

Reducing the Occurrence of Free Riding in Virtual Collaborative Activities of College Students through the Use of Peer-Tracking Technique

Ailein Joy S. Cortez¹, Angela Maffel D. Bagang², Precious Rocel D. Catilo³, Elaine S. Dimasangal⁴, Jovany S. Olofernes⁵, Dr. Grace A. Mendoza⁶

¹College of Education, Don Honorio Ventura State University, Bacolor, Philippines, cortezaileinjoy@gmail.com

²College of Education, Don Honorio Ventura State University, Bacolor, Philippines, angelamaffelb@gmail.com

³College of Education, Don Honorio Ventura State University, Bacolor, Philippines, preciousrocelc@gmail.com

⁴College of Education, Don Honorio Ventura State University, Bacolor, Philippines, elainedimasangal@gmail.com

⁵College of Education, Don Honorio Ventura State University, Bacolor, Philippines, jovany.olofernes@gmail.com

⁶College of Education, Don Honorio Ventura State University, Bacolor, Philippines, gamendoza@dohvsu.edu.ph

Abstract: This action research aimed to encourage students during collaborative tasks to work effectively and avert free-riding. The researchers gathered the data of the fourteen group leaders through semi-structured interviews. The said interviews were all conducted online and established decorum. The results showed that the participants of this research label collaborative works as a more manageable task if and only if the members are all participative, yet even tougher with the presence of free-riders. Moreover, results also showed all sorts of challenges leaders encounter whenever collaborative tasks are on hand. The group leaders' plights were lessened with the assistance of the intervention—The Peer-Tracking Technique. The researchers came up with this concept to alleviate group work and improve performance for each team member. This technique aided leaders in communicating, tracking, and supporting each member's tasks for the betterment of the group and their output. The intervention had made an influential aspect for classroom management—allowing every student to be positively interdependent with each other.

Keywords— virtual collaborative works; leaders; members; intervention.

1. CONTENT AND RATIONALE

Effective learning is undeniably one of the main goals of teachers for their students to achieve. Hence, multiple teaching approaches and strategies emerged and have been utilized in the academe. These refer to the unique teaching philosophies a teacher has in their instructional method (Education Language Learning, 2015). Teacher-Centered, Student-Centered / Constructivist Approaches, Project-Based Learning, and Collaborative Learning are some examples. Due to the shift of learning modality caused by the pandemic, collaborative work, and activities helps to further learning despite the situation.

Collaborative learning being one of the teaching-learning strategies we had, was a salient instrument for students to work with different people with diverse personalities. Nonetheless, being multifarious is not a hindrance but helps students prosper their interpersonal skills and create a better learning environment. This could positively affect their connection since they learned and grew from each other. The best way to improve an educational experience is to work together. Collaborative learning also empowers the students' higher-order thinking skills and boosts their self-esteem to work with other students as one team. Therefore, group projects could amplify the students' educational journey since they dealt with various types of learners, resulting in remarkable achievements.

However, even after all the benefits they may reap and skills they may attain through collaborative learning, students

dread group work because they know that not every member contributes equally [50]. This dilemma is called “free-riding,” which occurs when one or more group members decide to refrain from participating in the group's task or assignment. This often creates difficulties with group dynamics because it places an added responsibility upon other group members to compensate for the free rider's lack of effort [39]. Furthermore, this conflict would result in a graver dilemma, such as the group developing a reactive behavior. The group will focus on something else instead of accomplishing the task. Additionally, according to [39], there are two types of free-riders, the “savvy dropout” and “project pretender.” The first one measures the skills of their group mates. Then, if they see someone competent in the group, they will proceed to free riding. Meanwhile, the latter will accept the tasks given to them but will provide minimal to no effort to the task, leading to others compensating for it. Nevertheless, the groups' efficiency and effectiveness would be impacted, and the health and well-being of the people forced to compensate for the free-riders lack of effort will also be affected. This dilemma was more troublesome in a digital classroom setting because the group's productivity would deteriorate if someone did not put out their maximum effort, commitment, and attention. Indeed, this is one of the most stressful situations to be in. This problem is felt in the academe and any skilled profession [35].

COVID-19 had a significant impact on millions of individuals worldwide, especially in the sector of education. The pandemic had forced students and instructors to make significant changes to their everyday routines, mainly when it

came to academics and virtual tasks. Educators were using various strategic teaching methods to deal with the new normal situation effectively, one of which was to group learners heterogeneously to make schoolwork manageable and more efficient. Furthermore, since the students would be collaborating in perfect sync, this suggested that they would be more cost-effective, but this is not always the reality.

Moreover, virtual group activities are inevitable, particularly during this pandemic when the educational system shifted from traditional face-to-face to blended and distance learning. Challenges concerning the effective learning process have emerged as learning management needs to be adjusted according to the implemented modality. And one problem was free-riding, prominent in collaborative activities.

Free-riding refers to the concept where individuals tend to exert less effort because of the mindset that colleagues will finish the work for them [41]. It occurs when particular members refrain from cooperating on virtual group activities, tasks, and assignments. Physical presence and manipulating the latest technology were also becoming one of the reasons why there was a free-rider in a group due to our current situation — the online class. Since no one was watching and leading the group, the absence of physical presence would have impacted the group performance. Reference [36] stated that online group work among distance learners loses some of the interpersonal contacts that occur in face-to-face situations. Online collaborative work can result in unsatisfactory teamwork, according to [27]. The new normal setups required the users to know how to use different applications. This scenario provided a reason for a free-rider in a group to flee from the responsibilities. As a response, the main objective of this action research project was to uncover the factors that influenced how free-riding affects the group's productivity. Consequently, it created additional responsibility and difficulties for other members by covering the lack of effort of the free-rider. Once free-riding occurs it damages the team's morale, relationship, and performance.

Arguably, every group's situation and challenges were different from one another. However, according to Reference [9], as the group size increases, the need for organization increases, and face-to-face interaction becomes less frequent. Hence, as the number of group members increased, the amount of contribution by each member decreased as well. Since there were more people in the group, there would be a reduction in overall interaction, making the members more anonymous to one another. This would then affect the motivation of each member, specifically the leader to keep the group organized and the free-rider being a burden. Therefore, keeping the number of members in a group to a minimum is best, although this solution will not be applicable all the time.

In relation to this, [22], monitoring is a crucial skill that can trigger the regulation of learning for achieving better outcomes. While monitoring the self can enhance self-regulation, monitoring peers in collaborative activities could support co-regulation. Self-regulation is the ability to monitor

and assess the ongoing progress and accordingly refine the learning process with iterative adaptations in the strategies and tactics [11]. Participation was essential in any collaborative work, more so in a virtual setup wherein, the group is not physically present. Tracking enabled everyone in the group to monitor the productivity of each other through indirect peer motivation. Additionally, [13], argued that peers hold potent sources of reinforcement in improving both sides of students' behavior. It implies the significant power of peers in amplifying the desired outcome in an individual. Reference [49], also added that although peer monitoring was considered undesired in the early literature, it can be an effective peer learning strategy in collaborative learning activities. Furthermore, according to the study by [22], peer monitoring emphasizes the benefit of awareness about peer advancement, which helps involved individuals improve the quality of the collaborative learning process. Undoubtedly, external factors have a bearing also with the students' productivity. Recognizing its effects can lead to the creation of positive solutions for achieving authentic learning.

