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The Effectiveness of Brainstorming Strategy in Teaching Philippine Politics and Governance

Kenna Mary B. Araña[1], Annabee Magbanua-Claur[2]

[1]San Miguel National High School, SDO-La Carlota City, Philippines , [2]University of Negros Occidental-Recoletos, Bacolod City, Philippines

kennamary.ara@deped.gov.ph[1], annabeemclaur@gmail.com[2]

Abstract. Brainstorming is a decision-making strategy that can be used in any setting where people are expected to participate.This quasi-experimental research aimed to assess the effectiveness of brainstorming strategy in teaching Philippine Politics and Governance to fifty (50) Grade 12 students of San Miguel National High School in La Carlota City for the School Year 2018-2019. The statistical techniques used in determining its effectiveness were the mean, standard deviation, t-test, and ANCOVA. Analyzed data revealed no significant difference in the pre-test scores of both the experimental and control groups. Furthermore, there is a significant difference in the experimental and control groups' pre-test scores and post-test scores. The results likewise proved no significant difference in the experimental and control groups. Thus, the study has an immediate implication for teachers and practitioners who attempt to find alternative teaching-learning methods. Also, teachers may use brainstorming strategies in the absence of technology.

Keywords. Social Science, brainstorming strategy, quasi-experimental design, Philippines

1. Introduction

Formal education must change completely to allow new forms of knowledge to tackle complex, all-encompassing challenges. However, the most effective way to teach these skills – information, media and technology skills, learning and innovation skills, effective communication skills, and life and career skills (DepEd, 2015) – is frequently disregarded. Even though experts agree that the discussion is inefficient for teaching 21st-century abilities and skills, it is widely used. Despite the broad assertion that learners require basic considering capacities and the capacity to communicate successfully, make, and illuminate issues through transaction and collaboration, an instructional method has seldom advanced to meet these requests. According to Malkawi and Smadi (2017), these challenges include scientific progress, technological development, and openness to the world of communication. Rethinking education for the up-to-date exists as important as labeling the new competencies that contemporary learners need to cultivate (Scott, 2015).

Brainstorming is a decision-making strategy that can be used in any setting where people are expected to participate. It is also employed in educational settings. Because the physical and intellectual presence of the group is important in the brainstorming process, quantity is

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guaranteed. This leads to selecting the best among many, but it is beautifully followed up by the teacher's knowledge (Khan, 2013). On the other hand, creative thinking is defined as a set of mental activities aimed at channeling a strong desire to find solutions or come up with novel solutions that have never been seen before (Jarwan, 2008 cited in Al-khatib, 2012). According to AlMutairi (2015), multiple thinking encompasses the dismantling of old concepts, forming new connections, expanding knowledge's boundaries, and the emergence of beautiful ideas.

In the local classroom settings, the researcher has observed that learners are more participative in the class discussion if they are engaged in the teaching-learning process. The class discussion is interactive if it involves a collaborative process. Learners show interest and have more fun in doing group activities. They become more open in the class and share their personal experiences and views with their classmates. The teaching-learning process becomes meaningful if the learners involve themselves.

The study conducted by Villamar (2012) discovered that brainstorming strategy is one of the most common techniques practiced or utilized by Social Studies teachers in the classroom wherein students can participate in class discussion to share ideas. Students uplift their interest to listen and participate in the class. In using this strategy in Social Studies, learners can easily cope and understand the topic well.

Since brainstorming strategy is used commonly by Social Studies teachers, the researcher reviewed the educational literature, and the findings of Rashtchi and Beiki (2015), ALshammari (2015), and Zarif and Mateen et al. (2013) would affirm the effectiveness of brainstorming strategy in promoting effective learning outcomes of students. Also, the researcher noticed that a lack of studies examined the effectiveness of employing brainstorming strategies in different grade levels of education, particularly in the K to 12 curricula in the Philippines. This motivated the researcher to conduct this study to assess the effectiveness of the brainstorming strategy.

Given this condition, the researcher was motivated to assess the effectiveness of the brainstorming strategy in teaching Philippine Politics and Governance in the Division of La Carlota City. The results of the study served as the guideline for an instructional guide for teaching Philippine Politics and Governance, which would be very helpful, especially to those who are considered new teachers.

