Students' Perceptions and Engagement Utilizing Group Assignments

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Educators have a vast array of teaching and learning techniques available when planning classroom projects. When introducing lecture content, an educator needs to choose the method that focuses on maximizing student engagement while incorporating the students' perceptions and needs. Research has widely shown that placing students in groups not only increases their educative retention level, but also maximizes student engagement skills necessary to prepare them for the workforce. For our exercise, we started by dividing the class into small groups. Each group received a specific classroom topic with project presentation guidelines. Next, we allotted students class time to meet as a group to discuss topic guidelines, task allocations, and assignment setup while practicing soft engagement skills. Students completed the project by fabricating a PowerPoint presentation and presenting the content to the rest of the class. The last component involved a post-survey assessing the students' perceptions and engagement practices utilized for each group assignment.

Introduction

Group assignments are widely utilized in educational settings. Designing the small group assignment to maximize results can be challenging in multiple ways. In the beginning, the students must start a group assignment off with the right positive mindset. Gable and Haidt (2005) defined positive psychology as "the study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions" (p. 103). Starting a group assignment with a positive mindset benefits both the student and educator. The purpose of this study was to assess the students' perspective of their wants and needs with group assignments for future curriculum change. If we understand their wants and needs, changes could be made to maximize student outcomes and assignment enjoyment. "Emotion has a substantial influence on the cognitive processes in humans, including perception, attention, learning, memory, reasoning, and problem solving. Emotion has a particularly strong influence on attention, especially modulating the selectivity of attention as well as motivating action and

behavior" (Tyung et al., 2017, n.p.). Next, we evaluated how student engagement played a role in group assignments. Understanding the individuals and how they think and learn in the group is just as important as the environment encompassing the group. "While positive psychology and the study of flow are relatively new to the social sciences, their emphasis on increasing student engagement is making a valuable contribution to closing the achievement gaps. Improving education will only make for stronger critical thinkers and problem solvers in a global world that is constantly changing and evolving" (Buck et al., 2008, p. 34).

The authors' institution, The University of Louisville, is committed to utilizing group assignments in efforts to optimize student retention outcomes and prepare students for the workforce. All the authors of this study apply small group teaching techniques in their pre-clinical and clinical courses at the School of Dentistry. When utilizing small groups with dental students, it creates an environment that reinforces content information, develops critical thinking skills, and maximizes student engagement, while preparing them for the dental profession.

Literature Review

Group Assignments

Important characteristics to consider at any educational level when designing and implementing small group assignments include students' perceptions, retention outcomes and group size. The first characteristic to consider when designing group assignments is the students' perceptions. In the planning phase, faculty need to review and discuss the group assignment design with students and allow time for course director and student feedback. Starting early with the student's perspective allows time for project change, so student outcomes can be optimal. When designing a group assignment, research has shown the "success of student learning groups can also vary considerably in terms of the satisfaction of their members, and the quality of educational outcomes achieved" (Lizzio & Wilson, 2005, p. 374). Have students make a list of wants and needs during group work. Then create groups that will optimize the best work environment for the small group assignment requirements. "Students' perceptions are reasonable indicators of the group experience. But beyond that, the students' perceptions of their collaborative experiences may be expected to influence how they respond to similar activities in the future" (Osman et al., 2011, n.p.). If a student finds the group assignment beneficial and pertinent to retaining knowledge in their area of interest, a student will begin the project with an open, receptive, and

