

Undergraduate Student Perceptions of Cooperative Discussion Groups as a Classroom Engagement Tool



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Abstract

The purpose of this project was to explore the experiences of students when facilitating class discussions through Cooperative Discussion Groups. In addition, students particularly compared their experiences within this class with their experiences in Whole Class Discussion in previous classes. Students participated in structured cooperative discussion groups and submitted three written answers to reflection prompts provided as an extra credit opportunity. Based on the written answers, select participants were then purposively sampled for semi-structured interviews. Upon data analysis, five themes arose that described what students took away from this teaching method. Among these themes include how student groups facilitated collaboration among peers, deepened understanding of course materials, and allowed students to reflect on not only their own past experiences but those of their classmates as well. The researchers encourage instructors to consider using this teaching method as they approach curricula that either includes the development of

individual philosophies or class sessions where it would be valuable for students to listen to their classmates' experiences.

Keywords: cooperative, discussion, teaching philosophy development

After a complete restructuring of the Agricultural Education curriculum at a large Midwestern university, there was a noted shift in the content and timing of courses to purposively intertwine pedagogy, content, and the development of students' teaching philosophies across all courses as opposed to the previous strategy of dividing these topics into individual courses. The instructional team focused on how classroom discussions could be used to deepen student understanding surrounding philosophical topics through the curricular transition. Thus, the instructors considered barriers for students as they develop, implement, and evaluate classroom teaching strategies relating to the development of personal teaching philosophies. To

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accomplish this, the purpose of this learner-centered teaching strategy was to use elements of cooperative learning groups to emphasize and facilitate discussions via Cooperative Discussion Groups (CDGs), rather than Whole Class Discussion (WCD).

WCD is a teaching method that can encourage students to think critically, reflect on their beliefs and practices (Wade, 1994), and actively engage in course content (Dancer & Kamvounias, 2005). Further, students feel they learn more and enjoy sharing their ideas when they participate in WCD (Wade, 1994). When instructors utilize a system to randomly call on students during WCD they can reduce perceived instructor bias and balance the participation equity (Auerbach & Andrews, 2018) and student comfort level (Dallimore et al., 2013). Some barriers exist to successfully implementing WCD, such as (1) students fearing their ideas were unworthy, (2) facing criticism, or (3) not being provided ample time to gather their thoughts (Wade, 1994). Additionally, students may or may not participate in WCD due to course logistics, student efficacy, student personality and preference, course climate, and the course instructor (Rocca, 2010).

Almost the opposite of WCD, cooperative learning is the use of small groups to meet a common learning goal. Through this approach, research indicates an increase: (1) in efforts to achieve, positive relationships among students, (2) in building positive relationships among students, and (3) students' psychological health (Johnson et al., 1998). Often contrasted against competitive learning where students compete against each other, cooperative learning requires that to succeed, five elements must be present within cooperative learning: (1) positive interdependence, designating the importance of all participants contributing positively to individual and group accountability; (2) considerable face-to-face interaction; (3) clear individual and group accountability; (4) frequent use of both relevant individual and group skills, and (5) frequent and regular group processing (Johnson et al., 1988; Johnson & Johnson, 1994).

Research has shown cooperative learning as an active learning strategy can positively impact student learning outcomes within the postsecondary classroom. Research indicates cooperative learning can increase student motivation (Fernandez-Rio et al. 2017), encourage more student evaluation to enhance their metacognition (Breed, 2016), produce more equal participation (Lange et al., 2016), and increase intrinsic motivation (Tombak & Altun, 2016). Further, frequent exposure to cooperative learning can positively impact social skills, peer learning, and transferable skills such as time management, communication, and presentation skills (Healy et al., 2018). Lastly, of particular interest to this study, the use of cooperative learning within preservice teacher programs can reiterate the students' social and thinking skills (Pablo & Gallardo-Saborido, 2015).

Previous research indicates that the use of WCD and cooperative learning separately can positively influence postsecondary student learning. However, WCDs do present barriers to student participation such as fearing their ideas are unworthy, facing criticism, lack of student efficacy, or course climate (Rocca, 2010; Wade, 1994).

A gap in literature exists looking at the intersection of formal cooperative learning practices to facilitate class discussions. The use of formal cooperative learning groups built using practices as indicated by Johnson et al. (1988) and Johnson and Johnson (1994) could help to mitigate the barriers students experience during WCDs and could enhance the students' learning experiences. Thus, the goal of this study was to describe student perceptions of the impact and barriers of discussion groups facilitated with cooperative learning principles.

