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Impact of Cooperative Learning Strategy on Students' Academic Productivity

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ABSTRACT

This quantitative study aimed to investigate the effectiveness of cooperative learning on the academic productivity of BSED students. This descriptive correlational quantitative study sought to answer if there is a significant relationship between the cooperative learning of BSED students towards their academic productivity. This involved 30 BSED students as respondents, at University of Mindanao- Tagum College. Over a period of four weeks, the researcher conducted the study among randomly selected BSED students to answer the survey questionnaire according to their preferences. Cooperative Learning (IV) and Academic Productivity (DV) utilize validated survey questionnaires to gather data. The results showed students who were engaged in cooperative learning had a better academic progress as compared to the students who were taught by lecture. Therefore, the conclusion of this study is that the cooperative learning had a positive impact on students' academic performances among BSED students of University of Mindanao-Tagum College.

INTRODUCTION

In the field of teaching, the use of various learning strategies is important to ensure that the transmission of knowledge is successful. Teachers utilize diverse teaching methods to achieve this target, including lectures, discussions, and demonstrations. Teachers often use traditional methods such as lectures that become learning centers and students just listen, take notes, and do sums (Kurniawan & Suripno, 2016). However, many researchers stating leading towards the assumption that it does not help in deep understanding of the concepts. This has resulted in more emphasis on teaching through diverse methods in order to improve learning and understanding. One of these is the cooperative learning method. Cooperative learning is one of the learners-centered teaching methods in which teacher encourages students of diverse abilities to work in small groups to improve their understanding of subject matter and encourage them to interact and cooperate to achieve a common goal (Chan, 2020). The study aims to add a fresh perspective by presenting data on how students' academic production has been affected by cooperative learning activities. Teacher educators will gain knowledge from it and can utilize the findings to influence prospective teachers' attitudes toward employing cooperative learning techniques.

Gillies (2016) stated "Helping students to interact and work together not only enables students to learn from each other but also to accept responsibility for the tasks they have to complete and the decisions they have to make. In order to feel like a team, which is crucial in every aspect of life, one must pursue a conclusion that benefits everyone with whom they are jointly associated. According to Buchs and Maradan (2021), the learning process in which students work together to achieve group goals in

cooperative learning is effective in achieving the goal of learning subject knowledge and developing students' skills of mutual support, cooperation and communication. Compared with individualistic or competitive learning method, cooperative learning method was more effective in promoting social interaction, learner autonomy, and learning success (Shih, 2020). To enable student Social and communication skills like attentive listening, cooperative questioning, and respectful negotiation need to be taught to enable students to work effectively in groups. Various studies about cooperative learning among elementary and secondary education, Slavin (1989) reported on a best-evidence synthesis of 60 studies across both elementary and secondary schools that compared cooperative learning to control groups studying the same material. Therefore, learning activities need to be presented in the learning process through one of the learning methods and the cooperative learning model is perfect for this problem (Gupta & Pasrija, 2016). Thus, this study aimed to examine the effectiveness of cooperative learning on academic productivity of Bachelor in Secondary Education (BSED) freshmen students to determine its influence towards students' progress.

LITERATURE REVIEW

This section provides the literature review that relates to cooperative learning and students' academic productivity. In teaching and learning environments, many methods, techniques and/or approaches are used (Sühendan Er, B Aksu Ataç 2016). Among these one of them is cooperative learning. According to Altum (2015), the essence of utilizing cooperative learning strategies is in that collaborative learning offers a style of leadership that actively involves the participants in their own learning. In that sense, the teachers become facilitators

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while the learners get fully engaged in the process of learning. Bayrakçeken, Doymuş and Doğan (2015) state that a cooperative learning method improves students' thinking skills, encourages them to think critically, and has an active role in students' taking responsibility for their own learning. Cooperative learning has considerable educational benefits, including intrinsic motivation, positive attitudes toward the subject, improved self-esteem, social support, group cohesion and participation (Fernandez-Rio et al., 2017; Han & Son, 2020; Cecchini et al., 2021; Liu & Lipowski, 2021).

In Tanzania, Mkomele (2015) conducted a study about cooperative learning among Secondary Schools in Temeke District and concluded that cooperative learning stimulates cognitive development along with the constructivist approaches that place students at the center of the learning process. University teachers must create an environment that is conducive to effective team learning. This requires effort, interest and recognition of the fact that the proper functioning of the teams and attainment of the learning objectives depend upon the teacher's role, as does student satisfaction with group work. Cooperative learning is useful in addressing a lack of motivation for learning among students and it is viewed as a positive teaching methodology capable of motivating students in university settings (Iran, 2019; Cecchini et al., 2021; Liu & Lipowski, 2021). Lie (2002), for instance, conducted a study in China and commented that cooperative learning develops students' higher order thinking skills. Cooperative learning is one of education's most remarkable and fertile areas of theory, research, and practice.