positive mindset to optimize assignment outcomes. The second characteristic to consider when designing group assignments is maximizing student retention levels and outcomes. “Group work has the potential measurably to improve student engagement, performance marks and retention and usually succeeds in achieving the potential provided that there are associated assessment mechanisms that leverage appropriate student learning behavior” (Gibbs, 2009, n. p.). At the end of a project, an educator's goal is to find a student with additional knowledge and skills they acquired during the project time that can be applied to future work responsibilities. Johnson and Johnson (1986, p. 31) and Gibbs (2009, n. p.) assessed students working in group assignments achieve higher levels of learning and retain information longer than students working individually. Students want to come to class and acquire information needed for their future careers. Knight (2004, p. 63) found average marks for group work to be 4% higher than marks for individual exercises on the same course. The third characteristic to consider when designing small group assignments is group size. The IDEA Center, a nonprofit organization whose mission is to serve colleges and universities committed to improving learning and teaching, has categorized class size as small (10-14), medium (15-34), large (35-49), and very large (50+) (Benton & Pallett, 2013, n. p.). According to the Eberly Center at Carnegie Mellon University (2020), “Small groups tend to work efficiently because it is easier to coordinate efforts and schedules among fewer people. Some experts claim that groups of more than five or six students tend to be unmanageable” (n.p.). An educator needs to look carefully at the group dynamics and the topic content to cover. Next, always ensure there are enough group members, time and resources to complete the group assignment. Some topics and the amount of content the students need to address, according to the rubric, may require a smaller or larger number of group members to accomplish the task. Flexibility is crucial with setting up your groups, one group may need a setup completely different than the next. Assess for variations and the need to change, especially after the project has started. What one group needs may be completely different from the next. If the students follow the rubric guidelines, let them create an environment they feel comfortable with. When a student is allowed to create and present with the least number of controlled parameters, the results are amazing.

Student Engagement

“Increasingly, college and university faculty are being held accountable for the effectiveness of their teaching. Research has clearly demonstrated that the more college students become involved with the education process, the more they

learn" (Fife, 1991, p. xvii). So how can we get the students involved and maximize the use of this collaborative-learning method that actively engages the students in each group? First, we need to understand the definition of student engagement and what approach is utilized. The NSSE (National Survey of Student Engagement) organization defines student engagement as "the amount of time and effort students put into their studies and other educationally purposeful activities" and "how [an] institution deploys its resources and organizes [its] curriculum and other learning opportunities to get students to participate in activities that decades of research studies show are linked to student learning" (n.p.). Hodges (2018, n. p.), along with Michelene and Wylie (2014, p. 219), addressed the four different documented key featured categories of the ICAP framework of student engagement: Interactive, Constructive, Active, and Passive. Group assignments are a perfect example of the Interactive category in this framework of student engagement. "Interactive groups would have the description of dialoguing with co-inferring (taking turns generating knowledge and incorporating feedback) with a cognitive outcome of co-creation" (Hodges, 2018, p. 6). "According to this model, both passive and active forms of engagement may help students store information, but only constructive and interactive modes promote students' abilities to infer and transfer ideas, leading to deeper, more robust learning" (Hodges, 2018, p. 4). Next, let's look at student engagement in regard to learning communities during group assignments. "Engagement to form communities focuses on the ways in which students can be involved in helping to shape the institutions and societies of which they are part" (Ashwin & McVitty, 2015, p. 345). A student's learning community can encompass a variety of different influences from students inside and outside the university. During an interactive group assignment, each student will bring their past experience learned skills into the group discussions and these interactions will influence the group assignment process and outcomes. Each student needs to be able and comfortable to express opinions and past successful outcomes with previous group projects, during the assignment process. When students exchange information freely, learning communities are formed and strengthened in different areas, not only inside but, outside their respective institutions and professions. Students must be able to function and collaborate within a community to prepare the student for their future professions. Student engagement in these communities is where it all begins. "Close interaction with other group members can generate a sense of community within the small group and/or a sense of shared disciplinary identity; and, quite simply, social interaction can make learning more interactive and fun" (Mills & Alexander, 2013, n.p.). Lastly, we need to discuss the student's role during

the engagement session and what that means to the group. According to The Center for Teaching and Learning at Washington University (2020), "One way of providing supportive structure to students in a collaborative learning environment is through assigning roles within group work" (n.p). The Teaching Center goes on to identify the benefits of assigning roles for group participants. These role assignments offer an opportunity for focused group interactions, clear avenues for participation, individual accountability, strengthen their communicative skills, and help disrupt stereotypical and gendered role assignments. All of these are important in a learning community environment and will give the student time to improve work skills necessary for the job industry. "Professional education must adequately prepare graduates to practice in a continually changing context; for example, graduates will increasingly work in cross-disciplinary teams and with people from diverse backgrounds" (Almajed et al., 2016, n.p.). Overwhelming research continues to prove the benefits of social and teamwork skills during small group assignments in any educational field (Park et al., 2020, n. p.). An educator needs to firmly understand how the student's role, community environment and skill building practice shapes and influences each student. These students will become the future workforce of the world.

