Hyping the Students for Schoolwork: Incorporating Brain-Based Learning in Intermediate ESP Classes

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ABSTRACT

This study was conducted to examine the impact of Brain-Based Learning (BBL) considerations to the academic performance of the Grade 4 and 6 pupils in Edukasyon sa Pagpapakatao (ESP) at Fourth Estate Elementary School BF Homes. Brain-based learning posits a framework that categorizes orchestrated immersion, relaxed alertness, and active listening. The effects of BBL were gauged through summative tests, performance tasks, and periodical exams. Total enumeration was utilized in determining the respondents and 595 intermediate pupils participated. The study administered a validated instrument using Caine and Caine's triadic BBL framework. Findings reveal that the threefold categories of brain-based learning have positive effects on all the three aspects of class performance at different levels.

Keywords: Brain-based learning, ESP, Academic Performance, Mind Brain Education Science

INTRODUCTION

Class performance is complex (Lamas, 2015). It calls researchers and practitioners to confront contemporary issues relative to its developments since it has many factors to consider. Progress and performance are typically measured in classroom settings (Galton & Simon, 2022). Commonly, pupils are gauged against standardized achievement tests to make sure that they have possessed at least a minimum set of skills that would be demanded for higher education. Moreover, there are a variety of tests measuring cognitive abilities, Math and Language-based skills, and other competencies utilized to gauge developmental progresses of pupils' vis-a-vis their learning processes (Wargocki, et al. 2019). In the United States, standardized tests have been conceived since the 1800s (National Education Association, 2020). The early administrations were oral, but it soon shifted to written forms. There were college entrance exams, intelligence tests, then eventually, standardized tests as the contemporary world knows. These tests used to be the determiners of how much a pupil or student has learned over the years of studying. However, there were contests on its function as instead of a container to push pupils to learn, they should be diagnostic tools wherein teachers have to work on (Stanford, 2023). Regardless of the intent, whether for a summative, or a formative assessment, these tests sure show a pupil's learning development.

Edukasyon sa Pagpapakatao (ESP) is a discipline in the educational system of the Philippines that is concerned with values formation. Zanoria (2017) calls ESP the heart of Filipino education. In this subject, values are formed through being taught, and being caught. Perez (2019) presents ESP as a teaching discipline which intends to instill good and positive behavior among the pupils. Apparently, Grade 6 pupils seem to possess a good level of mastery over the competencies laid in the Deped curriculum (Felisilda & Parojenog, 2022). While these researchers used an instrument that differs from the usual gauging of academic performance in ESP, their instrument coincides with the competencies as presented in the Curriculum Guide in ESP. Moreover, the gauge that the researcher uses in grading his pupils also differs in determining the progress of his own pupils based on the three records namely summative tests, performance

tasks, and periodical examination. While a good proficiency level has been observed among Grade 6 pupils relative to class performance in ESP (Felisilda & Parojenog. 2022; Arranz. 2022; Porciuncula. 2019), different approaches were still utilized to make the teaching-learning process fun, effective, and efficient. Technology-integration, guidance techniques, student involvement and community services, and motivational techniques (Arranz, 2016; Brona, 2019; Yanez, 2020; Estrada & Montanez, 2022) were utilized to improve the teaching-learning process concerning ESP. In this study, a brain-based approach was utilized in its conduct. Brain-based approach is derived from the Mind Brain Education (MBE) Science as espoused by Tokuhama-Espinosa (2015). MBE Science is also known as brain-based learning among its circles. Technically, it is the merger of three disciplines, neuroscience, psychology, and education aiming to find the best research studies toward pedagogy, research, and policymaking (Santoianni & Ciasullo, 2023). The three disciplines come together and find the best interest of the children relative to how one thinks, how his brain works, and what pedagogical approaches may be developed based on these considerations. Kelleher and Whitman (2018) posit that brain-based learning offers the necessary approaches that can deal with educational gaps. Kaur (2016) reveals that brain-based pedagogy is effective in developing higher order thinking skills. Moreover, this pedagogical development seems to be learner-centered at the very core since it manages the learning process of a pupil based on one's stance, both psychologically, and neurologically.

In this study, the teacher-researcher considered the brain-based learning tenets of orchestrated immersion, relaxed alertness, and active processing. The pupils were encouraged to be physiologically prepared in coming to school which included reminders in having breakfast before going to school and having enough sleep on a regular basis. Moreover, to adhere to relaxed alertness, the teacher made sure that the pupils were not in any way threatened or at least, perceived threats in ESP classes in any way. The teacher spoke with the pupils in a calm and inviting manner. This made the pupils confident in the teacher and relaxed in the class. In the same way, the teacher also explained the importance of doing this unusual behavior especially in the intent of making them think critically about the class presentations in ESP. This move also induced the pupils to orchestrated immersion where pupils were given opportunities to be engaged in the class activities in high measures. Positive feedback was utilized by the teacher to stimulate the pupils to think further and critically.