Furthermore, Vitalice (2018) conducted a study in Kisii, Kenya to investigate on the effects of cooperative learning approach on the students' achievement and attitude toward oral literature genres in selected secondary schools and come up with the results that cooperative learning approach improves the learners' performance and attitude towards the study of oral literature genres. Generally speaking, cooperative learning environments tend to be more dynamic, appealing and enjoyable, as well as giving students more responsibility and power over their learning, enhancing perceived autonomy and competence and making a significant contribution to improving learning goals (Amin, 2020; Han & Son, 2020). Learning goals, also known as mastery goals and task-focused goals, are related to mastery and enjoyment of a task by students keen to learn and improve their skills. Performance goals, meanwhile, are also known as execution goals or ego-involvement goals and relate to caring for one's image, achieving an outcome or demonstrating one's abilities (León et al., 2019; Alhadabi & Karpinski, 2020; Putarek and Pavlin- Bernardić, 2020). Altun (2015) conducted a study in Turkey and commented that cooperative learning assists instructors in effective teaching and learning. The authors further

added that cooperative learning approach when properly implemented provides better learning opportunities for students to develop skills in group interactions and working with others in analyzing, synthesizing and discussing various tasks. In their work, Erbil and Kocabas (2018) argue that cooperative learning is a democratic learning method that includes shared ideas, collaboration, interaction, brainstorming, community and discussion. Therefore, learning activities need to be presented in the learning process through one of the learning methods and the cooperative learning model is perfect for this problem (Gupta & Pasrija, 2016).

Another study was conducted by Osalusi (2012) in Nigeria about the differences between cooperative learning in the experimental group and other teaching methods in the control group. The findings revealed a significant difference between the experimental and control groups' critical thinking and decision-making ability levels. The subjects exposed to cooperative learning strategy in the experimental group had higher mean scores as compared to those exposed to other methods in the control group. The study concluded that there is a need for social study teachers to employ the use of cooperative learning strategies in their teaching to enhance the development of critical thinking and decision-making abilities in learners. This will foster the performance of the students in social studies including literature subjects because students will get knowledge when they are discussing in the groups with other students under the guidance of the teacher including literature subjects because students will get knowledge when they are discussing in the groups with other students under the guidance of the teacher.

Cooperative learning is one of the best means through which learning participation can be enhanced. Paschal, Nyoni and Mkulu (2020) conducted a study in Mwanza Region about the implementation of cooperative learning and discovered that cooperative learning was not closely supervised in schools. Teachers simply formulated groups in the classrooms without a close follow up on how effective the groups were performing. According to Duckworth (2010), cooperative learning is the working of students in small groups, helping each other to achieve a certain goal in the teaching and learning process. It is a part of a group of teaching and learning techniques where students interact with each other in order to meet expected learning goals. Academic goals influence students' behavior in the classroom and drive them to achieve a series of objectives in their academic lives (Rodríguez and López, 2020).

A recent study by Appiah-Twumasi, Antwi, Anderson and Sakyi- Hagan (2020) investigated on comparative effect of cooperative learning on Students' Performance in mechanics concepts between two secondary schools in Berekum Municipality, Ghana and established that students taught using the cooperative learning approach with the instructional manual performed significantly

better in the mechanics concepts than those taught using the cooperative learning strategy only. They therefore recommended that teachers use the cooperative learning strategy along with the instructional manual to enhance students' performance in secondary schools.

These days, learning methods based on cooperation are more and more widely used with the aim of encouraging team work, allowing students to learn to work as part of a team, improving performance and learning and developing interpersonal skills (León et al., 2015; Mendo et al., 2016; Baena-Morales et al., 2020). Academic goals influence students' behavior in the classroom and drive them to achieve a series of objectives in their academic lives (Rodríguez & López, 2020). Orientation toward one type of goal or another may change over time if university teachers encourage these goals using different methodologies and taking action to motivate students (Andreev et al., 2020). Teaching staff can help students identify and set learning goals and encourage them to adopt a different approach to their goals through the teaching methodology used (Chiecher, 2017). Cooperative learning is one of education's most remarkable and fertile areas of theory, research, and practice.

Theoretical and Conceptual Framework

The theory of social constructivism and social interdependence theory supports the research. These two theories are frameworks that is important in determining students' performance and what are the factors that affects students' accomplishments. The Social Interdependence Theory introduced by Morton Deutsch (1949), while Walberg's Theory of Educational Productivity was created by Herbert J. Walberg (1981).

