SUSTAINABILITY OF GRADUATE PROGRAMS: PEER LEARNING AND ACADEMIC ACHIEVEMENTS[i]

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Abstract:

In the effort to build bridges for quality learning, there is need to address learning approaches that will support sustainability of graduate programs. This study, therefore, sought to determine if classroom interaction and hence academic achievement will improve using peer tutoring approach or the conventional teacher centered approach using fourteen (14) PhD students of Educational Administration, during the 1st semester of the 2015 – 2016 academic session, using the seven (7) Principles of Educational Administration as the learning content. The fourteen (14) PhD students were randomly grouped into 2, with each group consisting of seven students. One group was the experimental group, taught using the peer-learning approach, while the other group was the control, taught using the conventional teacher-centered approach. Three research questions and two null hypotheses guided the study. The Experimental group teaching involved group orientation, discussions, peer teaching and teacher guidance, while the Control group approach involved the teacher teaching, students answering questions and teacher concluding the lesson. Both treatments lasted for 7 weeks. Efforts were made to control for contamination by extraneous variables. Results showed that the Experimental group performed significantly better (72%) than the Control group (68%). The result of the ratings of the impact of the two approaches on academic achievement, showed that the post learning test scores of the Experimental group was higher (80%) than that of the Control group (67%). In other words, the Experimental group benefitted more from the peer learning approach than the Control group did

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from the conventional teacher centered teaching approach. These findings corroborate earlier studies on the efficacy of peer learning over the teacher-centered approach.

Keywords: sustainability and peer learning, academic achievements

1. Introduction

The teaching-learning experience has transformed from a simple educational function to a complex one, which develops the minds of students and prepares them to become worthwhile citizens of a society in a sustainable manner. It cannot be overemphasized that getting students to think critically remain the primary goal of teaching any University course in general and graduate courses in particular for sustainability. If this be the case, the question which follows is; "how do we, as teachers, go about achieving this?" Although there are many varieties on how peer learning can be used to enhance learning, it is often an underutilized resource in college and graduate classrooms.

In this workshop, we will learn about peer learning concepts and strategies, join a discussion about the use of peer group-based tutoring and discussion in peer learning including their results, benefits and challenges. We will understand how these concepts can affect the sustainability of graduate programs. More specifically, we shall make this presentation along the following subheadings: Introduction in which we hope to state our purpose and explain some key concepts and related reviews of literature, the study problem, research questions and hypothesis, methodology, which will describe the subjects the treatment procedure, results, summary of findings, recommendations and conclusions. We shall then undertake the interactive questions and activities.

2. What is sustainability?

Sustainability is a word that we hear of a lot and it is used here to discuss peer learning in graduate program in higher educational institutions. The term sustainable and sustainability are used to describe many different approaches towards improving our way of life. It does not have a rigid definition. In the context of this paper, sustainability means reducing our harm on graduate program in the university and timely reversing the harm already caused, renewing teaching resources, providing quality and improved learning outcome, creating a classroom where every student is given opportunity to have a fulfilling academic life, as well as taking a long-term view of how our teaching actions effect present and future programs of graduate students.

Sustainability has also been defined as the ability to be sustained, supported, upheld, or confirmed (Dictionary.com).

Sustainable graduate program may therefore well mean the graduate program that meets the needs of the present graduate students without compromising the ability of future generations of students to meet their own learning needs. Sustainability of graduate program is a transformative learning process that equips students and teachers with improved knowledge and ways of thinking needed to achieve economic

property and responsible citizenship. Sustainability is a complex concept. The most often quoted definition is from the United Nation (UN) Bruntland Commission: Sustainability implies meeting the needs of the present without compromising the ability of future generations to meet their own needs.

In the charter for the University of California Los Angeles (UCLA) Sustainability Committee, Sustainability is defined as "the physical development and institutional operating practices that meet the needs of present users without compromising the ability of future generations to meet their own needs, particularly with regard to use and waste of natural resources. Sustainability presumes that resources are finite and should be used conservatively and wisely with a view to long term priorities and consequences of the ways in which resources are used". In the simplest terms, sustainability is about our children and our grandchildren, and the world we will leave for them. By implication, Sustainability of graduate program, through peer learning of students can be a great classroom learning resource that should be utilized to improve learning outcome and academic achievements.

