know some of the serious side and see what are the practical things that we can learn from literature." Describing the value of the books for his teaching, one member noted, "The fact that the books are really well-written and contain useful information on all levels, that is a motivation to keep reading. I was constantly circling things, underlining things, like writing a comment or whatever because the information there was useful and relevant to what I was trying to engage in practice." On occasion, the group dug deeper motivated by the contents of the book. The group leader said, "There were references to some academic papers in the book, and I would sometimes pull them up, then, give, like, 'Oh, I scanned through this paper, and it was interesting, the way they derived the results that's mentioned in the textbook.'" While the readings created structure, they were not prescriptive. Instead, reading selections were decided by the group according to their interests. "It was sort of by consensus. At the end of each meeting, we would spend five minutes just sort of discussing,

‘OK, well, what do we want to read for next time?’ ... So, everybody’s like, ‘I think this is the most relevant thing for us next,’ and we’d pick a new, random chapter.”

In addition to the new content and ideas introduced by reading a new book in the second year, members of the Department X TDG also noted the value of having slow changes and growth in the group participants over time, as it provided a new perspective, new ideas, and new challenges. Describing a newly hired faculty member who joined the group in year two, the leader said, “She had expressed interest during the interview last spring when I mentioned this because she’s interested in developing her pedagogy, and her only experience up to that point was doing an online class, if I remember – which went well – and so she brought an interesting perspective to the group.” Commenting on the importance of new perspectives, another group member said, “If we hadn’t had new opinions from both the book and new people, I think that’s what sort of helped us not just be like, ‘Yeah...this is the same as last year.’”

Another element that was mentioned in almost all Department X TDG member interviews was the value group members found in connecting the content in their chosen reading to their own classroom experiences. One member described the connection process in the following way:

“OK, here’s this technique that’s mentioned in the books. How applicable is it in our specific settings? ... If there’s sort of a mention of like, ‘Oh, this is a really good kind of activity to do in class, like how well does that scale to large setting? And if it’s not immediately obvious, can we figure out a way where that might sort of work?’ Or, assignments like this are really good for students. It’s like, ‘Will that scale up to the point where it would easily be available to grade all this stuff and give the kind of feedback they say is good in there?’ And, I mean, that generated a lot of sort of interesting discussion points.”

The group leader described similar activities within the group meetings:

“A lot of it was stemmed around, ‘how does this thing that we read relate to your experience thus far?’ ’Cause all of us coming into the group had had some teaching experience whether it was as the lead instructor or as a graduate teaching assistant, and so, being critical of ‘Here’s what the academic research shows works,’ and then saying, ‘Does that jive with my actual experience? Does it challenge my experience in that I should give this another shot, and maybe the reason this went badly is that I just didn’t present it in the way that was suggested there?’

Another group member noted how the book readings served as a way to motivate discussion of their own experiences. “I think the things I actually learned probably came mostly from the people, but we only thought to discuss them because they were things related to what we’d been reading. So, we’re reading things, and somebody says, ‘Oh, you know, I think this is a good point. I’ve seen x in my classroom.’” Yet another group member noted that the group had a variety of perspectives on the readings. “Each of us had something that struck out and, you know, made a lot of sense to us, and each of us focused on a different piece in that chapter. So, that was definitely very interesting to see, as to how that came about, and we would then talk about what each other felt reading the chapter, and then we would link it back to our experiences in the classroom, or if it’s something new – we’ve not done before – we would think of incorporating that into our lectures.”

Group members also found value in the opportunity to learn from the teaching experiences of others. They often used the TDG as a place to get feedback on new teaching ideas before implementing them. From the group leader: “To hear about the experiences from other people and what’s happened in the classroom for them. I am a big believer in learning from the mistakes of other people, so that if you are skillful and can avoid getting yourself into a bad spot, then it’s important to listen to others who may have explored that path and found it to be unsettling.” Another group member commented, “I found it really useful for sort of keeping my head sane as to why I was doing a lot of this stuff, and also to get some feedback on things I wanted to try and stuff I wanted to do. It was really nice to have a group of other instructors who had tried some of the things I had done before.” In one case, a group member was interested in learning about techniques used in a specific course. “I was gonna get to teach in the spring a course I hadn’t taught before, and they do all sorts of interactive stuff that I wasn’t accustomed to doing in class, so I got to hear about people’s experiences and stuff with that before I got to do the class. So that was helpful.”

