

Nonlinguistic Representation in Teaching Social Science: Its Outcome to Teaching and Learning Process

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Abstract

This thesis, entitled "Nonlinguistic Representation in Teaching Social Science: Its Outcome to Teaching and Learning Process," is intended to find answers to the following questions: 1.) What is the level of using nonlinguistic representation in terms of graphic organizers, physical models, mental images, illustrations/pictures, and kinesthetic activities? 2.) What is the level of student performance in pre-test and post-test in terms of comprehension, application, analysis, synthesis, and evaluation? 3.) Is there a significant difference between the pre-test and post-test? and 4.) Does the use of nonlinguistic representation have a significant effect on student performance in Teaching Social Science?

A descriptive method was used in the study to determine the effect of using nonlinguistic representations on the performance of students in teaching Social Science. The primary respondents to this study were the Senior High School students at San Pedro Relocation Center National High School. One hundred fifty (150) out of the total number of students in grade 12 were used as respondents for this study.

The finding shows that the pre-test and post-test were observed to have a significant difference in the performance of the students in social science. This means that the use of nonlinguistic representation in social science teaching has been effective, and students have gained knowledge and skills.

On the other hand, the finding shows that the graphic organizer, physical models, mental images, picture/illustrations, and kinesthetic activities of the nonlinguistic representation were observed to have a significant effect on the student's performance on their post-test. This shows that using nonlinguistic representations in the teaching and learning process improved student learning results, based on findings. Students get a deeper and more profound knowledge of the material, which may result in enhanced academic performance.

The study concludes that the pre-test and post-test were observed to have a significant difference in the performance of the students in social science. It can be inferred that at the 0.05 level of significance, the null hypothesis "there is no significant difference in the pre-test and post-test of the students' performance" was rejected.

The nonlinguistic representation was observed to have a significant effect on the student's performance, as measured by their post-test. It can be inferred that at the 0.05 level of significance, the null hypothesis "There is no significant effect of using nonlinguistic representations on the performance of the students in teaching social science" was rejected.

This recommends that teachers continue to incorporate these tools into their classroom instruction. It is essential to recognize that students have diverse learning styles, and nonlinguistic representations can help to accommodate these differences by providing students with a range of ways to engage with and comprehend the subject matter.

Keywords: Nonlinguistic representation; graphic organizer; mental images; physical models; illustrations/pictures; kinesthetic activities

1. Main text

Learners today are constantly bombarded with information that is presented linguistically, such as in

the form of lectures, videos, directions, and reading assignments. Most of the chances for students to communicate with their contemporaries take the form of spoken discussions.

Traditional teaching approaches are unable to facilitate learning in today's metamodern mixed ability classrooms since they were not designed for that environment. In a classroom with students of varying academic abilities, there is a pressing need for substantial study on instructional strategies that are capable of effectively accommodating a variety of students educational needs.

Teachers who care about their students' ability to learn in different ways will encourage them to use a wide range of nonlinguistic ways to show what they know. The use of nonlinguistic representations for vocabulary acquisition is an effective method. It provides a bridge to students' prior knowledge and enhances definition retention. According to McREL.org (2016), these can take on various forms. Acquire and retain information through non-linguistic means, such as visual imagery, kinesthetic or whole-body modalities, auditory experiences, etc.

When it comes to teaching social sciences, there is a wide variety of strategies available today. Reading and lectures are the primary methods of instruction utilized in social science classrooms. These methods engage students by utilizing a linguistic mode of instruction. When they are asked to sit still and pay attention to the instructor, young students have a difficult time maintaining their concentration on the subject that is being presented to them. Diverse learning classrooms are a response to the issues in education and the subsequent need for more equitable educational opportunities, with the hope that all students can benefit from instruction that is tailored to their individual needs and interests.

The use of nonlinguistic representation as a teaching method is quite efficient. A significant number of instructors teach students by linguistic means, such as lectures. However, in order for students to understand the topic that is being presented to them in class, there needs to be a good balance between linguistic and nonlinguistic approaches to instruction. The researcher aims to determine if the usage of nonlinguistic influences the teaching-learning process favorably in social studies classrooms. The study's main goal is to research the effect of nonlinguistic representation on student performance in social science classes.

