Student Feedback on Use of Breakout Rooms

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Abstract

The widespread use of video platforms has enriched and expanded options for synchronous learning for students attending class remotely including use of breakout rooms as a venue for peer-to-peer discussion. Although groupwork has long been used in face-to-face classes and there exists abundant research on its benefits, research on the use of breakout rooms as a venue for groupwork including students not physically in the classroom is scant. An end-of-term survey was administered to students in two classes taught using a Hybrid Flexible system where the instructor was physically present in the classroom with some students while other students participated remotely. Primary characteristics students liked about breakout rooms are that they facilitate student-to-student interaction, especially important during the pandemic, allow peer-to-peer learning and assistance, and keep student attention and interest. Primary characteristics noted as those disliked include lack of participation, that they can be awkward, and when they are poorly designed. Students found breakout rooms most productive when instructors provided clear guidance, students were held accountable for the conversation held in the breakout room, and all students participated.

Keywords: breakout rooms, group learning, online teaching

The COVID-19 driven widespread use of video platforms as instructional mediums has enriched and expanded options for synchronous learning for students attending remotely as well as facilitated the offering of classes when some students are attending in person and others remotely (herein referred to as Hybrid-Flexible). Among their many capabilities, video platforms facilitate shared learning through use of breakout rooms as a venue for peer-to-peer synchronous discussion.

A breakout room is a virtual place distinct from the online instructional room (Chandler, 2016). An instructor can host as many breakout rooms as necessary to simultaneously accommodate all students in a class within rooms of a desired size range. Within each breakout room, only those in attendance can hear the discussion and view shared messaging, providing a private space for students to converse. An instructor can move between groups and share information with individual groups. Students may return to the main room to interact with the instructor as necessary for clarification, to ask questions, or report on progress, for example. The target experience is one akin to small group work in the classroom.

There is evidence that student engagement, attendance, and learning decreased with the move to online learning in response to COVID-19 (Hollister et al., 2022). Breakout rooms are one means to engage remotely attending students in synchronously offered classes. Use of breakout rooms has been shown to increase student participation and collaboration when compared to classes without breakout rooms (Wachenheim et al., 2022). Advantages of breakout rooms can include enhanced learning, improved grades, increased information retention, and improved communication and teamwork abilities (Oakley et al. 2010).

Groupwork has been used in face-to-face classes for many years. There exists abundant research investigating its potential benefits. Benefits may include: (1) providing students an opportunity to directly and immediately apply gained knowledge, tools and other content, (2) providing immediate self-assessment of understanding, (3) aiding in memory recall and understanding, (4) developing social skills such as leadership, teamwork, negotiation, and accepting and offering feedback, and (5) providing student accountability over course content. (Wachenheim et al., 2022; Sharmin and Zhang, 2022). However, although use of breakout rooms in synchronous classes offered remotely as a form of group work is growing, particularly as a result of the pandemic, there is little research on their use in this setting (Fitzgibbons, Kruelski, and Young, 2020). Although a growing body of research has been introduced since the pandemic, the relative scarcity calls for additional research that investigates not only the effects of the use of breakout rooms in general, but on student preferences for and learning from the use of breakout rooms of different characteristics such as duration, number of students, and frequency (Lougheed et al., 2012).This information will be of value to instructors considering the use of breakout rooms in their synchronous course offerings that include remote learners. Identifying student preferences is the objective of this study.

Methods

In spring 2021, an end-of-term survey was administered to students in a sophomore-level agricultural finance class and an upper-level agricultural sales class taught by the same instructor. Both courses were taught using a Hybrid-Flexible system where the instructor was physically present in the room and students participated synchronously by being in physical presence or remotely via Zoom. All students voluntarily participated in this project, which was identified as exempt by the NDSU Institutional Research Board (protocol #IRB0003973).

AGEC 246 Agricultural Finance is a lecture course with in-class problem solving and prescribed opportunities for student-to-student interaction. A response system technology is employed. The course is required for agribusiness and agricultural economics majors and is also taken by students outside the department but generally within the College of Agriculture, Food Systems, and Natural Resources at North Dakota State University. There were 88 students in the class in spring semester, 2021 when the survey was implemented. AGEC 350 Agrisales combines in-class lectures with active learning exercises. A response system technology is employed. The course actively engages regional sales professionals as guest speakers and participants in student selling exercises. There were 55 students in the class spring semester 2021. There are no prescribed prerequisites for either course.

Data Collection

The end-of-course survey used to elicit student feedback did not contribute to the course grade. The primary purpose of the end-of-term survey was to compare student perceptions and understanding of course content between the beginning of the term and the end (i.e., to conduct learning assessment). Questions regarding instructor use of breakout rooms during the semester were added to the post-class survey.