Methods

The use of CDGs and a parallel case study were conducted within a required Agriscience Education course for third-year students at a large Midwestern university. This course had a focus on experiential learning and began with an enrollment of 28 undergraduate students.

Methods: Cooperative Discussion Groups

CDGs were established during the first session of class. Students were randomly assigned to seven groups of four by handing each student a random card from a shuffled deck of 28 cards containing all suits of the cards one through six and the ace. Students were instructed to sit at the table corresponding to their card value. This method ensured that groups were random and aligned with recommendations from Johnson et al. (1998) for group randomization. Then students were introduced to the anticipated use of CDGs over the semester. The first CDG activity was to structure the groups and assign the first group role that students were to hold in the first three weeks of the course.

In summary, there were four group roles (moderator, recorder, reporter, and discussion delegate) that were rotated between members every three weeks. The moderator's task was to lead the group in keeping discussions on topic; the recorder's task was to keep a written/typed record of the group's conversation; the reporter was tasked with sharing their group's discussion highlights on the daily discussion board posted on the class Learning Management System page; and the discussion delegate was tasked with summarizing and sharing their CDGs conversation highlights in a WCD at the end of the class period. A clear expectation was set that students were to participate in all group discussions regardless of their role in their group. This expectation was monitored through student peer reviews that asked each team member to (anonymously to everyone but the instructors) review their group mates on their involvement within discussions and completion of individual role activities. After the first class, one student did drop the course, leaving one group with only three members. In this instance, the duties of recorder and reporter were combined for the duration of the semester.

About 75% of in-person class meetings had an activity that required students to work within their CDGs to either discuss their experiences with that day's topic, complete an activity, or generate ideas of how to implement Positive Youth Development (PYD) principles within their future classrooms as agriscience education teachers. The CDG

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discussions or activities ranged in length of time from 15 minutes to 50 minutes. An example of a CDG discussion topic was how they observed PYD principles implemented within their high school Agriscience Education program and an example CDG activity was creating a mock program of activities for an Agriscience Education program. Due to this study occurring in the spring semester of 2020, the course shifted to a purely online, asynchronous modality at the conclusion of the 12th week of class due to the university transition caused by the COVID-19 Pandemic; thus only two role rotations occurred, equating to three roles served. Most students had one role they did not participate in. The exception to this was one group who had a member drop the class from their schedule after the fourth-class session as mentioned above. Therefore, these were the only three students who participated in all four roles during the synchronous course sessions. Finally, CDG implementation included graded aspects based on the group's online submissions, assignments, and peer & self-reviews. These graded components comprised about 21% of the final course grade.

Methods: Research

The research in this study followed a single-case exploratory case study design due to the focus of this study being the impact of CDGs on a very specific real-world context (Yin, 2018). In addition, the case of interest could be considered a common case, since neither the teaching method nor the course of interest is new, but no research could be found that focused on this particular intersection of agriscience education and CDGs. Initial data collection occurred in April 2020 at the conclusion of the course. All students were offered an extra credit opportunity to participate in this research project and earn up to 15 bonus points (equal to 2% of the total course grade) to answer three reflection journal prompts (five points each) centered around their experiences within the CDGs. This extra credit assignment was accompanied by a rubric detailing how points would be awarded based on length and quality of answers to each prompt. This rubric mimicked the same rubric that was used to grade the two philosophy statement assignments from the same semester, so students would be already familiar with the format. Rubric grading categories addressed length, grammar, thoroughness of answers, and the expectation that answers should come from their own reflections on experiences. Students were given one week to complete the prompts and submit them to the course assignment submission portal to be eligible for the extra credit points. Consent to participate in the research study was not required for students to receive the extra credit. Consent was obtained at the beginning of the extra credit assignment if the student chose to participate in the research study. Eleven students completed the extra credit assignment and consented to participate in the study ($n = 11$). Finally, students were asked at the end of the assignment if they were willing to be interviewed to learn more about their experiences. All research processes, including the awarding of extra credit, received ethical approval (via exempt determination) from the University IRB office.

The researchers both line-by-line coded submissions from five students independently and came together to compare codes for inter-rater reliability. While no inter-rater reliability calculations were performed, the researchers agreed that there was enough significant overlap between the two working codebooks that the remaining six submissions were split between the two researchers who then open-coded these reflections. The researchers met to analyze the categories and the emerging themes after all student responses were coded. The data analysis process resulted in the first four themes of the findings.