1.1. Structure

The research will be guided by three different theories: the Dual Coding Theory, the Multiple Intelligences Theory, and the Cognitive Learning Theory.

Many psychologists adhere to the so-called "dual coding" theory of information storage. According to Sadoski M. & Paivio A. (2013), the idea of Dual Coding theory proposes that knowledge is stored in two forms: linguistic and visual. The nature of the linguistic mode is semantic. This book refers to the image form of representation as nonlinguistic representation. The more we use both verbal and nonlinguistic systems of

representation, the better we can think about and recall information. This is especially significant in the classroom, as studies have demonstrated that speech is the major means through which we impart new information to students. Either we speak with them about the new content, or we make them read about it. This means that students are frequently left to develop nonlinguistic representations on their own. Dual coding theory explains how both verbal and nonverbal cognition are woven together through all aspects of literacy.

The theory is related to the one that is being studied right now since Paivio believes that the use of nonlinguistic representation can assist students in increasing the depth of their comprehension as well as their capacity to process, organize, and recall information from their memories. When you use dual coding, you provide your students with both verbal and visual representations of the information at the same time. Because of this, they can process the information in two distinct ways. It can improve students' learning and help them remember information over a longer period if it is used in the classroom.

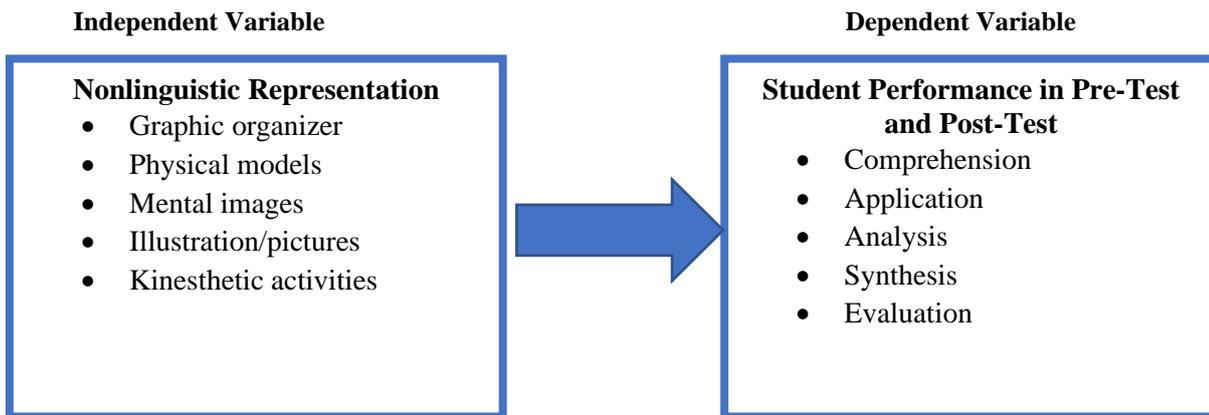
The Multiple Intelligences Theory, developed by Howard Gardner, outlines nine distinct types of intelligence. It is a response to the need to have a better understanding of how individual cognitive differences can be addressed and fostered in the classroom setting. He categorized human intelligence into nine categories, including mathematical-logical, verbal-linguistic, musical-rhythmic, bodily-kinesthetic, interpersonal, intrapersonal, visual-spatial, naturalist, and existential intelligences. These different intelligences reflect a pluralistic panorama of the individual differences that learners possess; they are understood to be the personal tools that everyone possesses to make sense out of new information and to store it in such a way that it can be easily retrieved when it is required to be used. Adcock, P. K. (2014), argues for the ongoing relevance of using multiple intelligence (MI) theories to meet the varied needs of students in the classroom. She presents results from an informal survey of K-12 teachers enrolled in graduate education courses to find out their backgrounds in MI theory, how they applied what they learned about MI theory in their own K-12 classrooms, and the value of taking a course on teaching to MIs. The gathered data indicated teachers had a positive response to the use and value of MI theory in the classroom because it helped the teachers discover and address the different ways in which children learn best.