On the other hand, the role of the leader is difficult and vital, whether it be in face-to-face or virtual collaborations. Leadership is the main foundation of any collaborative group work in order to achieve its goal. Just like in a virtual collaborative group, the leaders have an important role to make the team have quality work, productive, and functional. They can motivate the group to take action while also guiding their actions [16]. Hence, it is the responsibility of the leader to give their members a concrete, clear vision. A vision is a mental representation of the desired result. The group members may follow this vision because it gives them a sense of direction and purpose. According to [17], a clear vision gives your team a blueprint to execute. In the online learning setup, when the leader's vision isn't properly conveyed, it's challenging for their members to perform better and put effort when they need to make judgments on their own. Furthermore, the leader serves as the one that holds the group members accountable for better results. Regardless of their circle of friends or even status, every group member in a virtual collaborative task should be held to the same high degree of performance. While each person's particular tasks may vary, everyone in the group should be dedicated to completing the project — and it is the leader who must foresee and filter the work [15].

However, it should be taken into account that the main goal is not to discover free riders but to be able to detect unfair work divisions early in the project and to be able to make adjustments [9]. This will eliminate further conflicts between the members, especially between the leader and the free-rider. Clear communication from all sides of the group through regular short meetings to update each other about their progress will be the optimal solution to eliminate the free-riding before it even appears.

Henceforth, the researchers utilized the practice of peer monitoring. Peer monitoring keeps students “on task” without

lowering indicators for students' intrinsic motivation. Herewith, this study suggests peer-monitoring as a learning approach to balance teacher-controlled instruction and free-choice exploration [8]. Peer monitoring makes sure that the learners keep an eye on whether their partners are going through appropriate and effective processes and procedures of learning. Furthermore, peer monitoring could establish a positive interdependence among students. Additionally, taking cooperative learning into account, peer monitoring can strengthen the prosocial behavior of the students within the group. Using this as a technique will not only examine students' learning outcomes but also affect predictors for students' classroom engagement. Reciprocal peer-tracking implies monitoring classmates as well as being monitored. Reference [24] defined peer-tracking as peer-observing and checking the behavior of others within the group regarding appropriateness and effectiveness. Peer monitoring has been applied to promote academic performance and "on-task" learning behaviors among students of different ages and across a variety of learning disabilities and emotional-behavioral difficulties. In addition, monitoring could be used within different learning contexts and in combination with other instructional approaches. Thus, outcomes could differ fundamentally. The efficiency of peer-monitoring has been shown especially with regard to its function of keeping learners on track. Reference [40] revealed teacher and peer-monitoring of process learning behaviors to be equally effective. It seems likely that a higher percentage of "on-task" behavior can result in better learning outcomes. As an additional explanation, the distribution of tasks between learners within peer-monitored groups could have a positive effect on learning outcomes. According to [34], the idea of metacognition by the distribution of components of control among collaborating learners. Some students took over a "leader function", while others became passive followers. In the peer-monitored group, group activities challenged all participants to accept responsibility for a specific task, engaging thus both active and passive students, as well as low and high achievers.

Furthermore, keeping track of progress allows the group members to perceive success and feel accomplished. This will give the group a sense of direction to achieve the set agendas. Henceforth, this will also make the people in the group in the virtual collaborative work critique and evaluate each other's performance to accomplish tasks effectively and efficiently [44]. Additionally, [33] mentioned that every successful group doesn't always start with something big. Therefore, one of the benefits of monitoring the progress in the group is it can create a baseline. Meaning, it enables the learners to record their development and compare the efficacy of various strategies that they have imposed. Thus, if the students want to gauge their performance in completing a task, starting with a baseline will definitely allow them to determine which group work techniques have genuinely worked for them.

At Don Honorio Ventura State University (DHVSU), there have been multiple occasions where the group leader

expressed concern about a free rider, resulting in the group's stagnation and exhaustion. As a response, action research must be conducted to prevent social loafing or free riding.

2. ACTION RESEARCH QUESTIONS

This study strived to alleviate the occurrence of free-riding to enhance college students' learning progress during collaborative works through the Peer-Tracking Technique.

Particularly, it seeks to understand the following questions:

- a. What are the insights of student-leaders about virtual collaborative works and free-rider members prior to the implementation of the Peer-Tracking Technique?
- b. What are the implications that can be concluded from the student-leader after the implementation of the Peer-Tracking Technique in virtual collaborative works?

3. PROPOSED INNOVATION, INTERVENTION, AND STRATEGY

Peer-Tracking Technique

The peer-tracking technique allows the group leader to reduce free-riding by monitoring and evaluating the performance of group members in their collaborative activity. Indeed, it is extremely challenging for group leaders to monitor and keep abreast of each group member's collaborative efforts in the present learning environment, but the peer tracking technique efficaciously minimizes free-riders in a group, according to [43]. It created a gauge that covered factors that students said should be considered when evaluating group members, such as group members' dependability, tasks, behavior, participation and participation, and individual aptitude.

Additionally, being monitored in a collaborative task has been considered beneficial mainly because it can help students generate a plethora of enhancements. One of those is it can improve their progress by identifying and resolving any problems early since it is done more than one. The paper by [22], says that it can motivate students to achieve greater heights despite being in online learning and can increase their responsibilities on the task given. The main benefit of peer monitoring was being aware of peers' progress which can lead to the enhancement of the collaborative learning process and organizing their time effectively to complete the task. With that being said, the participants' performance with the help of our technique showed that Peer-Tracking's benefits were verifiable, attainable, and valuable in collaborative learning. Another prerequisite of this is monitoring can cause students to have more time for comparing and counterchecking their outputs. More so, the participants have increased interaction with each other in the group which promotes active learning. Lastly, it was identified that when two or more students share a similar discourse, it allocates them for a greater understanding of the task

As an intervention to the problem of free-riding during virtual collaborative work, this study proposed Peer-Tracking Technique. Basically, the researchers shared a Google document of the Peer-Tracking Technique template with each

student leader participant and were obliged to add their respective members to the same document. The template was divided into two parts: tracking progress and documentation. In the first phase, the leader must list down first the names of the group mates and the task needed to be done. Each task must be listed in a checklist format so members and the leader can check out their designated tasks and will be able to determine each advancement. However, [6] argues that this method's major drawback is not entitling explanations. Thus, the researchers considered the documentation part as a supporting validator where members are required to paste a screenshot of any substantial evidence of their work accomplishment and write a short description of the process. Hence, the leader and members can observe if a particular member is indeed complying with their assigned tasks or not.

FIG 1. Peer-Tracking Sample Document

The student-leaders that will serve as the study participants will be identified through Homogeneous Purposive Sampling. It focuses on a single group in which all sample members have similar age, gender, background, occupation, and other characteristics [45]. The questionnaire will determine the common issues these student-leaders face during collaborative activities and the actions they do or do not do to address the said issues. A Semi-Structured Interview will be conducted to know the leaders' personal experiences concerning the issue of free riding. Thus, this will help enlighten the researchers about the more profound dilemma and experiences that the student leaders face in their respective groups, specifically the challenges and potential repercussions regarding the free-rider and limiting or evading the occurrence of free-riding itself.

