# Teaching Research Methodology to Undergraduate Students Using Collaborative Learning Approach in a Blended Learning Environment at Saudi Electronic University

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**Abstract**

Research methodology courses have become an important requirement for students in many undergraduate programs in Saudi Arabia. The purpose of this case study is to explore students' perceptions of using collaborative learning (CL) in a research methodology course. This course is an undergraduate-level course that is taught in the Department of English Language and Translation at Saudi Electronic University (SEU) in a blended learning environment. Also, this study aims at understanding the effects of introducing group projects into the curriculum on students' learning experiences from their points of view. In addition, this research sheds light on how students perceived the distribution of workload within groups. The current study employed qualitative methods to collect data by distributing a qualitative questionnaire with open-ended questions. The data were collected from 137 students enrolled in three different branches of SEU in Riyadh, Jeddah and Dammam. The data were analyzed by using thematic analysis to provide a rich description and generate themes. The findings of this study revealed that the majority of the participants believed that CL in a blended learning environment had a positive impact on their learning experience. The participants perceived CL as both beneficial and challenging. In addition, most of the participants felt that the workload was distributed equally among the group members. Based on the findings, recommendations are discussed to promote effective CL in higher education.

**Keywords:** blended learning, collaborative learning, e-learning, group project, research methodology, Saudi Electronic University, students' perceptions

## 1. Introduction

### 1.1 Introduce the Problem

Many undergraduate programs require students to complete an introductory research methodology course (Motjolopane, 2021; Setiawan & Sembiring, 2023). Beyond merely satisfying a program requirement, research methods courses help students to develop their research skills and prepare them for graduate-level work (Setiawan, Sembiring, 2023). It has been confirmed that "Research methods and their application to real-world problems are skills that serve students for the rest of their lives" (Braguglia & Jackson, 2012, p. 347). However, many researchers argued that research methods courses are challenging classes for both instructors and students (Derouag, 2022; Erlinda et al., 2022; Motjolopane, 2021; Qasem & Zayid, 2019). For instructors, teaching a research methodology course is a difficult task because of the high complexity of the course material (Ball & Pelco, 2006; Braguglia & Jackson, 2012). On the other hand, students report low interest in studying research methods courses and complain that these courses are boring, difficult, or irrelevant to their everyday lives (Braguglia & Jackson, 2012). In response to these challenges, many educators contended that including collaborative learning (CL) that is based on student-centered approaches in teaching research courses is important to make the research curriculum more interesting and engaging for students (Kuwabara et al., 2020; Motjolopane, 2021; Warsah et al., 2021). It is interesting to note that CL is defined as "a form of group learning during which two or more students in a class work together and share workload equitably to complete assignments that are intentionally created to meet the student learning outcomes of the class" (Kuwabara et al., 2020, p. 293).

The 21st-century learning environment incorporates technological innovations that have changed today's classroom instruction and focused more on creating a student-centered CL environment. Not only do these technologies cultivate students' knowledge, but they also improve their soft skills to strengthen competencies consistent with employers' demands (Ilie & Stefan, 2022; Helwa, 2020). According to Helwa (2020) "CL has become one of the latest trends in education towards active learning where students actively engage in building their knowledge through discovery, discussions and expert guidance" (p. 10). As a product of technology, online learning is considered a new paradigm of modern education (Dwiastuty et al., 2018). Listyani (2021) argued that online learning encourages further learning skills where students can collaborate, interact, and acquire their own knowledge. According to the Communications and Information Technology Commission (as cited in Alkhalaf et al., 2013), Saudi Arabia is one of the fastest-growing countries in the world in terms of online learning. Concerning the shift to online learning as a result of the COVID-19 pandemic, online learning in Saudi higher education

has shown its effectiveness during the pandemic (Oraif & Elyas, 2021). For example, Saudi Electronic University (SEU) is a leading electronic university that was established in 2011. It is the only university in Saudi Arabia that is specialized in e-learning and specifically blended learning which combines traditional face-to-face learning with online learning in a student-centered environment (Saudi Electronic University [SEU], 2021). SEU is located in Riyadh and has expanded by having 11 branches in different Saudi regions.

When reviewing the existing literature related to teaching research methodology to students using the CL approach in a blended learning environment, the researchers found significant knowledge gaps related to this area. First, Motjolopane (2021) pointed out that "Despite challenges in teaching research methodology, historically, the area has received little attention in academic research" (p. 35). In addition, Loh & Ang (2020) argued that there is an extensive body of literature on the effectiveness of CL in higher education. However, most of the studies related to CL were conducted in Western countries, mainly the United States, Europe, and Australia. Kuwabara et al. (2020) added that most of these studies focused on STEM (Science, Technology, Engineering and Math) courses and traditional graduate and undergraduate classes. It was not apparent if CL is also effective in blended and online classes. Moreover, little attention has been paid to the part of the definition of CL "sharing workload equitably" by group members during group projects (Kuwabara et al., 2020). Therefore, this paper addressed these gaps in the literature by exploring students' perceptions of using CL in a research methodology course at SEU in a blended learning environment (nontraditional learning environment). Additionally, this study examined students' perceptions of the distribution of workload among their group members. The research questions that guided this study are:

1) What are the students' perceptions of using CL in a research methodology course within a blended learning environment?

2) What are the effects of using the CL approach on students' learning experiences from their points of view?

3) How do students perceive the distribution of workload within their groups?

In a nutshell, this paper can provide a model for teaching research methodology courses in the Saudi context and internationally. By presenting students' perceptions of CL in a research methods course, the current study brings Saudi students' voices to the literature and adds significant value in the fields of CL and blended learning.