2.1 Peer

A peer is someone at one's own level. If you are a 10th grader, for example, other high school students are your peers. The word Peer comes from the Latin word, par, which means equal. When you are on par with someone, you are their peer. It means a person who is of equal standing based on age, grade or status with another in a group, especially in this context. A peer can be an associate – a person who joins with others in some activity or endeavor, a colleague - a person who is a member of one's class or profession. It connotes a match.

Hence, we have peer group who are a group of people, usually of similar age, background and social status with whom a person associates and who are likely to influence the person's beliefs and behaviors. It is a social group and a primary group of people who have similar interests (homophily), age, background or social status. The members of these groups are likely to influence the person's beliefs and behavior. But who are the 'peers' in 'Peer Learning'? Generally, peers are other people in a similar situation to each other, who do not have a role in that situation, as a teacher or expert practitioner. They may have considerable experience and expertise or they may have relatively little. They share the status as fellow learners and are accepted as such. More importantly, they do not have power over each other by virtue of their position or responsibilities. In this discussion, therefore, we will be discussing the role of the students who are in the same classes as those from whom they are learning.

2.2 Peer Learning

We define peer learning, in its broadcast sense as 'students learning from and with each other in both formal and informal way'. The emphasis is on the learning process, including the emotional support that learners offer each other, as much as the learning tasks itself. In peer teaching, the roles of teacher and learner are known and fixed, whereas in peer learning, they are either undefined or may shift during the course of

the learning experience. In peer learning, the teacher will be actively involved as group facilitator or may simply initiate student-directed activities such as discussion, workshops or learning partnerships. Peer learning is, therefore, not a single, undifferentiated educational strategy. It encourages a broad sweep of activities.

Peer learning in used here to suggest a two-way and reciprocal learning activity based on discussion seminars. It is, therefore, mutually beneficial and involves the shaving of knowledge, ideas and experiences among the participants Boud, (1998) described it as a way of moving beyond independent to independent or mutual learning to peer learning. It can also be referred to as reciprocal peer learning. Reciprocal peer learning is not the same as peer teaching or peer tutoring, which is a far more instrumental strategy in which advanced students or those in later years, take on a limited instructional role. It often requires some form of credit or payment to the person acting as the teacher and is a well-established practice in many universities worldwide, particularly in Nigeria. On the other hand, reciprocal peer learning is often considered to be incidental, being a part of other more familiar strategies, such as the discussion group.

For peer learning to be effective, the teacher must ensure that the entire group experiences 'positive interdependence', face-to-face interaction, group processing and individual and group accountability. 'Positive interdependence' emphasizes the importance and uniqueness of each group member's efforts while important cognitive activities and interpersonal dynamics are quietly at work. As students communicate with one another, they inevitably assume leadership roles, acquire conflict managing skills, discuss and clarify concepts and unravel the complexities of human relationships within a given context and this process enhances their learning outcomes. Thus, students' learning extends far beyond the written word and even the given task.

2.3 Peer Learning Strategies
Teachers may choose from an array of peer learning strategies which include these group strategies:
1. **Buzz Group:** A large group of students subdivided into smaller groups of 4-5 students to consider the issues surrounding a problem. After about 20 minutes of discussion, one member of each sub-group presents the findings of the sub-group to the whole group.
2. **Affinity Group:** Groups of 4-5 students are each assigned particular task to work outside of formal contact time. At the next formal meeting with the teacher, the sub-group or a group representative, presents the sub-groups findings to the whole tutorial group.
3. **Solution and Critic Groups:** One sub-group is assigned a discussion topic for a tutorial and the other groups constitute 'critics' who observe offer comments and evaluate the sub-groups presentation.
4. **'Teach- Write- Discuss':** At the end of a unit of instruction, students have to answer short question and justify their answers. After working on the questions individually, students compare their answers with each other. A whole-class

discussion subsequently examines the array of answers that still seem justifiable and the reasons for their validity.

Critique sessions, role-playing, debates, case studies and integrated projects are other exciting and effective teaching strategies that stir students' enthusiasm and encourage peer learning.

Also, 10 different models of peer learning have been identified (Griffiths, Houston and Lazenbatt, 1995). They range from:

- Traditional proctor model in which senior students tutor junior students.
- Students in the same year form partnerships to assist each other with both course, content and personal concern.
- Discussion seminars.
- Private study groups.
- Pavainage (a buddy system) or counseling,
- Peer- assessment schemes.
- Collaborative project or laboratory work.
- Projects in different sized groups.
- Workplace monitoring.
- Community activities

Armstrong (2017) presented the following 9 ways to facilitate positive peer learning:

- Using peer learning and teaching
- Use of Collaborative or cooperative learning
- Peer monitoring
- Peer critique of each other's work
- Setting up a peer mediation program
- Creating small learning communities
- Developing Class-wide simulations
- Provide frequent opportunities for students to share what there've learnt with others.
- Having students play games together e.g. Board games, with dice and markers such as math game.

