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STRATEGIES FOR SUCCESSFUL GROUP WORK

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Working collaboratively is a necessary competency for students engaging in complex interdisciplinary learning. However, students struggle when there are issues with the quality or timeliness of peer contributions and when negotiating ideas with others in a group. Instructors can use participatory technologies and formative assessment strategies to support collaborative work and set conditions to promote positive social networks. In this paper, three scenarios from instructors' reflective journals are used to discuss challenges in designing an interdisciplinary group project for undergraduate students. Reflecting on the challenges and strategies employed by the instructors can be used to inform subsequent iterations of collaborative activities.

Keywords: collaboration; group work; teaming; assessment; social networks

BACKGROUND

Undergraduate students can benefit from learning to work collaboratively while doing group work. There is extensive research concerning the use of group work in undergraduate programs in education as a way to help novice teachers learn how to work collaboratively (Barkley, Major, & Cross, 2014). In this study, the undergraduate students are pre-service teachers learning to work collaboratively with colleagues and foster collaboration with their own groups of students in classrooms. Group work provides a platform for student teachers to learn how to work

interdependently while developing a shared responsibility for improving their instructional practices (Battersby & Verdi, 2015) and strengthening collegiality (Guskey, 2003).

Moreover, teachers develop interpersonal interdependence when they work collaboratively. This is explained by Social Network Theory which highlights the positive and negative effects of these interactions (Moolenar, Sleegers, & Daly, 2012). A positive aspect of these interdependent relationships is the contribution to a culture of learning (Friesen, 2009). When social networks are positive (Thoonen, Sleegers, Oort, & Peetsma, 2012), collaboration gives teachers the opportunity to test their ideas and dialogue with experts and their colleagues (Penuel, Sun, Frank, & Gallagher, 2012). Such collaboration generates a synergy and creates momentum for teachers improving their instructional practices (Coburn, Russell, Kaufman, & Stein, 2012). However, if social networks are negative this can result in inaction and inefficiencies (Field, 2003) that may hinder collaboration. Instructors can support student teachers working collaboratively by intentionally designing supports for group work and fostering positive social networks in their undergraduate classes.

Through careful design, instructors can make group work more effective (Darling-Hammond, et al., 2008) and work towards overcoming the challenges of group work. Learning designs that involve group work should consider the type of assessment that will support students both individually and as a group. Formative assessment strategies offer potential for instructors to scaffold group work appropriately (Wiliam, 2011) and provide students with ongoing feedback that allows them to improve their work (Darling-Hammond et al., 2008). In turn, students can monitor their own progress and their group's progress alongside instructor and peer feedback (Bransford, Brown, & Cocking, 2000), and identify areas for improvement (Dijkstra, Latijnhouwers, Norbart, & Tio, 2016). However, challenges of classroom group work persist, such as student free-loading

and the use of peer assessment to determine individual contributions in group work (Dijkstra et al., 2016).

OVERVIEW

The following sections of this paper will draw upon the authors' experiences assigning group work in a pre-service education course. A discussion of the context will be provided, followed by the methodology, and three scenarios to illustrate the challenges of group work. Finally, current strategies for group work utilized during the course will be shared. These strategies can be used to inform subsequent course iterations and other instructors interested in designing group work.

CONTEXT

The presenters are part of a team of instructors that supported more than 400 aspiring teachers to collaboratively design over 80 interdisciplinary projects (35 elementary, 27 junior high and 23 high school units of study). The undergraduate students worked in groups ranging in size from three members to six members. The learning opportunities were designed to engage students in understanding how to design interdisciplinary units of study in collaboration with others. Instructors were able to promote positive social networks by offering frequent opportunities for students to interact with peers, to ask the instructor questions (Penuel, et al., 2012), and to draw on other experts in the field (i.e. invited guests) during class time. Instructors provided in-class opportunities for students to interact with others and to encourage dialogue with their peers (Coburn, et al., 2012) as part of the collaborative process.

METHODOLOGY

Using a collaborative action-research approach and dialogic exchange (Hendricks, 2016; McNiff, 2016), we reflected on our experiences during the first iteration in designing and enacting interdisciplinary group work with the intention to improve our own teaching practice to inform subsequent design iterations. In our reflective journals and artifacts gathered as we taught the same course to different cohorts of students, we recognized that even though we co-developed detailed assessment rubrics and met bi-weekly during the term to discuss assessment, there were many variations with instructional and formative assessment approaches (Wiliam, 2011). In our dialogic exchange, we also noted, some student groupings were not as effective as others. Discussing team dysfunctions provided us with an opportunity to reflect on our assessment practices and clarify ideas about how individuals can work interdependently and demonstrate learning in group work situations for future course iterations.

SCENARIOS

To illustrate some of the challenges encountered by the instructors, three detailed scenarios from instructors' reflective journals are provided.

Scenario A: Group members who fail to meet expectations and contribute

Instructors were challenged when observing one or more group members failing to meet expectations. Students established group norms and set expectations together including communication, meeting times, and platforms (i.e. *Google Docs*) for collaborating. In some cases, groups reported to the instructor that one of their group members failed to follow through on the set goals and did not make any contributions (i.e. free-loading).