For the demographic profile, the student leaders chosen as participants should be:

- a. A Bonafide College Student of Don Honorio Ventura State University;
- b. Age ranging from 19 to 25 years old; and
- c. A Filipino citizen with any gender identity.

However, in order to qualify to participate in the study, the participants should have the following traits:

- a. Students who do not have a failing grade in the Academic Year 2021-2022;
- b. Became a group leader at least in 3-5 group projects in the online class;
- c. Have a good sense of responsibility; and
- d. Have good interpersonal skills.

This research will give us more understanding of the usual challenges that the student leaders face and what can be done to address the dilemma adequately. Having the responsibility to lead a group in disarray while balancing other academic and personal responsibilities can be difficult. It can be taken into account that the free-riders themselves have other responsibilities. This is why confronting these situations can be quite a sensitive topic, especially for those non-confrontational leaders. However, understanding that there should be a balance in understanding the reasons for their absence, especially if there is a valid reason, and doing the needed actions once the free-riders cross the line of being irresponsible groupmates. This study will help the professors and the student leaders themselves with the most appropriate response to free-riders in the group. This social phenomenon is prevalent. Therefore, it can serve as a trigger to increase one's awareness of how to reduce the activity of free-riding. This is an eye-opener to the institutions and the parents, who can offer additional perspectives on how to deal with and address such social behaviors that can be witnessed inside the virtual classroom.

4. ACTION RESEARCH METHODS

4.1 Participants and/or other Sources of Data and Information

According to [21], homogeneous sampling focuses on the participants' matching traits or specific qualities. Similarities would be age, cultural background, beliefs, duties, and life experiences. This is to help the researchers identify what these similarities signify in the topic being studied. Since the research questions center on a specific group of individuals, homogeneous sampling will be utilized.

The selected participants of this study were fourteen (14) college students from Don Honorio Ventura State University. At the same time, the researchers participate as pre-service

teachers. Participants must have participated in any academic collaborative activity or task to acquire reliable responses. They must have experienced becoming the group leader and at least have experienced working with free riders in their group. Considering the aforementioned standards, the researchers will be able to specify the relevant information from the target participants.

4.2 Data Gathering Methods

The researchers used the Homogeneous Purposive Sampling to determine the classroom-based student leaders with considerable virtual collaborative work experiences. All of the research questions were taken through conducting a semi-structured interview. This enabled the researchers to gain a deeper understanding of the personal experiences of the student leaders regarding free-riding. The credibility of the participants and the reliability of the information gathered from them were formally assured. After determining the target participants, the researchers asked for their consent and informed them about the purpose of the action research. The said interview took place after receiving the needed consent from the chosen participants. Due to the onset of the pandemic, the interview was administered via Google Meet, Facebook Messenger, or Zoom. Thus, it will be guaranteed that every participant’s confidentiality will be maintained.

4.3 Data Analysis Plan

In interpreting and synthesizing the participants' inputs, the researchers employed thematic analysis. The thematic analysis entails qualitative data coding into clusters of similar entities or conceptual categories and identifying consistent patterns and relationships between themes to arrive at a theoretical explanation of the phenomenon under study [26]. This method is suitable for organizing the research participants' narratives and content of proper interviews. It comprises several steps to ensure the appropriate examination of data:

- Familiarization of data, transcription of the participants' data, and interview recordings;
- Coding, categorization of crucial points or codes;
- Generating themes, identification of codes;
- Reviewing themes, reevaluation of generated themes;
- Defining and naming themes, final designation of themes, and;
- Writing up, the conclusion of participants' inputs.

5. ACTION RESEARCH PLAN AND TIMELINES

5.1 Work Plan

The researchers focused on college students from various departments: the College of Engineering and

Architecture, College of Business Studies, College of Computing Studies, and College of Education from Don Honorio Ventura State University. The plan is to identify the student leaders who have experienced working with a free-rider—once determined, an interview was conducted. This study's main goal is to avoid free-riding during virtual collaborative work and promote a positive collaborative environment for students through a proposed technique. Moreover, this study utilized Homogeneous Purposive Sampling, a technique that focuses on similar qualities of individuals. Fourteen (14) student leaders have been identified and voluntarily participated in the research.

The researchers administered a virtual meeting with every participant for the initial interview. After that, the intervention Peer-Tracking Technique was introduced to the student leaders. To test the formulated technique's efficacy, student leaders were encouraged to implement it within their current groups, provided the researchers observed them through shared documents. The post-interview was conducted after a month of implementation. Researchers ensured that the gathered information from the participants was handled with discretion. Thematic analysis was utilized to analyze and interpret the obtained data.

5.2 Time Table

Table 1: Timeline

Timeline	Actions			Venue
	Activities and Development			
March 2022	Determined which leaders are ideal and appropriate for the project.	Performed an interview of the selected student-leaders eligible to participate in the study.		Don Honorio Ventura State University (DHV SU)
April 2022	Transcribed participants' responses during the interview.	Categorized responses through a coding table	Analyzed and interpreted gathered data through thematic analysis	
April 2022	Post-Interview about the Peer-Tracking Technique	Transcribed participants' responses during the	Analyzed and interpreted gathered data through	

Timeline	Actions			Venue
	Activities and Development			
	implementation	post-interview	thematic analysis	
May 2022	Conclusion on the overall research output	Publication and reproduction of outputs	Evaluation	

6. PLANS FOR DISSEMINATION AND UTILIZATION

Due to the onset of the pandemic and the continuous advancement of the digital period, the research findings will be cascaded through the use of different social media platforms and video conferencing applications (Facebook, YouTube, Zoom, or Google Meet). The term "social media" refers to an internet platform where users may interact with one another; spread information; receive information; communicate with many individuals [42]. Researchers select this platform because it is where a wide range of audiences inhabit and can propound the study; it is highly possible to influence the teachers to reflect on their teaching strategies applied within the classroom and initiate possible solutions to prevent the problem intensifying. Moreover, it is an ideal platform to inform students, leaders, and members about the various possible effects of their irresponsible actions on their tasks, learning, and development as individuals.

The researchers will propose publishing the study as a book after validating the feasibility of the study from the Dean of the College of Education to guarantee its contribution in the future. This study can benefit the campus, teachers, and students; thus, it must assure its sensibleness. Moreover, this study can be used by other academic personnel as a basis for another study related to this one.

7. DISCUSSION OF RESULTS, CONCLUSION, AND REFLECTION

The researchers interviewed each student-leader twice; before they tried the Peer-Tracking Technique and then again after they tried the said technique with their respective groups. The following data presented are the leader’s discernment regarding virtual collaborative works.

