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Collaborative Team Teaching (CTT) in Major Subjects Among The Program Offerings in University: Input to 21st Century Teaching-Learning Process

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ABSTRACT

This study anchors on theories, concepts and perspectives which stress the important functions of Collaborative Team Teaching (CTT) as an effective pedagogy of teaching-learning process and a vehicle for the growth and development of students in society. This study was conceptualized to provide baseline data for administrators and teachers to look into ways on how to make the learning experience of the students easy and of high quality in response to 21st century learning. Further, this study measures the implication of CTT on students' learnings styles and its perceived effects on students' academic performance and attitude towards their field of specialization. Findings show that: a) the respondents show a positive high impact along their visual, auditory and kinesthetic learning styles which means that collaborative team teaching would maximize their learning styles and manifest good outcome on how they would handle the demands of their major subjects; and lastly, c) the respondents generally showed optimism and high acceptance in the implementation of collaborative team teaching as to their major subjects. Most of them agreed that collaboration of teachers on their field of specialization would benefit them as it was perceived to improve their academic performance.

1. Introduction

“Two are better than one, because they have a good reward for their toil. For if they fail, one will lift up the other; but woe to one who is alone and falls and does not have another to help. Again, if two lie together, they keep warm; but how can one keep warm alone?.....” Ecclesiastes 4: 9-12

In shedding light to a brand new era, educational researchers and practitioners call for means to adapt to a changing world specifically in the educational avenues as the schools for both educators and learners to sway with technological advancements hand in hand with industrial revolution. The youth of this age fits to the breakthroughs of the generation and soon to work and live as adults. In consideration hereafter, educators find it difficult to arrive at exact predictions on what educational experiences would best hone students for productive adult lives. The succession of change portrays how the present is and mirrors what the future would be- a constant change, alterations after the other. The future is neither a replicate of the past nor the present. Change itself is the only certain. Now, educators face the question, how can schools prepare today's students for the future? What values and skills will they need henceforth? There is a growing awareness that schools are heading to their turning points that needs a shift in scheme to deal with the changing world. As the issue confronts educators, an array of school reform plans provides potential solutions [1].

The story of the survival of the species is one of human cooperation. Human beings are predisposed toward cooperative interaction with other people. Outside of schools, the heart of most jobs is teamwork, getting others to cooperate, sharing ideas and resources, solving problems together. A range of interactive and interdependent behavioral process among people now depicts most real-life setting [2]. By contrast, schools are organized with adults and children working in individualistic and highly competitive settings. Children are taught to work on their own, and that helping other students is cheating [3]. The individual is the key unit, striving for mastery and individual excellence as compared with others. Students compete with each other for grades, teacher approval, and other rewards [4]. Further, in the school setting, teachers also lead isolated work lives, separated from other adults by the boundaries of the classroom walls. The isolated individualistic nature of teaching parallels the isolated Individualistic nature of a student. Neither are suited to the realities of what is required of human beings outside of school settings. Clearly, the individualistic emphasis in schools is contrary to the demands of human interactions and interrelatedness in getting complex things done [5].

The call for change is a perennial topic in education, however, in the past two decades, school reform plans have proliferated at a dizzying rate. The challenge is to sift through and evaluate the reform possibilities, and to discover what has potential in a given school situation. According to [6], students belong to an environment increasingly characterized by interdependence. The major problems faced by humans today and in the future cannot be solved by solitary individual effort, but require connectedness and cooperation by people globally. Along the same vein, educators attempt change and are faced with erratic consistency [7].

Most of the component parts of school change models are not novel or original, but are revivals of ideas gleaned from the past. One old idea that appears anew in many of the school change models is team teaching.

Today's schools are at a turning point, where the decision must be made by educational leaders whether to design the organization around teaming and cooperation or individualism. The choices represent two distinct ways of thinking and doing. Each is a complete paradigm, a system of thinking with rules and methods that embrace and sustain the system. In writing on the theme of fostering collaborative learning, [8] states that, "either we push forth collaboration paradigm or settle to individualism." In the same manner, [9] suggested, "Teaching is in its on-going transformation. It is evolving into a shared, collegial experience rather than the traditional solitary one." The social mode of working and learning is replacing education's strong tradition of isolation and individualism.

Working together is a valuable old idea as proclaimed by the ancient Biblical writer in the book of Ecclesiastes. Although his identity has been lost to antiquity, the Hebrew writer's wisdom speaks to humankind across the centuries. The writer's message is that two people working together are more effective than two people working separately— in essence, two heads are better than one, two hearts are better than one, two bodies are better than one. Throughout history, human beings have worked together to achieve mutual goals, and to accomplish feats greater than what either individual could accomplish alone. Anthropologically, the continuation of the human species both in the past and in the future is based more on cooperation and sharing than it is on the strength of individuals. Human beings are innately social creatures, favorably disposed toward working together in community. In writing on the origins of belonging, [10] points out the innate need for connection with others. Harriet believes that human beings are highly dependent on others to learn to survive in a diverse and sometimes hostile learning environment. Humans' reliance to others has exerted a powerful influence over their cognitive abilities. In contrast to community and cooperative lifestyles, most schools are organized in an individualistic and highly competitive way. Teachers who work independent from colleagues are found to be more restless and pressured than when with ally [11]. Rather than sharing resources and expertise, teachers strive to solve their own problems and vie against each other for recognition. Writing on teacher collaboration, [12] stated that it is problematic to find schools in isolation with seemingly cellular-structured classrooms that hamper teachers to interact with each other. In some school settings, teachers choose to break the traditional pattern of isolation, and join together to create what is known as a teaching team. The idea of teaching teams is a pedagogical strategy with roots that go back to the beginnings of time. The basic concept is that two adults working as a team can accomplish more than two adults working individually.