It is important for teachers to recognize that peer learning is not a single practice. It covers a wide range of different activities, as earlier observed, each of which can be combined with others in different ways to suit the needs of a particular course. It does not, therefore, refer to a particular practice. Surprisingly, little research has been carried out on either dyadic reciprocal peer tutoring or same year group tutoring as only 10 studies have been identified (topping, 1996), suggesting that the teaching model rather than the learning model, is still the most common way of understanding how students assist themselves either individually or as group and has become increasingly popular over the past 30-40 years. Although, the teaching model has value, it is important that teachers also consider making the learning model a priority if we desire to make the best use of peers as resources for learning.

Research (Goto & Schneider, 2010; Cusco, 1997), explored how to bolster the time-honored lecturing in universities with peer learning activities. The results indicate that peer learning activities can be very effective in getting students to engage in critical thinking and hence produce deeper learning outcomes. Students who work in groups perform better on tests, particularly those that have to do with reasoning and critical thinking skills (lord, 2001). Having students, work with each other has proved to be an effective methodology because it forces students to be active learners and to talk through and write course concepts and contents in their own words.

2.4 Benefits of Peer Learning

Peer learning strategies encompass a few different learning techniques in and out of the classroom, including peer tutoring, small and large groups class discussions. These peer learning strategies, according to Wessel (2015), have proved effective in helping with students' academic and social skills as long as the peer learning techniques are monitored and carefully structured, with aspects of teacher guidance. Peer learning strategies foster student relationships and help students to develop a greater multicultural understanding and acceptance. When students are putt in groups where they can talk freely, they can bring in aspects of their background and beliefs, with the potential of leading to more understanding among the members within a group. With peer learning, students learn to interact with a group of peers that they may not generally, otherwise work with and engage in conversation.

Students are able to learn practical skills in teaching and giving feedback, how to engage in learning that is not strictly teacher-led and learn to engage more in dialogue and topic questions to help with clarification. Results from case studies show that through peer tutoring, there are academic improvements in scores and lasting positive effects from the experience for both the tutor and tutee (lingo 2014). In group settings, leadership skills are acquired when students step up to lead discussion or help to construct the feedback on the topic. Others are motivated to learn more so as to have the chance to be the leader at some point. In smaller groups, students who usually do not talk in class have the opportunity to voice their opinions and are even pushed to share their ideas with the group.

Through engaging in group discussions, students discover how to form good counter-arguments and how to question assertions made by peers. In this case, they learn how to think critically in much more complex ways than just how to respond to a teacher's question, but how to respond to the various group members' assertions and how to make their own claims as well. Working as a group instead of as an individual is an invaluable opportunity to build many life enhancing skills. In group settings, questions and answers can be looked at from multiple view points and new ideas can be brought in. Instead of the teacher teaching answers to issues, the students get to explore the various ways to come up with an answer. Students learn working on conflicts through multiply approaches, which become easier instead of going to the teacher for the final say to end any conflict.

On the whole, students feel more comfortable saying things to one another when the teacher is not around. In this circumstance, they add more to the conversation because they are not as intimidated as they are when they have to answer a teacher's question or address the large group. With group work and discussion, learning becomes more individualized and gives each group member the ability to speak and argue on a point. Peer learning does not attract pay or reward credit given to the more experienced students who are engaged in peer teaching. In peer learning, students are peers and so there is less confusion about roles compared with situations in which one of the peers is a senior student or is in an advanced class or has special expertise.

2.5 Challenges to Peer Learning

As with every learning strategy there are some problems that can arise from peer based learning, if not correctly set up. In the case of peer tutoring, the tutors need to have some accelerated level of knowledge in the content area so they are able to effectively tutor the other students. If qualifications are not met for being able to teach the topics, there can be conflicts and frustrations that may arise from the efforts.

In group discussions, if there are no instructions to follow and directions and guidelines on how to facilitate the discussion and what needs to be discussed, students can tend to get off task. Effective peer learning strategies also depend on the children's level of learning. Peer learning should be implemented with older students rather than young students. To be effective, peer learning need to be very carefully structured and limited; if the whole class was based on peer learning, the students would not have learnt the course content from the teacher who is the expert on the content material, as should be the case.