Fifty-one students provided complete responses in AGEC 350, a response rate of 93%. Seventy-seven students provided complete responses in AGEC 246, a response rate of 87.5%. Thirty-two percent of respondents were female. Students ranged from 19 to 28 years of age with an average age of 20.9 years. Forty-six percent of respondents were seniors, 30% juniors, 20% sophomores, and 4% freshmen. Eighty-nine percent of respondents were in the College of Agriculture, Food Systems, and Natural Resources.

Students were asked open ended questions and those with numeric or multiple-choice answers as follows:

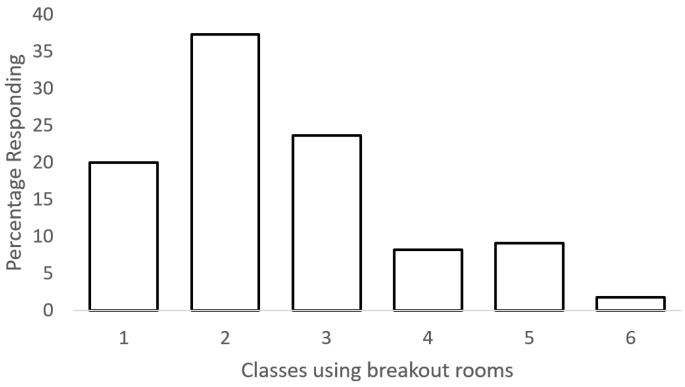
1. In how many classes this semester have you used breakout rooms?
2. What do you like about the use of breakout rooms in a class?
3. What are the most important requirements for a productive and meaningful breakout room?
4. What do you dislike about the use of breakout rooms in a class?
5. What are the characteristics of breakout rooms used by one or more of your instructors that make them unproductive?
6. Do you prefer remaining with the same group within a class period or changing for each breakout room period? (Choices were no preference, prefer staying with the same breakout room participants during an entire class period, and prefer to change breakout room participants each time used.)
7. What is the appropriate size of a breakdown room to maximum participation and generate meaningful discussion?
8. How many times during the past academic year do you estimate you have not participated in class or left early mostly because you did not want to participate in breakout groups?

Open-ended responses were coded into categories as noted in the results section. Most students were using breakout rooms in multiple classes (Figure 1). Only twenty percent of students reported using breakout rooms in only the class in which they were surveyed.

Some students attended but did not actively participate in class, especially those remote, so we were interested in whether the use of breakout rooms requiring active

Figure 1.

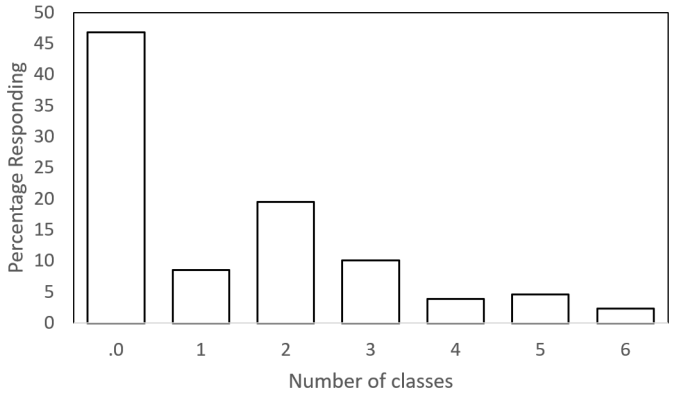
Number of classes respondent's reported using breakout rooms during the semester



participation hindered class attendance. We therefore asked students how many times during the past academic year they had not participated in class or left class early because they did not want to participate in breakout rooms. The average reported number of times was 1.83. Forty-seven percent reported that this was never the case and 85% reported this to be the case three or fewer times (Figure 2). Four percent reported leaving or not attending class due to the use of breakout rooms between 10 and 15 times during the academic year.

Figure 2.

*Percentage of students reporting having left or not participated in class because breakout rooms were used**



Note. * Not shown are the four percent of students who reported having left or not participated in class because breakout rooms were used.