*1.2 Literature Review*

1.2.1 Collaborative Learning (CL)

CL discussed in this study is rooted in the constructivist learning theory by Vygotsky (1978). This theory indicates that learners construct knowledge by socially interacting with their teacher and other students. In the CL approach, instructors encourage student-faculty communication, cooperation and learning among students, and active learning (Kuwabara et al., 2020; Barraket, 2005). It should be noted that CL builds on a student-centered approach that puts the instructor in a position of a facilitator rather than a director or source of knowledge and considers students as active learners who are responsible for their learning rather than passive receivers of knowledge (Kuwabara et al., 2020; Barraket, 2005).

Active CL has many benefits for students. It "moves beyond the superficial memorization and helps learners solve learning problems and connect and apply what they are learning" (Alghamdi & Deraney, 2018, p. 186). Implementing CL helps students build a community of learners in which students can create their knowledge and learn from each other (Alghamdi & Deraney, 2018). Kuwabara et al. (2020) cited many studies that found that implementing CL in college and university courses helped to improve students' performance, critical thinking skills, problem-solving skills and engagement. CL is also beneficial not only academically but also socially and psychologically. Many studies showed that CL enhanced students' communication skills, and it increased students' self-efficacy and self-esteem (Alghamdi & Deraney, 2018).

The CL techniques vary from simple (e.g., think-pair-share) to more complex (e.g., jigsaw) techniques, and all these techniques must be customized to match the content taught (Kuwabara et al., 2020). One of the most popular CL techniques in research methodology courses is a student-developed research project (also related to problem/project-based learning (PBL)) in which students work collaboratively in small groups to conduct or design a research project. This way of learning provides students with a wonderful active CL experience, increasing students' motivation, interest, and engagement; it significantly develops a better understanding of the content (Ball & Pelco, 2006).

1.2.2 E-learning and Blended Learning

The growing technological innovations have a great impact on education. E-learning is a massive revolutionary trend in modern education. According to Listyani (2021), about 90% of corporations use e-learning in 2020 in comparison with a very small percentage of 4% in 1995. Listyani (2021) added that in 2026 the e-learning market is predicted to increase an additional 8%. It is crucial to note that E-learning (electronic learning) refers to "the use of information and communication technologies to facilitate the access to online learning/teaching resources and to provide students with collaborative environments and tools" (Chokri, 2012, p. 166). Online learning, web-based learning, and virtual learning are terms that sometimes can be used interchangeably to refer to e-learning because they all refer to using technology in education (Muñoz Marín & González Moncada, 2010; Valverde-Berrocoso et al., 2020). On the other hand, there is no specific definition of blended learning that all researchers can agree upon, but the basic notion of blended learning is "to use educational technology in a traditional classroom and combine face-to-face learning or face-to-face teaching with online learning and online teaching" (Anas, 2020, p. 262). All in all, blended learning is a flexible approach that combines the advantages of both face-to-face and online learning. It facilitates the implementation of active learning and student-centered learning.

Implementing blended learning in Saudi higher education has been recently developed. Blended learning was introduced to Saudi Arabia by the Ministry of Higher Education in 2006 "to promote professionalism, leadership and quality education in public and private universities" (National Centre for E-learning, 2010, as cited in Anas, 2020, p. 262). Currently, 90% of Saudi universities use Blackboard as an e-Learning platform (Anas, 2020). It is important to note that SEU is the only government university in Saudi Arabia that is specialized in blended learning.

There are several research studies have been published on e-learning in the Saudi context. However, few scholars focused on the perceptions of students about e-learning in Saudi Arabia (Alkhalaf et al., 2013; Alubthne, 2018, Mutambik, 2018). Anas (2020) cited some research studies, such as Alzahrani (2017); Sajid et al. (2016); Al-Madani (2015), showing that Saudi students had positive attitudes toward blended learning, and their academic achievement was better in blended learning than in traditional learning environment.

1.2.3 Teaching Research Methodology Using Collaborative Learning

As mentioned previously, many educators highlighted that teaching research methods courses is a challenging task (Derouag, 2022; Erlinda et al., 2022; Noorelahi et al., 2015; Qasem & Zayid, 2019). It is a more challenging subject to teach especially when students are not motivated and have no prior experience (Crooks, Castleden & Meerveld, 2010). Many researchers argued that using CL in teaching research courses is important to make the research curriculum more interesting and engaging for students (Alghamdi & Deraney, 2018; Ball & Pelco, 2006; Barraket, 2005; Braguglia & Jackson, 2012; Crooks et al., 2010; Hoon & Singh, 2019; Kuwabara et al., 2020; Motjolopane, 2021; Panelli & Welch, 2005; Warsah et al., 2021).

There are several studies on the effectiveness of CL in teaching research courses. For instance, Braguglia and Jackson (2012) provided a critical reflective analysis of teaching research methodology through a three-course sequence using a project-based approach in an undergraduate program. The researchers found that using project-based learning, and student-centered learning helped students to have a high level of engagement and excitement. Students reported high levels of satisfaction with the three courses. Another critical reflective study was conducted by Barraket (2005). This case study analyzed the effects of introducing student-centered teaching methods in a master-level social research methods subject. The researcher used qualitative and quantitative approaches by collecting data from formative and summative subject evaluations, student performance in assessment, and classroom observations. Barraket (2005) argued that including student-centered techniques such as problem-based learning, group work, role-play and simulation had a positive impact on student achievement, learning experience and course evaluation. Barraket (2005) revealed that "In particular, the use of student-centered techniques facilitated a strong social context for learning and provided students with a common experiential framework from which to explore the technical aspects of the curriculum" (p. 64). However, the same researcher also found that "students continued to place value on more formal teaching methods" (p.64).