Methods

Study Objective

The purpose of the study was to implement a small group environment for dental topics addressed in pre-clinical and clinical courses and to attain feedback on the effectiveness of group assignment utilization during the four years in dental school. Dental topics shouldn't be any different with group assignment effectiveness and success, if the group assignments are formulated and executed properly.

Study Design

This study design included a small group assignment followed by a post-exercise survey to examine the students' perspective on small group assignments addressing dental topics. The Institutional Review Board at the university approved this research.

Participants

All D1-D4 students (n=480) completed and presented the classroom rubric graded small group dental assignment. After each group assignment was completed all D1-D4 students were asked to complete a voluntary post-exercise survey (n=320). Research participation was anonymous and voluntary and there is no grade attached to the post-completion exercise survey.

Instruments

The study began with students divided in smaller groups, usually consisting of no more than 15 students per group. Each small group is assigned a specific dental topic that the group will be in charge of addressing. The guidelines for the group assignment and rubric grading criteria was handed out and/or posted on Blackboard prior to the groups starting. Course Directors and faculty are available for student feedback at any time prior to, during and after the assignment deadline. Upon completion of group assignments, students were graded based on rubric categories and criteria with averages converted to a "Likert scale" for comparison. Following the completion of the group projects, the student was asked to complete a students' perspective voluntary survey. The survey consisted of 22 multiple choice, fill in blank and "strongly agree" to "strongly disagree" range questions. Survey results were converted to a five-point Likert scale, percentages and open-ended responses recorded. There are no demographic information questions asked on the survey, so students are not identified and the study carries minimal risk to the students.

Results

Students agreed to participate in this voluntary study at the end of the Spring 2019 semester. The first question assessed from the survey asked participants to evaluate which method of educational practice they preferred when they encounter new course material. The students were given three options of individual assignment, group assignment and lecture format. The acceptance rate of group assignments as the preferred educational practice was 17.24% for D1 students, 33.63% for D2 students, and 35.71% for D3/D4 students. Results show a positive increase with students preferring the small group teaching technique as they progressed through their four years in dental school. Exposing the students to well structured, rubric graded group assignments over time will create a positive student perspective and environment to this teaching technique.

As student exposure increased to group structured assignments so did student acceptance levels.