Results

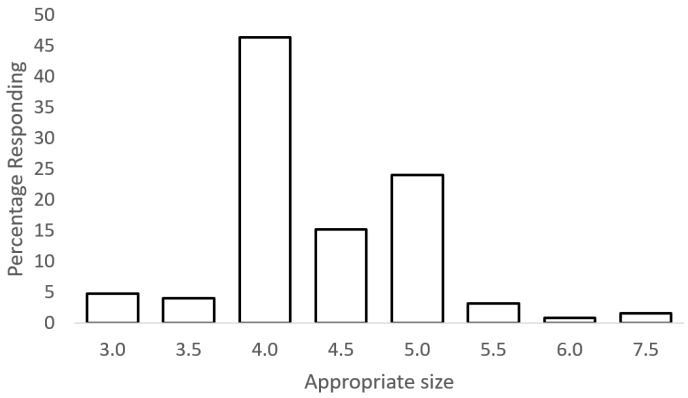
Results are reported by preferences for breakout rooms with a focus on what students like (from question 2) and dislike (from question 4). Responses were categorized. Because an individual student may have provided multiple responses covering more than one category, the sum of responses is greater than the number of students. Likewise, student input on important requirements for a productive and meaningful breakout room (from question 3) and attributes that make a breakout room unproductive (from question 5) are reported. When differences between groups such as by gender are indicated, a chi-squared test is used.

Preferences for Breakout Rooms

Results generally concurred with those of Sharmin and Zhang (2022) who reported that students preferred smaller group sizes, maintaining group integrity, and when there is active participation by group members. In our study, fifty-three percent of students reported preferring to stay in the same group when multiple breakout groups were used in a single class session and about a third (32%) did not have a preference. Only 15% preferred to change group membership within a class session. Most students (85.6%) identified 4 to 5 students as the appropriate size of a breakout room to maximize participation and generate meaningful discussion (Figure 3). The average was 4.4.

Figure 3.

Identified appropriate size of breakout group



Students liked that breakout rooms offer the opportunity to exchange ideas and share information with other students; facilitate student-to-student interaction and allow students to receive help from and offer help to others while working in a small group (Table 1). Students also noted that breakout rooms were enjoyable and broke up class time. Notably, 8.7% explicitly wrote that they liked nothing about breakout groups.

Differences between genders, students who had not participated in at least one class because breakout rooms were used and others, and between the three categories of preferences on group integrity between multiple breakout rooms used within a class period (prefer to change membership, prefer to stay with the same group, and neutral) were investigated. A higher percentage of females (22.5) noted they enjoyed helping and being helped than males (4.8) (P=.003). A similar difference was found between those who had never left class because a breakout room was used (18.6) compared to those who had (3.0) (P =.004). There were also differences between student groups categorized based on their group integrity preferences (Table 2). Percentage mentioning students helping one another (P =.045) and the opportunity to process course content within the group (P <.000) were higher for those

Table 1.

*Categorized open-ended responses to the query "What do you like about the use of breakout rooms in a class?"**

Response	Percentage mentioning
Exchanging ideas and sharing information	46.8
Interacting with other students	34.9
Enjoyable, breaks up class	11.1
Receiving and offering help	10.3
More comfortable to talk with small group	7.1
Opportunity to process and try out course content	6.3
Nothing	8.7

Note. *The total percentage is greater than 100 because some students provided more than one response.

preferring to change groups.

Lack of participation with examples including students staying on mute with their cameras off, complete or considerable lack of discussion, and unwillingness of students to share was noted by three-fourths of students prompted by an open-ended question asking what they disliked about breakout rooms (Table 3). Fourteen percent noted that they can be awkward. Twelve percent noted a reason related to design of the breakout rooms or how they are run (e.g., too many or too few participants, too much or too little time).

A slightly higher percentage of females mentioned awkwardness as a reason they disliked breakout rooms (22.5 versus 10.8 for males) (P =.087) and that they disliked poor mechanics (20 versus 8.4) (P =.066). A higher percentage of students who had never left class due to breakout rooms compared to those who had mentioned the lack of participation (83.1 versus 68.7) (P =.061) while a higher percentage of those who had left specifically noted they could be awkward (19.4 versus 8.5) (P =.080).

Table 3.

*Categorized open-ended responses to the query "What do you dislike about the use of breakout rooms in a class?"**

	Percentage
Lack of participation	75.4
Awkward	14.3
Mechanics	11.9
One person does all work	2.4
Not useful	2.4
Not sure what to do	2.4
Nothing	2.4

Note. *The total percentage is greater than 100 because some students provided more than one response.

Breakout Room Productivity

Students found breakout rooms most productive when all students participated, there was a clear objective provided, student groups were held accountable for the work from the breakout room, and the breakout rooms were well designed (Table 4). A higher percentage of female students than males noted the importance of a clear objective (27.5 versus 15.7) although the difference was not significant (P =.121). A higher percentage of female students than males noted the importance of a well-designed breakout room (15 versus 2.4) (P =.008). A higher percentage of students who had never left than those who had noted the importance of a clear objective (25.4 versus 13.4) (P =.087) and a higher percentage of those who had left noted the importance of participation (86.6 versus 72.9) (P =.055). The latter combined with the overwhelming dislike of breakout rooms without participation may have influenced student choice of leaving class. There were no notable differences between groups defined by their preference for group integrity in what they found important for a productive breakout room.