In another study, Ball and Pelco (2006) examined a research methodology course in social sciences (psychology) that is based on multiple student-developed research projects. Their study showed that the majority of students considered the course as an excellent learning experience that increased their interest in conducting research. However, some students (40.0%) stated that working in small groups is positive as well as negative. In other words, working in small groups can be useful and interesting as well as frustrating and challenging. Also, the students had a positive attitude toward peer assessment. According to the researchers, "traditionally taught lecture courses definitely offer the possibility for a wider coverage of material, but that the group-project approach ensures a deeper understanding of the research process" (p. 152). Similarly, Hoon and Singh (2019) investigated how students learn a topic of research methodology through active learning based on the constructivist learning theory. The researchers used qualitative methods of data collection (observations and interviews). Their study showed that students perceived research methodology as a challenging subject, but they had a positive attitude toward classroom discussions. These discussions engaged students and helped them "in recalling and memorizing as well as creating more examples for the context of learning" (Hoon & Singh, 2019, p. 45). Moreover, Lundahl (2008) explored students' perceptions of including active learning strategies in teaching a graduate research method course (masters-level) in social work. The researcher utilized open-ended and closed-ended questionnaires. Students reported that working on a research project facilitated meaningful involvement, promoted a better understanding of the content, strengthened social relations among students, and made learning more interesting. Also, the study concluded that 41% of the participants reported that working on the project motivated them to pursue a doctoral degree. However, students described that "engagement was time-consuming, stressful, and occasionally frustrating" (p. 273).

In the Saudi context, Alghamdi and Deraney (2018) quantitatively investigated the effectiveness of using active learning in teaching a research methods course to undergraduate students at two Saudi universities. The researchers reported that active learning improved the overall skills of the students as shown by final exam scores, individual writing and research skills. In addition, Noorelahi et al. (2015) assessed students' perceptions and barriers to medical research at Taibah College of Medicine in Saudi Arabia. The method of data collection used in this quantitative study was a structured questionnaire that was completed by 233 students. Their study showed that the participants had highly positive attitudes toward medical research. The difficulties faced by students included: poor facility of research, low interest by faculty and inaccessibility to the samples or patients. Similarly, Qasem and Zayid (2019) presented the challenges that students faced during writing their research proposals in the early stages. The researchers utilized questionnaires and interviews to collect data from around 60 undergraduate students in their final year at the University of Bisha. The major challenge that students faced was writing their research proposal in the English language. Other challenges the students faced included: deciding the research topic, lack of knowledge of the methodology, finding related references, low interest in research, lack of understanding of the content of the course and lack of time.

## 2. Method

### 2.1 The Case Study Context, Participants and Procedures

The contextual focus of this study is to explore students' perceptions of using CL in TRA450 Research Methodology course. This course is an undergraduate-level core course in the department of English Language and Translation at Saudi Electronic University (SEU). It was given to ten sections by eight instructors in three SEU branches: Riyadh, Jeddah, and Dammam (three major cities in Saudi Arabia). The total number of students who took this course was 185 students. The course was offered in the first semester of the academic year 2021-2022 in a blended learning environment. The blended learning mode of education at SEU attracted students who have family or work commitments and can't attend classes on campus on daily basis (Alshuaibi, 2021).

All the students in this course were in their final year of a four-year degree. They were taking a research method course for the first time. So, they had no prior research skills. Students in this course were required to design, develop, and present a research proposal. They had to work in groups of three to five. The research proposal was divided into three major assignments (introduction, literature review and methodology). The instructors provided students with detailed guidelines for each assignment to complete the research proposal. Moreover, the instructors provided students with comments and feedback on each assignment to help students crystallize their final research proposal. Groups were encouraged to have meetings with their instructors during office hours for guidance and assistance with any phase of the project.

Introducing group projects into the curriculum was done for the first time in this course. The goal of introducing this group project is to move away from the teacher-centered approach to a more student-centered approach where students can achieve the learning outcomes of the course in an interactive environment. It is critical to indicate that group projects provide "a powerful active learning experience" (Ball & Pelco, 2006, p. 147) where students can actively construct their knowledge through problem-solving and critical thinking. As groups, students had to face the challenge of selecting a research topic related to translation, writing a literature review, choosing a research design, selecting appropriate methods of data collection and analysis, and finally presenting the proposal.

In this context, students were allowed to choose their own groups. The rationale behind this is that in self-selected groups, students may feel more motivated and comfortable when they work with members that they are already familiar with. Many studies revealed that self-selected groups can create more harmonious and successful teams (Loh & Ang, 2020; Matta et al., 2011). Students were made aware that the success of the group depends on each member's commitment. Students were told that all group members will receive the same grade without being evaluated individually. So, they would share a common fate. Each group was allowed to decide how to divide the workload, emphasizing that each member must equally participate in each step of writing the research proposal.

To build individual accountability and avoid free riding (a free rider is "someone who does little or no work on team projects" (Dingel et al., 2013, p. 45), students were required to submit an anonymous peer evaluation form to evaluate their own and the other members' contributions. This evaluation tool was adopted from Kuwabara et al. (2020) with few modifications (see Appendix A). In addition, to allow for more group supervision, students had to submit four progress reports during the semester in which they had to show their progress and how the work was divided among the group members for each assignment (see Appendix B). Finally, to evaluate the final research proposal that was submitted by the group, students were told that the midterm and the final exam that must be taken individually will include an open question about the research proposal that will show the individual contribution to the group.

This study implemented a qualitative design. The features of qualitative research help the researcher understand the participants' perceptions and opinions (Creswell, 2013). Within this qualitative approach, this study utilized a case study design. It is important to indicate that "Case study research is a qualitative approach in which the investigator explores a real-life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection" (Creswell, 2013, p. 97). One of the strengths of case study design is that it enables the investigator to examine and understand the complexity of a particular issue in depth by providing a rich description of that issue (Creswell, 2013).

### 2.2 Methods of Data Collection and Analysis

To collect data, a qualitative questionnaire was created by using Google Forms and sent to all students who were enrolled in the Research Methodology course (185 students: 153 females and 32 males). The questionnaire was sent to students by using email through Blackboard. The researchers adopted the questionnaire from Lundahl (2008) with modifications. Using qualitative questionnaires is a powerful instrument to elicit more in-depth responses from participants. This instrument allows the participants to express their opinions and perceptions. (Lapan et al., 2012). The questionnaire had two sections. The first section included informed consent. If the participant agrees to participate in the study, he/she would be able to move to the second section which included two demographic questions and seven open-ended qualitative questions (see Appendix C). Out of 185 students, the researchers received 137 responses.