2. Framework of the Study

The study theorized that brainstorming as a teaching strategy is effective in processing learning. It is anchored on various related theories that support the investigation of the conduct of the study. Nonetheless, the selected theories have distinctions, which may ingest their primary purpose. These theories are Albert Bandura's Social Learning Theory, Lev Vygotsky's Zone of Proximal Development Theory, and Bruner's Constructivism Theory.

Bandura's Social Learning Theory emphasizes seeing and modeling other people's behaviors, demeanors, and passionate responses. Concurring to Bandura (1977), learning would be greatly troublesome, on the off chance that not perilous, if individuals had to depend solely on the results of their activities to tell them what to do.

Fortunately, most human behavior is taught through seeing others; one can understand how new behaviors are carried out. This coded information will be used as a guide for action in the future. Human behavior is explained by social learning theory as a continual reciprocal interaction of cognitive, behavioral, and environmental forces: attention, which includes modeled events and observer characteristics; retention, which includes symbolic coding, motor reproduction, and feedback accuracy; and motivation.

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Social learning theory spans both cognitive and behavioral frameworks because it encompasses attention, memory, and motivation. It suggests that learners must interact with learning more and develop their skills to share what they have for validation, evaluation, and objective assessment based on social standards. In processing learning, students must actively participate, experience, and share various viewpoints to produce meaningful ideas for developing self-confidence and personal growth. In applying the brainstorming strategy, learners observe the ideas from other group members. Each group member is given a chance to share ideas, and no matter how irrelevant, all ideas are still accepted. In the evaluation process of the brainstorming strategy, the observer's judgment is based on sensory capacities, perceptual set, symbolic rehearsal, and self–observation of reproduction.

Furthermore, Vygotsky's theoretical system emphasizes the significance of social interaction within the advancement of cognition. Every function in a child's cultural development, according to Vygotsky (1978), emerges twice: first on the social level, and then on the individual level; first, between individuals, and then within the kid. It applies to deliberate consideration, coherent memory, and concept generation in equal measure. All of the higher functions begin as actual interpersonal relationships.

The second part of Vygotsky's theory is that the ability to develop cognitively is determined by the "Zone of Proximal Development," the stage of development reached when children lock-in in social interaction. Full social engagement is required for the “Zone of Proximal Development” to mature fully. The run of abilities that can be picked up with grown-up heading or peer collaboration is distant more than what can be accomplished autonomously. Vygotsky's theory attempted to clarify awareness as the result of socialization.

The zone of proximal development can be apprehended as the gap between what the students can do with and without help from knowledgeable adults or competent peers. In the application of a brainstorming strategy, scaffolding takes place. As an adult and facilitator, the teacher assesses the learners to activate their prior knowledge using meaningful learning experiences. It could be giving guide questions to focus on positive interaction and encouraging the students in advancing their learning. Also, collaboration takes place with competent peers. Usually, they are the team leader of the group during the brainstorming session.

However, there is also a detailed view of the behavior of the learners as social beings. They are perceived as critical thinkers capable of sharing the learned skills, exploring to practice scientific methods towards learning, extending to discover other related ideas, explaining to synthesize their knowledge, and evaluating the core idea objectively. These levels are very significant in utilizing brainstorming strategies when discussing various topics, specifically in social science. Nevertheless, this strategy effectively builds a critical thinker learner through collaboration. According to Bruner's theoretical framework, learning is an active process in which learners develop new ideas or concepts based on their present or previous knowledge. The learner uses a cognitive framework to select and change information, build hypotheses, and make judgments. In terms of instruction, the instructor should encourage pupils to find principles independently. Cognitive structure (i.e., schema, mental models) lends meaning and organization to events and helps the individual "move beyond the material presented." The lecturer and the student should have a lively discussion. The teacher's work is to change the information to be instructed into an arranged fitting for the student's show level of comprehension. The curricula ought to be organized to build on what was learned previously. According to Bruner (1966), a theory of instruction should address four major aspects: predisposition to learning, how to structure a body of information so that it can be effortlessly gotten a handle on by the learner, the major viable groupings for displaying

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fabric, and the nature and pacing of rewards and disciplines how to structure a body of knowledge. Great strategies for organizing information should streamline and create modern suggestions and increment data control.