Table 2.

*Percentage of students indicating reason they liked breakout rooms by group integrity category**

Response	Change	Neutral	Stay same
Exchanging ideas and sharing information	63.2	35.9	48.5
Interacting with other students	21.1	35.9	38.2
Enjoyable, breaks up class	10.5	7.7	13.2
Receiving and offering help	26.3	7.7	7.4
More comfortable to talk with small group	5.3	7.7	7.4
Opportunity to process and try out course content	26.3	5.1	1.5
Nothing	5.3	15.4	5.9

Note. *The total percentage is greater than 100 because some students provided more than one response.

Table 4.

*Percentage providing response to query "What are the most important requirements for a productive and meaningful breakout room?"**

Response	Percentage
Active Participation	80.2
Clear objective	19.0
Accountability	7.1
Good design	6.3
Clear guidelines	2.4
Students know one another	1.6
Instructor present	0.8

Note. *The total percentage is greater than 100 because some students provided more than one response.

Students found breakout rooms most unproductive when other students did not participate, there were structural or design problems with the use of the breakout room (e.g., too little or too much time allocated), and when the objective of the breakout room was not clear (Table 5). There were no notable differences in response when students were categorized by gender and whether they had left class due to the use of breakout rooms in the past. A smaller percentage of those who preferred to maintain consistency in group membership throughout the class (53.8) noted lack of participation than for those who preferred to change membership throughout the class (68.8) and especially those neutral on membership integrity (82.9) (P =.014).

Table 5.

*Percentage of respondents indicating characteristics of breakout rooms that make them unproductive**

Response	Percentage
Lack of active participation	64.7
Structural or implementation issues	23.3
Objective unclear	17.2

Note. *The total percentage is greater than 100 because some students provided more than one response.

Discussion and Recommendations

Responses to open-ended questions overwhelmingly indicate that positively viewed and productive breakout rooms depend on student participation, clear objectives, and shared and understood guidelines for their use. While these were anticipated responses, the degree to which lack of participation was noted as a frequent occurrence was surprising. And it motivates revisiting the design and implementation of breakout room use during class.

Participation

Breakout rooms marred by little or uneven participation as well as off-topic discussion and other forms of poor time management were clearly seen as time wasters and uncomfortable and may have contributed to students leaving the classroom. Supporting the latter, a greater percentage of those who have left mentioned lack of participation as a reason they dislike breakout rooms and that full participation is a key feature of a productive breakout room.

Mentioned challenges are not unique to online breakout rooms. However, in a Hybrid-Flexible or remote learning environment, the challenges may require new solutions. Within in-the-classroom group work, students can more easily communicate with one another and with the instructor and the instructor can easily circulate among groups and watch over the whole class (Saltz and Heckman, 2020). As such, an instructor can ensure groups are working towards the assigned objectives and members are participating. This is not necessarily true with remote breakout rooms. Although some student-respondents noted the lack of an instructor in the remote breakout room as a factor leading to lack of participation, it is not clear how this feedback can lead to change, especially if there is only one instructor and multiple breakout rooms. It does, however, motivate a more regular drop-in plan when students are in the breakout rooms that last for more than a few minutes.

In the absence of regular instructor oversight, identifying means to facilitate and ensure active participation of student group members should be a focus. Accountability, also noted by students as important, is one tool employed by this and other instructors to motivate participation, but this is not always effective, especially if the group rather than the individual is held accountable. Even if a group successfully meets its objectives, an oft-heard complaint is that some members contribute more than others (Chang and Brickman, 2018). It is not always clear why this may be the case although there is some evidence that students not prepared may be less engaged during group work (Gijlers and DeJong, 2005). It may therefore be useful to ensure all students are prepared by having them complete preparation work prior to class such as watching videos or reading material and completing an online quiz or homework assignment. Another option may be to assign specific roles to individual students such as leader or recorder so each must participate for the group to succeed. This concept, often called scripting, has been shown to increase student participation and group performance (Olesova, et al., 2016; Saltz and Heckman, 2020). Cautionary recommendations when using scripting are to consider that instructor-assigned roles may not fit the natural role of a student and may reduce group creativity (Olesova, et al., 2016). Finally, breakout room activities may benefit from initially taking the time to teach group work skills, including the nuances of the online environment (Ismailov and Laurier, 2022).