Since nonlinguistic representation presents materials by means of visual-spatial models, the mentioned theory is pertinent to the study that is now being worked out. And as Gardner says, schools and instructors should educate in a way that encourages all types of intelligence, not only the traditional types such as verbal and logical intelligence. When students use nonlinguistic representations, they are better able to form ideas and remember what they are learning.

Learning, according to Jerome Bruner's theory, takes place across three distinct levels of representation. According to Zuliana E. et.al (2019), teachers should build situations in such a way that students can engage actively and interactively in learning process through the construction of concepts. It can be done by thinking of appropriate concrete level situations toward formal abstract concept. Among others, a teacher can adopt Bruner's theory (enactive, iconic, and symbolic) to help their students construct their own knowledge. In Bruner's "Cognitive Learning Theory", teacher's selection of learning experiences for a given lesson is predicated on the style of teaching provided to students. Symbolic, iconic, and enactive forms are all valid for these types of direction. or tactile representations of the material are used to help with the process of iconic learning. And enactive learning, in which the student actively participates in doing, immediately experiences what is to be learnt.

According to this theory, all learning occurs in phases, with direct object interaction serving as the initial step. This theory supports the current research because when nonlinguistic representations are used to teach, iconic and enactive instruction is utilized. In this case, the learner can directly control the objects and is encouraged to create visual representations such as drawings, it is shown to them visually and when they take part in a variety of kinesthetic classroom activities. After a learner can directly manipulate the objects, they should be encouraged to construct visual representations, such as drawing a shape or a diagram.

Conceptual Framework



1.2. Tables

Results and Discussion

Table 1. Level of using Nonlinguistic Representation in terms of Graphic Organizer

STATEMENTS	MEAN	SD	REMARKS
I can understand the word "intersubjectivity" using a concept map.	4.46	0.68	Strongly Agree
I can determine the consequences of my behavior toward others by using cause and effect patterns.	4.37	0.70	Strongly Agree
I can illustrate the important values associated with intersubjectivity using a generalization graphic organizer.	4.24	0.76	Strongly Agree
I can characterize how we interact with individuals in meaningful ways using descriptive patterns.	4.39	0.78	Strongly Agree
I can tell a story about an event in my life that fits with the idea of intersubjectivity using narrative structure.	4.34	0.81	Strongly Agree
Weighted Mean		4.36	
SD		0.55	
Verbal Interpretation		Very High	

Table 1 shows the level of nonlinguistic representation in terms of graphic organizer. The students strongly agree that they understand the word intersubjectivity using concept map (M=4.46, SD=0.68). Students characterize how to interact in meaningful ways using descriptive patterns (M=4.39, SD=0.78). On the other hand, students illustrate the important values associated with intersubjectivity using generalization (M=4.24, SD=0.76).

The weighted mean of 4.36 indicates that the level of using nonlinguistic representation in terms of

graphic organizer is very high. This means that graphic organizer as a nonlinguistic representation help students to enhance their learning and improved their understanding of complex concepts.

Table 2. Level of using Nonlinguistic Representation in terms of Physical Models

STATEMENTS	MEAN	SD	REMARKS
I can grasp the existence by using a puzzle.	4.12	0.83	Agree
I can understand that normal people and people with disabilities are equal by using a scale model.	4.46	0.65	Strongly Agree
I experienced and recognized the difficulties of individuals with disabilities by using physical wheelchair models.	4.34	0.87	Strongly Agree
I grasp people's socioeconomic challenges by using an art model.	3.94	0.90	Agree
I can understand the problems of people with disabilities by using a mirror as a reflection of myself.	4.37	0.83	Strongly Agree
Weighted Mean			4.25
SD			0.55
Verbal Interpretation			Very High

Table 2 shows the level of using nonlinguistic representation in terms of physical models. The students strongly agree that they understand that normal people and people with disabilities are equal by using a scale model ($M=4.46$, $SD=0.65$). Students understand the problems of people with disabilities by using a mirror as a reflection of themselves ($M=4.37$, $SD=0.83$). On the other students grasp people's socioeconomic challenges by using an art model ($M=3.94$, $SD=0.83$).