Thus, a brainstorming strategy is a constructivist approach that emphasizes the meaningful learning and building of knowledge. The new knowledge is created due to the relationship or interaction between the cognitive experience, schema, and classroom environment or social relation.

The selected theories have interrelationships. Through these theories, it is fostered that learners must recognize their holistic nature. They are considered a vital individual built by their genetic factor and environmental influences. Moreover, their social aspect will become the foundation of transforming interactive learners who contribute ideas, insights, and perspectives without focusing on their inward potentialities and working outwardly with openness and flexibility.

The findings of this study served as the basis in making a proposed instructional guide for the subject Philippine Politics and Governance. This was presented to the EPS and teachers of Social Studies for feedbacking and evaluation. The framework further suggests adapting an instructional guide by the subject teacher to enhance teaching and learning outcomes.

3. Methodology

This study employed the quasi-experimental research design in comparing the two variables: the control and the experimental groups, in terms of their pre-test and post-test results.

The researcher noted that a quasi-experimental design was the most suitable research design since the study aimed to assess the effectiveness of brainstorming strategy in teaching Philippine Politics and Governance to Grade 12 students of San Miguel National High School in La Carlota City for the School Year 2018-2019.

A curriculum guide served as the basis by the researcher in constructing a test questionnaire with a Table of Specifications (TOS) based on the second-quarter period topics on the Philippine Politics and Governance subject. The test consisted of forty-nine (49) multiple-choice items with four (4) alternatives for the participants to choose from.

In this study, test questionnaires and TOS were evaluated by five experts in Social Science. To determine the validity of the test questionnaire, criteria of Good and Scates were used, and it was found to be valid with a score of 4.24, interpreted as "very good." To prove the reliability of the test questionnaire, Kuder-Richardson Formula 20 was used. The reliability test index of 0.716 was interpreted as "reliable."

The result was used for the test item analysis to measure the degree of difficulty of the test questionnaire. Out of 49 items (100%), 6 items or 12.2 % were rejected; 13 items or 26.5 % needed revision; and 30 items or 61.2 % were retained. The researcher utilized only the retained items of the test for the final test questionnaire.

4. Results and Discussions

Level of Mastery of the Grade 12 Students in Philippine Politics and Governance

Table 1 presents the level of mastery in Philippine Politics and Governance of the Grade 12 students at San Miguel National High School in La Carlota City. The table shows that both control (M=13.44, SD=3.22) and experimental (M=13.66, SD=2.83) groups have average mastery in the pre-test and mastered the topics in the post-test: control (M=26.08, SD=3.62) and experimental (M=27.60, SD=2.60).

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The result implies that the exposure to the brainstorming strategy of the students taking up Philippine Politics and Governance was improved. Also, it encouraged participants to respond logically and learn the subject through the active sharing of information. As observed by the researcher, students became more participative in the class activities and became more aware that the instructors gave more attention to their ideas and judgments.

This result supports the study of ALshammari (2015), which tested the effectiveness of the brainstorming strategy in Social Science. The said study showed a high relevance in the utilization of brainstorming in learning unused data in the post-test and a significant difference between the group that underwent brainstorming strategy and the other group that did not receive. Further, the study of Zarif and Mateen (2013) revealed a significant difference in the students' achievement because students became more interested in the class discussion.

Moreover, Diana (2014) concluded that both strategies are used effectively, likely to produce the same result.

Table 1. Level of Mastery of Grade 12 Students in Philippine Politics and Governance

Variable	Pre-test			Posttest		
	M	SD	Interpretation	M	SD	Interpretation
Group						
Control (n=25)	13.44	3.22	Average Mastery	26.08	3.62	Mastered
Experimental (n=25)	13.36	2.83	Average Mastery	27.60	2.60	Mastered
As a Whole	***13.40***	***3.00***	***Average Mastery***	***26.84***	***3.21***	***Mastered***

Difference in the Pre-test Scores of the Control and Experimental Groups

Table 2 shows the difference in the pre-test scores of the control and experimental groups. Data show no significant difference in the pre-test scores of the control and experimental groups [t (48) =0.093, p=0.926].