Analyzing data can be a deductive and inductive process. It was a deductive process because the researchers were able to notice some initial themes that deductively arose from the literature review. In addition, it was an inductive process because when analyzing and coding, themes arose from the data inductively (Bloomberg & Vope, 2016). The data was analyzed by using thematic analysis. This method of data analysis allows the researchers to provide rich descriptions and themes (Creswell, 2013). The thematic analysis involves coding to generate themes. Lapan et al. (2012, p. 98) defined coding as "the classification of elements in text data into categories that are related to the study topic". The researchers followed Glesne (2016) and Creswell's (2013) steps of thematic analysis. Two cycles of

coding were conducted. The first cycle is "summarizing the segments of data" (Miles et al., 2014, p. 86). The researchers carefully read each questionnaire response line by line and wrote notes that were related to notions or ideas in the data. Then, the researchers moved from reading and writing to organizing and interpreting the data by creating categories or initial codes. The second cycle of coding is classifying the summaries into "a smaller number of categories, themes, or constructs" (Miles et al., 2014, p. 86). All the initial codes undergo a more focused analysis by combining and reducing the codes into larger categories or themes.

*2.3 Establishing Trustworthiness*

Validity is defined by Maxwell (2013) as "the correctness or credibility of a description, conclusion, explanation, interpretation, or other sort of account" (p.122). Using the term validity is controversial among qualitative researchers. According to Glesne (2016), validity is the term that is used by quantitative researchers while qualitative researchers prefer to use the term trustworthiness. Maxwell (2013) reported two validity threats that can arise and affect qualitative research: researcher's bias and reactivity which means the influence of the researcher on the participants.

First, the researchers' bias can affect the study since the researchers are the primary instrument for collecting and analyzing the data. Therefore, instead of asserting objectivity, the researchers tended to monitor their biases (Bloomberg & Vope, 2016; Glesne, 2016; Merriam, 2009). The researchers were willing to be open and let themes emerge from the data, whether these themes were expected or not. Also, the researchers were willing to acknowledge and report all participants' different points of view by presenting and quoting their direct words. In addition, for qualitative researchers, it is important to have self-awareness by tracking one's assumptions and biases. As a result, throughout the research journey, the researchers kept a written record to share and document their assumptions, reflections, and thoughts (Lefdahl- Davis & Perrone-McGovern, 2015). Moreover, triangulation was achieved by having more than one researcher. In other words, the researcher triangulation was accomplished by having two researchers who analyzed the data separately. Then, the researchers discussed and compared the coding of data to increase the adequacy of the interpretation and reduce the risk of the researchers' bias (Lefdahl- Davis & Perrone-McGovern, 2015).

Second, the researchers were willing to illuminate the researcher's influence on the participants by avoiding using any leading questions. Using open questions helped the participants to communicate their opinions and thoughts freely and anonymously (Glesne, 2016; Lapan et al., 2012; Maxwell, 2013; Merriam, 2009). Also, unlike conducting direct interviews with the participants, using a qualitative questionnaire would reduce the researcher's influence on the participants.

## 3. Results and Discussion

After coding and analyzing the data, three major themes emerged from the analysis: benefits of CL, challenges of CL and workload distribution. The following table summarizes these themes.

Table 1. The Major Themes of the Study

| First Theme: Benefits of CL | • Higher flexibility, less pressure, and higher productivity<br>• Sharing knowledge and enhancing the understanding of the course content<br>• Increasing students' interest and engagement<br>• Developing students' critical thinking and problem-solving skills<br>• Improving students' social communication skills |
|---|---|
| Second Theme: Challenges of CL | • Free riders<br>• Different opinions and different personalities<br>• Time wasting |
| Third Theme: Workload Distribution | • Positive views<br>• Negative views |

*3.1 First Theme: Benefits of CL*

Similar to prior studies cited in the literature review (Alghamdi & Deraney, 2018; Ball & Pelco, 2006; Barraket, 2005; Braguglia & Jackson, 2012; Crooks et al., 2010; Hoon & Singh, 2019; Kuwabara et al., 2020; Panelli & Welch, 2005; Warsah et al., 2021), the data showed that the majority of the participants had positive attitudes toward CL. When students were asked if they would advise the instructor to have group research projects in future classes, about 100 participants out of 137 preferred having group projects. Participants' responses revealed five benefits that learners gained from CL (see Table 2). These benefits include: (1) higher flexibility, less pressure, and higher productivity, (2) sharing knowledge and enhancing the understanding of the course content, (3) increasing students' interest and engagement, (4) developing students' critical thinking and problem-solving skills, and (5) improving students' social communication skills.