Students who consented to the follow-up interview were purposively sampled to complete the second round of data collection after the initial themes were identified. Students were sampled based on their written responses and data saturation was achieved after four interviews. The first two students were selected because their written responses indicated significant, unique, negative codes that contrasted against their classmates' responses. The third student was identified because he was the only participant within the three-person CDG who indicated an interest in being interviewed, and the final student was identified because she was considered a leader within this cohort. Multiple students had not only mentioned her name in their written responses, but she also served as the president of the undergraduate student organization that focused on professional development and community building for the university's Agriscience Education majors, and those who were interested in Agriscience Education.

After the four interviews were conducted and recorded with participant consent at the end of Summer 2020, the interview recordings were downloaded, transcribed, and line-by-line coded to identify statements and quotes that aligned with the existing themes from the first round of data collection. These codes were then triangulated with the original findings and analyzed using the constant comparative analysis to determine if any new themes arose, and then summarized for dissemination (Glaser, 1965). Participant names have been changed to pseudonyms to protect their privacy. Pseudonyms that begin with the letters A-D participated in both rounds of data collection while those beginning with letters E-I only participated in the written round. Finally, trustworthiness was addressed through multiple strategies (including data triangulation, peer debriefing, and member checking) as laid out by Elo et al. (2014).

Results and Discussion

Initial analysis indicated four themes that arose from the data: *Not another group project*, *Collaboration through designated roles*, *A deeper understanding of course material*, and *Pedagogy of CDGs*. However, upon further comparative analysis, some codes were pulled from these four themes to comprise our fifth and final theme: *Reflecting on others' experiences as agriscience students*.

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Theme 1: Not Another Group Project!

Our first theme indicated the overall success of the discussion groups. Students relayed how at the beginning of the semester they did not feel comfortable with the groups – feeling like they would just be “another group project” like they had experienced in other classes. Students discussed how they feared the CDGs would be like group work in other classes where they were placed in groups to complete an assignment and not all group members contributed equally and not everyone’s voices were heard. However, across all written respondents, comfort and confidence grew over the semester. Most students felt it helped their learning within the framework of the course and that they enjoyed the experience of sharing with a smaller group of classmates in contrast to the entire class – allowing for everyone to participate more. An example of this is when Abby stated in her written answers: “[WCD] doesn’t always allow each person to share...in depth like small group discussion does.” In addition to this, Delilah shared how she felt that the duration of the groups was a major factor in this success: “I’ve never really done groups where it was done for the duration of the entire semester...you kind of built...more connections with [your group mates] as well.” Although some conflicting codes did arise with student concerns of not having enough time to complete the group activities, like with Erica stating in her written answers that “I think the biggest hindrance in the setup of our group discussions was a lack of time to discuss. I know it was hard to fit everything we needed to do each day into 55 minutes, but I felt like every time we [met with our CDGs] it was rushed.” This, however, was not a universal feeling, as Henry wrote in his reflections that “we are always given an appropriate amount of time to discuss and complete our personal tasks. This is something the professor always did well.”

Theme 2: Collaboration Through Designated Roles

The next theme illustrated the students’ success with their group members within the four defined roles. Within this theme, you can find two subthemes, with the first subtheme being talking as equals. Students felt they were able to argue and debate in a safe place with a decreased sense of judgment because the students had experience working with their groupmates through this structure, and as Henry shared, “We all talked as equals – we also worked on everything together and shared it equally”. To further illustrate this, Frances shared that “there was a large difference between [CDGs and WCD]. In the smaller group, I felt comfortable talking about my opinions and ideas that I probably wouldn’t have shared with the entire class.” Similarly, Gina wrote about her experience in the CDGs compared to other classes: “I was a lot more involved in the small group discussions than I normally am in large groups...it was less like we were fighting to get our opinions heard in a short amount of time before class moved on.”