Collaborative Team Teaching (CTT) is an educational approach to teaching and learning which occurs when members of the learning community work together to increase student learning and achievement. If the ultimate destination as educators

is student achievement, teacher collaboration becomes the journey. When teachers come together to share information, resources, ideas, and expertise, learning becomes more accessible and effective for students. Collaborating means purposefully building interpersonal relationships and working towards healthy interdependence, which occurs when teachers are comfortable giving and receiving help without forfeiting accountability. In this kind of environment, the learners are challenged both socially and emotionally as they listen to different perspectives, and are required to articulate and defend their ideas.

However, calls for subsequent improvement in education emphasize that excellence is enhanced through teamwork [13]. [14-15] praise the role of teaming in schools. Teaming on the part of teachers parallels the current interest in cooperative learning experiences for students. Apparently, team teaching and learning is an important factor in rendering teamwork success and improving performance [16].

This study was conceptualized then to provide baseline data for administrators and teachers to look into ways on how to make the learning experience of the students easy and of high quality in response to 21st century learning. This study also focuses on Collaborative Team Teaching (CTT) as an approach in teaching major subjects and the implications of such in the learning styles of the students. This inquiry focuses on the realization that the paradigm of teamwork offers a positive choice for educational organizations.

2. Objectives

This research aimed to determine the perceived effects of the integration of Collaborative Team Teaching (CTT) in the teaching-learning process towards major subjects. Specifically, it sought answers to the following questions:

1. What is the demographic characteristics of the respondents in terms of:
 - a. age;
 - b. gender;
 - c. course;
 - d. year level;
 - e. major subjects currently enrolled; and
 - f. most difficult major subject/s taken?
2. What is the implication of Collaborative Team Teaching in students' learning styles along:
 - a. Visual Learning Styles;
 - b. Kinesthetic Learning Styles; and
 - c. Auditory Learning Styles?
3. What is the perceived effect of Collaborative Team Teaching (CTT) to the respondents' performance and attitude toward their major subjects?
4. On the basis of the results, what Collaborative Team Teaching Manual will be proposed?

3. Methodology

Research Design

This research study employed mixed method research design. It is a procedure for collecting, analyzing, and mixing both quantitative and qualitative methods in a single study or a series of studies to understand the research problems [17]. The basic assumption is that it uses both quantitative and qualitative methods, in combination, to provide a better understanding of the research phenomenon than either method by itself.

In this study, focus-group interview was used to validate the responses of the respondents on the questionnaires and to determine the perceived effects of CTT to the respondents' performance and attitude toward their major subjects.

Sources of Data

The researcher gathered the data from the selected students of different program offerings at DMMMSU-SLUC who are enrolled during the SY 2019-2020 and were enrolled in two or more major subjects.

The sample size of the participants was determined and selected purposively by the researcher, of which, there were 49 total student-respondents coming from the BS Psychology, BS Mathematics, BS Biology, BS Computer Science, BS Nursing, Bachelor of Secondary Education and Bachelor of Elementary Education programs of DMMMSU-SLUC. Purposive sampling as described by [18] involves selecting participants because they are believed to offer something to the understanding of collaborative team teaching.

Instrumentation and Data Collection

The researcher used an interview guide for the focus group discussion (FGD) and a survey-questionnaire in gathering the needed data for the study. Data for the implications of collaborative team teaching (CTT) on the respondents' learning styles were taken from the results of the researcher-made test instrument. An attitudinal interview schedule through focus group discussion was also administered to the student-respondents to determine the perceived effects of CTT on their performance and attitudes towards major subjects.

The interview guide and researcher-made instrument were subjected to content validation of five experts in the field of education and testing to secure the utmost efficiency and validity of the instruments in measuring the objectives of the study. Results of the content validation showed that the organization, clarity and relevance of the questionnaire were very satisfactorily met, sufficient enough to measure what the instrument purports to measure. The comments, suggestions and corrections of the experts were all incorporated in the final data gathering instruments. Further, the computed overall reliability coefficient of the survey questionnaire on perceived impact of CTT on learning styles using Cronbach's alpha was 0.72, which indicates an acceptable level of internal consistency or reliability in the scale used.

Analysis of Data

The researcher used frequency counts, percentages and median in interpreting the gathered data particularly on the quantitative part of the study. For the implication of collaborative team teaching on the respondents' learning styles, the 5-point Likert scale was used. See reference scale below:

<u>Scale</u>	<u>Descriptive Equivalent</u>
5	Strongly Agree
4	Agree
3	Moderate
2	Disagree
1	Strongly Disagree

The method of analysis chosen for this study was a qualitative approach of thematic and text analysis. Text Analysis was used in identifying and analyzing the answers of the respondents during the interview so as to form a concrete concept about the experiences, perceived effects and coping mechanisms used by the respondents. With this, the researcher was able to extract valuable information supporting the concepts formulated in the interview. On one hand, thematic analysis is the most widely used qualitative approach to analyze interviews. According to them, thematic analysis is a method used to ‘identify, analyze, and reporting patterns (themes) within the data’ [19].