7.1 Leaders’ Insights about Virtual Collaborative Work and Free-Rider Members prior to Implementation of the Peer-Tracking Technique

Numerous researchers have shown that the learning-by-doing approach of group projects results in active learning and far greater comprehension and retention of information. Higher levels of student motivation and achievement, development of critical reasoning skills, improved

communication skills, and stronger interpersonal and social skills are found with traditional lecture-style teaching methods [29]. Collaborative works are essential to develop various skills and attributes, especially for student leaders. However, one cannot deny that there are different outlooks on the application and experience of collaborative work during this new virtual learning. The analysis of the results from the interviews led to the construction of the following themes:

Theme 1: Convenient to Collaborate and Communicate

Collaboration and communication are essential parts of group work, more so virtually, wherein participants do not have physical contact with one another. Due to advancements in technology, one can communicate with other people at the fastest rate compared to our ancestors. Different social media and chatting services enable users to message one another in real-time. According to [47], live chat is a tool that allows synchronous communication and sometimes is referred to in different ways, often called “chat rooms” by commercial providers with whom many people are familiar. One advantage of this tool is that it can enable students to communicate even in different locations. Among the significant responses of the participants that resulted in the creation of this theme are:

“I think virtual learning is okay since the effort is done collaboratively, it’s easier to finish the activities or work that should be done.” -P1

“Collaborating online is very easy because communicating with your groupmates online is also easy to do.” -P6

“I prefer to gather first the ideas of my members before mine and it’s faster because it’s online.” -P10

As stated by [2] team members feel that they are deeply involved in a cohesive group and that cohesion plays a critical role in effective teamwork. Hence, communication is an integral part of a collaboration. Thanks to numerous advancements in technological feats, social communication can still be achieved even if the interlocutors are not physically present in the vicinity of one another.

Theme 2: Hard to Allocate Tasks

Communication is an integral part of collaboration work, whether it be in a virtual or face-to-face learning setup. Technology has given us an avenue to reach out and connect with people virtually. However, according to [25], technology-mediated collaboration experienced greater communication breakdowns, misunderstanding, and difficulty moving forward than collocated teams. This dilemma can be seen in the allocation of tasks- one of the foundations for effectively and efficiently conducting collaborative works. Reference [31] also stated that students found online group activities to be more difficult than working in face-to-groups. Students reported difficulty with communication and a lack of sense of community as the most

challenging factors. The following key points have been used in the construction of the aforementioned theme:

“Online class is very difficult because you cannot see your members face-to-face. Also, it is difficult to distribute work. I really prefer face-to-face.... it is easier to brainstorm, easier to give information, ideas.” -P2

“It is not the same as before [with face-to-face setup] wherein you can talk personally regarding the assigned tasks. These days, we just communicate through Messenger.” -P4

“...it is so much more difficult doing collaborative works online if it is only digital. The task itself is not that hard, what makes it difficult is collaborating. The feeling is different, it is crazy.” -P7

“It is difficult to collaborate online because sometimes they are not active in their Messenger accounts. Therefore, tasks were not designated.” -P13

Reference [25] mentioned that successful collaborative learning needs to consider both task and social aspects of the activity. A sense of community and camaraderie is important in collaborative learning in order for everyone to participate in the group. Feelings of connecting and communication are vital to students' online education experience [25]. Hence, if the first step of collaboration, which is the allocation of tasks, is already proven difficult, the further steps of the process of doing the output itself may be more taxing.

Theme 3: Difficulty to Adapt to Online Learning Setup

Information literacy is one of the main reasons why it was difficult to adapt to the online learning modality. It is a set of skills that requires people to "comprehend when information is needed and be able to access, analyze, and use that information in an effective manner. With so much data available in front of our respective screens, critical thinking skills can help people choose resources and sift through the information to find what is accurate and relevant [2]. Online classes demand that students be independent. Their academic progress is in their hands, so they must take full responsibility. Lack of information literacy has negative impacts in the online class setting — it renders the student vulnerable to plagiarizing material at submitting subpar intellectual outputs. The prominence of this theme is strengthened by the responses of the participants:

“Whenever our professor asks for our own opinions on a certain task, some of my members give me plagiarized work or sentences that were created from different sites.” -P8

“There are times that my group mates will hand their works to me which I don't really like, so I will modify it.” -P13

Due to improved technology alternatives and applications, we now have direct and unfettered access to a far broader spectrum of data. Utilizing social platforms for e-learning such as Zoom Meet, Google Meet, and Skype was able to break the concrete and brick of four traditional classroom corners, transforming them into an all-new cyberenvironment [5]. Considering online classes were held using various devices such as desktop computers, netbooks, and smartphones, technological knowledge is crucial for students. However, not everyone has the privilege to access such resources; that is why learners tend to confront several setbacks that inevitably lead to poor or undesirable outcomes. One of these is the students' lack of required technical skill sets. Without it, online learning becomes more stressful [1]. Furthermore, a person's aptitude to engage and accomplish activities using computer-based and other linked scientific advancements is referred to as technical skills. Therefore, the lack of this skill set deters the learners from being productive since they do not have adequate knowledge and practice of how the programs and applications work. In order to survive the online classes in the 21st Century, the learners are required to familiarize themselves with different applications and platforms. Unfortunately, given that the students are in the midst of a global pandemic, one of the reasons why learners lack technical skills is the lack of resources. This assertion highlights the difficulties that participants in digital cooperative learning have faced:

“I think it is difficult to do tasks that involve technology, like doing videos, or dancing, then you need to upload it. I think it is challenging since we are not that knowledgeable in using technology.” -P1

“Most of the projects were finished by me... for those projects that need to be edited, videos, I am the one doing it because my members don't know how to do it.” -P14

Information literacy and technical skill sets encompass the backbone for continuous learning. It can be found in a multitude of circumstances, learning environments, and educational levels. Hence, if it is lacking, this will impede learners from grasping pertinent knowledge and expanding their investigations and inhibit them from becoming self-directed and in command of their learning.

Theme 4: Issue of Unstable Internet Connection

The virtual learning setup's reliance on technology can be difficult for financially-challenged students. According to [12], not every student can provide and adapt to the rapid advances of technology in today's digital age. Remote learning is difficult and has caused a digital divide in the Philippines. Students rely on the Internet to attend their classes, comply with academic responsibilities, and communicate with their classmates. However, those tasks are difficult to do if one relies on an unstable Internet connection

or sometimes the lack thereof. The significance of this theme is emphasized by the participant's comments:

*"It became more difficult in this online setup **because the members are hard to contact.**" -P3*

*"You need to give extra attention to your members especially those who are cooperative, they prefer being messaged privately. **But it is difficult because there is no internet connection.**" -P8*

*"It is **okay except for those people who are struggling with their internet connection.**" -P11*

*"It is really difficult as a leader because sometimes **my group mates are experiencing internet difficulties.**" -P12*

Collaborative activities rely on social interdependence. According to [18], social interdependence includes giving and receiving help, exchanging resources and information, giving and receiving feedback, challenging and encouraging each other, and jointly reflecting on progress and process. However, effective learning, much less collaboration is difficult to initiate with poor to sometimes no Internet connection. Although many existing internet bundles exist in the Philippines, they are "fluctuating" and are not created equally in terms of speed and stability [12].

Theme 5: Inadequate Effort and Unbalanced Cooperation from Members

The internet has broken down restrictions and allowed us to interact across vast distances. However, this does not guarantee that it is reliable. In an online learning setup, developing a sense of connectedness for teachers, students, and their colleagues is crucial; and communicating with one another is either easy or challenging, especially whenever collaborative works need to be accomplished.

