

(RESEARCH ARTICLE)



Collaborative group work in an online learning environment and students' academic performance: Perspectives of higher education students in Guyana

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Abstract

This research delved into the issue of higher education students' dissatisfaction with collaborative group work activities in an online setting. Higher education students' perspectives on collaborative group work with emphasis on group dynamics in an online learning environment are highlighted. The purpose of this research was to evaluate the effectiveness of collaborative group work in an online setting in higher education. The findings of this research served to answer the research questions: What are the pros and cons of collaborative group work in an online learning environment? To what extent does collaborative group work contribute to academic performance? What can be done to improve the structure of collaborative group work in an online learning environment? A quantitative approach with a descriptive survey design was utilized, while a convenience non-probability sampling method was implemented to provide the sample of the research. A total of 40 recent higher education graduates formed the sample of the research. The results revealed many pros and cons of collaborative group work in an online learning environment. Eighty five percent (85%) of the students indicated that individual assignments contributed to higher academic performance than collaborative group assignments. While 90 % of the students are in agreement that there will be greater collaboration if students are allowed to choose their group members. Hence, students felt that collaborative group work as a concept is great, but if it is not structured when applied, it can be very stressful and does not contribute to higher academic performance.

Keywords: Academic Performance; Collaborative Group Work; Group; Higher Education; Online Learning Environment

1. Introduction

In many instances higher educational institutions have been insisting that it should be compulsory for students to complete collaborative group assignments. The multifaceted benefits of collaborative group work cannot be overemphasized but in an online setting, collaborative group work has proven to be more challenging rather than beneficial (1). The challenges with collaborative group work were further exacerbated during the COVID-19 pandemic period. The drastic change of pedagogical modality from the traditional in-person classroom setting to the online setting during the COVID-19 period has created more disadvantages in collaborative group work in higher education. The online pedagogical modality has continued after the COVID-19 Pandemic has subsided. Collaborative group work in a face-to-face physical classroom setting is different from collaborative group work in an online setting. The many challenges which were faced in collaborative group work in the in-person classroom setting have been magnified in the pedagogical online setting (2) (3).

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Moreover, higher education students have expressed their dissatisfaction with having to be involved in collaborative group work. Many students felt that group members were formulating excuses not to collaborate in an online setting. Some group members were not present in the virtual environment when group meetings were held and the group tasks distributions were unequal. Many students received marks which they did not work for while others blamed the fail grade of the group on their overall poor academic performance for various courses (4). Many students felt frustrated with having to carry the weight of the group assignment which prevented them from focusing on their individual assessments. This in turn has resulted in students receiving a low total score for the course. Some students have benefitted from receiving a high score on group assignments at the expense of others. The level of frustration expressed by students involved in collaborative group work in an online setting needs to be addressed, as the true reflection of students' abilities will not be reflected in their academic performance (5).

Additionally, many higher education students have expressed their negative experiences with collaborative group work in an online setting and would rather be involved in individual assessments where their true academic performance will be revealed (6). Students are of the view that for collaborative group work to be effective the learning platform has to be blended; they do not prefer to be in a fully in-person pedagogical setting nor online setting only (7). In comparison with the views expressed and the findings presented by global studies on the effectiveness of collaborative group work in an online setting, Guyana's higher education students have expressed similar sentiments. In light of the many challenges faced by higher education students in effectively implementing collaborative group work, this study examined the responses of 40 recent higher education graduates to gain insights on their perspectives on collaborative group work in an online setting in the context of Guyana.

1.1. Purpose of the Study

The purpose of this quantitative descriptive survey research was to gain higher education students in Guyana perspectives on the effectiveness of collaborative group work in an online setting and its impact on academic performance. The findings of this study will provide educational stakeholders at the global, regional and local levels with a framework to address the impact of compulsory collaborative group work on higher education students' academic performance in either an asynchronous or synchronous online learning environment.

1.2. Research Questions

- What are the pros and cons of collaborative group work in an online learning environment?
- To what extent does collaborative group work contribute to academic performance among higher education students?
- What can be done to improve the structure of collaborative group work in an online learning environment?