The reason in choosing this method is that ‘rigorous thematic approach can produce an insightful analysis that answers particular research questions’ [19]. This method enables the researchers to develop a deeper appreciation for the situation they are researching. By using thematic analysis to distill data, the researcher could determine broad patterns that will allow them to conduct more granular research and analysis. Lastly, text and thematic analysis was used to analyze further the data collected through interview and focus group discussion.

4. Results and Discussion

Personal Profile of the Respondents

The subsequent discussions reflect the personal profiles of the respondents.

Age

As indicated in Table 1, 25 out of the 49 respondents (51.02%) belong to the age bracket 19-20 years old, whereas four (8.16%) of them were aged 23 years old and above. These results show that most of the respondents were in their mid-adolescence stage (junior high school age), while only few of them were in the late adolescent to early adulthood stage.

According to [20], students in their late adolescence stage (roughly 18 – 20 years old) and early adulthood stage are in the epitome of choosing a career path that they would take. In addition, it is in this stage where they become more serious in their chosen career and become interested in teaming up, expanding their networks through partnership and membership in different organizations. Meanwhile, according to [21], students at this stage of their life gravitate towards group activities and want a clearly structured academic path. The role therefore of teachers is to provide an avenue and novel strategy that would facilitate learning in high level.

Gender

Also from the table, a great majority (57.14%) of the respondents in this study were females, while the rest (42.86%) were male student-respondents. This finding conforms to [22] stating that females are perceived to have strong interpersonal and relational skills that make them seem more open to collaboration as compared to males.

Year level

Further, 51.02 percent or 25 respondents are seniors, while nine respondents or 18.37 percent were sophomores. This could mean that respondents in the higher year level (4th year) tend to be open to collaborative team teaching than those in the lower year level (2nd year).

Table 1. *Demographic Characteristics of the Respondents*

Personal Profile	f	%
	n = 49	
Age		
23 years old & above	4	8.16
21 – 22 years old	11	22.45
19 – 20 years old	25	51.02
17 – 18 years old	9	18.37
Gender		
Male	21	42.86
Female	28	57.14
Year Level		
4 th year	25	51.02
3 rd year	15	30.61
2 nd year	9	18.37
Course		
BS Psychology	9	18.37
BS Mathematics	6	12.24
BS Biology	3	6.12
BSE	12	24.49
BEE	4	8.16
BS Computer Science	8	16.33
BS Nursing	7	14.29
Number of Major Subjects Enrolled		
6 – 7 subjects	27	55.10
4 – 5 subjects	13	26.53
2 – 3 subjects	9	18.37
Perceived Most Difficult Major Subject (as to category)		
Language and Literature/Wika at	3	6.12
Literatura	6	12.24
Physical, Biological and Natural	9	18.37
Sciences	9	18.37
Mathematics	3	6.12

Psychology	8	16.33
Social Studies	7	14.29
Computer/IT-related	4	8.16
Health and Allied Subjects		
SPED and Pre-school Education		

Course

Likewise, Table 2 also reflects that 12 (24.49%) respondents were enrolled in the Bachelor of Secondary Education program, while only three respondents (6.12%) were BS Biology majors. Seemingly, education major students tend to be more positive on the idea of collaborative team teaching especially with regards to teaching their major subjects. This is not surprising as mentioned by the Department of Education secretary Leonor Briones in a statement prior to the implementation of the K to 12 program that teachers and would-be teachers should equip themselves with novel pedagogies and approaches appropriate for the kind of students we have today and should not settle to traditional classroom techniques as the Philippines is now gearing towards global education [23].

Number of Major Subjects Enrolled

Moreover, as gleaned from the table, 27 respondents or 55.10 percent were enrolled in six to seven major subjects for the school year 2019 to 2020. This may imply that most of the respondents were already in their upper year of education. This result supports the findings where majority of the respondents are in their senior year in college (see Table 1).

Perceived Most Difficult Major Subject (as to category)

Lastly, the table also shows that major subjects in Mathematics and Psychology were perceived to be the most difficult subjects as to category with nine respondents in each major program respectively, equivalent to 18.37 percent. In a study conducted by [24], 78 percent of the 1,340 students agreed that mathematics for them is the most difficult subject to pass as it involved analysis and critical thinking skills. This finding may mean that mathematics is one of the major subjects among college students that requires shift in its method of teaching. This is manifested in the openness of the respondents towards collaborative team teaching.

Implication of Collaborative Team Teaching in Students' Learning Styles

The subsequent tables display the perceived implication of Collaborative Team Teaching to the respondents' Learning styles as to Visual, Auditory and Kinesthetic learning style.

Implication to Visual Learning Style

Table 2 describes how collaborative team teaching impacts the visual learning styles of the respondents. As gleaned from the table, the computed over-all median for the implication of collaborative team teaching to the

respondents’ visual learning style was 4. This means that the respondents agree that their learning style will become affected when collaborative team teaching is utilized in the teaching of their major subjects. This finding also means that collaborative team teaching would facilitate and improve the visual learning styles of the respondents leading to better and effective understanding of the lesson.