The weighted mean score of 4.25 indicates that the level of using nonlinguistic representation in terms of physical model is very high. it can be inferred that the physical models as a nonlinguistic representation is highly utilized in students' activities or tasks. Physical models provide learners with the opportunity to explore and visualize abstract concepts, and it is also a creative way that can maximize the development of 21st century skills.

Table 3. Level of using Nonlinguistic Representation in terms of Mental Images

STATEMENTS	MEAN	SD	REMARKS
I observe the correct perception about persons with disabilities.	4.55	0.69	Strongly Agree
I can perceive how I can serve others.	4.31	0.69	Strongly Agree
I can realize that "being in the shoes of others" make me reflect on my actions.	4.49	0.77	Strongly Agree
I appreciate one's talents and gifts.	4.66	0.56	Strongly Agree
I think that as a person, there is a good effect of social interactions	4.55	0.64	Strongly Agree
Weighted Mean			4.51
SD			0.44
Verbal Interpretation			Very High

Table 3 shows the level of using nonlinguistic representation in terms of mental images. The students strongly agree that they appreciated one's talents and gifts ($M=4.66$, $SD=0.56$). Students think that as a person, there is a good effect of social interactions ($M=4.55$, $SD=0.64$). On the other hand, students perceived

how they can serve others ($M=4.31$, $SD=0.69$).

The weighted mean score of 4.51 indicates that the level of using nonlinguistic representation in terms of mental images is very high. This means that using mental images in teaching can help students understand and remember what they are learning. Educators might think about using mental images, which can be thought of as a mental process that represents reality through mental images of situations or scenarios seen or remembered.

Table 4. Level of using Nonlinguistic Representation in terms of Illustration/Pictures

STATEMENTS	MEAN	SD	REMARKS
I can comprehend the concepts of intersubjectivity through caricature.	4.20	0.83	Strongly Agree
I can know human attitudes, behaviors, personalities, and skills by using editorial cartoons.	4.22	0.83	Strongly Agree
I can show a person's caring, love, respect, and responsibility by using a poster.	4.24	0.77	Strongly Agree
I can respect and accept the diversity of people by using the slogan.	4.28	0.82	Strongly Agree
I can appreciate the arts and talents of individuals who have disabilities via painting.	4.47	0.70	Strongly Agree
Weighted Mean			4.28
SD			0.56
Verbal Interpretation			Very High

Table 4 shows the level of using nonlinguistic representation in terms of illustration/pictures. The students strongly agree that they can appreciate the arts and talents of individuals who have disabilities via painting ($M=4.47$, $SD=0.70$). Students can respect and accept the diversity of people by using the slogan ($M=4.28$, $SD=0.82$). On the other hand, students can comprehend the concepts of intersubjectivity through caricature ($M=4.20$, $SD=0.83$).

The level of using nonlinguistic representation in terms of illustration/pictures attained a weighted mean score of 4.28 was very high among the respondents. This means that illustrations/pictures are visually appealing and useful for learners to enhance their learning experience inside the classroom. This can lead to increased motivation and interest in the subject matter.

Table 5. Level of using Nonlinguistic Representation in terms of Kinesthetic Activities

STATEMENTS	MEAN	SD	REMARKS
I can see how individuals unite and understand each other using tableau.	4.53	0.71	Strongly Agree
I can grasp the concept of empathy through role acting.	4.51	0.75	Strongly Agree
I can help underprivileged sectors by doing good deeds.	4.65	0.58	Strongly Agree
I can comprehend the lives of people with disabilities and underprivileged by conducting an interview.	4.55	0.75	Strongly Agree
I can accept people's differences by using spoken poetry.	4.47	0.79	Strongly Agree
Weighted Mean			4.54
SD			0.46
Verbal Interpretation			Very High

Table 5 shows the level of using nonlinguistic representation in terms of kinesthetic activities. The students strongly agree that they can help underprivileged sectors by doing good deeds ($M=4.65$, $SD=0.58$). Students can comprehend the lives of people with disabilities and underprivileged by conducting an interview ($M=4.55$, $SD=0.75$). On the other hand, the students accept people's differences by using spoken poetry ($M=4.47$, $SD=0.79$).