Social interdependence theory underlies some of the most widely used cooperative learning procedures (Johnson & Johnson, 2002). Hundreds of research studies have validated social interdependence theory (Johnson & Johnson 1974, 1989, 2005), a significant proportion of which has focused on the conditions under which cooperation may be effectively implemented. Social interdependence' exists when individuals share common goals and each individual's outcomes are affected by the actions of the others (Deutsch 1962, Johnson and Johnson 1989). Additionally, this theory has been used as the basis for the structural design of the assignments that students have been given to complete. This hypothesis states that when group members realize that cooperating on a task will increase the likelihood that they will succeed in their shared objectives, they will begin to interdepend. Therefore, one of the cooperative elements that has to be structured in the classroom is positive interdependence or cooperation. When this is done, cooperation results in promoting interaction as group members encourage and ease each other's efforts to learn (Johnson, Johnson, & Holubec, 1998). Social interdependence theory explains how people interact and suggests strategies to improve motivation and increase individual responsibility, problems such as lack of sufficient student responsibility toward

group work can be addressed more effectively (Johnson & Johnson, 1998). Johnson and Anderson (1983) found that there is a positive correlation between positive attitudes toward cooperative learning and perceptions of positive interdependence. Furthermore, they noted that the more enthusiastic the students' attitudes toward cooperative learning, the more strongly they felt that every participant who attempts to participate to group work has an equal chance of succeeding in class.

The study is also anchored on the theory of educational productivity which tackles about the influences on learning that affects the academic performance of a student. It is an exploration of academic achievement wherein Walberg used a variety of methods on how to identify the factors that affects the academic performance of a student. He analyzed his theory with the help of different theorists and integrated his study with over 3000 studies. In his theory, he classified 11 influential domains of variables, 8 of them were affected by social-emotional influences namely, classroom management, parental support, student-teacher interactions, social-behavioral attributes, motivational- effective attributes. The variables are reflected with different representation. In the first three variables (ability, motivation, and age) reflect characteristics of the student.

The fourth and fifth variables reflect instruction (quantity and quality), and the final four variables (classroom climate, home environment, peer group, and exposure to media) represent aspects of the psychological environment. He explained that these variables have a certain effect that might cause problems with the academic performance of students if it will not be properly guided. Giving importance with a certain variable can mean a big impact with the student's academic performance. According to Ngussa (2018), there is a positive correlation between experiential learning and group collaboration, between experiential learning and the use of instructional technology and between the use of instructional technology and group collaboration. Hence, in order to optimize experiential learning and educational technology and achieve the benefits of cooperative learning, teachers must take certain precautions.

Statement of the Problem and Hypothesis

This study seeks to answer the following:

1.What is the level of Cooperative Learning of the students in terms of:

- 1.1 Positive Interdependence
- 1.2 Individual Accountability
- 1.3 Promotive Interaction
- 1.4 Social Skills
- 1.5 Group Processing

2.What is the level of Academic Productivity of the students in terms of:

- 2.1 Classroom Management
- 2.2 Parental Support
- 2.3 Student- Teacher Interactions

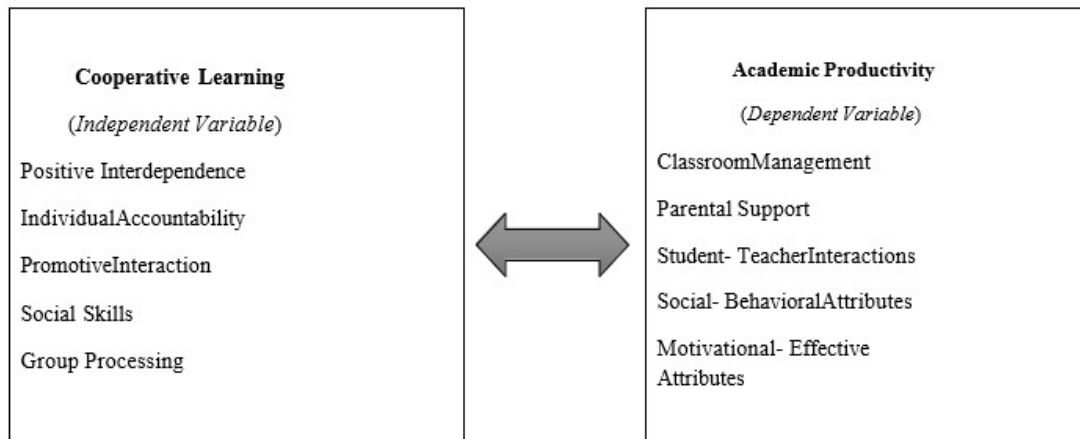


Figure 1: Conceptual Framework of the Study

- 2.4 Social- Behavioral Attributes
- 2.5 Motivational- Effective Attributes
- 3. Is there a significant relationship between cooperative learning of BSED students towards their academic productivity?