1.3. Significance of the Study

The findings of this study will provide a conceptual framework for higher education policy makers, lecturers in Guyana as well as global and regional education stakeholders to make the necessary amendments in the layout of course assessments for courses taught asynchronously or synchronously in an online learning environment. This study will provide evidence that will guide the implementation of further research in the associated context. Ultimately this study will serve to provide data that will be added to the established literature.

1.4. Definition of Key Terms

- Academic performance- "gaining knowledge; acquiring skills and competencies; securing high grades and similar academic achievements; securing a progressive career; and intention and persistence towards education" (8)
- Collaborative group work- "students work together in small groups to achieve a common goal" (1)
- Group – "composed of three or more people who have come together for a common reason (e.g., sports teams, work groups, classrooms, therapy groups), whose activities resulted in some kind of output (e.g., scoring goals, producing a product, learning, improved functioning), and who engage in some form of ongoing interpersonal interactions" (9)
- Higher education- "organized tertiary learning and training activities and institutions that include conventional universities" (10)
- Online learning environment- "a structured setting composed of mutually complementary hardware and software components which allow for inclusion and interaction of its participants in purposeful social construction and dissemination of knowledge and competence with the use of flexible computer assisted instruction." (11)

2. Review of Literature

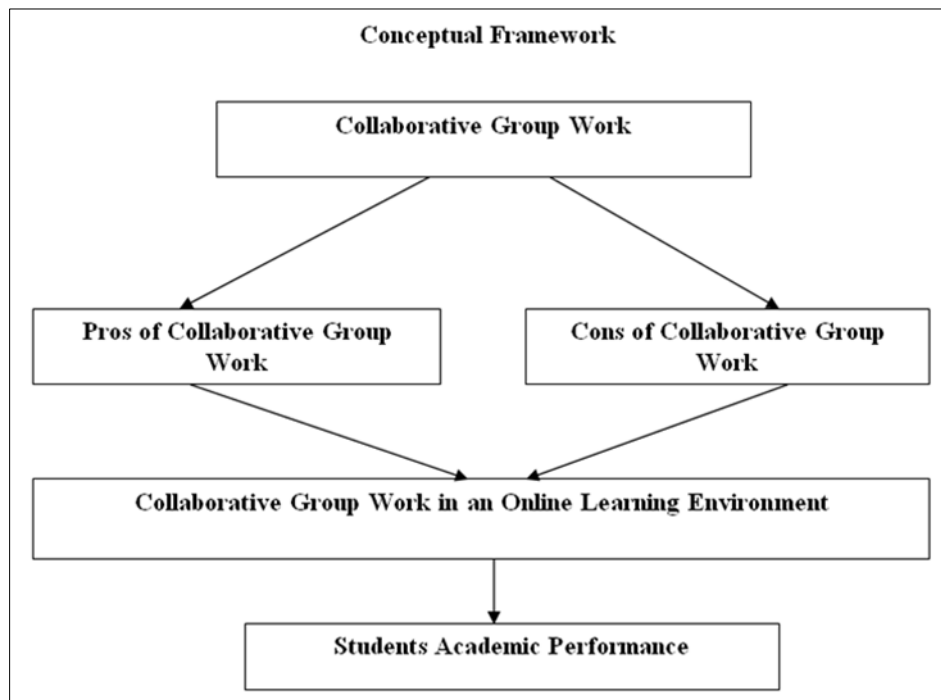


Figure 1 Conceptual Framework Showing the Logical Alignment of the Research Variables

The conceptual framework as outlined in Figure 1 shows that collaborative group work as a concept has its pros and cons. The pros and cons become more influential when collaborative group work as a tool for engagement in an online learning environment is applied. The modality in which collaborative group work is implemented has effects on students' academic performance in higher education. Collaborative group work can be done asynchronously and synchronously in the online learning environment.