A mapping of the indicators denotes that items on “PowerPoint presentation and printed handouts will be better understood by students like me if it were presented by two teachers rather than one during class discussions,” and “Taking down notes during class discussions will be more effective when in the presence of two teachers who collaboratively discuss the topic” were rated the highest with a median rating of 5 which is described as “strongly agree.”

This means further that the respondents anticipated that the use of visual aids and their note taking skills will be very highly impacted in the presence of two teachers taking turns in the discussion of major lessons. This according to [25] might be due to the increased interest and awareness of the students as the discussion is sparked and facilitated better by collaborative team teachers.

Table 2. Implication of CTT on Visual Learning Style

INDICATORS	Median Rating	Descriptive Equivalent
A. Visual Learning Style		
1. I will be able to maximize my visual learning style in the presence of two teachers during class discussions.	3	Moderate
2. I could learn best when there are two teachers I observe during class discussions.	4	Agree
3. CTT will catch my interest to see two teachers taking turns in presenting a collaborative lesson about a certain topic.	4	Agree
4. I perform better in class when I see or observe what the two teachers are saying, explaining or doing.	4	Agree
5. I will understand better a particular topic in visual aids if it is presented by two teachers during discussion.	3	Moderate
6. When asked to critic a film in class, it is easier for me to do the task because two teachers are there to supervise and entertain my concerns for clearer understanding about the film.	4	Agree
7. The presence of two teachers in my exposure to field works will enhance my understanding about a certain topic on the field because I could easily ask the help of either one of them about a concern for the topic.	3	Moderate
8. PowerPoint presentation and printed handouts will be better understood if it were presented by two teachers rather than one during	5	Strongly Agree

discussions.

- 9. Taking down notes during discussions will be more effective when in the presence of two teachers who collaboratively discuss the lesson. 5 Strongly Agree
- 10. CTT will stimulate the students (us) to engage and participate in group discussions and activities because we see two teachers working/teaching together taking turns in front of us during class discussions. 4 Agree

Overall	4	Agree
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Legend: 1 – Strongly Disagree, 2 – Disagree, 3 – Moderate, 4 – Agree, 5 – Strongly Agree

Implication to Auditory Learning Style

More so with the respondents’ learning styles, table 3 below describes the description of the implication of collaborative team teaching as to their auditory learning style.

Table 3. Implication of CTT on Auditory Learning Style

INDICATORS	Median Rating	Descriptive Equivalent
B. Auditory Learning Style		
1. Learning is more effective when I hear two teachers, their opinions and ideas in the teaching of our major subjects.	4	Agree
2. I can easily express my ideas and opinions through class debates and dialogues because of the presence of two teachers who facilitate the class discussions.	4	Agree
3. Audio presentations like listening to a speaker is better when guided and facilitated by two teachers.	5	Strongly Agree
4. Lack of fluent and clear delivery by a teacher during class will be minimized in the presence of another teacher for effective communication between the teachers and the students.	4	Agree
5. Verbal recitation and self-expressions will be utilized more by the students when there are two teachers to facilitate a number of students.	4	Agree
6. I can concentrate well if there is an academic noise in class and this will be stimulated when there are two teachers facilitating us.	4	Agree
7. It is easier for me to explain a certain topic when listening to two teachers during class.	4	Agree
8. I remember better the lessons when hearing two teachers and their ideas during class.	5	Strongly Agree
9. Group interactions, dialogues,	5	Strongly Agree

debates and discussions will be facilitated better in the presence of two teachers.		
10. Opinions of majority of the class will be accommodated better if it is facilitated by two teachers.	4	Agree
Overall	4	Agree

Legend: 1 – Strongly Disagree, 2 – Disagree, 3 – Moderate, 4 – Agree, 5 – Strongly Agree

As manifested in the table, the respondents obtained an overall median of 4 which means that the auditory learning styles of the respondents will become affected which may possibly be due to the presence of two teachers in the facilitation of the class.

In a related study, the bulk of responsibilities teachers have may bar teachers to supervise totally the needs and concerns of their students especially for a large number of students [26]. Thus, the presence of two teachers handling a class would probably lessen the tasks and responsibilities teachers have as compared to one teacher doing all the tasks expected of him.

In another related study by [25], collaborative team teaching can provide more control for socially-based behavior problems among students during group activities and complicated tasks given to students. This conforms to their report that “group interactions, dialogues, debates and discussions will be facilitated better in the presence of two teachers taking turns despite a large number of students” with a median rating of 5.

Implication to Kinesthetic Learning Style

Lastly, Table 4 below reports the implication collaborative team teaching to students’ kinesthetic learning styles.

As reflected in the table, a median rating of 4 was reported emphasizing an agreed implication of collaborative team teaching on the part of the students’ kinesthetic learning styles. This means that collaborative team teaching will enhance the body-smart style of learning such as the manipulation of things and activities which involve greater bodily activity.

This finding might be the reason the respondents reported that role playing, dramatic monologue, performances and games utilized in class discussions

will be better facilitated in the presence of two teachers which contributes effective learning in the part of the students with a median rating of 5.