METHODOLOGY

Research Design

In this research, quantitative design is being used, specifically descriptive correlational method, which studies the relationship between two variables. In line with Cresswell, Ary, et. Al (2010) describes that correlational research looks for relationship or correlation between variables in positive or negative correlation, and the level of correlation determined by the coefficient of correlation. This method was used when the objective is to describe the status of the situation as it exists at the time of the study to explore the cause of a particular phenomenon. Correlation research, involves collecting data in order to determine whether the degree of a relationship exists between two or more quantifiable variables (Gay, Mills & Airasian, 2006). These variables are the cooperative learning and how it affects the academic productivity of the BSED first year students of University of Mindanao Tagum College. It utilizes statistical analysis to help with the result. Streefkerk (2019) state that numbers and graphs are used in quantitative research. It is designed to put hypotheses and assumptions to the test. This form of study can be utilized to come up with generalizable facts about a subject. The quantitative feature includes an appropriate schedule for gathering the data designed for the target respondents to answer the questions. The process of gathering data was based on use of a questionnaire.

Sampling Procedures

The study was conducted during the first semester of the school year 2022-2023 among BSED first year students as the respondents selected through simple random sampling. This method is the most straightforward of all the probability sampling methods, since it only involves a single random selection and requires little advance

knowledge about the population (Lauren Thomas, 2022). Since it uses randomization, any research performed on this sample should have high internal and external validity. Ary et, al (2010) states “the small group that is observed is called a sample, and the larger group about which the generalization is made is called a population. In this study, the sample size of 30 respondents was taken from the total number of BSED students, 445 as of 2022.

The researcher used the simple random sampling technique, choosing five respondents of each program in BSED majoring English, Filipino, Science, Math, and Social Studies. Cooperative learning enables university students to acquire basic skills and increases their motivation to participate actively in the learning process (Fernandez-Rio et al., 2017; Mendo et al., 2018). Hence, college students are fairly impacted by this learning strategy and continuously experience the same circumstances in classroom setting that made them qualified as respondents of the study.

Scope and Delimitation

Out of 445 first year BSED students of University of Mindanao Tagum College, thirty (30) students were used as a sample in conducting the survey. This study limits its coverage and the first year BSED students only its main purpose is to identify the common problems that they encounter, and to propose possible solutions regarding this problem. The purpose of this study focuses on the effectiveness of cooperative learning on academic productivity of the students that has an impact on their academic performances. Each of the respondents are given same questionnaires to answer, and this study focuses on the current first year students of the present school year, 2022-2023.

Research Instrument

This study is used to quantify a problem by producing numerical data that can be converted into usable statistics to form facts and uncover patterns in research. Arikunto (2006, in Nurazizah 2011) states that the kinds of instrument are test, questionnaire, interview, observation, rating scale, and document analysis. In thjs study, the

researchers utilize validated survey questionnaires as instruments in gathering the data. The survey questionnaire was segmented into two categories; the first category which is Cooperative Learning was divided into five (5) sub-categories namely: Positive Interdependence, Individual Accountability, Promotive Interaction, Social Skills and Group Processing with total of 30 items all in all. Academic Productivity as the second category consists also of five (5) sub-categories; Classroom Management, Parental Support, Student- Teacher Interactions, Social Behavioral Attributes, and Motivational- Effective Attributes with 30 items all in all.

The five-point Likert Scale was used in the instrument, five (5) as the highest and one (1) as the lowest. Likert Scale (typically) provides five possible answers to a statement or question that allows respondents to indicate their positive-to-negative strength of agreement or strength of feeling regarding the question or statement. (McLeod, 2008) It helps to determine attitudes, opinions, and behaviors, as well as to generalize findings from a larger sample population. The questionnaire was transcribed and uploaded through Google Form or by document send to their messenger in order for the student- respondents to virtually respond to the questions.

Data Gathering Procedures

The chosen respondent from University of Mindanao-Tagum College was asked for permission and consent, and they were given enough time to do their respective

tasks. After the researcher gathered respondents and asked their consent, the researcher will then elaborate what the study is all about to the respondents, its purpose, significance, and contribution to the growing knowledge about the topic, for them to understand such things and to respond to our questions effectively. Questionnaires serves as the main instrument to bring up data from the respondents. According to Kothari (1990), questionnaire is the most widely used instruments for obtaining information from individuals. These will convert into soft copy and give it to the respondents, total of 30 students, allowing them to take their time on answering it. The respondents will simply put check on the likert scale given which corresponds statements derived from the theoretical framework of this study. The researchers collect their submitted data through Google Forms.