Although the internet offers several messaging and collaborative tools such as Canva, Google Docs, Google Meet, and Microsoft Teams; collaboration in virtual teams may be more complicated and challenging than in traditional groups in the face-to-face learning setup. According to [14], the leaders' concerns about deadlines, lack of feedback, disruptions in communication, reluctance to participate, lack of discipline, and disparities in skills and knowledge among group mates were identified to be some of the factors that caused online collaboration to be more challenging. This claim solidifies the participants' respective responses:

*"It is always rushed... then whenever you check their works, **they just hand in a work that is beyond bare minimum.** Just for the sake that they have something to present, but the work is not what you expected." -P2*

*"**I can't really reach them out,** and I can't function alone during that time. What really happened **is they just became a***

***moral support;** other group mates are on the group chat but we are just two people who worked for the project." -P3*

*"**I am struggling in approaching them,** there are also times during a meeting in Google Meet, I asked them if they are okay with what I have said, yet they are not responding. **As if I am talking to nobody.**" -P4*

*"**...that person doesn't participate at all.** Even during our meetings, he/she is not attending, that is why he/she doesn't have an idea of what our task would be." -P5*

*"**...doesn't give any care.** For example, in our group chat, you already mentioned him/her but he/she still didn't care." -P5*

*"I also encountered one student **that he/she doesn't say anything about his/her absence during our reporting.**" -P7*

*"There will be a delay in submitting as well as every process involved. For example, **instead of things being done by now, it is being delayed because all of them are not attending.**" -P9*

*"**Their excuses.**" -P10*

*"We don't have any choices. **The workload is being doubled because there is someone who doesn't completely take part in the activity,** we are making it through the deadline." -P11*

*"**They just left my message on seen.** I am the one initiating the conversation so that we can work for it immediately but they are just leaving my messages on seen." -P12*

Collaboration is necessary for learning because valuable information is produced through the work of explaining and arguing viewpoints, bridging the gaps, and reaching a consensual agreement. Without collaboration, the group productivity, engagement, and quality work will falter. As a consequence, there is decreased group efficiency and poor group camaraderie.

Theme 6: Communicates and Confronts the Free-Rider

According to [37], teamwork is usual in educational institutions and often incorporated to enrich both learning and assessment. While group work can provide ample opportunities for cooperative learning, it can be the cause of much anxiety among students, most especially for leaders. That is why communicating and confronting free-riders in the group is one of the ways how leaders handle members who do free-riding during collaborative tasks. Therefore, the leaders' ability to connect and face circumstances to lessen the group's burden is an obligatory thing to do. To affirm the aforementioned statements, the participants of the study stated:

"... I will just message my classmate and I will tell him/her to make an effort to attend and help." -P1

"The way you treat each person to the group must be reflected to the entire group and not only to those students who are very participative. Also, we need to understand them because for sure they have their reasons why they do free-riding. Maybe the task you assigned to them is not really suitable for them, and the scope is out of their capacities." -P2

"...what I am doing is I talk to them so that they will not be removed from the group." -P5

"I already told them before we started that each of us should cooperate to be fair for everyone in the group. Since we are all sharing the same grade, I might as well tell it to them." -P8

"First, I will ask him/her what is the reason why he/she is not replying or why he/she wasn't able to join our meeting in Google Meet." -P9

"...for me I will talk to him/her, like "Why did you choose that were in fact you cannot do it yourself?" But I will still give that student a chance since all of us are making mistakes." -P12

"I will give warnings." -P13

"Whenever there is a free-rider in the group, I will message them privately. I will ask them if there are any problems, why they don't participate, why they don't do their tasks assigned to them." -P14

As leadership is highlighted, it's often regarded instrumentally, that is, effective communication is important so that other things can occur such as effective performance, motivation, inspiration, and understanding of the vision [3]. Students also learn to navigate conflicts that will emerge in team projects and develop the ability to assess their strengths and weaknesses as group members. Moreso, leadership encompasses a plethora of aspects of communication, yet having the ability to communicate does not need the presence of being a leader. Thus, despite being a follower, the act of having the ability to communicate with your leader is a task that both the leader and the member should take accountability

7.2 Implications Concluded based on the Leaders' Insights about Virtual Collaborative Works and Free-Rider Members after the Implementation of the Peer-Tracking Technique

One relevant teaching strategy that improves student engagement is nurturing collaborative culture in the classroom [4]. Collaboration is a must in education. However, collaborating in a virtual classroom setup is a different story

to tell. Multiple apparent student statements argue that collaborative works are more challenging than individual ones due to free-riding. Thus, the researchers organized the Peer-Tracking Technique and carried it out with selected class groups to aid the implementation of collaborative work in the virtual setup. Considering the participants' commentaries, the following themes came into view.

Theme 1: Elevates Group Cooperation

Direct peer-monitoring is an instrumental approach that helps learners recognize how to perform and behave in a particular course [48]. Knowing that other members could observe one's progress can urge one to perform an action. According to Mani et al. (2013), peer pressure is a compelling force to heighten the desired effect on a particular individual. Through it, everyone learns to reflect and partake in the group's desired goal. Considering the testimonies of participants, the formed theme is highlighted:

"...they can see that other members are dealing with their parts so they will feel shy to not do their parts." -P4

"...they are now cooperating unlike before; they do not totally give a care. Most of them improved. They are now cooperative, they give ideas despite not being able to point it out straight to the topic, but at least they are cooperating." -P6

"...at first, this student is giving me outputs that are incorrect and he/she didn't attend during our short meetings before, but now he/she gives effort to attend, helps in organizing our tasks and seems like he/she now understands our project." -P8

Indeed, cooperation brings a group closer to its objective and success. Without cooperation, the weight of the workload will not be bearable for everyone. Hence, collaborative learning will not be achieved. Virtual collaborative works are undoubtedly challenging as there are factors that need to be considered, but through the unity and acquaintance of every member, nothing is unattainable.

Theme 2: Promotes Engaging Tracking Organization

Tracking everyone's role and progress is necessary for collaborative work to guarantee that all members are engaged and share the equal effort to complete the task. According to [46], trackers effectively motivate students to accomplish the task at hand. The ability to monitor each member's progress influences others to pay attention to their assigned task and perform it. Findings present that group leaders benefit from implementing the Peer-Tracking Technique in virtual collaborative works. To substantiate that claim, the participants of the study mentioned:

"...you can see who are those people who didn't contribute to the group. You can identify it." -P1

“It gives more focus to the group members to do their tasks. It is like you can monitor everyone as well as be more organized. They also became more responsible in doing their parts.” -P5

“Peer-Tracking Technique is a big help to us. It has a lot of benefits because we are able to observe each other’s progress and we can offer help for others as well.” -P12

“...it is good to use because it makes every member conscious or aware that everyone in the group can see whatever they are putting, that is why they give better performance because they are being monitored.” -P14

National Center on Student Progress Monitoring [19] emphasizes that student learning increases through progress monitoring since students can receive varied instructions and feedback from other members or teachers. It helps ease the groups' workload and, simultaneously, engages everyone properly in the task. Thus, preventing free-riding and passive group members from existing.