Table 4. Implication of CTT on Kinesthetic Learning Style

INDICATORS	Median Rating	Descriptive Equivalent
C. Kinesthetic Learning Style		
1. I perform better in games and other activities involving competition utilizing body movements when facilitated by two teachers.	4	Agree
2. Role playing, dramatic monologue, performances and games utilized in class will be facilitated better by two teachers, this then, will better student learning.	5	Strongly Agree
3. During demonstrations, the lesson will be delivered and understood better if demonstrated by two teachers than one.	5	Strongly Agree
4. Doing a particular task directly rather than listening to a presentation and taking down notes is way better when demonstrated by two teachers.	4	Agree
1. Interaction of two teachers in class discussion will facilitate group interaction among the students.	4	Agree
2. The collaboration of two teachers would make me use my over-all well-being (physical, emotional and psychological) to its optimum best.	4	Agree
3. The collaboration of two teachers would make me maximize my motor skills as I respond to two teachers than on one teacher.	5	Strongly Agree
4. During demonstration, it will be easier for me to perform my task when guided by two teachers.	4	Agree
5. The delivery of presentation to class (e.g. reporting, group performance), will be more efficient and effective when facilitated by two teachers.	4	Agree
6. I will have more confidence in expressing myself through school and classroom performances when guided by two teachers.	4	Agree
Overall	4	Agree

Legend: 1 – Strongly Disagree, 2 – Disagree, 3 – Moderate, 4 – Agree, 5 – Strongly Agree

Perceived Effects of Collaborative Team Teaching to Academic Performance and Attitude towards Major Subjects

An attitudinal interview schedule through focus group discussion was administered to the student-respondents to determine the perceived effects of

Collaborative Team Teaching on their academic performance and attitudes towards their major subjects. On the next page is the narrative report of the respondents based on the identified themes.

Academic Performance. According to the respondents, the pressure that is pressed on their shoulder gets even heavier as they move up to facing their major subjects. It is during their sophomore year when they begin realizing that college is no easy feat, and that the difficulty doubles as they enter their junior years and slightly subsides during their fourth and final year in their chosen course, the seniors added. Most of the respondents particularly the third years described this feat as something facing a number of sleepless nights juggling for the demands of their major subjects, reviewing for quizzes and exams that really test their character. All of them said that they almost gave up and quit. Some of them even tried to shift to other courses just like what happened to some of their friends and classmates in their chosen course. However, whenever they try to look for stupid ways on how they could survive the difficulty of their major subjects, there comes the support and motivation from their family and loved ones which refresh their minds to go back on track and keep trying. Fortunately, all of them kept the race in finishing their chosen course and obtained at least a passing grade from their major subjects.

When asked what other things make it difficult for them to pass their major subjects, majority of the respondents responded that “sometimes it is a teacher factor thing.” Some said that it depends on who handles the major subject. They added that there are teachers who they can easily go along with and quite considerate in giving time for them to pass and accomplish certain tasks while some are very strict and too demanding. Nevertheless, they all understand that it is part of their journey in school to face many challenges including the nerve-hitting requirements they need to surpass for the realization of their dream to graduate. Meeting bulk of requirements is one of the identified problems by students according to a study which frustrates them a lot leading to school drop-outs, failing grades, and engagement in delinquent behaviors. However, some of the respondents also admitted that sometimes the problem is in them. They mentioned their lack of concentration and focus in their studies which really affects their academic performance. In the same manner, there are a lot of distractions they face and reported that it is very hard to focus if they have problems such as family and financial problems, and sometimes love life even interferes with their roles as students. Such burdens alongside the heavy demands of their major subjects make them cry at night when reflecting after a long and nerve-racking day at school. According to them, getting low grades and scores and accepting the fact that “college is about survival and not getting good grades” are part of facing their major subjects. However, they also admitted that it really lowers their self-esteem to the point of questioning themselves whenever they receive low grades and scores, and the effect triples when they are scolded by parents for such grades.

College is when students will experience plenty of sleepless nights and irregular eating habits doing school works, reviewing for the hard exams and quizzes,

waking up early, and juggling projects, assignments and other tasks to accomplish. One must overcome these demands in order to pass and graduate their chosen course. Because of these, plenty of students tend to fail or receive low grades at the end of the semester. College students drop out of school each year because they cannot afford its hard demands [27]. This certifies that not all have the courage, intelligence, patience, and determination to undergo these challenges and simply give up along their way.

However, despite such hard demands of their major subjects, all of them agreed for a number of coping mechanisms they used to at least help themselves survive the difficulty of their major subjects. One is through collaboration: they love to collaborate with their fellow classmates and friends in group activities. During group works such as in projects and exercises, they are able to work together to solve a problem, complete a task and create a product. They added that they become more active and productive. This blends with the adage “*Alone we can do so little, together we can do so many.*” This proves that their sense of creativity comes into life as friendships and teamwork are established among the group members [28]. In addition, the respondents also reported that collaboration and teaming in reviewing during quizzes and exams is very useful for them to review better as they share their ideas and knowledge to one another. Hence, it could imply that there is a spread of wisdom during the process of group study.

In collaborative learning environment, the learners are challenged both socially and emotionally as they listen to different perspectives, and are required to articulate and defend their ideas. In so doing, the learners begin to create their own unique conceptual frameworks and not rely solely on an expert's or a text's framework. This then leads learners to have the opportunity to converse with peers, present and defend ideas, exchange diverse beliefs, question other conceptual frameworks, and are actively engaged [29]. This might be the reason the respondents managed and still manages to pass their major subjects despite its demands and difficulty.