Afterwards, the gathered data of this descriptive correlational research will undergo a calculation. Once the questionnaires are being tallied, then it will be treated using the following statistical tools. Mean, will be used to determine the level of effectiveness of cooperative learning towards student’s academic performance. Pearson-r Correlation, to determine significant relationship of cooperative learning and how it affects academic productivity of the students. and Regression Analysis, to determine its domain. The researchers were very careful on the computation of every step, slowly but surely, because a one-digit mistake can lead to a different expected result.

Table 1: The interpretation of numerical description.

Scale	Range	Response	Interpretation
5	4.21- 5.00	Strongly Agree	Very High
4	3.41- 4.20	Agree	High
3	2.613- 3.40	Neutral	Moderate
2	1.81- 2.60	Disagree	Low
1	1.0-1.80	Strongly Disagree	Very Low

In determining their level of Cooperative Learning and Academic Productivity of the students, the following five orderable gradation with their particular scope of methods and description were considered.

Data Analysis

In interpreting the relationship of cooperative learning to academic productivity of the BSED students, the researchers employ Pearson Correlational statistical tool in analyzing numerical data to find the correlation coefficient between two variables and how significant the correlation between them. According to Ary et. al. (2011), the Pearson product moment is a very useful statistics showing the correlation between two variables. Ary et. al. (2010) states that if Pearson r approaches ±1.00, it means that there is a strong positive relationship between both variables. Meanwhile, if the Pearson r approaches – 1.00, it indicates the strong negative relationship between both variables. However, if the Pearson r approaches 0, it

shows a weak relationship between both variables. Therefore, the researcher used this formula because it is one of the most positive measurements of correlation. Here is the formula of Pearson product moment.

$$= \frac{n \sum x_i y_i - \sum x_i \sum y_i}{\sqrt{n \sum x_i^2 - (\sum x_i)^2} \sqrt{n \sum y_i^2 - (\sum y_i)^2}}$$

The researchers tallied the collected information from the respondents through counting the number of students who Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree with the statement in the questionnaire and started the calculation of results. The mean is identified determine the level of effectiveness of cooperative learning towards student’s academic productivity.

The eight questions of each indicator are enough for the researchers identify the perspectives of the respondents necessary to prove the predicted stance of the study. To find degrees of freedom (df) we utilize the formula

$df = N - 2$, where N is the number of paired x and y or the majors in BSED program which is 5. Therefore, the value of df is 3. After that we use this table to identify the critical value of r , as well as the level of significance. The most commonly used significance level is $\alpha = 0.05$. Base on the table, the critical value of r is 0.878. If the absolute value of the test statistic or the calculated value of r is greater than the critical value then we reject the null hypothesis.

Results and Discussion

This section deals with the presentation, analysis of the data gathered. The results are presented in this sequence: the Cooperative Learning in terms of sub- indicators, the Academic Productivity of the students, correlation, and regression the extents.

Cooperative Learning Level of Effectiveness

Cooperative learning on academic objectives influences university students' behavior and results in the accomplishment of a number of academic goals. This study identifies five indicators: Positive Interdependence, Individual Accountability, Promotive Interaction, Social Skills and Group Processing.

Positive Interdependence

Table 2 presents the result of Positive Interdependence which explains the corresponding means and its interpretation from seven (7) indicators. Mean was used to determine the level of respondents in the Cooperative Learning in terms of Positive Interdependence. Based on the data gathered from the respondents, Table 3 shows the means and interpretation of the first sub- indicator of Cooperative Learning which is the Positive Interdependence. Item one (1) got the highest mean of 4.67 which means that interaction among group mates is necessary to complete the tasks. While, item seven (7) displayed the lowest mean of 4.17 as response to the tendency of group mates to debate ideas and opinions.

Table 2: Positive Interdependence

Indicators	Mean	Interpretation
1	4.67	Very High
2	4.53	Very High
3	4.17	High
4	4.5	Very High
5	4.2	High
6	4.57	Very High
Overall Mean	4.44	Very High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60- Low, 2.61-3.40- Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

The overall mean 4.44 which means the students level towards Positive Interdependence is very high. The results imply that cooperative learning is characterized

by positive interdependence, where students perceive that better performance by individuals produces better performance by the entire group (Johnson, et al., 2014). As a result, this means that their level for Cooperative Learning in terms of Positive Interdependence among UM Tagum College students is very high.

Individual Accountability

Individual accountability encourages each group member to participate actively in learning tasks, reducing “social loafing”—where one group member gains from the efforts of others—and ensuring that each member of the group develops stronger.

Table 3 presents the results of Individual Accountability which explains the corresponding means and its interpretation from six (6) indicators.