Scenario B: Group members do not provide timely contributions

Another challenge encountered by instructors was when a group member did not provide timely contributions. For example, a group had been working well together at the beginning of the course, but at the mid-way point a group member had missed several classes and the group members became concerned about the timeliness of their peer's contribution. When the student returned to class, the work was complete. However, the instructor noted this untimely contribution generated a temporary level of stress among the group members.

Scenario C: Difficulties in negotiating ideas

Negotiating ideas can be challenging for group members. For example, one group agreed on an idea and started to develop their interdisciplinary unit based on the grade level and topic selected. During the next class, one of the group members suggested a significant change involving a redirection to a different topic and grade level. The instructor observed the tension in the group as this new idea was presented. Group members may be reluctant to voice their opinions or cause any group friction through idea negotiation.

CURRENT STRATEGIES FOR GROUP WORK

The three scenarios provided in the previous section were part of the dialogic exchange where various strategies were shared and then utilized to address the concerns regarding group work. The following section presents some of the literature-informed strategies used by the instructors to mitigate group work challenges.

Use of Participatory Technology

One strategy used by instructors was to have students identify their individual contributions to their group work using an online shared document (i.e. google document) by highlighting or labelling them. This use of participatory technologies helped instructors to identify each group member's contribution. Researchers recommend considering the use of participatory technology as a strategy when designing learning involving collaboration (Clarke & Blissenden, 2013). The use of online shared documents by the instructors in this course is one example of a participatory technology that can be implemented to help provide individual accountabilities for contributions in group work.

Self-Assessment

Another strategy used by instructors involved having the students complete a self-assessment to identify their individual contributions and to encourage accountability. Along with their assignments, each group member was asked to submit a self-assessment of their group work using the assignment rubric. Students provided a rationale and evidence for their assessment with their identified achievement level. This formative strategy helped instructors to identify the individual contributions and it also helped students reflect upon their own contributions. By having to provide a rationale, the students recognized how they could improve upon their work before submitting the final assignment. This evidence was useful to instructors in formatively assessing the individual contributions. Giving students a way to improve their work through self-assessment, also contributes to student agency (Darling-Hammond et al., 2008). Dijkstra et al. (2016) discussed the use of formative assessment as a way to focus on developing collaboration skills as students identify their strengths and weaknesses and compare this with their peers. Self-assessment holds potential for strengthening students' collaboration skills.

Peer Assessment

Another strategy used by instructors in this course was peer feedback. When students were working on group assignments, they had the opportunity to engage in formative peer feedback loops. These loops consisted of different peer groups assessing each other's work using the rubric for the assignment. Instructors set aside time in class for groups to assess each other and then have dialogue about the rationale used for the level achieved in the rubric. This activity and conversation gave students ideas for how to improve the quality of their work as areas of strengths and weaknesses were identified. Group members also used the peer feedback to see what individual contributions to the work had been done, a strategy recognized by Dijkstra et al. (2016). Peer feedback, as a formative approach, helped inform students in their group work and instructors in their instructional design decisions for upcoming classes. Friesen (2009) suggested effective teaching involves assessment practices that help students improve their work and guide instructional decisions. This allows students to make gains in their learning and know where to go next as a result of formative strategies such as peer feedback (Wiliam, 2011). Peer assessment, as a strategy then, can be used to provide such opportunities and was used in this course to support collaborative group work.

Access to Instructor Expertise

The final strategy for discussion entailed how instructors from this course provided class time for group work on assignments that give students access to immediate instructor expertise. Instructors made themselves available by circulating the room and attempting to meet with each group during class work periods. Thus, students had access to the instructor and could ask questions, gain clarity on expectations, and receive immediate feedback on their work. The instructor would bring clarity and point out areas for improvement and students could then decide what learning targets to work on next. Also, the instructors used these conversations to inform their next steps in instructional

design. By working together, each instructor and his or her students developed interpersonal relationships supporting a classroom culture of learning (Friesen, 2009). Designing opportunities for students to individually reflect on learning, and dialogue with experts (i.e. the instructor, invited external experts) and their peers about the learning, contributes to a collaborative and positive social network (Penuel et al., 2012).

CONCLUSION

The presented scenarios and the strategies instructors used to face the challenges of group work, show the need to further examine assessment practices related to group work. Studies have been conducted on assessing the individual aspect of group work (Clarke & Blissenden, 2013; Dijkstra et al., 2016), but further study is needed to explore other faculty contexts involving preservice teachers and the associated assessment practices being utilized. We noted the use of participatory technologies to foster collaboration and gather evidence of student learning. Further study is needed to determine to what extent participatory technologies can support student collaboration and support instructors with assessment (formative and summative). Our next steps involve using a design-based research approach (McKenney & Reeves, 2012) to redesign instructional approaches and assessment strategies to support students and instructors when working collaboratively in groups and developing social networks.

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