The weighted mean of 4.54 indicates that the level of using nonlinguistic representation in terms of kinesthetic activities is very high. This implies that the use of kinesthetic activities in the teaching and learning process is effective, as it has been shown to enhance students' engagement and retention of information by allowing them to physically interact with learning material.

Table 6. Level of Students Performance in pre-test and post-test in terms of Comprehension

Score	Pre-test		Post Test		Verbal Interpretation
	f	%	f	%	
9-10	33	22.00	105	70.00	Outstanding
7-8	68	45.33	41	27.33	Very Satisfactory
5-6	25	16.67	4	2.67	Satisfactory
3-4	12	8.00	0	0.00	Fairly Satisfactory
0-2	12	8.00	0	0.00	Did not Meet Expectation
Total	150	100	150	100	
Mean	6.99	Very Satisfactory	9.04	Outstanding	
SD	1.92		1.02		

The result of the table reveals that the students' performance in the pretest is very satisfactory ($M=6.99$, $SD=1.92$). Out of 150 students, 33 of them or 22 % performed outstanding ranged from 9 to 10. Sixty-eight students, or 45.33%, performed very satisfactorily wherein the scores ranged from 7 to 8. Twenty-five students performed satisfactorily. The remaining 8% or 12 students performed fairly satisfactory and did not meet expectations.

The mean of 6.99 indicates that the level of students' pre-test performance in comprehension is very satisfactory. This means that even the teacher is not using nonlinguistic representation, the performance of the students is good, however there are students are below the expectations.

The mean of 9.04 indicates that the result of the post-test shows how nonlinguistic representation helped to improve the students' performance in the post-test. The scores of the students are only in two categories, which are outstanding and very satisfactory. This means that the use of non-linguistic representation allowed students to clearly understand the lesson and perform well in the post-test.

Table 7. Level of Students Performance in pre-test and post-test in terms of Application

Score	Pre-test		Post Test		Verbal Interpretation
	f	%	f	%	
9-10	9	6.00	57	38.00	Outstanding
7-8	53	35.33	80	53.33	Very Satisfactory
5-6	57	38.00	13	8.67	Satisfactory
3-4	23	15.33	0	0.00	Fairly Satisfactory
0-2	8	5.33	0	0.00	Did not Meet Expectation
Total	150	100	150	100	
Mean	5.90	Satisfactory	8.09	Very	
SD	1.86		1.04	Satisfactory	

The result of the table reveals that the students' performance in the pretest is satisfactory ($M=5.90$, $SD=1.86$). Out of 150 students, 9 of them, or 6%, performed outstanding ranged from 9 to 10. Fifty-three students, or 35.33%, performed very satisfactorily wherein the scores ranged from 7 to 8. Fifty-seven students

or 38%, performed satisfactorily. Twenty-three students, or 15.33%, performed fairly satisfactorily. The remaining 5.33% or 8 students performed did not meet expectations.

The mean of 5.90 indicates that the level of students' pre-test performance in application is satisfactory. This means that students have a good foundation and understanding on the subject matter, however there are students who are below the expectations.

The mean of 8.09 indicates that the result of the post-test shows how nonlinguistic representation helped to improve the students' performance in the post-test. The scores of the students are only in three categories, which are outstanding, very satisfactory, and satisfactory. This means that the use of non-linguistic representation, students were able to apply their learning to a new concept in a variety of settings on an application-based test, and through application-based learning, students demonstrate and improve their understanding of the subject matter.

Table 8. Level of Students Performance in pre-test and post-test in terms of Analys

Score	Pre-test		Post Test		Verbal Interpretation
	f	%	f	%	
9-10	21	14.00	113	75.33	Outstanding
7-8	43	28.67	34	22.67	Very Satisfactory
5-6	43	28.67	3	2.00	Satisfactory
3-4	36	24.00	0	0.00	Fairly Satisfactory
0-2	7	4.63	0	0.00	Did not Meet Expectation
Total	150	100	150	100	
Mean	5.95	Satisfactory	9.02	Outstanding	
SD	2.18		0.97		

The result of the table reveals that the students' performance in the pretest is satisfactory (M=5.95, SD=2.18). Out of 150 students, 21 of them, or 14%, performed outstanding ranging from 9 to 10. Forty-three students, or 28.67%, performed very satisfactorily wherein the scores ranged from 7 to 8. Forty-three students, or 28.67%, performed satisfactorily. Thirty-six students, or 24%, performed fairly satisfactorily. The remaining 4.63% or 7 students performed did not meet expectations.