Group Integrity

As reported by Sharmin and Zhang (2022), our students generally preferred keeping groups the same, at least

during a single class period. And their comments generally indicate this mitigates some of the noted challenges such as awkwardness associated with students not knowing one another. Other than technical convenience for the instructor, there is no reason that consistent breakout rooms cannot be maintained within a single class period. There are, however, considerations if breakout room group integrity will be maintained across class periods that should be considered. For example, if using a Hybrid-Flexible design, an instructor may need to plan around some students participating remotely during some class periods and in-person during others, or a given student (group member) not participating in any given class period, shorting the group of one member.

We originally were encouraged to form groups that included both students attending in person and those attending remotely. There was an implied focus on providing an equitable and equal experience for all students in a class. The groups comprised of a mixture of remote and in-person attendees didn't work well for practical reasons such as ensuring sound quality for remote students to fully participate that was not invasive to the discussion of other groups in the classroom but perhaps more so because in-person students were more comfortable interacting with those also in the room. They could read their body language, those in person were less able to shirk participation and including both in person and remote students required students master and use particular tools such as an online whiteboard. Given the relatively short time devoted to individual breakout rooms, introducing a technology learning curve and the potential for technical difficulties is an important consideration. These are many of the characteristics of Hybrid-Flexible instruction in general that have challenged us as instructors.

Careful Design

Finally, student feedback suggests that clear instructions and appropriate design are necessary for productive breakout rooms, concurring with Saltz and Heckman (2020). Objectives should be clear, both to the instructor and the students and should drive the design and implementation of the breakout room including, for example, number of students, time allocated, and the degree of student accountability required. In addition to accountability of outcome from the breakout room, instructors may also consider holding students accountable as entering members of a breakout room such as having reviewed material and completed an assessment of their mastery of that material. Instructors should be aware of a participant's view and functionality (e.g., what they see within the breakout room), share their expectations, and present clear guidelines including how to ask for help. Instructors may also consider an opt-out option when it is appropriate to minimize student exit from class and to help overcome frustration from students that others are not participating (Sharmin and Zhang, 2022).

Summary and the Future

An end-of-term survey was administered to students in two classes taught using a Hybrid-Flexible system where the instructor was physically present in the classroom with some students while other students participated remotely. Primary characteristics students liked about breakout rooms are that they facilitate student-to-student interaction, allow peer-to-peer learning and assistance, and keep student attention and interest. Primary characteristics noted as those disliked include lack of participation, that they can be awkward, and when they are poorly designed. Students found breakout rooms most productive when instructors provided clear guidance, students were held accountable for the conversation held in the breakout room, and all students participated.

Recommendations

A few recommendations are offered. First, we recommend that considerable thought be given to how to encourage full participation of students in each breakout room. Second, we recommend that instructors share the results of this investigation or their own generated results in an appropriate form with students prior to using breakout rooms. For example, introduce what students believe is important towards productive breakout rooms and what they have identified as potential challenges. You may further highlight how the planned breakout room design and implementation helps ensure a successful experience including motivating them to be fully prepared for participation. For full disclosure, perhaps share that there is some research that suggests, in particular situations, use of breakout rooms may result in decreased performance and reduced student satisfaction (e.g., Blackstone and Oldmixon, 2016). Students may be asked to brainstorm regarding the circumstances under which this may be true. Their input can be used in the planning and implementation of breakout rooms in your classroom. Related, it is important to assess how breakout rooms are affecting student performance and satisfaction in your classes. While the former may be challenging without a controlled comparison, collecting student feedback on a regular basis will reveal student satisfaction and serve as an imperfect but useful measure of how their use is affecting learning.

Third, consider keeping groups together during an individual class session and allow students additional time to meet one another and assign roles during the first use each class session. Instructors may also consider keeping groups together for multiple class sessions. Finally, consider adding an opt-out option for students who do not want to participate. While this may not be ideal, it may help retain students who are otherwise leaving because they do not want to participate in a breakout room and reduce frustration among others due to lack of participation.

Limitations and Future Research

One limitation of the current research is scope of population surveyed. Our survey included students in only

two classes taught by the same instructor at a single university within the same term. Second, the survey focused more on "the what" rather than "the why". To provide more specific recommendations, it is necessary to understand why, for example, students find some attributes as necessary for a productive breakout and why other attributes make them unproductive. It would also be useful to know how often breakout rooms are considered productive or unproductive. Another example is not only querying students if they had left class due to use of breakout sessions, but why. Were they unprepared? Uncomfortable participating? Do not find them a good use of time? Knowing why they left will help guide solutions. Overall, eliciting student feedback will provide information to help instructors effectively use breakout rooms.

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