Attitude. Along the focus group discussion, they were very open about the idea of integrating other approaches to help them survive the onslaught of their major subjects. When asked about the introduction of collaborative team teaching on their major subjects, all of the respondents were very optimistic about the idea of having two teachers in one class subject. Most of them said that it would “definitely make the lessons easier to understand since there are two teachers working together to help them carry out the activities.” While some of the respondents uttered that “having two teachers explaining the lessons would give them clearer view of the lessons as two teachers provide their positions about a certain topic.” These findings blend with the result of the constructed questionnaire wherein they reported that PowerPoint presentations and printed materials would be better understood in the presence of two teachers who provide their wisdom during class discussions. They added that the presence of two teachers will allow them to have confidence since there are two teachers who would facilitate all their needs and queries.

More so, the respondents are also happy to say that this educational approach will improve their concentration and focus on their academics as there are two teachers they can approach whenever there are things that are bothering them. This finding also conforms to the survey results wherein they reported a very high impact of collaborative team teaching along their note-taking skills. Their worries about the “teacher factor thing” would also lessen as they are quite positive that there will probably be one of the two teachers they can count on during the hard days of the other teacher. They are also not concerned too much on the idea that the presence of two teachers might lead to conflict of interest for their teachers because they believe that teachers are professionals in all ways and they can work together as a team which means that they will “provide a unified frame of reference in discussing their lessons”. They also added that their large number would never become a hindrance for the teachers since there will be two teachers to guide them and facilitate all their queries and ideas. This result goes with their recorded survey answer that group interactions, dialogues, debates and discussions will be facilitated better in the presence of two teachers taking turns despite a large number of students.

Furthermore, the respondents also agreed in a general consensus that group activities such as role playing, dramatic monologue, performances, games and quiz bees which are complicated to handle and require order would be facilitated better in the presence of two teachers. This likewise supports the survey results wherein they recorded the highest median rating of 5 emphasizing a very high impact in the aspect of their kinesthetic learning style.

Proposed Collaborative Team Teaching (CTT) Manual

Reflected below is the proposed Collaborative Team Teaching (CTT) Manual created on the basis of the results of this study in response to the call for innovation in the 21st century teaching and learning process.

COLLABORATIVE TEAM TEACHING (CTT) MANUAL

Rationale

The story of the survival of the species is one of human cooperation. Human beings are predisposed toward cooperative interaction with other people. It follows that one of the biggest factors that contribute to the success of any institution is whether or not its people are able to perform together as team [30]. With increasing competition and as the world faces adversities and innovation, it has become extremely important to encourage creativity in the workforce, in order to improve productivity and efficiency, and promote healthy employee relationships [31]. In addition, working in teams enables employees to be quicker and more effective in their work, as compared to people who work on their own. Collaborating also makes employees more responsible, which goes a long way in raising their motivation levels, especially when teams work virtually.

In the school setting, the call for change and innovation is a perennial topic in education to adapt to the challenges brought by globalization and enable students to face life adversities. The challenge is to shift through and evaluate the reform possibilities, and to discover what has potential in a given school situation [32].

Following a pedagogical approach to education and the findings of this study, the researcher recommended a collaborative team teaching (CTT) manual that focus on the practices and approaches as a guide in response to the 21st century teaching and learning process. This manual provides practices and approaches which may be used by core faculty members to meet the demands of the 21st century teaching-learning process and for students to better inculcate in them the juice of their major subjects on their respective field of specialization.

What is Collaborative Team Teaching?

Collaborative Team Teaching (CTT) refers to an educational approach to teaching and learning that involves group of teachers working together to solve a problem, complete a task, or create a product and in particular, to plan and deliver instruction to a diverse population in a general education setting [29]. In this study, CTT composed of two core faculty members working together in teaching major subjects that are identified and perceived to be the students' most difficult subject/s.

Characteristics of Collaborative Team Teaching (CTT)

Students who receive CTT approach and/or related services are instructed in a specialized education classroom. There are two educators who specialized in the same field who collaborate with each other to facilitate students' access to their major subjects on their respective field of specialization. Both educators are responsible for planning, delivering instruction, adapting materials, parental communication, accommodations, providing feedback, and grading. More so, both teachers are responsible for delivering collaborative instruction to all students. This approach benefits a broad spectrum of students from gifted and talented to at-risk learners. Both educators are also responsible for implementing instruction in the same classroom.

Benefits of Collaborative Team Teaching

For Teachers. The following are the pros of collaborative team teaching (CTT): a) Easier to monitor students' behavior, b) Build relationships and opportunities for professional and/or personal growth, c) More support during instructional activities, d) More support to provide students' accommodations, e) Receive feedback from each other, f) Provide more flexible grouping, and g) Cover content more effectively to support mastery learning.

For Students. On the left side, collaborative team teaching (CTT) would greatly benefit all the studentry under the said pedagogy. The students would have: a) Access to a specialized teaching and learning approach, b) More instructional support, c) Learning environment together with their peers and classmates, d) More opportunities for social interactions, and e) Increase respect and understanding for all students.

Collaborative Team Teaching Models and Approaches

There are several established models of collaborative team teaching (CTT). [33] developed six approaches to CTT that are widely used throughout the nation. In this study, educators may use any or all of the following depending on the appropriateness of the model in relation to the style of the teachers, need of the students and nature of the students.

See figure 1 below for reference.