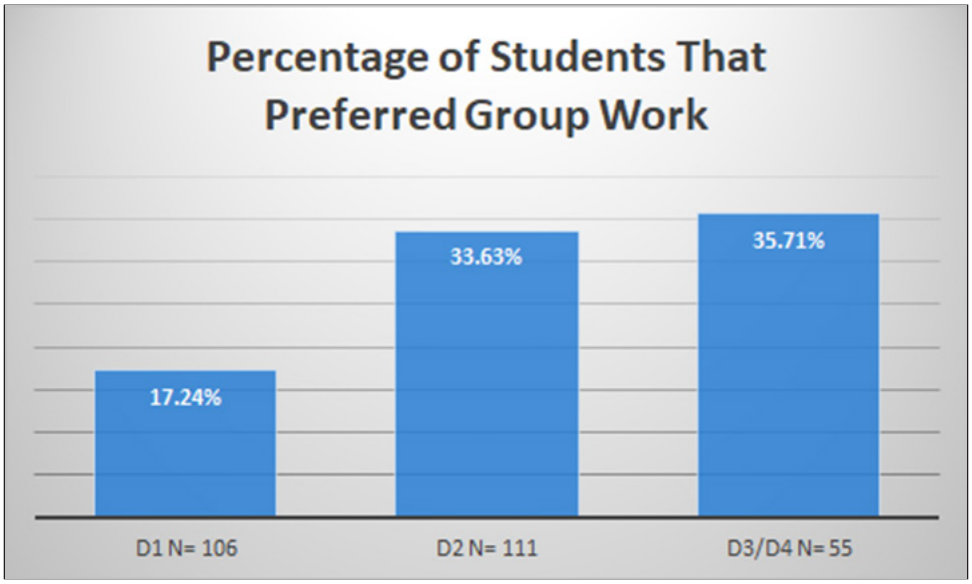

Figure 1. Question # 9 on Post-Survey: What method of educational practice do you prefer? *Strongly Agree/Agree Answers Combined for Positive Percentage Response

Dental topics can be complex and confusing for dental students. About 37.93% of first-year dental students agree and/or strongly agree that utilizing group assignments makes it easier to understand dental information. A dramatic positive increase in percentages revealed about 59.29% of the D2 students and 55.36% of the D3/D4 students agree and/or strongly agree with the D1 students that group assignments helped them with understanding dental information and increasing their retention outcomes.

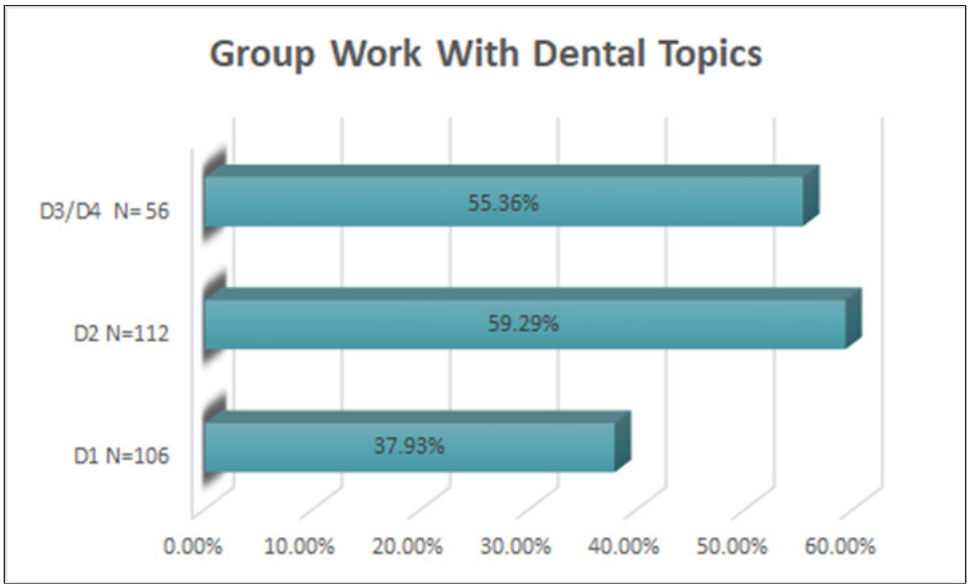

Figure 2. Question # 7 on Post-Survey: Utilizing group assignments makes it easier to understand dental topics.

*Strongly Agree/Agree Answers Combined for Positive Percentage Response

The most effective group size varied by class. The preferred number of group members starts with 50.0% of the D1 class preferred 4-6 students, 53.10% of the D2 class preferred 4-6 students, and 67.86% of the D3/D4 students preferred 2-3 students. In the dental curriculum, the D1 and D2 students are classified as pre-clinical course work consisting of dentoform exercises and classroom work. In the dental curriculum, the D3 and D4 are classified as clinical course work consisting of real patient procedures and classroom work. The research overwhelmingly revealed that in pre-clinical course work students preferred no more than 4-6 students in each group for the environment and resources necessary to complete their course work. Students in the third and fourth clinical years preferred a more intimate smaller group setting of no more than 2-3 students in order to complete the assigned task. The smaller groups allowed them to “dig deeper” and “understand the concepts more clearly”. Students preferred smaller group member numbers even though the workload was more for each student.