2.1. The Pros of Collaborative Group Work

In general, collaborative group work (CGW) or collaborative learning (CL) can be considered as a tool for engagement at all levels and in all sectors. When collaborative group work is structured it can be very beneficial (12) (13). In the education sector, students benefit from the sharing of knowledge and skills, reduced work load, team commitment and effective communication (14). The benefits of collaborative group work lies in the fact that students are able to share their thoughts while at the same time embracing the cultural diversity of their colleagues. Students who are involved in collaborative group work are able to think critically due to multi perspectives being shared within the group which creates a deeper comprehension of the course information. Students in a collaborative learning setting are able to have social interactions with students from other cultures and there is civic engagement (15). The multi perspectives shared among group members can be thought- provoking and may lead to in-depth critical analyses of information

To add, in a study conducted by (16), titled "Online students' attitudes toward collaborative learning and sense of community," it was revealed that there was a positive correlation between collaboration and sense of community. As (15) posited, the interactions made through collaborative learning have lasting benefits if the group life cycle is designed and implemented. As postulated by (17) the benefits of collaborative group work are; "the promotion of debate and discussion, with the consequent improvement of the student's argumentative skills and the strengthening of their decision criteria; also, that with the positive interdependence generated by collaborative work, leadership is promoted, as well as the student's socio-cognitive skills, giving relevance to social interaction and communication, the division and integration of work is supported in an appropriate manner, together with the endurance of the concepts applied in the subject and the use of previous knowledge."

It is evident from the research that there are several benefits to collaborative group work or collaborative learning which can lead to creativity and leadership.

2.2. The Cons of Collaborative Group Work

Collaborative group work if not structured can be very ineffective resulting in students preferences for individual work rather than group work (18). The effectiveness of collaborative group work can only be materialized if all participants are able to agree to the decisions made by all group members. This situation may not be manifested as unstructured group work given by educators may lead to students having tremendous difficulties in the delegation and distribution of group activities among group members. This may lead to students reluctance to work if they are not satisfied with the workload distribution and in many instances students may simply use any opportunity to blame group members because they just want the score for the group work but they are not prepared to do the work (19). Some students by nature are not committed to their studies as others are regardless if they have individual or group assignments. Hence the lack of commitment of these group members may result in personal conflicts and ultimately conflicts among group members (17).

Additionally, individual differences in the perspectives of group members may lead to conflicts, in many instances these clashes may be strong thus hindering the interpersonal relationship among group members. Some group members may even be accused of being autocratic group leaders (20). Students who have shortcomings may hide under the skills of their more competent peers and their shortcomings may never be addressed. Students who are weaker academically or in the context in which the collaborative group work is centered may see group work as advantageous while the more competent students will be left to carry the weight of the collaborative group work (21). Teachers who are not aware of the dynamics when it comes to collaborative group work may contribute to poor outcome in group work. Thus, as (22) concluded “teacher education programs should include a study of the theoretical and strategic aspects of collaborative learning, as well as active experience with this pedagogy.”

2.3. Collaborative Group Work in an Online Learning Environment

Collaborative group work as a tool for engagement in an online learning environment has its strengths and weaknesses. This learning tool was used to a greater extent during the COVID 19 pandemic as the face-to-face interaction among students at all education levels was prohibited under guidance from the (23). The online pedagogical practices have taken greater precedence in higher education with institutions implementing full online programmes. Collaborative group work in an online setting can be very beneficial if planned and implemented in a structured manner with all accompanying facilities. According to (24) despite a well put together set of instructional strategies to enhance collaborative group work in an online environment, students will still not participate and thus the outcome may be hindered. In (25) as cited in (26) critical elements in online collaborative learning were identified; There should be active participation of all group members in group activities as delegated or distributed by the group members, all group members are expected to share their perspectives by working together and the materialization of the outcome of the collaborative group work should be a reflection of the ideas of all group members.

Further, an online learning environment according to (27) must exhibit qualities that are representative of such setting. Students in an online learning environment who are engaged in different activities and in this context collaborative group work, must be engaged in active interactions with their colleagues, there should be the sharing of information among the group members, group members must be able to provide a level of support and guidance among each other, group members must be able to share their ideas in a manner that will encourage the expression of ideas and inclusion of diversity and group members must be able to impartially review the contributions of group members. In a study conducted by (24) titled “Creating effective collaborative learning groups in an online environment,” the authors suggest strategies that will make collaborative group work in an online environment more effective by “ facilitating learner readiness for group work by providing scaffolding to build skills, establishing a healthy balance between structure and learner autonomy, nurturing the establishment of learner relationships and sense of community, monitoring group activities actively and closely, making the group tasks relevant for the learner, choosing tasks that are best performed by a group and providing sufficient time.” In a study conducted by (7), university students perceived in-person collaborative group work to be more effective than the online context “in terms of the quality of work produced by students.”