The second subtheme from theme two was that of the direct effects of group roles. Students felt the roles guided expectations, distributed work evenly, and most appreciated

that they were able to “switch up” their roles through the semester. For expectations, Cade shared that he felt the roles provided “a good balance of power” when referring to how his groupmates operated in the four defined roles. Indra similarly shared that compared to her other classes, this class was very efficient with the CDGs, noting that “knowing who our groups were and what we were supposed to do, we did not waste time” when they prepared to complete the group activities. Illustrating the distribution of work, Delilah reflected that the roles “spread [the work] out more and it made everyone accountable. I mean there were times...a group member wouldn’t remember to do their part, and we would have to remind them. But that person (participant’s emphasis) still had to be the one to do it.” After a follow-up on her emphasis, Delilah shared that she was not referring to one specific person, but rather whoever of the four group members needed to be reminded, including herself.

Finally, the appreciation of the role changes was an opinion shared by many of the participants, like when Henry wrote that “what was nice about [the rotation] is how the responsibilities would change, giving everyone an opportunity for each responsibility.” Similarly, Gina wrote that “varying the roles [made it] harder to get bored” like in other classes that used a similar approach to group work. It should be noted, however, that some participants felt permanent roles would be a better approach than the rotations, as exemplified by Cade citing the hypothetical situation of “one week the sharer not having to do anything... the next week...the uploader not having to do anything. If you lucked out in both weeks, life would be easy.” When following up on this answer in the interview, Cade couldn’t specifically think back to this situation happening, but the hypothetical worried him, nonetheless. It should also be noted that each role had a task for every activity and Cade was a member of our only three-person group, having had a group member drop the class after the first session.

Theme 3: A Deeper Understanding of Course Material

In describing our third theme, students felt that the CDGs allowed them to dive deeper into content compared to how they would have participated if the course mainly utilized WCD. Additionally, students enjoyed having the ability to bounce ideas off one another and build on those ideas – effectively making the ideas better and more applicable because they were a collaborative group. This theme can be further divided into two subthemes. The first of which, belief development, was illustrated by students feeling empowered to develop their own ideas and philosophies on course content implementation as opposed to “just being told how to do it” as Gina put it. Additionally, Henry shared that “the questions I was able to ask another student were different from what I could ask the teacher” since he usually felt uncomfortable reaching out to any of his college instructors. Relating to developing a philosophy statement, Frances shared that her group both helped and hindered her belief development. The help portion came from the “unique experiences they had with [PYD]” that eventually broadened her mind of what PYD could look like in a variety

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of School Based Agricultural Education (SBAE) programs. However, the hindrance came from when she felt that her group mates only “told me what I wanted to hear” or when her group mates would “share ideas...and they would be amazing...very different from mine, so I questioned myself,” which likely indicates some social comparison within her CDG.

The second subtheme that arose centered around reflections that identified specific CDG activities that helped with their philosophy development assignments. Some examples include Indra reflecting on an activity where “we all sat down together and completed a worksheet for each of the three circles in ag ed” to illustrate how PYD principles could be implemented in various areas of an SBAE program – providing her with new insight. Similarly, Erica reflected on when the students were tasked with ranking the 40 developmental assets (Search Institute, 1997), writing that “this was one of the best prompts we had. My group struggled ranking the assets [SBAE] teachers do well, versus what we have difficulty with. I thought it really helped us understand what we can do to improve.” There were some contradictory codes for this subtheme, primarily focusing on how conversations sometimes ended very quickly, like when Abby shared in her interview that “all of our high schools were essentially the same” in an effort to illustrate the need for CDG prompts to be ambiguous and not easily answered. She further noted that straightforward questions didn’t foster discussion because “we are all kind of on the same page.”

Theme 4: Pedagogy of CDGs

The fourth theme consisted of participants reflecting on how CDGs were used in the classroom, and how they, as preservice teachers, could potentially use this method. Students identified different ways that the CDGs worked better with certain topics and activities than WCD. Abby broadly referred to this in her written reflections by noting that she enjoyed the CDGs with “discussing experiential learning and [PYD]” because all of her classmates “have good (and bad) examples of ways to implement [experiential learning and PYD activities] in a real program.” Especially since WCD “doesn’t always allow each person to share their own experiences in depth.” Brenda had a similar feeling in her written response as well, stating that because of the CDGs, “My group members...gave me ideas of other experiential learning and [PYD] techniques they experienced that I could apply.” Gina took a different angle on this, focusing more on the type of topics that worked well within the CDGs, sharing that she felt that complex ideas were best learned with this type of discussion. Expanding on this, she shares that “It was easier to break down ideas in small groups than it was in the large [group setting].” This was a thought repeated by Henry when he focused on how “the groups help me connect [class concepts] to Ag-Ed...my group was able to help me piece it together,” while referring to the “tough topics” that were covered in class.