Table 2. Benefits of CL

| Category | Participants' Excerpts |
|---|---|
| Higher flexibility, less pressure, and higher productivity | "For me, it reduces the workload on the individual."<br>"What I like about working with group is [having] less work for each one and more information can be added to the research."<br>"Higher flexibility, less pressure, higher productivity and more creativity."<br>"Group assignments have reduced the workload compared to previous years when the work was individually done. I think it is an excellent decision, as the seventh level contains 6 specialization courses all of which require effort, as the collective assignment is an easy task students can pass."<br>"All the work was divided, and each member had a smart and significant contribution." |
| Sharing knowledge and enhancing the understanding of the course content | "I like understanding different perspectives and gaining new information from the group members."<br>"I got deep understanding of areas never thought of it."<br>"I actually had had hard time in adjusting this course but having a group helped in understanding everything."<br>"Working with a group would have a huge effect on the outputs of a research proposal; it will add new ideas and different perspectives to the specified subject."<br>"Other points of view can make you open your eyes to some mistakes that you don't see."<br>"I like that you have other student[s] to ask when you are confused or not so sure about something related to the course."<br>"The group project is very helpful and much better than the usual assignments. It helps in applying what we have learned from the course content without the need to memorize it. It makes the course easier because I explain and search in the first place, I am not playing the role of a recipient."<br>"Collecting more ideas about the topic and applying the new knowledge in my study… also this knowledge would be unforgettable." |
| Increasing students' interest and engagement | "There is more enthusiasm and responsibility because I am not alone."<br>"When asking for help, we tend to search for each other's parts since it is all connected. This gives us more information about the topic and it gets interesting when we discuss it."<br>"It encouraged me to continue the project and ….work with all my power to give a perfect project."<br>"Unlike the individual assignments, there were more excitement and interaction to finish the work."<br>"It affected me positively and made me more interested in the project and in understanding the material."<br>"It made me more committed and careful to do my best since I become more responsible for the sake of the group in a manner that my shortcomings will not affect my colleagues' grades at a certain point." |
| Developing students' critical thinking and problem-solving skills | "Critical thinking was improved by reading my classmate's part, and problem-solving by avoiding wasting time if anyone couldn't do her job."<br>"Critical thinking and problem-solving skills have certainly developed because of dealing with different personalities of the group members. We had situations needed to act diplomatically and solve the situation for the benefit of the group."<br>"Discussing new topics within the research gives the participant the courage to criticize other's ideas."<br>"Collaborative learning did not greatly affect my understanding of the course content because I try my best in all cases to understand and interact with the content on my own. However, collaborative learning sometimes made me use my critical thinking to detect any mistake and correct it before submitting the assignment."<br>"Exchanging ideas, presenting new opinions and discovering more than one way instead of being satisfied with one way of thinking; an example of them are those who have an idea outside the box…." |
| Improving students' social communication skills | "Understanding how other members think and perceive the subject. Learning how to deal with conflicts in a diplomatic manner."<br>"It had a positive influence. I tend to understand how they think and how I should deal with different types of personalities and how to satisfy all of them."<br>"Expand the personal perspective and try new ways of approaching."<br>"Made me more outgoing."<br>"I like having new friends, and I like how students helped each other to understand the content."<br>"My social communication skills improved by connecting with my team every day."<br>"What we have lost in these days is the skill of communication with others due to new technologies that have enhanced the tendency of man to be isolated instead of interacting with others. The group project promotes the development of this communication skill."<br>"What I noticed is that I learned to deal with the different personalities of my colleagues, control myself and my feelings to complete the project. I learned to consider the interest of the whole group instead of thinking only of myself. I learned to take the initiative and be a leader."<br>"Group work had a positive effect; especially that I am not a social person and often work alone. I discovered through this experience that I have a skill in solving the problems that we faced during the research project, and I was able to communicate with the group members, share ideas with them and accept different opinions." |

3.1.1 Higher Flexibility, Less Pressure and Higher Productivity

Several respondents reported that CL had a significant impact on their learning experience. The first open question in the questionnaire was related to what students liked about CL. One respondent liked that CL had "Higher flexibility, less pressure, higher productivity and more creativity." Several respondents expressed a similar perspective in that they agree that CL reduced their workload compared to individual assignments, and at the same time CL increased their productivity and their creativity. For example, a respondent stated: "It increases the members' productivity and creativity when they work as a team." Another respondent even explained:

"Group assignments have reduced the workload compared to previous years when the work was individually done. I think it is an excellent decision, as the seventh level contains 6 specialization courses all of which require effort, as the collective assignment is an easy task students can pass."

3.1.2 Sharing Knowledge and Enhancing the Understanding of the Course Content

Many participants indicated that CL helped them to create a community of learners who were able to build new knowledge by learning from each other. An example of this perspective expressed by a respondent is as follows: "Working with a group would have a huge effect on the outputs of a research proposal; it will add new ideas and different perspectives to the specified subject." Several participants mentioned that their group members helped them to get a deeper understanding of the course content. One participant said: "Other points of view can make you open your eyes to some mistakes that you don't see." Another added that "I like that you have other student[s] to ask when you are confused or not so sure about something related to the course." In addition, CL gave students the chance to be active learners who apply what they have learned and get an "unforgettable" learning experience. Concerning this point, one participant explained that:

"The group project is very helpful and much better than the usual assignments. It helps in applying what we have learned from the course content without the need to memorize it. It makes the course easier because I explain and search in the first place, I am not playing the role of a recipient."

Another participant mentioned that what made him satisfied with CL is: "collecting more ideas about the topic and applying the new knowledge in my study… also this knowledge would be unforgettable."

3.1.3 Increasing Students' Interest and Engagement

Many students' responses showed that CL made them more interested in the course and increased their excitement and engagement. For example, a student stated: "Unlike the individual assignments, there were more excitement and interaction to finish the work." Another similar response is as follows: "It affected me positively and made me more interested in the project and in understanding the material." Moreover, several students also mentioned that CL made them more responsible and more committed to meet the requirements of the group project because all the members of each group will receive the same grade for their final project. This point is clear in the following response: "It made me more committed and careful to do my best since I become more responsible for the sake of the group in a manner that my shortcomings will not affect my colleagues' grades at a certain point."

3.1.4 Developing Students' Critical Thinking and Problem-Solving Skills

Another impact of CL on the participants is that it helped them to develop their critical thinking and problem-solving skills. For example, one participant said: "Critical thinking and problem-solving skills have certainly developed because of dealing with different personalities of the group members. We had situations needed to act diplomatically and solve the situation for the benefit of the group." From another perspective, one more participant added:

"Collaborative learning did not greatly affect my understanding of the course content because I try my best in all cases to understand and interact with the content on my own. However, collaborative learning sometimes made me use my critical thinking to detect any mistake and correct it before submitting the assignment."