All core members of the Department X TDG were term faculty whose primary role was teaching, and they found it beneficial to have a shared focus on and value for teaching. One commented, “We all had similar mindsets in that we really wanted to work with the students and we were here for the students. It was that kind of a mentality.” Describing why the group was valuable, one relatively new instructor said “For me getting to listen to more-experienced instructors. To see that they were going through many of the same things I was going through. To see things they had tried and had worked to problems I was having that they had had in the past and had figured out a solution to.” Describing the process of continually improving teaching, one member said “Because learning is a perennial process, and when you’re teaching, you’re also learning. And I was definitely interested to see what – and I was new here, so I was trying to take in the culture here at [name of institution] and how the other instructors were, and what were their teaching styles. So it was definitely something that I was interested in going and participating and learning more.” While the shared value for teaching was important, the group members also noted the value of having a variety of different views within the group. One of the members said, “The four of us had somewhat different teaching philosophies about like what’s appropriate, so that [broaden] my perspectives somewhat.” In discussing the size of the group, the leader said “I think that’s the right size for the kind of meeting that we were doing in that it’s big enough that you have alternate perspectives, but not so big that scheduling becomes optional.”

The members of the Department X TDG also cited the value of having structure to the group and noted that identifying leader willing to create such structure was important to keep the group going. As one group member put it, “I think if there weren’t any structure above the group, it would eventually disintegrate.” Another group member said, “I think that groups like that need some sort of a leader position – someone who’s willing to take responsibility for the logistics, and who’s willing to assume responsibility for the direction. Those are not big things, but they’re very important because otherwise it doesn’t just come out of thin air usually.” The group leader noted that leading the group was not necessarily difficult or time consuming; he saw his role as organizing meeting times and confirming the agreed reading that would guide each meeting. “Really all I did was to set the meeting schedule and then guide the choice of what to read for each meeting. ... I mean, the leadership part of this was so low overhead.” Thinking about what the most critical elements of his role were, the leader noted, “If I had a piece of advice to give to

other leaders, it would just be that you need to make sure folks know we're gonna meet for the following reason: to discuss this chapter, or to talk about this paper, or because so-and-so's gonna give this small presentation, or talk about this assignment – the structure that you think will be sort of informative. So, if each meeting has a somewhat well-defined purpose, I think that helps people to have buy in, it helps them to know how to prepare, or gauge their expectations of this as they come.”

Conclusions

The characteristics supporting sustained activity of the Department X TDG, as identified through descriptive coding of group leader and member interviews, centered around participants finding continued value in learning from selected resources and from colleagues. In particular, participants noted the value of introducing new books and/or articles to guide their discussions and relate to their own teaching experiences, the value of inviting new faculty into the group to broaden perspectives, and the value of learning from the experiences of their colleagues as they plan for innovations in their own teaching. TDG participants also noted the value of a shared focus on teaching and continually improving their teaching, as well as the value of having structure to the community and its meetings and a group leader willing to implement that structure.

A main theme of many of the characteristics identified as supporting sustainability is continual learning. Participants described the importance of learning new things through outside sources and through colleagues, and the value of being able to apply what they learned to their own teaching. Avoiding stagnation in the group meant identifying new outside resources to guide discussion and inviting new members to join the group. This suggests that curating a list of potential resources for STEM TDGs is a relatively simple effort that could be of significant benefit for sustainability. The second theme that emerged, perhaps equally important, was the need for structure. TDG members and the TDG leader felt that an organized meeting schedule and a clearly defined purpose (often guided by the reading) for each meeting were critical to the group's continued success. Further study of the roles group leaders is a promising direction for future work. While this paper focused on a single TDG, the project included six additional TDGs, each of which had its own style of leadership and structure. Studying the relationships between leadership roles and group functioning could provide deeper insight into leading to promote sustainability.

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This condition necessitates the development of a special criteria scale of assessment, the creation of which is objectively difficult due to the complexity of identifying and describing implicit parameters of professionally significant competencies. The solution of this problem can be regarded as another condition that ensures the effectiveness of assessment of the development of students' professional and communicative competence. We know that at the present time there are several. *XLinguae*, Volume 11, Issue 2, April 2018, ISSN 1337-8384, eISSN 2453-711X 759.Â students while engaging them in a simulated experience of the real-world and immersing them in an authentic management situation. Faculty professional development programs are critical components of efforts to improve teaching and learning in the STEM (Science, Technology, Engineering, and Mathematics) disciplines, but reliable evidence of the sustained impacts of these programs is lacking. We used a paired design in which we matched a FIRST alumnus employed in a tenure-track position with a non-FIRST faculty member at the same institution. The members of a pair taught courses that were of similar size and level. To determine whether teaching practices of FIRST participants were more learner-centered than those of non-FI Recommendation 5: Establish and support teacher engagement in both local and global professional learning communities. This article is intended to provide insights into current trends, research, and best practices in professional development for elementary and secondary teachers, internationally.Â professional development is experienced. teachers in collegial, intellectually safe.Â Other authors support these characteristics. Darling-Hammond identified five key elements of effective professional development: 1) sustained over time, 2) content based, 3) embedded in professional learning communities, 4) focused on concrete tasks in teaching, assessment, observation, and reflection, and 5) modeled in authentic settings.