Table 3: Individual Accountability

Indicators	Mean	Interpretation
1	4.17	High
2	4.33	Very High
3	4.37	Very High
4	4.3	Very High
5	4.67	Very High
6	4.47	Very High
Overall Mean	4.385	Very High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40- Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

As displayed in Table 3, the six (6) indicators of students' level on Individual Accountability interpreted as very high. Item five (5) accumulated the highest mean of 4.39, which means that every group member must strive to try hard in the group activity. While, item one (1) accumulated the lowest mean of 4.17, which means that working in groups also allows students to tackle more complex topics than working individually.

The overall mean 4.39 which means very high. This data revealed that the student individual accountability is very high. The result is more in line with Shute's guidelines for good feedback delivered correctly and thereby supporting student's possibility for individual accountability (Hammar Chiriac & Fryledal, 2021). As a result, this means that their level for Cooperative Learning in terms of Individual Accountability among UM Tagum College students is very high.

Promotive Interaction

Oral problem-solving instructions, a discussion of the nature of the topics being taught, and the integration of recent learning with prior knowledge are all examples of this.

Table 4 shows the result of Promotive Interaction that includes the six (6) indicators, with corresponding mean and interpretation.

As presented in Table 4, six (6) indicators for Promotive

Table 4: Promotive Interaction

Indicators	Mean	Interpretation
1	4.17	High
2	4.03	High
3	4.6	Very High
4	3.97	High
5	4.6	Very High
6	4.43	Very High
Overall Mean	4.3	Very High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40-Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

Interaction interpreted as very high. Item number six (6) receives the highest mean of 4.43 that means that it is important for every group member to try to participate, even if he/she does not like the task. While, item number four (4) got the lowest mean of 3.97 yet, it is interpreted as high, it means students cannot easily finish the tasks without the group mates' contributions. The overall mean is 4.3 which is interpreted as very high.

Based from the study Otienoh (2015) students' involvement with mixed abilities status in the group interaction created their inclusive experiences in a cooperative process. As a result, this means that their level for Cooperative Learning in terms of Promotive Interaction among UM Tagum College students is very high.

Social Skills

Social behaviors are the ways in which we communicate our thoughts, feelings, opinions, and affection to others, as well as how we maintain or build our relationships with them.

Table 5: Social Skills

Indicators	Mean	Interpretation
1	4.13	High
2	4.07	High
3	4.3	Very High
4	4.13	High
5	4.3	Very High
6	4.2	High
Overall Mean	4.19	High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40-Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

Based on the study that was being conducted to determine the Cooperative Learning in Academic Productivity, Table 5 shows that the Social Skills sub- indicator was interpreted as high. Item three (3) got the highest mean of 4.3 which means that the students like to work with their classmates in group activities. Item two (2) got the lowest mean of 4.07 which interpreted as high it means that the students also reach agreements within the group to make decisions. The overall mean 4.19, interpreted as high.

The results show that cooperative learning in university classrooms is effective as a method for developing the social skills necessary for teamwork (Mendo-Lázaro et al., 2018). As a result, this means that their level for Cooperative Learning in terms of Social Skills among UM Tagum College students is high.

Group Processing

Group processing enables the group to continuously enhance their collaborative work over time. Focus on the contributions of the group as a whole to strengthen individual responsibility. Simplify learning by streamlining the process.

Table 6 presents the six (6) indicators of Group Processing. It also explains the mean and its corresponding interpretation.

Table 6: Promotive Interaction

Indicators	Mean	Interpretation
1	4.07	High
2	4.2	High
3	4.13	High
4	4.03	High
5	4.3	Very High
6	4.33	Very High
Overall Mean	4.18	High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40-Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

Among the indicators of Cooperative Learning in terms of Group Processing as shown in the Table 6, item number six (6) got the highest mean of 4.33 which was interpreted as very high. This show that students' job is can be done better when everyone in the group has completed the assignment than working together in small groups. On the other hand, item number four (4) got the lowest mean of 4.03 but it is interpreted as high, meaning there are many opportunities for discussion and sharing ideas by working in groups.

The overall mean for this sub- indicator is 4.18 which interpreted as high. Participating in group processing facilitates students' understanding of their own personal and social development as they recognize how they have negotiated conflict, worked together to overcome struggles, and developed a new understanding of their group members (Sutherland et al., 2019). As a result, this means that their level for Cooperative Learning regarding Social Skills among UM Tagum College students is high.

Summary of Cooperative Learning Level of Effectiveness

Table 7 summarizes the students' level mean toward their cooperative learning environment by its five (5) indicators: Positive Interdependence, Individual Accountability, Promotive Interaction, Social Skills and Group Processing. To sum up the indicators of Cooperative Learning; Positive

Table 7: Level of Cooperative Learning

Indicators	Mean	Interpretation
Positive Interdependence	4.39	Very High
Individual Accountability	4.44	Very High
Promotive Interaction	4.3	Very High
Social Skills	4.18	High
Group Processing	4.18	High
Overall Mean	4.3	Very High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40-Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

Interdependence, Individual Accountability, Promotive Interaction, Social Skills, and Group Processing, table seven (7) presents the overall mean of 4.3 which is very high. This means that their level of Cooperative Learning among BSED students is also high. It is shown in the table that Individual Accountability displays the highest mean of 4.3 which is interpreted as very high.