Theme 3: Allows the Free-Rider to Realize the Consequences of the Actions

Reference [10] stated that being in a group, each member should identify and determine the tasks and responsibilities that are required in finishing a specific task on time. Groups will not always work well, but avoid breaking up the group is important. At some point, we cannot disregard that group members are not doing their fair share of the group work. In this situation, the group leader may impose disciplinary actions on its uncooperative members. However, the participants narrated that sometimes they allowed their free-rider members to realize their inactivity in the group. The participant's comments emphasize the significance of this theme:

“...we didn’t give much care if you have something to contribute thank you, but if none okay you go to sleep.” -P3

“...I just let it pass since I know that they are already aware that there is a consequence for not participating.” -P4

“...I let them be, I won’t force them to do their tasks.” -P6

Every member must understand that each member’s efforts, responsibilities, and contributions can lead to the group's success [30]. A shared effort is a vital tool to triumph in collaborative work. Group work must be viewed as something that should not be taken advantage of—not contributing and merely relying on the tasks of other group members. Each person in the group is expected to have a fair share of the output’s betterment. Aligned with this, it is crucial to solve any issues in the group immediately. Furthermore, encouraging each member to contribute to a discussion and present their sentiments and ideas concerning their tasks may help the group understand each member's capacity and ability

to finish their designated tasks. In this way, inactivity and uncooperativeness will be lessened.

Theme 4: Eliminates the Free-Rider from the Group

In group work, since the outcome is the product of each member’s effort and dedication, the leader tends to decide to make the group work done stress-free. Reference [30] suggests that the interventions on uncooperative members should directly focus on their behavior and not the person. Hence, if a member neglects all their tasks and responsibilities, the group's performance may jeopardize. Furthermore, despite the efforts of the whole group to work all these things right, free riders may defer the output. It will trigger the leader to decide what to do to the free-rider. The participants shared the same sentiments based on their comments:

“...I will tell our course teacher about it. Their names were not included in the final output.” -P7

“First, I will inform all my group members beforehand that if they don’t cooperate, they will be removed from the group.” -P11

“...that student doesn’t deserve to have another chance to do his/her part because at the first place he/she knows to himself/herself that we have a group work.” -P10

Although problems and setbacks such as free-riding are usually considered inevitable. A way to prevent this is to practice strong decision-making. Free-riding is one of the cons of working in a group. According to [10], there are advantages and disadvantages to working in a group. These disadvantages should be treated and solved immediately before it is too late for the benefit of the whole group. These problems may have a negative effect and impact not only on the free-rider member but also on the entire group. Dealing with these issues will give an impression to all members to do and finish their tasks on time.

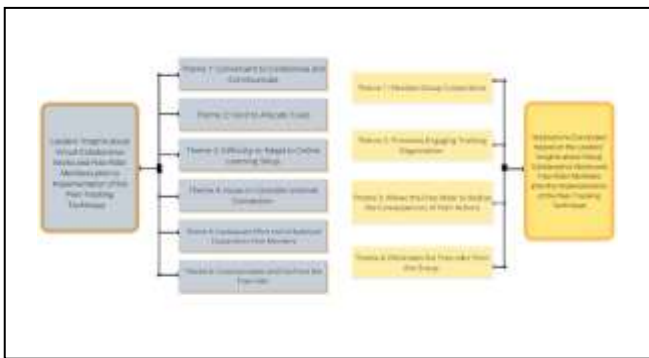


FIG 2. Pre-Intervention and Post Intervention Comparison

The researchers observed the following insights from the leaders during the pre-intervention implementation

interview. Firstly, it was evident that although the technology was seen as beneficial by the student-leaders at first, thanks to numerous messaging applications that made reaching out to the group quickly. Eventually, the issue of members not responding and ignoring the said messages became too prominent to the point where instead of being an asset to virtual collaboration, it became a hindrance. Additionally, the difficulty of proper and clear communication became a challenge when allocating tasks, which was considered the foundation of any collaborative work. Furthermore, the sudden change to the new virtual setup became a challenge for the students, especially leaders. The new learning modality demands the use and knowledge of complex software applications and sites. However, not everyone is tech-savvy nor can have the needed technology to support distance learning. There were also clear signs of inconvenience due to a lack of stable and fast Internet connection. Students who do not have Wi-Fi in their homes are forced to use Mobile Data instead. However, the limited and slow Internet connection proves challenging for online learning. Further, the leaders also said they had seen an unbalanced workload in their respective groups. Due to free-riding, some members and the leaders were forced to compensate for the free-rider members' lack of effort. In addition to this, not only is the groups' camaraderie, and their relationship with one another is affected. Hence, the student-leaders aim to communicate correctly and even confront the free-rider to reach a common understanding between the leader and the group members. However, being synchronized and working as a team is difficult, especially in online learning. Not only does the virtual setup lack the physical aspect of being in a group due to its participants being far from each other, but the aforementioned insights by the leaders regarding online group activities and free-riding attest to what truly is happening in virtual collaborative work.

The leaders are introduced to the Peer-Tracking Technique. They are given their respective Google Documents that they share with their group so they can implement the intervention in their virtual collaborative activity. After the implementation period, the researcher proceeded to conduct the post-intervention interview. The leaders said that the Peer-Tracking Technique increased the group's overall cooperation and productivity. Since all the group members could already see the tasks allocated to them and their co-members productivity levels, it urged them to do their respective parts. It is a convenient and effective way to collaborate since they can see each other's progress; hence the leaders do not have to message their members to check on their progress actively. Task allocation was also easier with PTT since everyone could see which task was assigned to whom. Additionally, the technique organized virtual collaboration without downloading other software applications or websites since the researchers chose to utilize Google Documents. This online word document processor was already commonly used during the virtual setup. Furthermore, besides the fact that the PTT can serve as a good

way to motivate the members to participate in the group activity, it can also serve as a just basis for the leaders to base their decision if any members proceed on to free ride. It was evident that the leaders utilized the PTT regarding the repercussions handed to the free-rider. The leaders either did this passively or actively. They used it passively by allowing the free-riders to take the initiative and change their ways since they could observe their productivity level compared to their other co-members. The latter repercussions, on the other hand, the leader might remove the free-rider member from the group if little to no changes happened regarding their cooperation with the group. Either way, both decisions of the leader are justifiable and can be proven due to the Peer-Tracking Techniques' two parts: the tracking progress and the documentation.

8. CONCLUSION

Virtual collaborative work can be proven difficult and taxing, especially for student-leaders. Balancing numerous personal and academic responsibilities while leading and guiding their members to complete their output can be strenuous, especially with the added liability of having a free-rider in the group. Having a way to motivate everyone in the group to participate actively is very important. The best way to eradicate free-riding in the group is to avoid it from happening in the first place. The Peer-Tracking Technique can be a reliable way to track and motivate group members to do their tasks proactively.

9. REFLECTION

When individuals put their knowledge into a smart purpose, it becomes formidable. The schools were forced to close their doors, but little do we know that the digital world is entirely accessible, versatile, and ready to utilize. Since we live in the 21st century, the media and the internet have showcased that we can study creative possibilities. It is up to our hands to figure out how to make learning productive, even if we are just sitting next to our devices and computers.