3. Methodology

The research approach that was utilized in this study was the quantitative approach. The research design that was implemented was the descriptive online survey. A convenience non-probability sampling method was implemented to provide the sample of the research. A total of 40 recent higher education graduates formed the sample of the research. The participants' gender was not a criterion for consideration in the study. The inclusion criteria focused on recently graduated higher education students (2022-2023 academic year) from different regions in Guyana who were willing to participate.

3.1. Research Instrument

The online questionnaire comprised 11 questions which covered various aspects of collaborative group work in higher education courses in an online environment. The questionnaire was developed by the researcher and targeted the specialized group of participants who were higher education graduates. The questions were so constructed to provide answers to the specific research questions in conjunction with the area under study. The raw data were tabulated, analysed, interpreted and graphically represented. A Cronbach's Alpha reliability test was conducted on the pilot tested instrument; the value of (α) 0.805 was obtained which is categorized as a good Cronbach's Alpha value. The instrument was validated by two senior educators.

3.2. Ethical Considerations

The ethical principles of confidentiality, informed consent from participants, and participants' withdrawal at any point in the research guided the implementation of this research. Former Higher Education students were contacted online to seek their consents to participate in the descriptive online survey on collaborative group work and students' academic achievement. Students who responded in the affirmative were sent the online questionnaire. The students were given confirmed confidentiality information before attempting to respond to the survey. All information received remained anonymous and no biographical data was required.

3.3. Findings, Discussions and Presentation of Data

The data was analysed by Google Forms online survey analyses feature. The data were descriptively analysed with accompanying appropriate graphical representations as the output based on the responses. Further analyses were conducted using SPSS software and Microsoft Excel.

3.3.1. Research Question 1- Part 1

In response to the first research question which asked, *What are the pros and cons of collaborative group work in an online learning environment?* The pros are as follows; the students indicated that collaborative group work has many benefits. Students (31- 77.5%) indicated that through collaborative group work there is shared knowledge and skills. The students are of the belief that collaborative group work is less work than working alone, there is the perpetuation of team work and equal exchange of information; this accounted for 5-12.5%, 2-5% and 2-5% respectively. These benefits bear similarities as highlighted in (28) "Benefits of Collaborative Online International Learning Projects" study.

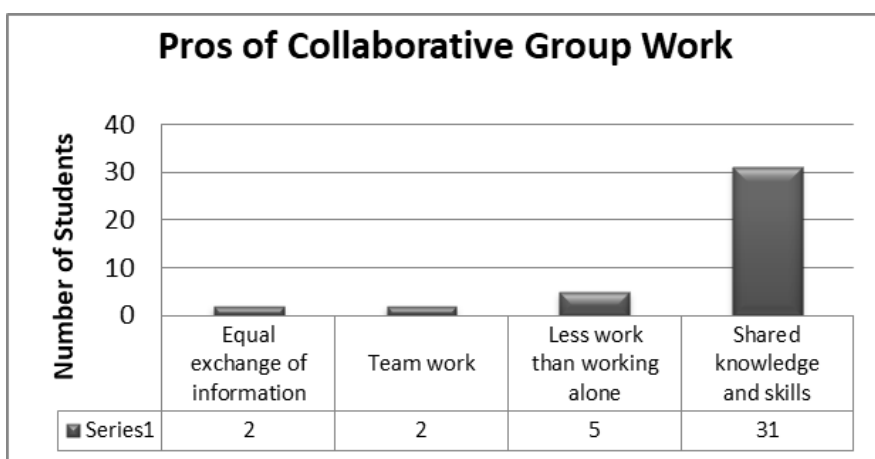


Figure 2 Research Question 1 Part 1- Pros of Collaborative Group Work

Figure 2 shows the distribution of the number of higher education students who indicated the different benefits of collaborative group work. It can be seen that a very high percentage of students (31- 77.5%) are of the view that the sharing of knowledge and skills is one of the most beneficial aspects of collaborative group work.