The mean of 5.95 indicates that the level of students' pre-test performance in analysis is satisfactory. This means that students have a good understanding of the subject matter being taught which is a positive indication for further learning and development.

The mean of 9.02 indicates that the result of the post-test shows how nonlinguistic representation helped to improve the students' performance in the post-test. The scores of the students are only in two categories, which are outstanding, and very satisfactory. This means that the use of non-linguistic representation, students were able to distinguish between fact and opinion and break down information into components to identify the most appropriate terms.

Table 9. Level of Students Performance in pre-test and post-test in terms of Synthesis

Score	Pre-test		Post Test		Verbal Interpretation
	f	%	f	%	
9-10	16	10.67	113	75.33	Outstanding
7-8	57	38.00	33	22.00	Very Satisfactory
5-6	46	30.67	3	2.67	Satisfactory
3-4	22	17.63	0	0.00	Fairly Satisfactory
0-2	9	6.00	0	0.00	Did not Meet Expectation
Total	150	100	150	100	
Mean	6.13	Very	8.99	Outstanding	

SD 2.04 Satisfactory 0.98

The result of the table reveals that the students' performance in the pretest is very satisfactory ($M=6.13$, $SD=2.04$). Out of 150 students, 16 of them, or 10.67%, performed outstanding ranging from 9 to 10. Fifty-seven students, or 38%, performed very satisfactorily wherein the scores ranged from 7 to 8. Forty-six students, or 30.67%, performed satisfactorily. Twenty-two students, or 17.63%, performed fairly satisfactorily. The remaining 6% or 9 students performed did not meet expectations.

The mean of 6.13 indicates that the level of students' pre-test performance in synthesis is very satisfactory. This means that students have a positive indication that students are well-prepared for the topic and have a strong foundation to build upon.

The mean of 8.99 indicates that the result of the post-test shows how nonlinguistic representation helped to improve the students' performance in the post-test. The scores of the students are only in three categories, which are outstanding, very satisfactory, and satisfactory. This means that with the use of non-linguistic representation, students can create ideas in unique ways. Based on the results, students learn not only to provide an accurate interpretation of situations but also to integrate information to develop their insights and problem-solving skills.

Table 10. Level of Students Performance in pre-test and post-test in terms of Evaluation

Score	Pre-test		Post Test		Verbal Interpretation
	f	%	f	%	
9-10	29	19.33	96	64.00	Outstanding
7-8	61	40.67	53	35.33	Very Satisfactory
5-6	39	26.00	1	0.67	Satisfactory
3-4	11	7.33	0	0.00	Fairly Satisfactory
0-2	10	6.67	0	0.00	Did not Meet Expectation
Total	150	100	150	100	
Mean	5.95	Satisfactory	9.02	Outstanding	
SD	2.18		0.97		

The result of the table reveals that the students' performance in the pretest is very satisfactory ($M=5.95$, $SD=2.18$). Out of 150 students, 29 of them, or 19.33%, performed outstanding ranging from 9 to 10. Sixty-one students, or 40.67%, performed very satisfactorily wherein the scores ranged from 7 to 8. Thirty-nine students, or 26%, performed satisfactorily. Eleven students, or 7.33%, performed fairly satisfactorily. The remaining 6.67% or 10 students performed did not meet expectations.

The mean of 5.95 indicates that the level of students' pre-test performance in evaluation is satisfactory. This means that students have a positive indication that students have good understanding of the subject matter and are able to apply critical thinking skills to analyze and evaluate information.

The mean of 9.02 indicates that the result of the post-test shows how nonlinguistic representation helped to improve the students' performance in the post-test. The scores of the students are only in three categories, which are outstanding, very satisfactory, and satisfactory. This means that with the use of non-linguistic representation, students can articulate their personal judgment on different questions, which results in a thorough understanding of the lesson.