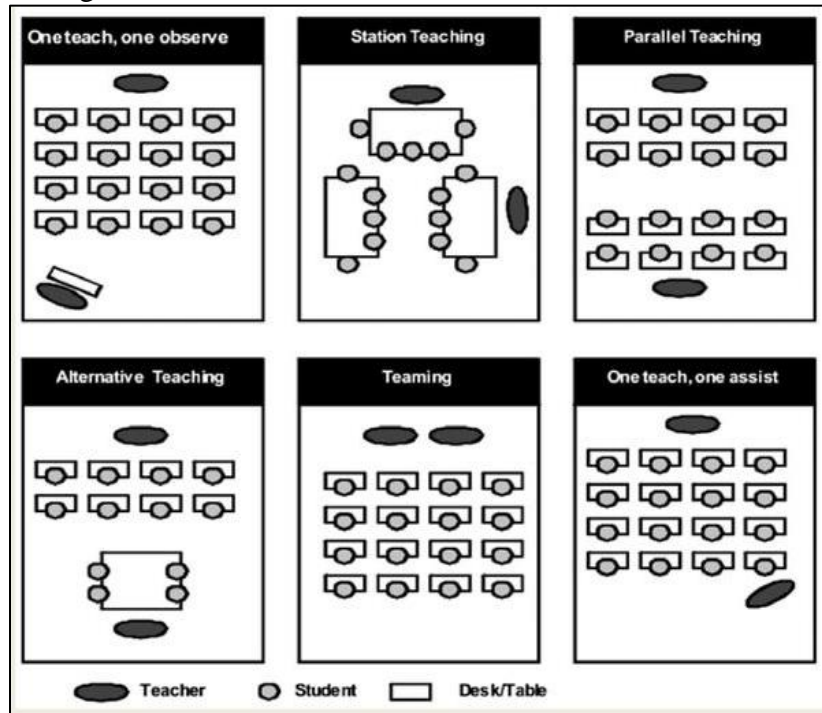


Figure 1. Six Approaches/Models of Collaborative Team Teaching

One Teaching, One Observing. The purpose of one teaching, one observing is used in the event that data needs to be collected. One teacher leads instruction while the other teacher gathers data, observes classroom behaviors, etc.

Station Teaching. The purpose of station teaching is to decrease student teacher ratio, present targeted instructional content and/or cooperative learning. Students are broken into three or more heterogeneous or homogeneous groups. Teachers can provide direct instruction at a station or monitor multiple stations. The small groups rotate around the stations.

Parallel Teaching. The purpose of parallel teaching is to decrease student teacher ratio and target students' instructional needs. Students are divided into two homogeneous groups. Each group is led by a co-teacher. Each group receives the same content but through differentiated instruction.

Alternative Teaching. The purpose of alternative teaching is to re-teach the at-risk students while providing accelerated content to the remaining students. Based on previous assessments, both teachers will decide which students are at-risk. One teacher works with the at-risk group while the other continues to provide accelerated instruction.

Teaming. The purpose of teaming is to share the role of lead teacher in delivering instruction and providing student support. While team teaching, co-teachers should act as "one brain in two bodies" [34]. For example, both teachers may facilitate a discussion while performing different roles such as writing on the board emphasizing key points.

One Teaching, One Assisting. The purpose of one teaching, one assisting is to deliver instruction and monitor student progress. As one teacher leads the whole

class, the other teacher provides supports, answers questions, monitors student behavior, etc.

Additional Inputs

The subsequent discussions provide other important inputs for successful collaborative team teaching (CTT). The Maryland State Department of Education provides four things to consider in the task of CTT.

Getting to Know Each Other

To create a successful co-teaching classroom, it is important to learn about your co-teaching partner. It is essential to get to know each other personally, as well as professionally. Prior to the beginning of the school year or semester, you and your co-teacher should have an open discussion about their teaching philosophies, styles, approaches, techniques and other qualities related to their teaching career.

Classroom Environment

In collaborative team teaching, the classroom environment is important. It should be a safe, inviting, and comfortable setting for students and teachers. In order to establish a positive environment, routines must be established, student mobility must be considered, transitions between activities must be well planned, rules and regulations should be in place prior to the facilitation and instruction proper, and student and teacher work spaces should be clearly defined. Effective classroom management supports the classroom environment by consistently providing positive behavioral supports and expectations

.Parity

Both teachers should be viewed as equals among the school community. Parity will be accomplished once both teachers share roles and responsibilities within the classroom. Both must be recognized as the classroom teachers. It is important for parity to be established so all students' needs will be met comfortably.

Planning

Planning is an ongoing process throughout the school year. Prior to the school year is a great time to find a common planning time that will work for both teachers. Once the planning time is established, this time should be shared with the staff so that they recognize and acknowledge that this time should not be interrupted. After each teaching session, both teachers need to reflect about the lesson and assess student learning.

In planning, there are three things to consider:

Prior to the school year. Both teachers need to discuss planning in terms of the following: a) Time of day allocated for planning, b) Duration of planning period, c) Frequency of planning, d) Where planning takes place, e) Method used for communicating, f) Familiarizing yourselves with the curriculum, g) Determining the planning style (i.e.; plan books, flip charts, lists, etc.), and h) Developing emergency substitute plans.

During the planning period. Things to consider include the following: a) Determining the co-teaching model, b) Teaching roles, c) Assessing student learning, d) Preparing materials, e) Providing input on the lesson content and means of differentiation, f) Accepting suggestions, and g) Agreeing to disagree.