3.1.5 Improving Students' Social Communication Skills

Several participants perceived CL as a beneficial tool that improved their social communication skills. This point was clear in many responses by the participants. For example, a participant stated: "My social communication skills improved by connecting with my team every day." Another participant even explained: "What we have lost in these days is the skill of communication with others due to new technologies that have enhanced the tendency of man to be isolated instead of interacting with others. The group project promotes the development of this communication skill." Several participants indicated that CL gave them the chance to deal with different personalities and to be open-minded by accepting different opinions: "It had a positive influence. I tend to understand how they think and how I should deal with different types of personalities and how to satisfy all of them." In addition, many participants argued that CL helped them learn how "to deal with conflicts in a diplomatic manner" and have the self-control to avoid any possible misunderstanding. For example, some of them stated that:

"What I noticed is that I learned to deal with the different personalities of my colleagues, control myself and my feelings to complete the project. I learned to consider the interests of the whole group instead of thinking only of myself. I learned to take the initiative and be a leader."

A couple of shy and introverted participants mentioned that CL helped them be more "outgoing". One participant explained:

"Group work had a positive effect; especially I am not a social person and often work alone. I discovered through this experience that I have

a skill in solving the problems that we faced during the research project, and I was able to communicate with the group members, share ideas with them and accept different opinions."

Finally, some participants reported that because of CL, they had "new friends" and were able to expand their social relations. Thus, these findings reported in this section are in line with the findings of previous studies (Alghamdi & Deraney, 2018; Ball & Pelco, 2006; Barraket, 2005; Braguglia & Jackson, 2012; Crooks et al, 2010; Hoon & Singh, 2019; Kuwabara et al., 2020; Panelli & Welch, 2005; Warsah et al., 2021). All these studies revealed that CL enhanced students' interest, increased their involvement and promoted their understanding. Panelli & Welch (2005) argued that CL reduced the participants' procrastination and enhanced their effort and time management. Alghamdi & Deraney (2018) and Listyani (2021) also discussed that CL helped students to build a meaningful learning community and to develop their communication skills and awareness of diversity. Finally, Kuwabara et al. (2020) and Warsah et al. (2021) found that CL had a positive impact on learners' critical thinking skills and problem-solving skills.

*3.2 Second Theme: Challenges of CL*

Although the participants of this study had positive attitudes toward CL, they also mentioned some challenges they had to face. The data demonstrated three main challenges of CL: (1) different opinions and different personalities, (2) time wasting, and (3) free riders (see Table 3).

Table 3. Challenges of CL

| Category | Participants' Excerpts |
|---|---|
| Different opinions and different personalities | "It is difficult to interrelate the ideas and find a common ground." <br> "I don't like having different opinions in which each one adheres to his opinion." <br> "Trying to convince other members of your ideas especially those who insist on their opinions was challenging." <br> "Having different opinions among the group members makes it difficult to come up with a final decision related to the project." <br> "What I don't like is having different personalities...those who are lazy and don't care, and those who want to get the best knowledge rather than obtaining the required grade to pass." <br> "It is challenging to attract introverted personalities and narrow-minded people." <br> "Some people like to control others' thoughts" |
| Time wasting | "Time in group work is problematic. It difficult to coordinate, like meeting at the same time." <br> "Group work in online classes was challenging because it was difficult to find a meeting time to work with group members." <br> "It's still hard to find a suitable time for everyone to discuss the research." <br> "I actually like finishing up earlier and submitting homework way before the due date. I didn't like to wait.. One or two may have something to do in a day and that would stop the writing of the assignment till all are free. Sometimes an assignment is done before due date (a day before due date or 2 days) because others are way too busy so this is what I hated not just didn't like." <br> "Our university is based on e-learning. It is different from other universities where students can meet each other almost every day. At our university, it is difficult to find group members to work with them. Time limitation and remote learning formed a challenge for us." <br> "Teamwork in our university is unfair to the students. The students in our university do not know each other, the same as other universities because many classes are online. It is very hard and takes much time to get to the group member." |
| Free riders | "There were people who were not reliable and sometimes won't even do anything." <br> "I did not like indolent and careless members; also [I did not like] conflicts among uncooperative personalities." <br> "Some group members rely on others to do all the work; in other words, they take advantage of being in a group project that they do not participate in the project." <br> "Sometimes the group members aren't collaborating, and only one student does all the work for them and it's unfair because they will be graded as a group". |

3.2.1 Different Opinions and Different Personalities

The first challenge reported by many participants is that having different opinions-imposed difficulty on the group to find a common ground or make a group decision. This point could be seen in the following response: "Having different opinions among the group members makes it difficult to come up with a final decision related to the project." Some participants also mentioned that dealing with different personalities was stressful and, in some cases, resulted in personal conflicts among students. One participant stated: "What I don't like is having different personalities...those who are lazy and don't care, and those who want to get the best knowledge rather than obtaining the required grade to pass." Another participant added that interacting with quiet students and students who do not accept different opinions from their peers was a draining process. This is reflected in the following response: "It is challenging to attract introverted personalities and narrow-minded people."

By looking at the relevant literature on the challenges of CL, Loh and Ang (2020) argued that sometimes students' learning styles and personalities can impose barriers for some students to accept CL. In addition, Listyani (2021) pointed out that learners' different ideas and opinions can lead to misunderstandings. These differences can also result in uneasiness among group members.

3.2.2 Time Wasting

Some respondents perceived CL as time-consuming. Not only did they have to schedule meetings outside the class time, but also, they had to coordinate with other members' schedules. For example, a respondent said: "It's still hard to find a suitable time for everyone to discuss the research." Finding a meeting time that works for everyone was more challenging when the group members were already overscheduled. This was reported in prior literature. Chang and Brickman (2018) and Ghavifekr (2020) also discussed that some participants perceived group work as time-consuming.