3. The Study Problem

Although, graduate students value intelligence, personal growth and development, our experience with the current classroom learning structure of teaching by qualified teachers or by surrogate teachers (peer teaching), seem to be impeding the achievement of these in graduate students. We noted that graduate students do aspire to achieve perfect grades and so will formulate answers to questions, which they think teachers are looking for. They may not answer questions at all for fear of saying or writing something that is incorrect. We observed that the students are afraid to speak their minds for fear that we the teachers or peers, will judge them or that they will not sound sufficiently quick-witted. Hence, the classroom remains quiet and less interactive during teaching. This attitude by the students hinders them from expressing what they are truly learning and thinking, which impacts their learning resulting in poor academic achievements.

In our quest to look for solution for improving interaction in the classroom, the authors applied peer learning using the peer tutoring and discussion approaches in a graduate topics on the 7 principles of educational administration to the 2015-2016 graduate students of educational administration during the first semester. The fourteen

(14) PhD students of Educational Administration involved were grouped into 2, with each group consisting of seven students. One group was the experimental taught using the peer-learning approach, while the next group was the control, taught using the conventional (teacher - centered) approach.

3.1 Research Questions

1. Which group, between the treatment (peer learning group) and the control (traditional approach group) has higher Post Learning test scores?
2. What is the difference in the mean achievements scores of treatment group (peer learning) and the mean achievement scores of control group (traditional approach)?
3. What is the difference in the mean percentage ratings of the experimental and the control groups on the post learning impact of the two approaches (peer learning and traditional)

3.2 Hypotheses

$H0_1$: There is no significant difference in the mean achievement test-scores of the experimental and the control groups taught by peer learning and the teacher-centered approaches.

$H0_2$: There is no significant difference in the mean percentage ratings of the experimental and the control groups on the post learning impact of the two approaches (peer learning and traditional)

4. Methodology

4.1 Procedure
The Experimental treatment and the Control Group procedures are described below.
A. Experimental Group
Step 1: Orientation of students on the new approach- its procedure, merits and challenges and presentation of recommended reading materials.

Step 2: All students; in one hour, study together, reading the particular principle of educational administration being taught, discuss and talk about the principle.

Step 3: Each student takes 6mins to explain to the peers his/her own understanding and comments on the principle being discussed.

Step 4: The staff makes comments at the end of each of the students' contributions, to guide the students to know how correct or otherwise they were.

This procedure lasted for the seven weeks of the experimental treatment.

B. The Control Group
Step 1: Teachers introduce the lesson topic; ask same entry behavior questions.
Step 2: Students answer the teachers' questions.

Step 3: Teacher takes the students through the details of the day's lesson- the particular principle of educational administration being studied, while students take notes. Teacher asks some formative evaluation questions along the line.

Step 4: Students answer questions and are corrected by the teacher.

Step 5: Teacher concludes the lesson and gives some reading references to the students.

This was the procedure for the seven weeks of the experimental treatment.

The Seven (7) principles of educational administration (Eresimadu & Nduka, 1987), (Nwankwo, 2014) used for the study, each of which was studied in one week are as follows:

1. Fundamental Principles
2. The Humanitarian Principles
3. The Prudential Principles
4. The Principle of Change
5. Bureaucratic Principles
6. Principles of the Process
7. The Principles of Executive Leadership

C. Control of Extraneous Variables

Efforts were made to control certain extraneous variables.

To avoid experimental contamination; each group (experimental and control) was directed not to discuss its own procedure with the other group members.

All environmental conditions were similar - the venue for the lectures, the time and durations of the lessons, the reference text and teaching materials and the teaching staff. The only difference was the methods- the peer tutorial and the traditional teacher-oriented approach.

At the end of the seven weeks, a two hour test was administered to each of the two groups, independently with the same test questions and on the same day.

The two hour test was of the essay type which contained seven (7) questions, each addressing one (1) principle of educational administration which all the students had studied. The test questions were equivalent in complexity of demands and unambiguously stated. Students were requested to answer any five (5) of the questions in two (2) hours. A marking scheme/guide was developed and used for scoring the test in order to avoid scoring bias. The two (2) groups took the examinations at the same time and at the same place with similar instructions.

5. Results

5.1 Research Questions

Research Question 1: Which group, between the treatment (peer learning group) and the control (traditional approach group) has higher Post Learning test scores? See table 1 below.