After teaching. Things to consider include the following: a) Grading (teachers can divide the grading responsibilities or grade the assignment together), and b) Reflecting.

5. Summary and Conclusions

Summary

This research was undertaken to find out the possible implications and perceived effects of the integration of Collaborative Team Teaching (CTT) in the teaching-learning process towards major subjects. Specifically, this study aimed to: a) describe the demographic characteristics of the respondents as to their age, gender, course, year level, major subjects currently enrolled, and most difficult major subjects taken; b) determine the implication of collaborative team teaching in students' learning styles; c) determine the perceived effects of collaborative team teaching to the performance and attitude of the students along their major subjects; and lastly d) propose a 21st century teaching and learning pedagogy on the basis of the findings of the study.

Based on the data gathered, statistical analysis and interpretation, the following major findings emerged:

1. The Demographic Characteristics of the respondents are described as: a) roughly fifty-one per cent (51%) of the respondents belonged to age range 19 to 20 years old; b) fifty-seven per cent (57%) of the respondents were females; c) fifty-one per cent (51%) of them were in their fourth year; d) roughly twenty-four per cent (24%) were bachelor of secondary education students; e) fifty-five per cent (55%) have 6 to 7 major subjects enrolled; and f) around eighteen per cent (18%) were having hard times along their major subjects in field of mathematics and psychology.
2. The implication of Collaborative Team Teaching (CTT) to the respondents' learning styles is described as the following:
 - 2.1. The respondents' visual learning style is agreed to be affected by collaborative team teaching (CTT) obtaining an overall median of 4.
 - 2.2 On one hand, majority of the respondents agree that CTT could give a better facilitation for their auditory learning style with an overall median of 4.
 - 2.3 Likewise, the respondents also recorded an agreed consensus that CTT affects their kinesthetic learning style with an overall computed median of 4.
3. The possible implementation of Collaborative Team Teaching (CTT) has a big effect on the respondents' performance and attitude towards their major subjects. According to the respondents, CTT would certainly help them cope with the high demands and problems they encounter as they moved to the tertiary level of education. They showed high optimism and acceptance with the idea of collaborative team teaching. The respondents added that if collaborative learning helps them accomplish many school activities, so as with the presence of two teachers who collaborate in guiding and teaching them along their major subjects. Furthermore, the respondents also stated that collaborative team teaching would "definitely make their lessons easier and clearer to understand since there are two teachers working together to provide a unified frame of reference about a certain

topic.” CTT would also improve their self-esteem level as it improves their concentration and focus in their academics in the presence of two teachers whom they can go to whenever they have needs and concerns.

Likewise, the respondents also agreed that group activities such as role playing and quiz bees that are complicated to handle and require order would be facilitated better in the presence of two teachers.

4. The student-respondents identified problems and challenges they face regarding their major subjects which explains why they are optimistic with collaborative team teaching (CTT). Some of these are "teacher factors" like teachers who are too strict, demanding and inconsiderate; bulk of heavy and demanding requirements; inability to concentrate due to personal problems; and lack of appropriate means to cope with college demands.

Conclusions

Based on the findings of the study, the researcher arrived at the following:

1. The student-respondents vary in their demographic characteristics in terms of their specialization and subject areas where they are having difficulty.
2. The respondents show a direct link among their assessment on the impact of collaborative team teaching (CTT) on their learning styles along their visual, auditory and kinesthetic learning styles. Hence, the possible implementation of collaborative team teaching on their curriculum may give positive implication on their learning styles and may improve their performances along their field of specialization.
3. Generally, the respondents showed optimism and high acceptance in their attitude towards the integration of collaborative team teaching to their major subjects. Most of them agreed that collaboration of teachers on their field of specialization would benefit them as it was perceived to improve their academic performance and make them confident in facing the high demands of their major subjects.
4. The student-respondents agreed that college life requires them to face its demands and challenges. Thus, there is a call for innovation among schools nowadays which shifts to collaboration rather than competition not only among students but also to teachers who are considered as the frontlines of any educational institution.

6. Recommendations

Based on the findings and conclusions, the following recommendations were forwarded:

1. Teachers may use the findings of this study to provide activities and teaching pedagogies that are appropriate to the learning styles of the respondents. On the other hand, teachers may also consider this study as a framework in engaging themselves in collaboration with their fellow teachers in the academe.
2. School administrators may design an organizational structure that make it necessary for staff and faculty members to work together by encouraging team building practices not only in instruction but also on their other functions. In

addition, administrators together with policy makers and curriculum planners may consider the result of this study to come up with a personnel policy to include job-sharing as a way to minimize the dilemma of the students in facing the demands of their field of specialization and help the faculty build teamwork among themselves.

3. Additional research is needed to pursue the multiple facets of collaborative team teaching and related teaching strategies. Continued investigation of the human element in teaming will provide more data relevant to teachers and administrators considering the practice. Seeking motivational clues will give insight into the issue of instigating positive school change. Looking at teaming as a paradigm shift suggests a rich vein of research potential. Seeking and developing assessments that will quantitatively verify increased student learning in team settings is another area calling for additional research.

4. Curriculum planners, teachers, guidance counselors and administrators may include in their plans the enrichment of the output of this study by looking at the problems and challenges the student-respondents have identified.

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