The online setting is challenging not just for educators but also for the students. COVID-19 outbreak made it challenging for learners to interact with each other physically. However, this should not be the reason for the learner's camaraderie spirit, productivity, and academic performance to be compromised. The researchers believe that we are agents of change. Thus, we posit an alternate solution—the Peer-Tracking technique to help us assess the group performance. This technique is a success in an online setup. We believe it will be as effective or even more effective in a blended learning modality and face-to-face learning.

10. RECOMMENDATIONS

Based on the study findings, the following are hereby recommended:

1. Teachers that intend to enforce collaborative learning through collaborative tasks may consider incorporating a technique as collaboration seems to be a challenge in the virtual setup; to ensure every student attains the target learning outcome of the task.
2. Student group leaders may consider using the Peer-Tracking Technique to organize and track the progress of the group work and prevent free-riding. Furthermore, everyone will be able to evaluate each member's advancement with their assigned tasks and learn how engaged the members are through their contributions. Thus, positive collaborative learning is most likely to be achieved.
3. School admins and staff may consider organizing webinars about the different collaborative teaching and learning techniques to raise awareness among teachers and students about their significance in collaborative tasks.
4. Future researchers may explore the teachers' lived experience with virtual collaborative teaching and learning techniques to discover their perspectives on collaborative works and techniques implications.

11. REFERENCES

- [1] Arkorful, V., & Abaidoo, N., (2015). The role of e-learning, advantages, and disadvantages of its adoption in higher education. *International Journal of Instructional Technology and Distance Learning*, 12(1), pp. 29-42.
- [2] Austin EW., Chen YY., Pinkleton BE., Johnson JQ. (2018). Benefits and costs of cannell one in a Middle school setting and the role of media literacy training. *Pediatrics*. 2018;117(3):423–33.
- [3] Ashman, I., & Lawler, J. (2008). *Existential Communication and Leadership*. Sage Journals. Retrieved March 23, 2022, from <https://journals.sagepub.com/doi/10.1177/1742715008092361>
- [4] Backer, J., Miller, J., & Timmer, S. (2018). The Effects of Collaborative Grouping on Student Engagement in Middle School Students. Retrieved May 23, 2022, from <https://sophia.stkate.edu/cgi/viewcontent.cgi?article=1273&context=maed#:~:text=Collaborative%20learning%20gives%20students%20the,Finn%20%26%20Zimmer%2C%202012>.
- [5] Beer, C. C., Calugan, J., Dumo, J., & Simber, L. (2020, December 20). 3rd International Conference On Advanced Research in Education , Teaching, and Learning. *Online Distance Learning: Thematic Study on the Challenges Faced By Educare College Inc. Primary Pupils*.
- [6] Bean-Mellinger, B. (2018). The Advantages & Disadvantages of the Basic Checklist Method in Performance Appraisals. Bizfluent. Retrieved June 8, 2022, from <https://bizfluent.com/info-8649754-advantages-checklist-method-performance-appraisals.html>.
- [7] Blumenfield, P., Marx, R., & Soloway, E. (1996). *Learning With Peers: From Small Group Cooperation to Collaborative Communities*. Sage Journals. Retrieved March 23, 2022, from <https://journals.sagepub.com/doi/10.3102/0013189X025008037>
- [8] Bogner, F., Groß, J., & Larsen, Y. (2020). Bringing Out-of-School Learning into the Classroom: Self- versus Peer-Monitoring of Learning Behaviour. ERIC. Retrieved June 07, 2022, from <https://files.eric.ed.gov/fulltext/EJ1272784.pdf>
- [9] Börjesson, P., Hamidian, A., Kubilinskas, E., Richter, U., & Weyns, K., & Ödling, P. (2005). Free-riding in Group Work - Mechanisms and Countermeasures. Lth. Retrieved January 17, 2022, from https://www.lth.se/fileadmin/lth/genombrottet/konferens2006/p_o_b_rjesson_mfl.pdf
- [10] Burke, A. (2011). *Group Work: How to Use Groups Effectively*. The Journal of Effective Teaching. Retrieved March 23, 2022, from https://uncw.edu/jet/articles/vol11_2/burke.pdf
- [11] Butler, D. & Winne, P. (1995). *Feedback and Self-Regulated Learning: A Theoretical Synthesis*. Sage Journals. Retrieved May 24, 2022, from <https://journals.sagepub.com/doi/10.3102/00346543065003245>
- [12] Cahapay, M. & Rotas, E. (2020). Difficulties in Remote Learning: Voices of Philippine University Students in the Wake of COVID-19 Crisis. ERIC. Retrieved May 24, 2022, from <https://files.eric.ed.gov/fulltext/EJ1285295.pdf>
- [13] Carden, L. & Fowler, S. (1984). *Positive Peer Pressure: The Effects of Peer Monitoring on Children's Disruptive Behavior*. Wiley Online Library. Retrieved May 24, 2022, from <https://onlinelibrary.wiley.com/doi/abs/10.1901/jaba.1984.17-213>
- [14] Chiong, R., & Jovanovic, J. (2012). Collaborative learning in online study groups: An evolutionary game theory perspective. *Journal of Information Technology Education: Research*, 11, 81-101.
- [15] Conger, J. & Pearce, C. (2003). *Shared Leadership: Reframing the Hows and Whys of Leadership*. Sage Books. Retrieved June 07, 2022, from <https://sk.sagepub.com/books/shared-leadership>
- [16] Cragan, J. & Wright, D. (1991) *Communication in Small Group Discussions: An Integrated Approach*. World Cat. Retrieved June 07, 2022, from <https://www.worldcat.org/title/communication-in-small-group-discussions-an-integrated-approach/oclc/20933130>