The result indicates that both control and experimental groups had the same level of understanding before implementing conventional and brainstorming strategies in the Philippine Politics and Governance subject. Furthermore, the result of the pre-test scores was as low as expected since learners answered the test based on their schemas or stock knowledge. Thus, establishing homogeneity between the two groups under study was the main reason why a pre-test was conducted. Homogenous means that the control and experimental groups have the same level of mastery and capacity to learn. Also, Hidayanti et al. (2018) reported that students were given a pre-test before the first treatment to know the participants' prior knowledge and creative thinking skills.

The pre-test result in this study is consistent with the study of Ghabanchi and Behrooznia (2014) that the result of the independent t-test indicated no significant difference between the two groups regarding their reading comprehension ability before the treatment was performed. Manouchehy et al. (2014) revealed that the mean scores of the pre-test of the two experimental groups and one control group showed close results.

The findings of the study further support those of Rashtchi and Beiki (2015), who revealed that examined all participating groups were homogeneous on their ability before the

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implementation of the strategies. It also indicated no scientific difference between the means scores of the two groups. Likewise, the finding of ALshammari (2015) revealed no significant difference in the pre-test of the students for academic performance.

Attesting to the study of Filgona and Iyasco (2016), findings revealed no critical distinction within the mean accomplishment scores of the-participants. It further showed that the understudies in both groups were on the same level of understanding before implementing the strategies. Moreover, Filgona et al. (2016) reported no noteworthy contrast within the pre-test mean scores of understudies instructed in Social Studies using brainstorming strategy and students taught by conventional strategy. This further shows that learners in the experimental and control groups had the same level of knowledge in Social Studies before administering the experiment or treatment.

The result is in line with Koroh et al. (2016) that the data from the pre-test gave an early overview related to the participants' ability if they have an equal or the same capability. The result of the pre-test and mean on the two groups may not be depended upon to note any critical contrast.

The latest findings in Malkawi and Smadi (2018) revealed no critical contrasts between the number mean of the pre-test accomplishment scores of the two groups, the equality among the think about test individuals before really applying the try.

Table 2. Difference in the Pre-test Scores of the Control and Experimental Group

Group Control	Experiment	t	df	p
13.44 (3.22)	13.36 (2.83)	0.093	48	0.926

Difference in the Pre-Test and Post-Test Scores of the Control and Experimental Groups

Table 3 shows the significant difference in the pre-test and post-test scores of the control and experimental groups. Results show a significant difference in the pre-test and post-test scores of the control [t(24)=18.713, p=0.000] and experimental groups [t(24)=25.675, p=0.000].

The data presented in Table 4 manifest that the student-participants acquired new knowledge when the intervention was implemented. This study confirms that brainstorming helps the students become better learners, and it is a fun activity that students enjoy well and is worth trying out in the class. The conventional strategy also proves its efficiency since it follows the Department of Education mandates. Brainstorming also made the learners more active, fun, interactive, and aware of what might make them responsible for their learning and likely learned better (Zarif & Mateen, 2013).

Meanwhile, Mohammad and Huessein (2013) revealed that both types of brainstorming (the free and the guided) motivated students, giving more preference to guided brainstorming. After testing the homogeneity data, Koroh et al. (2016) conducted a test to see the viability of the strategy. Testing the adequacy of this strategy (problem-solving method and brainstorming method) uses the gain value. The gain value gotten from the post-test decreased the value of the pre-test. However, the results using the t-test of two independent

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samples showed a significant value. This means that both approaches can be used effectively to progress learning results. Zarif and Mateen (2013) revealed a significant difference in pre-test and post-test scores. In the post-test, the students obtained a higher score than the pre-test. This implies that brainstorming plays a critical part in moving forward students' substance understanding and topical integration with real-life whereas improving middle-level understudies' certainty and communication abilities.

Meanwhile, Manouchehy et al. (2014) revealed that brainstorming strategies positively affected EFL learners' writing achievements with the experimental and control groups in the pre-test. It also made students more active and aware, making them responsible for their learning and are likely to learn better.

A similar finding in AlMutairi (2015) unveiled a measurably noteworthy contrast between the mean scores of the group's exhibitions that got training and the control group that did not get any training indeed within the add up to score of the group test or its sub-skills. This may be credited to the nature of brainstorming strategy as a collective in an unconstrained and free open climate that is not basic and does not constrain the opportunity of propelling thoughts. Additionally, its nature is based on stages that permit understudies to move from one step to another after completing the past steps openly. The finding of AlMutairi (2015) is consistent with that of Alshammari (2015) that showed statistically significant differences in the achievement and the total of achievement in favor of the experimental group that studied using brainstorming.