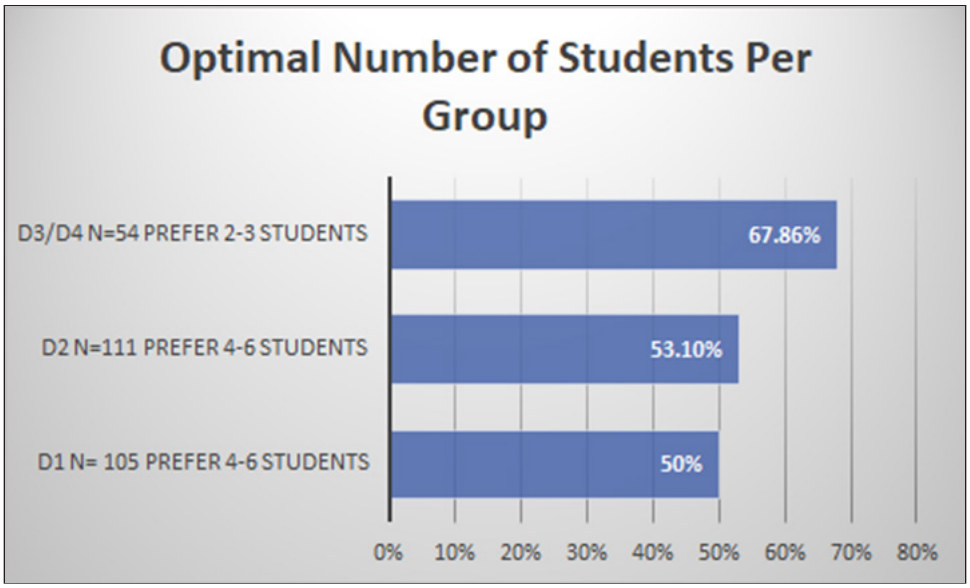

Figure 3. Question # 18 on Post-Survey: What number of students is optimal with group assignments?

*Group options consisted of 2-3 students, 4-6 students, 7-8 students, 9-10 students, and 11+ students.

Dental students (D1-51.72%, D2-46.90%, D3/D4- 42.86%) agreed and/or strongly agreed that it's ok to ask them to contribute more than their fair share during an assignment. Comparing the percentages of D1-D4 students we did see a starting D1 team approach to "get the job done, even if it's extra work on one student" to a graduated D3/D4 approach of "it's a profession and each student needs to carry their own weight." As a team driven profession, in the beginning students are tolerant for doing more than their fair share, but as time goes on students understand they're part of a profession and accountability and responsibility need to be taken seriously. If a student does their part, they can come into the group prepared where deeper learning and topic exploration can take place.

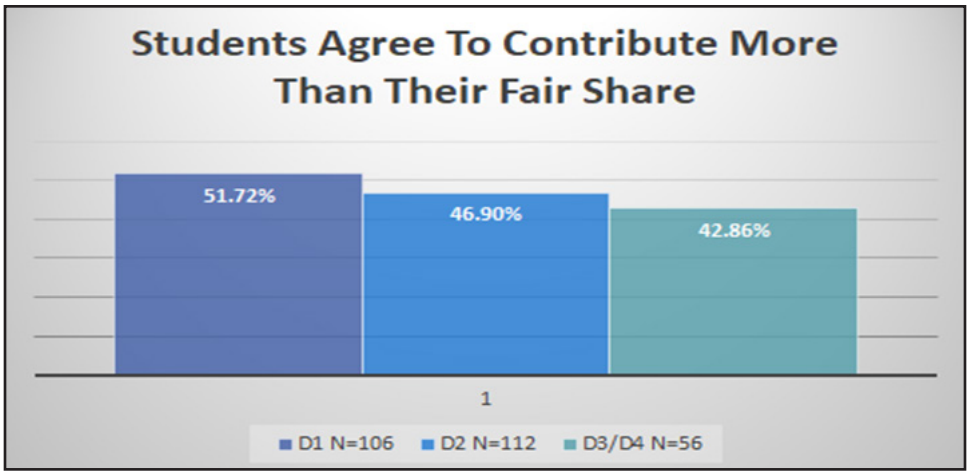

Figure 4. Question # 6 on Post-Survey: It's acceptable if I'm asked to contribute more than my fair share?