An additional aspect of this theme was represented by students who found that discussion was much more efficient within CDGs, given certain parameters, which

also led to a feeling that they had more of a voice in the class when compared to their experiences in other courses that primarily used WCD. Indra shared this directly as she wrote “as the semester went on, it became something that I looked forward to because it was a way for me to voice my thoughts and opinions.” Gina indicated this benefit of comfort and voice through the absence of peer judgment when grappling with complex ideas: “If we couldn’t work out between the four of us what a concept was really trying to do, or how to implement it, we could ask a professor and not feel like the whole class was about to hear our attempts to understand, which increases comfort levels.”

Theme 5: Reflecting on Others’ Experiences as Agriscience Students

Our final theme arose from students reflecting on others’ experiences as an agriscience student through learning more about their peers’ experiences. Particularly, students felt that the CDGs helped them open their eyes to see a much wider variety of triumphs and challenges that their peers experienced from their unique home high school agriscience education programs. An example of this is when Brenda shared that her CDG members “provided insight of what was supposed to work in their respective [school programs] but didn’t.” Similarly, in his interview, Cade stated that “there’s value in people sharing their experience” and that the CDGs were excellent in this regard because it provided a look inside the differences of “traditional and non-traditional programs” depending on the experiences of their groupmates. Delilah also expanded on this in her interview, stating that “we all have good and bad examples of ways to implement things in a real program. [WCD] doesn’t always allow each person to share their own experiences in depth like small groups.”

Frances took a different approach to expressing this theme, by stating precisely what her group members taught her. One classmate taught her how it was “coming from a very long-standing traditional agriculture background,” another group mate taught her “background knowledge and leadership skills,” and her final group mate went to the same high school as her but taught her how even though they came from the same program, they “had two very different experiences.” Within this final theme, students also acknowledged that the stronger connections established through the CDGs helped build working relationships that students could see being valuable for networking and collaboration, like when Henry wrote that the CDGs were especially helpful since it included the “factor of personal connection.” Finally, Abby shared in her interview that she felt her group ended the class with a strong enough bond now that they would “be each other’s go-to” when it came to bouncing ideas for the rest of their college career and into student teaching.

Summary

Students who participated in this study indicated that they believed the use of CDGs as a teaching method was a success, allowing them to collaborate with their peers in ways they would not have anticipated otherwise, fostering a deeper understanding of course material, and reflecting on how they may implement this in their future classrooms. Further the participants indicated they valued the CDGs over WCD as both a learning experience and future teaching method.

Limitations

It is important to acknowledge the limitations of this study. The first limitation was that of cutting the CDG activities short due to the transition to online, asynchronous learning amid the start of the COVID-19 pandemic. While nothing could be done to foresee the consequences that arose from the pandemic, the shock of experiencing a chronic, shared trauma as defined by Tosone et al. (2008) could have clouded the results from this study. This is particularly important to remember when we recognize the times of data collection at one and five months after the onset of the pandemic, and that the CDGs may have been remembered as more positive experiences in comparison to these time periods. Additionally, not all participants had the same experience within their groups, as exemplified by Cade who was a member of the three-person group after their classmate had dropped the class. Further, it should also be considered that this course was quite different from the other Agriscience Education courses at this university at the time – with Spring 2020 being the first term that students were not enrolled in this course at the same time as their teaching methods course. Lastly, it is important to note that WCDs were not used in this course, so students were comparing the CDGs from this course to WCDs from other courses. Thus, the content, instructor, and students of the other courses might have influenced the student perceptions of the WCDs.

Recommendations

Recommendations for implementing CDGs are provided based on the findings. First, instructors should provide sufficient time to implement CDGs during the provided class time. When implementing these groups, especially in shorter class periods, practices like instructing groups to sit together at the beginning of class, providing specific time lengths for activities, and reminders of time remaining for these activities will benefit students as they work. Second, it is also important to ensure that all group roles will have a task to complete each class period. Such as providing time to allow for the discussion delegates to share out to the whole class or having a discussion post for the reporter. Finally, the use of case studies in the course had a much better reception by students when completed in CDGs as opposed to WCD. This indicates that some learning activities already being implemented in WCD have the potential to work better within CDGs.

For future research, we recommend that researchers should seek to address how CDGs can potentially impact courses without philosophical elements and courses with large enrollment numbers of students as this case study was centered around a course with relatively small enrollment.

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