Table 3. Difference in the Pre-Test and Post-Test Scores of the Control and Experimental Group

Group	Test		T	df	P
	Pre-test	Posttest			
Control	13.44 (3.22)	26.08 (3.62)	18.713*	24	0.000
Experimental	13.36 (2.83)	27.60 2.60	25.675*	24	0.000

Note: the difference in the means is significant when $p \leq 0.05$

Difference in the Post-test Scores of Control and Experimental Groups

Using analysis of covariance, Table 4 shows no significant difference in the post-test scores of control and experimental groups [F(1,47)=4.013, p=0.051] of the Grade 12 Senior High School students in Politics and Governance.The learners who received the brainstorming strategy revealed higher mean scores than the experimental group who received the conventional strategy. However, both groups' performance in Philippine Politics and Governance, as a whole, is in the Mastered Level where they can correctly answer all questions about the most complex data and facts contained in the subject matter or competencies under State-Society Interactions, Civil Society and Social Movements, and Citizenship and Integration. This implies that the means of the post-test scores are almost the same in the two strategies. There are also intervening factors, such as the learners' previous academic background, health details, self-motivation, college-related aspects, personal details, study habits, and family background (Kaviyarasi & Balasubramanian, 2018).

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Thus, the findings of the study are supported by Cuevas (2015), who found no significant differences in the post-test of the students, whether there is a variety of instructional strategies introduced by the teacher or not. Also, Koroh et al. (2016) uncovered that problem-solving and brainstorming strategies influence students' learning results.

Likewise, the study contrasts with the study conducted by Filgona et al. (2016) that revealed that students uncovered to brainstorming directions methodologies performed essentially in their accomplishment in Social Studies than their partners uncovered through customary educating strategies of instruction. The conceptualizing technique was found to advance higher fabric maintenance of concepts in Social Studies. Furthermore, the utilization of brainstorming strategy made the understudies take part effectively within the learning process, organizing their learning involvement to find the relationship between what they know and their new encounters. The result may offer assistance understudies endeavor harder and move forward essentially in Social Studies.

In a separate study, Filgona and Iyasco (2016) suggested that the brainstorming strategy could be a better strategy to enhance learners' academic achievement in Social Studies than the lecture method. Moreover, findings revealed a significant difference in the upkeep scores of students taught social science through brainstorming and conventional strategies. This connotes that students in the brainstorming group could gain and comprehend the topics taught to them more than their conventional strategy group counterparts. This is to stress further that the learners in the experimental group had a better understanding of the materials taught them. The findings of this study contradict those of Filgona and Iyasco (2016). The findings of the study are also not congruent to the study of Khan (2013), who found out that the brainstorming strategy is an effective teaching strategy. Students participated constructively and enthusiastically in classroom interventions and were very optimistic about the techniques used in EFL. All students agreed that brainstorming helped them prepare more effectively for their language learning tasks.

Moreover, Manouchehy et al. (2014) proved the application of brainstorming strategies on the learners' writing ability so that the explicit instruction of the strategies helped the experimental groups improve their writing skills. Through brainstorming, students can easily understand and organize their thoughts and increase their conceptual understanding, which helps them organize their ideas. Likewise, it also contradicts the result of the study of Ghabanchi and Behrooznia (2014) that the experimental group performed significantly better than the control group. Moreover, the findings revealed that the brainstorming strategy significantly improved the participants' reading comprehension and critical thinking abilities.

This study does not affirm the result of Hidayanti et al. (2018) in an Islamic International School in Bandung, which revealed a statistical difference between the two groups. However, the result favored the participants exposed to the brainstorming strategy, indicating that brainstorming seemed to effectively develop students' creative thinking skills. Also, the effects of brainstorming on the development of creative thinking as a whole and its sub-competencies can be traced back to the benefits of brainstorming strategies accepted by students.

Some of these benefits include the preparation and preparation of participants to attend sessions and enjoy the environment. This allows students to provide an accessible environment without judgment or criticism.