*Strongly Agree/Agree Answers Combined for Positive Percentage Response

The last question analyzed in the survey asked participants to rank five group assessment skills they viewed most important to least important during group work. About 49.14% of the D1 students, 39.82% of the D2 students and 46.43% of the D3/D4 students list "Communication With Other Students" as the most important feature in groups. About 31.03% D1 students, 38.94% D2 students, and 37.50% D3/D4 students stated the next important feature was "Working Collaboratively and Solving Problems." These results revealed students value and understand the dynamics of group work. They grasped the concept that focusing on communication techniques and working with others is vital to their assignment outcome and work skills necessary for their profession.

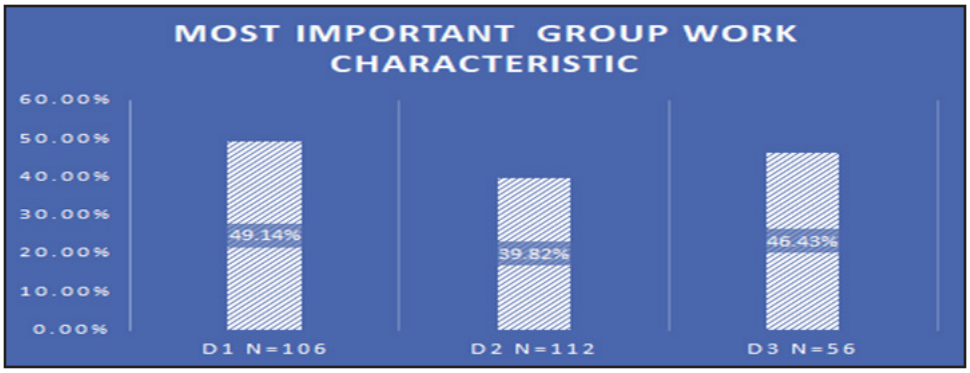

Figure 5. Question # 13-18 on Post-Survey: Rank what characteristic you found most important to least important while participating in your group assignment.

*Responses used only once.

Limitations

The first limitation was the due date of the group assignment. This assignment was due at the end of the Spring semester near finals, graduation, and other assignment deadlines. Students weren't able to focus completely on this project and survey responses. More detailed feedback and responses may be received if the deadline would be switched to a time of minimal conflict. This study did not account for any other professions or universities. Our focus was on our students while in dental school. Another limitation was the voluntary status of the research. Our results didn't capture every student in all 4 respectable classes. For future research, it would be beneficial to move due dates, incorporate other professions, and assess how students feel at other universities for deeper comparisons.

Summary and Conclusion

The results of this study could be quite useful to educators at any level and in any profession. Dentistry requires a student to incorporate large volumes of knowledge into manual dexterity and team exercises on a daily basis. This research reinforces the need for developing life skills necessary for the workforce and starting as early in the curriculum as possible. Overall results showed the more students utilized the group technique the more they understood and valued the group approach to teaching. Each group understood the contribution of team building to their respective profession and the need to keep those skills sharp for comprehensive patient care. Student survey results agreed with Hodges (2018), "Active-learning approaches engage students in applying and processing ideas rather than just listening. Active learning, such as group work, has been shown to result in better student learning outcomes and more positive student attitudes" (n.p.). Starting a group assignment with a positive mindset and keeping students engaged is vital when trying to predict assignment outcomes. Stoller (2017) stated, "Student engagement is generally accepted as being connected to academic success, retention, learning, and the student experience. It's a guiding force at most higher education institutions" (n.p). Group work encourages self-directed learners in a team and allows them time to explore the group environment and develop team building skills that prepares the student for the future.

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