As SEU provides evening classes in a blended learning mode, a significant number of SEU students have morning jobs (Alowedi, 2020). Only a few respondents (3 out of 137 respondents) mentioned that communication with the group members was difficult and time-consuming since they were not familiar with each other because of the lack of regular face-to-face interaction. One respondent explained this point: "Our university is based on e-learning. It is different from other universities where students can meet each other almost every day. At our university, it is difficult to find group members to work with them. Time limitation and remote learning formed a challenge for us." This perspective was also supported by another respondent:

"Teamwork in our university is unfair to the students. The students in our university do not know each other, the same as other universities because many classes are online. It is very hard and takes much time to get to the group member."

According to Loh and Ang (2020), interaction in CL should be held in person. The researchers contended that "face-to-face interaction is the best tool for knowledge sharing, as it affords opportunities for students to interact, establish personal communication and observe other team members' expressions when they explain, elaborate, clarify misconceptions, or discuss perspectives" (p. 24). However, it is evident from prior literature that new technologies and social media are considered as "effective mediators of CL" (Helwa, 2020, p. 11). Significantly, students were told and given access to use Blackboard tools for online communication (creating virtual meetings, using discussion boards and sending emails). In addition, students were given the freedom to use any communication tool they prefer. It was noticed (from students' progress reports) that most of the students used WhatsApp, a mobile-instant messaging tool, to communicate with their group members. Helwa (2020) argued that WhatsApp is one of the most effective social media tools that were used for CL purposes. Helwa (2020) also stated: "Technology supported collaborative learning assists individuals to work as teams for a common project or task with getting good use from the technologies such as computer, mobile phones, internet etc." (p. 16). Nickel (2010) even found that CL was equally effective in online and blended environments.

3.2.3 Free Riders

The last challenge as reported by several participants in this study is dealing with free riders. One of the participants pointed out: "Some group members rely on others to do all the work; in other words, they take advantage of being in a group project that they do not participate in the project." Another student added: "Sometimes the group members aren't collaborating, and only one student does all the work for them and it's unfair because they will be graded as a group". Chang and Brickman (2018) reported a similar finding. Several participants in their study reported social loafing, "a situation in which students in a group commit less effort to a group project because they believe their lack of effort will not be identified" (p. 2). To avoid or lower free riding, each member should be accountable for his/her contribution to the group (Dingel et al., 2013; Laal et al., 2013). This point leads to the following theme that discusses the distribution of workload among the group members.

*3.3 Third Theme: Workload Distribution*

Although a number of students mentioned that they had to deal with members who did not participate effectively in the group project, the majority of the participants felt that the workload was distributed equally. When respondents were asked how the workload was divided among their group members and what they thought about the distribution of workload, the majority were satisfied with the distribution while only a few students (about 11 out of 137) expressed negative attitudes (see Table 4). Starting with positive views, one participant stated: "It was divided equally among us." The division process was based on the number of group members and the number of tasks: "It's depending on how many people in my group and how much is the work then [we] divide it fairly." Another way of task distribution reported by the participants depended on students' abilities: "The first thing that we did was choosing a leader to arrange our roles and jobs. Everyone took what she was good at it. I think this way is useful and saves time." This point was also seen in the following response:

"Firstly, one member had to take the initiative to be a group leader to lead other group members on what to do and how to do it. When time passed the workload got disturbed among other members evenly and fairly, for the most part."

On the other hand, a few students were dissatisfied with the workload distribution. For instance, a respondent said: "The work was distributed unequally because there were some students who did nothing. Even the work that has been done by the rest had to be modified or even done all over again." The other participant even stated: "I was the only active person in the group, and the rest of the members were in a deep slumber".

Table 4. Workload Distribution

| Category | Participants' Excerpts |
|---|---|
| Positive views | "We divided the project into sections and each member is responsible for one part. I found it useful tool to come up with an excellent output within a short time."<br>"We created a WhatsApp group. Each member suggested a research topic and by voting, we decided the topic. Then, we divided the work in which each student was responsible for a specific task."<br>"It was divided equally, but I think it should be divided for each one with their strong suit."<br>"Mostly, I volunteer to be the leader, so I list all the points and we discuss who handles each point. I like this way, so everyone has the freedom of choosing what they are good at."<br>"It was divided equally among us."<br>"It's depending on how many people in my group and how much is the work then [we] divide it fairly."<br>"The first thing that we did was choosing a leader to arrange our roles and jobs. Everyone took what she was good at it. I think this way is useful and saves time."<br>"Firstly, one member had to take the initiative to be a group leader to lead other group members on what to do and how to do it. When time passed workload got disturbed among other members evenly and fairly, for the most part." |
| Negative views | "Super unfair"<br>"Let's be realistic, one person in the group takes care of the whole job, and this is unfair"<br>"It wasn't done well, some group members just failed to do their tasks"<br>"The work was distributed unequally because there were some students who did nothing. Even the work that has been done by the rest had to be modified or even done all over again."<br>"I was the only active person in the group, and the rest of the members were in a deep slumber." |

By examining the previous literature on workload distribution in CL, the findings of the studies by Kuwabara et al. (2020), and Panelli and Welch (2005) are in line with the findings in this study. Similarly, most of the participants in these studies also confirmed that the workload was equally divided among the group members. Chang and Brickman (2018) mentioned that one of the strategies to encourage effective collaboration, increase students' equal contribution and reduce free riding is using peer evaluations in which students anonymously evaluate their group members. Dingel et al. (2013) pointed out that "peer evaluations provide a way for students to be held accountable for their participation in and contributions to teamwork" (p.46). It is critical that no participant in this study mentioned any negative attitude toward the peer evaluation. In contrast, one participant stated: "As for the evaluation, I think it's very essential." Another learner added: "For peer evaluation, I liked that it was anonymous."

Another important issue worth mentioning is that although Saudi Arabia makes remarkable progress in terms of a knowledge-based economy and higher education focuses on learner-centered learning rather than teacher-centered learning mode (Alghamdi & Deraney, 2018), it is evident from prior literature that Saudi students are still "accustomed to taking a more passive role in their education" (as cited in Alghamdi & Deraney, 2018, p.187). The students in this study had almost no prior experience in CL during their bachelor's degree. For example, one of the respondents stated: "We rarely participate in group projects." Loh and Ang (2020) mentioned that students' prior experience can be associated with their acceptance of CL. Therefore, introducing CL for the first time to students was a drastic change that they experienced in this course. This change may explain the challenges mentioned above that some students faced.