Also, ALMutairi (2015) showed the effectiveness of brainstorming strategies to develop creative thinking skills, showing statistically significant differences in total and underestimated creative thinking in the experimental and control groups. Moreover, brainstorming brings a group or team members' diverse experiences into play. It increases the richness of ideas

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explored, which means that one can often find better solutions to the problems in a rewarding and positive setup. While the brainstorming strategy can be effective, dealing with non-judgment and openness of mind is important. Zarif and Mateen (2013) added that the main reason for this improvement in social studies was the students' interest in in-class participation and the importance of their thoughts.

ALshammari (2015) shows higher post-test results and relevance to brainstorming, sharing of new information, or learning. Even with the total score of the test or its sub-competencies, there is a statistically significant difference in the average performance scores of the trained and untrained control groups. The impact of the brainstorming strategy on the development of creative thinking as a whole and its sub-competencies can be traced back to the benefits of this strategy that learners have embraced. Some of these benefits include preparing elements and preparing students to attend sessions and enjoying a free and open climate environment that does not limit brainstorming freedom.

The findings are not similar to Rashtchi and Beiki (2015) that ascertained brainstorming to be efficient in activating readers' schema, prior knowledge, and learners' reading comprehension. Also, Rashtchi and Beiki (2015) indicated the primacy of learner-generated brainstorming over teacher-generated activities.

Mohammad (2016) showed that the interaction between the teaching methods favored the brainstorming strategy in the experimental group.

Malkawi and Smadi (2018) showed that experimental groups taught in brainstorming strategies are superior to control groups who study the same subject simultaneously and are exposed to conventional teaching methods.

In Tehran, Sabet et al. (2018) found that the results of the paired sample test showed that pre-learned vocabulary and brainstorming improved the results of the first and second experimental groups after the test. In addition, the ANOVA results showed a significant increase in the reading scores of the first and second test groups after the test compared to the scores of the control group. In addition, students were found to be enthusiastic and enjoyed reading the text by working on prior knowledge through brainstorming and sharing ideas with the class.

Table 4. Difference in the Post-test Scores of Control and Experimental Groups

Variable	Group		F	df	p
	Control	Experimental			
Post-test	26.08 (3.62)	27.60 (2.60)	4.013	1, 47	0.051

Note: the difference in the means is significant when $p \leq 0.05$

The study revealed that both brainstorming and conventional strategy are effective. Conventional strategy is effective since it is usually practiced by the subject teacher dealing with 21st-century learners. Also, the brainstorming strategy is effective since it encompasses attention, memory, and motivation; social learning theory spans both cognitive and behavioral frameworks. The learners interacted with learning more and developed their skills as they shared what they have for validation, evaluation, and objective assessment based on social standards. In processing learning, the students were able to participate, experience, and share actively various viewpoints wherein they can produce meaningful ideas that could lead to

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developing self-confidence and personal growth, as explained by the Social Learning Theory of Bandura.

Also, Vygotsky claimed that social interaction plays a fundamental role in developing cognition. All the higher functions originate as actual relationships between individuals. Moreover, the potential for cognitive development depends upon the "zone of proximal development," wherein the application of brainstorming and scaffolding takes place.

Furthermore, Bruner's theoretical framework states that "learning is an active process in which learners construct new ideas or concepts based upon their current or past knowledge." Thus, brainstorming creates new knowledge from the relationships and interactions between intellectual experiences, schema, and classroom environment or social relation among peers.

5. Conclusion

Both strategies utilized in this study can help learners in creating thoughts. The conventional strategy aligned to the Department of Education mandates is a valuable tool in teaching-learning since it improves students' learning. Meanwhile, the brainstorming strategy made the understudies interested in the learning handle and organized their learning encounters to discover a relationship between their knowledge and experience. Hence, this study emphasized the transformation of chalk and talk discussion to innovative strategies. Thus, the study has an immediate implication for teachers and practitioners who attempt to find alternative teaching-learning methods. The teacher may utilize a brainstorming strategy in the absence of technology in promoting critical thinking skills.

6. Recommendations

It is highly recommended that future researchers utilize the data collected from the study to conduct more studies about brainstorming strategy and its connection to other factors or on other samples from the different subjects in Humanities and Social Sciences Strand (HUMSS). They can also focus on other tracks or strands from different environments that offer senior high school, both in public or private. Also, future researchers are encouraged to use delayed post-test to see if the brainstorming strategy has been effective in the long run.

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