- [17] Curphy, G., Ginnet, R., & Hughes, R. (1999). Leadership: Enhancing the Lessons of Experience. World Cat. Retrieved June 07, 2022, from <https://www.worldcat.org/title/leadership-enhancing-the-lessons-of-experience/oclc/894571038>
- [18] Curtis, D. & Lawson, M. (2001). Exploring Collaborative Online Learning. Online Learning. Retrieved March 23, 2022, from <https://olj.onlinelearningconsortium.org/index.php/olj/article/view/1885>
- [19] Douglas, D. & Hughes, C. (n.d.). Progress Monitoring Within a Response-to-Intervention Model. RTI Action Network. Retrieved May 23, 2022, from <http://www.rtinetwork.org/learn/research/progress-monitoring-within-a-rti-model#top>.
- [20] Education Language Learning. (2015). The Difference Between Approach, Strategy, Method, Technique, and Model. Retrieved January 16, 2022, from <http://englishmanagement17.blogspot.com/2015/07/the-difference-between-approach.html>
- [21] Etikan, I., Sulaiman, M., & Alkassim, R. (2016). Comparison of Convenience Sampling and Purposive Sampling. American Journal of Theoretical and Applied Statistics.,5(1), 1–4. Retrieved January 14, 2022, from <https://doi.org/10.11648/j.ajtas.20160501.11>
- [22] Er, E. (2020). Self and Peer Monitoring during Peer Feedback: The Instructor Perspective. CEUR-WS. Retrieved May 24, 2022, from <http://ceur-ws.org/Vol-2671/paper11.pdf>
- [23] Erkens, G., Jaspers, J., Kirschener, P., Phielix, C., and Prins, F. (2011). Group Awareness of Social and Cognitive Performance in a CSCL Environment: Effects of a Peer Feedback and Reflection Tool. Science Direct. Retrieved May 24, 2022, from <https://www.sciencedirect.com/science/article/abs/pii/S0747563210001962>
- [24] Eveleigh, E. & Joseph, L. (2009) A Review of the Effects of Self-Monitoring on Reading Performance of Students With Disabilities. Sage Journals. Retrieved June 07, 2022, from <https://journals.sagepub.com/doi/10.1177/0022466909349145>
- [25] Faja, S. (2013). Collaborative Learning in Online Courses: Exploring Students' Perception. ERIC. Retrieved March 23, 2022, from <https://files.eric.ed.gov/fulltext/EJ1145013.pdf>
- [26] Figgou, L., & Pavlopoulos, V. (2015). Social Psychology: Research Methods. ScienceDirect. Retrieved June 8, 2022, from <https://www.sciencedirect.com/topics/social-sciences/thematic-analysis>.
- [27] Fung, Y. (2007). Collaborative online learning: Interaction patterns and limiting factors. TandFOne. Retrieved January 17, 2022, from <https://www.tandfonline.com/doi/abs/10.1080/0268051042000224743>
- [28] Gill, R., Wit, A., & Zimmermann, P. (2008) The Relative Importance of Leadership Behaviours in Virtual and Face-to-Face Communication Settings. Sage Journals. Retrieved March 23, 2022, from <https://journals.sagepub.com/doi/10.1177/1742715008092388>
- [29] Hansen, S. (2010). Benefits and Problems With Student Teams: Suggestions for Improving Team Projects. TandFOne. Retrieved March 23, 2022, from <https://www.tandfonline.com/doi/abs/10.3200/JOEB.82.1.11-19>
- [30] Holubec, E., Johnson, D., & Johnson, E. (1998). Positive Interdependence and Individual Accountability. University of Northern Iowa. Retrieved March 23, 2022, from <https://intime.uni.edu/chap-4-positive-interdependence-and-individual-accountability>
- [31] Hill, J. & Koh, M. H. (2009). Student Perception of Group Work in an Online Course: Benefits and Challenges. International Journal of E-Learning & Distance Education. Retrieved March 23, 2022, from <https://www.ijede.ca/index.php/jde/article/view/477>
- [32] Islam, N., Beer, M., & Slack, F., 2015. E-learning Challenges Faced by Academics in Higher Education. Journal of Education and Training Studies, 3(5), pp. 102-112.
- [33] Jackson, M., Jones, D., Dyson, J., & Macleod, U. (2019). Facilitated group work for people with long-term conditions: a systematic review of benefits from studies of group-work interventions. British Journal of General Practice, 69(682), e363-e372.
- [34] King, J.A. (1998), Making sense of participatory evaluation practice. New Directions for Evaluation, 57-67. Retrieved June 8, 2022 from <https://doi.org/10.1002/ev.1117>
- [35] Koleva, N. I. (2017). Collaborative Learning. SocioBrains. Retrieved January 16, 2022, From http://sociobrain.com/website/w1465/file/repository/271_275_Natasha_Koleva_COLLABORATIVE_LEARNING_ADVANTAGES_AND_DISADVANTAGES.pdf
- [36] Kreijns, K., Kirschner, P., Jochems. W., Buuren. H.(2004). Determining sociability, social space, and social presence in (a)synchronous collaborative groups. Liebertpub. Retrieved January 17, 2022, from <https://www.liebertpub.com/doi/abs/10.1089/109493104323024429>
- [37] Maiden, B. & Perry, B., (2010). Dealing with free-riders in assessed group work: results from a study at a UK university. TandFOne. Retrieved March 23, 2022, from <https://www.tandfonline.com/doi/abs/10.1080/02602930903429302>

- [38] Mani, A., Rahwan, I. & Pentland, A. (2013). Inducing Peer Pressure to Promote Cooperation. Retrieved May 23, 2022, from <https://www.nature.com/articles/srep01735.pdf>.
- [39] McArdle, G., Clements, K., & Hutchinson-Lendi. (2005). The Free Rider and Cooperative Learning Groups: Perspectives from Faculty Members. *Ith*. Retrieved January 14, 2022, from, https://www.lth.se/fileadmin/lth/genombrottet/konferens2006/p_o_b_rjesson_mfl.pdf
- [40] McCurdy, B. & Shapiro, E. (1992). A Comparison of Teacher-, Peer-, and Self-Monitoring with Curriculum-Based Measurement in Reading Among Students with Learning Disabilities. *Sage Journals*. Retrieved June 07, 2022, from, <https://journals.sagepub.com/doi/10.1177/002246699202600203>
- [41] O'Neill, M. (2018). How to deal with the free riders in your team. Retrieved June 8, 2022, from <https://www.samewave.com/posts/how-to-deal-with-the-free-riders-in-your-team#:~:text=Free%20riding%20means%20individuals%20work,rewards%20or%20punishments%20for%20individuals>.
- [42] Olowo, B., Fashiku, C., Adebakin, B., & Ajadi, O. (2020). Social Media: A Modern Tool to Enhance Communication Skills of the Secondary School Principals in Ekiti State. ERIC. Retrieved January 16, 2022, from, <https://files.eric.ed.gov/fulltext/EJ1269016.pdf>
- [43] Paswan, A.K., & Gollakota, K. (2004). Dimensions of peer evaluation, overall satisfaction, and overall evaluation: An investigation in a group task environment. *Journal of Education for Business*, 79, 225-231.
- [44] Petress, K. C. (2004). The benefits of group study. *Education*, 124(4).
- [45] Saunders, M., Lewis, P. & Thornhill, A. (2012). *Research Methods for Business Students*. Pearson Education Limited.
- [46] Sorokina, O., Odarich, I., Vaganova, O., Bulaeva, M., & Lapshova, A. (2020). Timetracker capabilities in student project activities. *Propósitos y Representaciones*, 9 (SPE1), e819. Retrieved May 23, 2022, from <https://files.eric.ed.gov/fulltext/EJ1298360.pdf>
- [47] Thamarana, S. (2016). Role of E-Learning and Virtual Learning in English Language Learning. Research Gate. Retrieved March 23, 2022, from, https://www.researchgate.net/profile/Simhachalam-Thamarana/publication/305913807_Role_of_E-learning_and_Virtual_Learning_Environment_in_English_language_learning/links/57a5ba4208aefe6167b500f9/Role-of-E-learning-and-Virtual-Learning-Environment-in-English-language-learning.pdf
- [48] Toofan, Z., Maghsoudi, M., & Madani, D. (2014). The Effects of Self-Monitoring and Peer-Monitoring on Writing Activities. *Canadian Center of Science and Education*, 7(6). Retrieved May 23, 2022, from <https://files.eric.ed.gov/fulltext/EJ1075762.pdf>
- [49] Topping, K. (2007). Trends in Peer Learning. *Tandfonline*. Retrieved May 24, 2022, from, <https://www.tandfonline.com/doi/abs/10.1080/01443410500345172>
- [50] Verheijen, A. (2021). Eliminating Free-Riding in Group Work. *Feedback Fruits*. Retrieved January 14, 2022, from <https://feedbackfruits.com/blog/eliminating-free-riding-in-group-work>
-