3.3.2. Research Question 1- Part 2

In response to the first research question which asked, *What are the pros and cons of collaborative group work in an online learning environment?* The cons are as follows; students were asked "As a former higher education student, which of the following have you experienced while completing group work?" It was observed that 29 students felt that time was wasted waiting on others in the online learning environment. Students also felt that collaborative group work

created more work for them individually than working alone and there was conflict over roles and responsibilities of group members, this accounted for 23 and 25 students respectively. Students indicated that there was unequal participation of group members and in many instances some students were left to carry the weight of the group assignment, this accounted for 36 and 33 students respectively. In a study conducted by (29) titled “Challenges in group work from the perspective of college students,” it was revealed that students felt that there were challenges with the improper designation of group work, hence conflict over roles and responsibilities of group members.

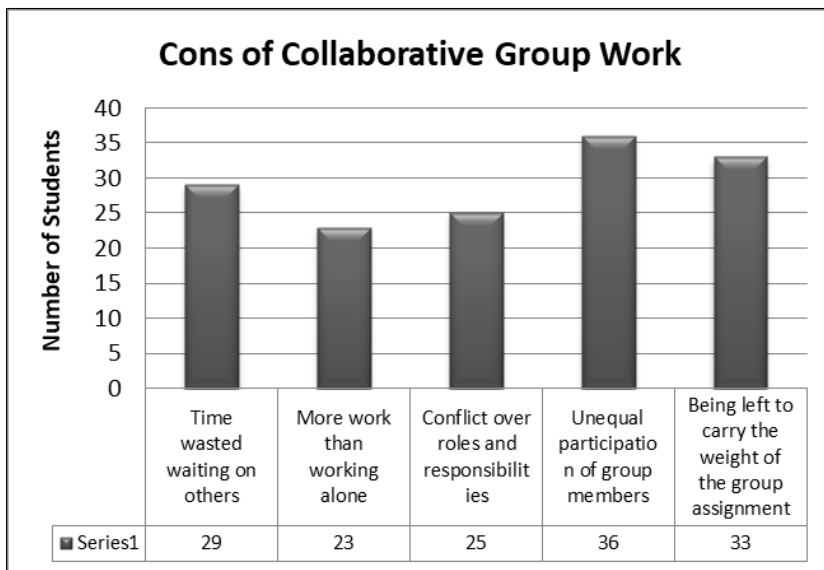


Figure 3 Research Question 1 Part 2- Cons of Collaborative Group Work

Figure 3 shows the distribution of the number of higher education students who indicated the cons of collaborative group work. It can be seen that a very high percentage of students (36- 90%) are of the view that there is unequal participation of group members in collaborative group work.

3.3.3. Research Question 2

In response to the second research question which asked, *To what extent does collaborative group work contribute to academic performance among higher education students?* The students (34- 85 %) indicated that from their experience, individual assignments contributed to higher academic performance than collaborative group assignments. Many students also indicated that they have obtained lower grades than expected from courses due to poor group work scores. It must be noted that group work can be ineffective if individual student abilities are to be assessed, the class size and subject areas are also factors that should be taken into consideration (30).

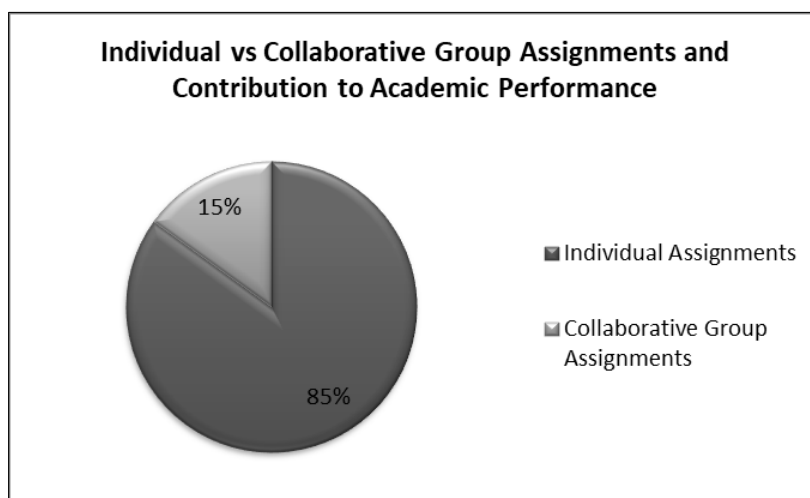


Figure 4 Research Question 2- Collaborative Group Work and Academic Performance in Higher Education

Figure 4 shows that 34 students indicated that individual assessments contributed to higher academic performance than collaborative group work while 6 students indicated that collaborative group work contributed to higher academic performance.