Academic Productivity among BSED students

Academic productivity refers to the efficient and effective study habits and practices that maximize learning both inside and outside of the classroom rather than the overall amount of time students spend learning. Through the indicators of Classroom Management, Parental Support, Student- Teacher Interactions, Social Behavioral Attributes, and Motivational- Effective Attributes students were able to evaluate factors of their academic progress.

Classroom Management

Classroom management is the process of teachers acting in a way and doing things that are generally expected to foster cooperation and consideration among students. The table below presents the academic productivity of the students through classroom management. It explains the mean and its corresponding interpretation.

Table 8: Classroom Management

Indicators	Mean	Interpretation
1	4.33	Very High
2	4.13	High
3	4	High
4	4.2	High
5	4.27	Very High
6	4.2	High
Overall Mean	4.19	High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40-Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

Table 8. shows the result of the conducted study on Academic Productivity in terms of Classroom Management, where item one (1) got the highest mean of 4.33 which means that students prefer to teacher’s classroom management style. On the other hand, item

number three (3) got the lowest mean of 4 but it is interpreted as high, meaning the teacher involve students in establishing rules and procedures.

The overall mean for this sub- indicator is 4.19 which interpreted as high. Therefore, a healthy environment for both teaching and learning leads to plausible academic achievement (Sunday-Piaro, 2018). As a result, this means that their level for Cooperative Learning in terms of Social Skills among UM Tagum College students is high.

Parental Support

The mindset, motivation, and self-control that children who get parental assistance at home develop in school. School failure is frequently encouraged by disinterested parents who are not concerned with their children’s academic lives. Table 9 shows the students’ academic productivity through parental support. It presents the corresponding mean and its interpretation.

Table 9: Parental Support

Indicators	Mean	Interpretation
1	4.1	High
2	4.4	Very High
3	4.5	Very High
4	4.43	Very High
5	4.2	High
6	4.07	High
Overall Mean	4.28	Very High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40-Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

Mean was used to determine the academic productivity of students in terms of Parent Support. Based on the gathered data, item four (4) got the highest mean of 4.43 which is interpreted as very high, meaning parents always expect higher in school performance of the students. While, item six (6) got the lowest mean of 4.07 that was interpreted as high, meaning parents choose the profession for students. The overall mean 4.28 which means the students level towards Parental Support is very high. Juma (2016) reported a very strong positive correlation between parental involvement in education and students’ academic performance. As a result, this means that their level for Parental Support in terms of Parental Support among UM Tagum College students is very high

Student- Teacher Interactions

Positive interactions between instructors and students lead to improved teacher attitudes and successful academic performance.

Table 10 presents the six (6) indicators of the student-teacher interactions in academic productivity. It also explains the corresponding mean and interpretation. Based on the study that was being conducted to determine the Academic Productivity in terms of Student- Teacher Interactions, item number five (5) highest mean of 4.4

Table 10: Student- Teacher Interactions

Indicators	Mean	Interpretation
1	4.37	Very High
2	4.33	Very High
3	4.27	Very High
4	4.27	Very High
5	4.4	Very High
6	4.27	Very High
Overall Mean	4.32	Very High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40-Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

which means that teacher motivates students to give their best effort. Item three (3) and six (6) got the lowest mean of 4.27 but also interpreted as very high it means that the students admire their teacher and cares about their academic and social well-being.

The overall mean 4.32 which means the students level towards Student- Teacher Interactions is very high. Eschenmann (2016) and many other scholars proposed that if teachers take the time to construct interactions, they can motivate their students to learn. As a result, this means that their level for Academic Productivity in terms of Parental Support among UM Tagum College students is very high.

Social- Behavioral Attributes

The student’s academic performance can be used as a gauge of how the student’s social conduct is affected by the environment and how the institutions change knowledge through text, instructor, and student learning processes.

Table 11 presents the six (6) indicators of Social- Behavioral Attributes. It also explains the mean and its corresponding interpretation.

Table 11: Social- Behavioral Attributes

Indicators	Mean	Interpretation
1	4.07	High
2	3.73	High
3	4.1	High
4	3.87	High
5	3.57	High
6	3.73	High
Overall Mean	3.845	High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40-Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

Among the indicators of Academic Productivity in terms of Social- Behavioral Attributes as shown in the Table 11, item number three (3) got the highest mean of 4.1 which was interpreted as high. This show that students’ job is can be done better when everyone in the group has completed the assignment than working together in small groups. On the other hand, item number four (4) got the lowest

mean of 4.03 but it is interpreted as high, meaning there are many opportunities for discussion and sharing ideas by working in groups.