Table 1: Post Learning Test Scores of the Experimental and Control Groups in Percentages

S/N	Test Scores of Treatment Group (Peer Learning) in %	S/N	Test Scores of Control Group (Traditional Approach) in %
1	70	1	66
2	75	2	60
3	68	3	58
4	72	4	59
5	69	5	60
6	78	6	70
7	72	7	68

The scores of the experimental group are generally higher than those of the control group.

Research Question 2: What is the difference in the mean achievement scores of the treatment group (peer learning) and the mean achievement scores of the control group (traditional approach)? See table 2 below.

Table 2: Mean Scores and Standard Deviations of the Experimental and Control Groups

Method	N	Mean	SD
Experimental	7	72	3.5118
Control	7	63	4.8648

Experimental group scored higher mark on the achievement test than the control group taught with the traditional approach as shown in Table 2.

Research Question 3

What is the difference in the mean percentage ratings of the experimental and control groups on the post learning impact of the two approaches (peer learning and traditional)? See tables 3a & b below.

Table 3a: Mean Percentage Ratings of the Experimental and Control Groups on the post-learning impact of the Peer Learning and Traditional Approaches

S/No	Outcomes of the Learning Approach	Exp. Group Impact	Control Group Impact
1.	Satisfaction with the class procedure	85	66
2.	Psychological adjustment during lessons	80	58
3.	Self-confidence with the course content	80	70
4.	Ability to apply what was learnt	85	70
5.	Cooperation with peers/classmates	90	65
6.	Tolerance of others view/opinions	80	59
7.	Handling of stage fright	78	60
8.	Ability to express oneself	80	67

Table 3b: Means and Standard Deviations of the impact of the Peer Learning and Traditional Approaches on the Experimental and Control Groups

Method	N	Mean	SD
Experimental	8	82.57	4.0267
Control	8	64.38	4.8088

The experimental group had a higher mean percentage rating (82. 57) on the impact of the two approaches than the control group (64.38) as shown in Table 3b above.

5.2 Hypotheses

H0₁: There is no significant difference in the mean achievement test-scores of the experimental and control groups taught by peer learning and the teacher-centered approaches. See table 4 below.

Table 4: T-test analysis of the difference between the mean scores of students taught with the Peer learning method and those taught with Traditional Learning Approach

Method	N	Mean	SD	Df	t-cal	t-crit	Sig. Level	Remark
Treatment Group	7	72	3.5118					
				12	3.9686	2.1785	.05	Significant
Control Group	7	63	4.8648					

Table 4 shows the comparison of mean scores of achievement test of Student taught with Peer Learning and Traditional Approach. The result reveals that at 12 degrees of freedom and .05 alpha levels, the t-calculated is 3.9686 while the t-critical is 2.1785. Given that t-calculated is higher than t-critical, the null hypothesis which states' that there is no significant difference in the mean achievement scores of Treatment Group (Peer Learning) and mean scores of Control Group (Traditional Approach) is rejected, affirming that there is a significant difference in the aggregate mean scores of students taught with Peer Learning and Traditional Approach.

H0₂: There is no significant difference in the mean percentage ratings of the experimental and control groups on the post learning impact of the two approaches (peer learning and traditional). See table 5 below.

Table 5: T-test analysis of the difference between the mean percentage ratings of the Experimental and Control Group on the Post Learning impact of the two approaches (peer learning and traditional)

Method	N	Mean	SD	Df	t-cal	t-crit	Sig. Level	Remark
Experimental Group	8	82.57	4.0267					
				14	8.0608	2.1448	.05	Significant
Control Group	8	64.38	4.8088					

Table 5 shows the comparison of mean percentage ratings of the Experimental and Control Groups on the post learning impact of the two approaches (peer learning and traditional). The result reveals that at 14 degrees of freedom and .05 alpha levels, the t-

calculated is 8.0608, while the t-critical is 2.1448. Given that t-calculated is higher than t-critical, the null hypothesis which states that there is no significant difference in the mean percentage ratings of the Experimental and Control Groups on the post learning impact of the two approaches (peer learning and traditional) is rejected. This implies that there is a significant difference in the mean percentage ratings of the Experimental and Control Groups on the post learning impact of the two approaches (peer learning and traditional). The experimental group has a significantly higher percentage rating.