## 4. Conclusion and Recommendations

In conclusion, the findings of this study showed that the majority of the participants had positive attitudes toward using CL in a research methodology course through a blended learning environment. About 100 participants out of 137 preferred group projects more than working individually. The data analysis resulted in three main themes: benefits of CL, challenges of CL and workload distribution. The study revealed that CL was perceived by students as both beneficial and challenging. The benefits of CL as reported by students include: (1) higher flexibility, less pressure, and higher productivity, (2) sharing knowledge and enhancing the understanding of the course content, (3) increasing students' interest and engagement, (4) developing students' critical thinking and problem-solving skills, and (5) improving students' social communication skills. On the other hand, the participants also discussed some challenges they had to face, such as: dealing with different opinions and different personalities, dealing with free riders, and perceiving CL as time-consuming. In addition, most of the participants felt that the workload was distributed equally among the group members.

There are many recommendations to help students face the challenges of CL in blended learning environments. SEU and other Saudi universities should incorporate CL in different courses including research methodology courses. By normalizing and activating CL, we will prepare the learners to meet the skills of the 21st century. Loh and Ang (2020, p. 27) stressed that "Higher education should challenge students not only in the mastery of knowledge content but encourage students to analyze, accept multiple opinions shared by fellow students and cooperate in diverse groups". Curriculum designers should take advantage of CL and recent technologies including social media applications (Helwa, 2020) in designing research methodology courses. In addition, teachers in CL are facilitators. Therefore, they should provide students with clear guidance and constructive feedback. Also, they need to encourage and supervise students to be accountable and equally share the workload. Using peer evaluations can be helpful "to reward individual students for good work within teams" to ensure fairness (Dingel et al., 2013, p. 54).

In terms of limitations, this study is a qualitative case study that is localized and contextualized. The number of participants in this study is limited, and all of them were students at SEU. Therefore, to come up with more useful insights, future research can survey a larger population from different universities and use more methods of data collection for data triangulation. In addition, the benefits and the

challenges of the CL that were reported by the participants might be affected by their demographics, which we did not examine in this current study. Finally, this study was limited in the subject matter. In other words, this study examined implementing CL in just a research methodology course. Thus, future research can examine CL in different courses.

## Acknowledgements

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**Appendix A**

**Group Progress Report #**

| | |
|---|---|
| Group # | |
| Group Members' Names | |
| Research Title | |
| Research Question | |

What task have you completed so far?

How was the task distributed among the group members?

What task(s) do you still have to complete?

| Setting<br><br>Date<br>Time<br>Place | | | Progress Made |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

**Appendix B**

**Peer Evaluation Form**

| Name: |
|---|
| |

Write the names of your group members below. Then, assign yourself a value for each listed criterion. Then, do the same for each of your group members. Submit this evaluation form on Blackboard. The information is confidential. Please do NOT share it with anyone.

Score: 5=Superior 4=Above average 3=Average 2=Below average 1=Weak

| Evaluation Criteria | Myself | Group member's name: | Group member's name: | Group member's name: | Group member's name: | Group member's name: |
|---|---|---|---|---|---|---|
| Actively participated in group discussions and meetings | | | | | | |
| Stayed task focused (Not distracted or distracting) | | | | | | |
| Quality of contribution | | | | | | |
| Listened to and respected others | | | | | | |
| Overall Performance | | | | | | |
| TOTAL | | | | | | |

Additional comments about collaborating with your classmates (optional):

**Appendix C**

**TRA 450 Questionnaire**

**Section 1**

Dear TRA 450 Student,

You are invited to participate in this research: Teaching Research Methodology to Undergraduate Students Using Collaborative Learning Approach in an E-learning Environment at Saudi Electronic University. This research study is to increase our understanding of how conducting group projects in TRA 450 is perceived by students. This research is being conducted by Dr. Kholod Sendi (Assistant Prof) and Dr. Mohammad Husam (Associate Prof). Both researchers are working at the college of sciences and theoretical studies at Saudi Electronic University.

The purpose of this research is to explore students' perceptions on using collaborative learning (by conducting group projects) in an undergraduate-level research methodology course at Saudi Electronic University (SEU).

Your contribution to this research is valuable and appreciated. Please note that your response will be private, anonymous and confidential. Individual respondents will not be identified in any data or reports and there will be no risk or discomfort if you agree to take part in this research and the returned questionnaire will be kept confidential. In addition, the electronic data will be secured; the researchers are the only ones who would have access to the data. Once the research has been submitted and approved, all the questionnaires will be destroyed.

You may ask the researchers any question you are interested in. Your participation in this study is completely voluntary. You have the right to choose not to participate or to withdraw your participation at any point in this study without penalty.

Dr. Kholod Sendi: kha.sendi@seu.edu.sa

Dr. Mohammad Husam: husam101010@gmail.com

* Required

1.    I agree to participate in the study by completing the following questionnaire. *

Yes          No

**Section 2**

1.    Gender *

Male

Female

2.    SEU branch *

Riyadh

Dammam

Jeddah

3.    What did you like about working in small groups to write a research proposal; in other words, what are the positive effects of working in small groups to write a research proposal? *

4.    What did not like about working in small groups to write a research proposal? In other words, what are the challenges that you faced during the group project? *

5.    How did working in your group research project influence your interest, engagement and understanding of the course content? *

6.    How did working in your group research project influence your critical thinking skills, problem-solving skills, and social

communication skills? *

7.    How was the workload divided among your group members? What do you think about the distribution of workload within your group members? *

8.    What is your opinion about the final poster presentation and peer evaluation? **

9.    Would you advise the instructor to have group research projects in future classes? Why? *