The overall mean for this sub- indicator is 4.18 which interpreted as high. In fact, according to Kassarnig et al. (2018), previous studies have documented the importance of personality traits, class attendance, and social network structure. As a result, this means that the level for Cooperative Learning regarding Social Skills among UM Tagum College students is high.

Motivational- Effective Attributes

The level of motivation among students can have a significant effect on their performance and outcomes. As a result, in order to help students succeed academically, parents and instructors need be aware of the elements that influence student motivation.

Table 12 presents the results of Motivational- Effective Attributes which explains the corresponding means and its interpretation from six (6) indicators.

Table 12: Social- Behavioral Attributes

Indicators	Mean	Interpretation
1	4.17	High
2	4.33	Very High
3	3.8	High
4	4.03	High
5	3.5	High
6	4.17	High
Overall Mean	4	High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40-Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

Among the indicators of Academic Productivity in terms of Motivational- Effective Attributes as shown in the Table 12, item number two (2) got the highest mean of 4.33 which was interpreted as very high. This show that students felt active and involved in this learning set up. On the other hand, item number five (5) got the lowest mean of 3.5 but it is interpreted as high, meaning students have not enough time to do their studies well.

The overall mean for this sub- indicator is 4 which interpreted as high. Achievement motivation energizes and directs behavior toward achievement and is an important determinant of academic success (Wigfield et al., 2016). As a result, this means that their level for Academic Productivity in terms of Motivational- Effective Attributes among UM Tagum College students is high.

Summary of Academic Productivity among BSED students

Table 13 shows the summary of the academic productivity by its five (5) indicators: Classroom Management, Parental Support, Student- Teacher Interactions, Social Behavioral Attributes, and Motivational- Effective Attributes.

To sum up the indicators of Classroom Management,

Table 13: Level of Academic Productivity among BSED students

Indicators	Mean	Interpretation
Classroom Management	4.18	High
Parental Support	4.29	Very High
Student- Teacher Interactions	4.32	Very High
Social- Behavioral Attributes	3.85	High
Motivational- Effective Attributes	4	High
Overall Mean	4.13	High

Scaling: 1.0- 1.1.80-Very Low, 1.81- 2.60-Low, 2.61-3.40-Moderate, 3.41- 4.20-High, 4.21- 5.00- Very High

Parental Support, Student- Teacher Interactions, Social-Behavioral Attributes, Motivational-Effective Attributes, table thirteen (13) presents the overall mean of 4.13 which is high. This means that their level of Academic Productivity among BSED students is also high. It is shown in the table

Table 14: Significant Relationship between Cooperative Learning and Academic Productivity

Variables	N	Mean	SD	r	P-Value	Interpretation
Cooperative Learning	30	4	0.27	.802	.00006	Significant
Academic Productivity	30	4.13	0.22			

CONCLUSIONS AND RECOMMENDATIONS

Cooperative learning aims to separate classroom tasks into opportunities for social and intellectual growth. The definition of cooperative learning is “structuring positive interdependence,” which goes much beyond simply putting students in groups. Group work teaches children learn to cooperate while enhancing their social skills, problem-solving techniques, and capacity for conflict resolution. Both professors and students would need to take a cooperative learning training course in order to effectively encourage the application of this method of learning. Despite the fact that the current research shows that cooperative learning helps students acquire and retain information, academic output and it is determined either by continuous assessment. In this study, we use an achievement variable in an information-rich, interactive learning setting. Academic success and cooperative learning go “hand in hand.”

According to a study, cooperative learning has been shown to boost achievement, including academic performance, cognitive skills, self-esteem, and enjoyment. Only 30 people can participate in the study’s sample. In order to gather additional data on the impacts of cooperative learning and academic productivity, future studies should use cooperative learning and academic productivity with more participants.

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that Student- Teachers Interactions displays the highest mean of 4.32 which is interpreted as very high.

Significant Relationship between Cooperative Learning and the Academic Productivity of the Students

Pearson r correlation was used to determine the significant relationship between cooperative learning environment (m=4, SD= 0.27) and academic productivity of the students (m= 4.13, SD= 0.22). The result shows that there is a strong significant relationship between the variables, r= .802, n= 30, p=.00006. Also, another researcher shows that the cooperative methodology provides an opportunity for university students to develop interpersonal, social, and teamwork competences which can be decisive in their professional and social success (Mendo-Lázaro et al., 2018).

Since the p-value is lesser than 0.05, therefore, there is a significant relationship between Cooperative learning and Academic Productivity of the students. Hence, the null hypothesis will not be accepted.

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