3.3.4. Research Question 3

In response to the third research question which asked, *What can be done to improve the structure of collaborative group work in an online learning environment?* A greater percentage of students (67.5 %) indicated that there should be no randomization of group members when assigned to groups. While 90% of the students believed that allowing students to choose group members will result in greater collaboration. Students (92.5%) are in agreement that collaborative group work should be more structured by the lecturer before they are assigned. Students can have a more positive learning experience when there is more structure (31).

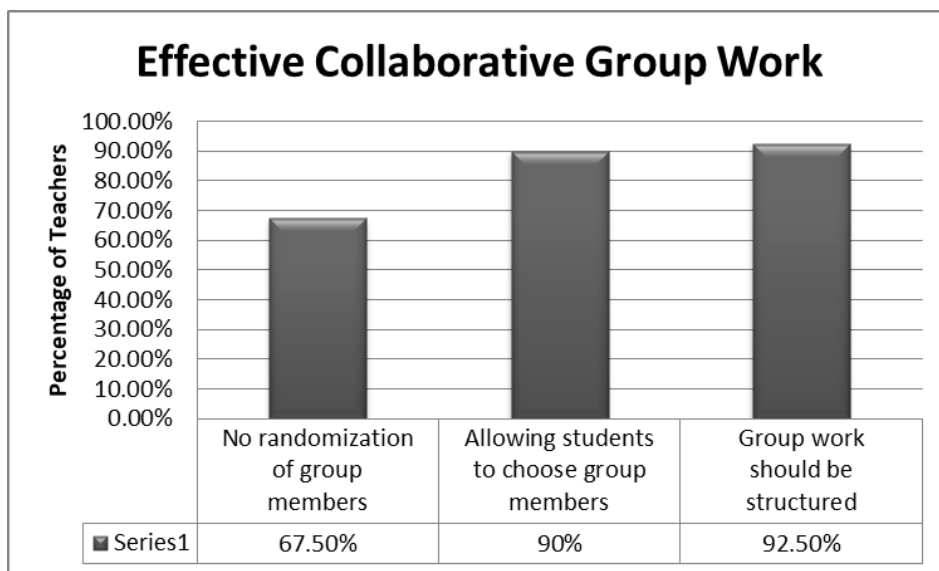


Figure 5 Research Question 3- Structure of Collaborative Group Work in an Online Learning Environment

Figure 5 shows the perceptions of students in higher education on how collaborative group work in an online learning environment can be improved. It can be seen that 92.5 % of the students are of the opinion that collaborative group work should be more structured followed by allowing students to choose group members and non-randomization of group members which accounted for 90% and 67.5% respectively.

Recommendations

- Collaborative group work should be strategically outlined with all requirements clearly documented so as to allow students in the online learning environment to effectively distribute tasks among themselves.
- Collaborative group assignments should be marked according to individual student's contribution/s to the group assignment.
- Lecturers should give students the first option of choosing their group members when collaborative group work is being implemented. If students are having difficulties in choosing group members, then the students can be assigned to groups by the lecturers.
- The course lecturer should take factors such as effective online learning facilities availability, locations of students, students' preferences and the compulsory nature of certain activities within the course that requires collaborative group work before it is implemented.

4. Conclusion

This quantitative descriptive online survey was embarked upon after higher education students expressed their frustrations with their inability to make contact with group members in the completion of collaborative group work in the online learning environment. This was especially so in the asynchronous setting. The findings of the study revealed that 85 % of higher education students who participated in the study and who were taught courses in the online learning environment preferred to do individual assessments rather than collaborative group work. Students also indicated that

through their experiences, they have gained higher grades on individual assessments rather than collaborative group work. It can be seen from this study that the cons have been manifested to a greater extent than the pros of collaborative group work. Students believed that if there is more structure to the collaborative group work in the online setting there can be greater outcomes.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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