Table 11. Significant Difference between pre-test and post-test

Performance	Performance	t-stat	p-value	Analysis
Pre-test	Post-test	22.020	0.000	Significant

The Pre-test and Post-test was observed to have significant differences to the performance of the students in teaching social science. This is based on the computed t values obtained from the tests which were greater than the critical t value. Furthermore, the p-values obtained were less than the significance alpha 0.05, hence there is presence of a significance.

This means that the pre-test and post-test results that are conducted by the researcher reflect the level of improvement of the students after the researcher applied nonlinguistic representation in teaching social science. There is a significant difference between the pre-test and post-test, indicating that the use of nonlinguistic representation in social science teaching has been effective and students have gained knowledge and skills.

Table 12. Significant Effect of using Nonlinguistic Representation to the Performance of the Students in teaching Social Science

Nonlinguistic Representation	Performance	t-stat	p-value	Analysis
Graphic Organizer	Post-test	157.26	0.000	Significant
Physical Models	Post-test	162.15	0.000	Significant
Mental Images	Post-test	161.86	0.000	Significant
Pictures/Illustration	Post-test	161.50	0.000	Significant
Kinesthetic Activities	Post-test	159.96	0.000	Significant

The Graphic Organizer, Physical Models, Mental Images, Picture/Illustrations and Kinesthetic Activities of the Nonlinguistic Representation was observed to have any significant effect to the performance of the students as to their post-test. This is based on the computed t values obtained from the tests which were greater than the critical t value. Furthermore, the majority of the p-values obtained were less than the significance alpha 0.05, hence there is presence of a significance.

This shows that the use of nonlinguistic representations, such as graphic organizers, physical models, mental images, illustration/pictures, and kinesthetics activities, has proven effective in the teaching of social science. Using nonlinguistic representation in the teaching and learning process improved student learning results, based to the findings. Students get a deeper and more profound knowledge of the material, which may result in enhanced academic performance.

Findings and Conclusion

The finding shows that the level of use of nonlinguistic representation in terms of graphic organizer, physical models, mental images, illustration/pictures, and kinesthetic activities were very high. This means that the use of different nonlinguistic representation helps students enhance their retention and engagement in teaching and learning process.

The finding shows that the level of students' pre-test performance in comprehension, analysis, synthesis, and evaluation were very satisfactory and outstanding in the post-test. While the level of students' pre-test performance in application was satisfactory, and it was very satisfactory on the post-test. This means that using nonlinguistic representation, the students improved their performance in Social Science.

The finding shows that the pre-test and post-test were observed to have significant differences in the performance of the students in social science. This means that the use of nonlinguistic representation in social science teaching has been effective, and students have gained knowledge and skills.

The finding shows that the graphic organizer, physical models, mental images, picture/illustrations and kinesthetic activities of the nonlinguistic representation were observed to have a significant effect on the students' performance on their post-test.

It was concluded that the use of nonlinguistic representations in the teaching and learning process improved student learning results, based on the findings. Students get a deeper and more profound knowledge of the material, which may result in enhanced academic performance.

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References

- Adcock, P. K. (2014). The longevity of multiple intelligence theory in education. *Delta Kappa Gamma Bulletin*, 80(4), 50. Retrieved from: <https://www.proquest.com/openview/511b4473e7ad2fb644daa644289bdf5b/1?pq-origsite=gscholar&cbl=47978>.
- McREL.org. (2016). Four tips for using nonlinguistic representations - McREL International. McREL International. <https://www.mcrel.org/four-tips-for-using-nonlinguistic-representations/>
- Sadoski, M., & Paivio, A. (2013). *Imagery and Text: A Dual Coding Theory of Reading and Writing* (2nd ed.). Routledge. <https://doi.org/10.4324/9780203801932>
- Zuliana, E., Retnowati, E., & Widjajanti, D. B. (2019). How should elementary school students construct their knowledge in mathematics based on Bruner's theory? In *Journal of Physics: Conference Series* (Vol. 1318, No. 1, p. 012019). IOP Publishing. Retrieved from: doi: 10.1088/1742-6596/1318/1/012019.