5.3 Summary of findings

1. The experimental group (taught using the peer learning approach), had a higher post learning test score than the control group, (taught using the traditional approach).
2. The experimental group had a mean achievement score of 72% while the control group had a mean score of 63%.
3. The mean percentage rating of the experimental group on the post learning impact was 82 while the control group's percentage rating was 64.
4. The null hypothesis (of no significant difference between the mean achievement scores of the experimental and control groups) was rejected. Thus, the experimental group scored significantly higher than the control group.
5. The null hypothesis (of no significant difference in the mean percentage ratings of the experimental and control groups on the post learning impact on the two approaches – peer learning and traditional) was rejected. Thus, the experimental group's mean percentage rating was significantly higher than the control group's mean percentage rating.

6. Discussion of Results

The study was very successful for the two groups based on the test and self-reports of the students. When compared with the control group who were taught by the teachers, the peer learning group showed higher academic achievement indicated by their higher scores. A post learning survey of the impact of the two approaches administered on the two groups showed that the peer learning group rated themselves as more satisfied with the class, better adjusted psychologically and more willing to use their peers as supportive resource in other topics on the course than the control group.

Furthermore, we observed that the peer learning group of students learned a great deal even while explaining their ideas to others and retention was heightened. They developed skills in organizing and planning their learning activities, working collaboratively with others, giving and receiving feedback and evaluating their own learning against those of their peers in the group. These, outcomes were not as pronounced in the control group of students who were taught by the teachers.

From our research experience, formalized peer learning helps students learn effectively. At a time when university resources are stretched and demands upon staff are increasing, it offers students the opportunity to learn from each other. The lessons

gave them considerably more practical experience than the traditional teaching and learning methods in taking responsibility for their own learning as they learned how to learn.

Although peer learning is effective, the researchers did not use it as a substitute for teaching, but as an important addition to the repertoire of teaching and learning activities that can enhance the quality of the education given to the graduate students for the sustainability of graduate programs.

During the research, it was observed that students were learning simultaneously and at the same time, contributing to other students' learning. Since their communication was based on mutual experience, they were all able to make equal contributions. Hence, issues of power and domination were less prominent than when one party has a designated 'teaching' role and thus takes on a particular kind of authority for the duration of the activity.

Our findings corroborate other research results, which indicate that peer learning activities typically yield the following results for both tutor and tutee:

- Team-building spirit
- More supportive relationships
- Greater psychological well-being
- Social competence
- Communication skills and self-esteem
- Higher achievements
- Greater productivity in terms of enhanced learning outcomes.

The need for sustainability of graduate programs calls for the promotion of instructional strategies involving 'active' learning that presents opportunities for students to formulate their own questions, discuss issues, explain their view points and engage in cooperative learning by working in teams on course topics.

To realize the benefits of peer learning, teachers must provide intellectual scaffolding. This involves teachers priming students by selecting discussion topics that all students are likely to have some relevant knowledge of. They also raise questions/issues that prompt students to engage in a more sophisticated level of thinking. The teacher devises collaborative processes to get all group members to participate, meaningfully.

6.1 Recommendations

Based on the results of our study and on peer learning, we recommend as follows:

1. That peer learning strategies be considered by University teachers when designing student classes.
2. That teachers try out the peer learning practices to see how the effects, which so far have been almost exclusively positive, if executed correctly and efficiently, impact students learning.
3. That University teachers should lead the sustainability transformation of graduate programs through the peer learning strategies.

7. Conclusion

Peer learning is becoming an increasingly important part of teaching many courses and is being used in a variety of contexts and disciplines in many countries. Research indicates that peer learning activities typically result in (a) team-building spirit and more supportive relationships (b) greater psychological well-being, social competence, communication skills and self-esteem and (c) higher achievement and greater productivity in terms of enhanced learning outcome.

Although peer learning strategies are valuable tools for educators to utilize, it is obvious that simply placing students in groups and telling them to work together' is not going to automatically yield results. The teachers must consciously orchestrate the learning exercise and choose the appropriate vehicle for it. Only then, will students engage in peer learning and reap the benefits as discussed.

Given the positive research result on peer learning, it would make sense to harness those benefits by designing the classrooms experience in a way that encourages peer learning both in and out of the classroom. It provides an opportunity for the teacher to take steps back and let the students do the teaching and talking among themselves for a while. These peer learning strategies can be beneficial to the learning environment by providing a creative and interactive way to get the students involved.

To be effective, peer learning needs to be very carefully structured and limited. This is because, if the whole learning is based on peer learning, the students would not learn the course content from the teacher, who is the expert on the course content.

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