This study intends to describe the learning process of the intermediate pupils of Fourth Estate Elementary School BF Homes under an approach with brain-based considerations.

LITERATURE REVIEW

Brain-Based Instructions

Several studies were consulted during the conduct of this study. Brain-based learning is a recent development in neuroscience, psychology, and pedagogy with the intent to find the best tools towards education. Tokuhama (2014) emphasizes recent findings in brain science towards the teaching-learning process which teachers should consider in their practice. Similarly, Rodgers (2015) postulates that a BBL-based learning environment improves the brain's natural function to learn. According to Nassar (2019), this approach is effective in enhancing study habits which translates to better academic performance. Goyuzesil & Dikici (2015) presume brain-based learning has a positive but nevertheless a medium effect on pupils' academic performance. In the same manner, it was pointed out in their study that brain-based learning is meaningful since the teaching learning process in this system considers an optimized brain relative to learning. Accordingly, Brain-based learning enhances the performance of the brain, hence, a positive performance of the child in terms of one's academic progress. Bonomo (2017) concurs with this and writes that brain-based learning emphasizes the learning styles of every individual pupil. This shows that the system highlights one's distinct brain, and its capability to learn academically in being placed in context that helps the brain develop and perform at maximal levels. Gauging its effectiveness towards the teaching-

learning process, Kohar (2021) concludes that Brain-Based Learning improves reading comprehension of expository texts. Apparently, the system's neurological considerations on retrieving, processing, and interpreting information are helpful in one's reading progress. In the same manner, Brain-Based Learning approaches were also observed to be helpful in developing Math competencies (Triana, et al. 2019). While there are studies indicating the role of brain-based learning in terms of positive academic performances in various disciplines, there is a limited number of studies of its effectiveness towards Edukasyon sa Pagpapakatao (ESP). This was observed as a research gap in the brain based learning principle. Tokuhama-Espinosa (2015) shows five principles about brain-based learning. She writes that no brains are the same, that no two brains are equal, that they change through experience, that they are plastic, and that they build new information on old information. Rodgers (2015) describes three fundamentals of BBL which translates into a learning environment. These are orchestrated immersion (OI), relaxed alertness (RA), and active processing (AP). OI makes the learning process inviting and enticing for the pupils to engage well with various stimuli for different skills and competencies. Moreover, OR creates an emotional environment optimal for the teaching-learning process. RA refers to the state of the mind which has low levels of threats and high levels of challenges (Kandasamy, et al. 2021; Oghyanous, 2017; Mounir, 2019). Bada and Jita (2023) present that in RA, fear and threat are eliminated from the classroom setting to allow optimal internalization of learning. AP is an active engagement of the learning process with considerations to viewing, consolidating, and internalizing incoming information (Solihah, et al. 2018). Studies show that the learning approaches based on brain-based models, in different variations, show a positive impact on the growth of children's development. Science skills were shown to have positive developments using a brain-based framework that includes giving extras on brain gym, crossword puzzles, and other brain-stimulating activities (Badriyah, et al. 2020). Accordingly, a brain-based learning strategy also has a better impact on student learning outcomes relative to Math than the project-based learning system (Solihatin & Syahrial, 2019). While this is inclined more on the visual learning side of the framework, the positive impact of developing brain-based approaches towards this discipline. For instance, Jailani (2021) implements brain-based learning in teaching Mufromat, an Arabic language, and reveals its positive impact in learning the language. Moreover, studies suggest that brain-based approaches help in improving students' motivation in class performance (Sani, et al. 2018). While researchers usually relate the approach with discipline-bases, the suggestion regarding its potency to enhance academic motivation maintains a positive impression on the brain-based approaches. In fact, studies on teaching how to be responsible as a student are also giving positive feedback on the use of brain-based learning as a learning approach (Kusmawati, et al. 2022). Salim & Ismail (2023) endorse similar insights and present significant effects of using brain-based learning in forming the character of those in preschool. ESP is in line among the recipients of brain-based instructions in its disciplinary production.

Academic Performance

Academic performance is affected by teachers and has important influences on these children (Teygong, et al. 2017). While pupils primarily learn on their own engagement of activities, it is the teachers who prepare contexts of learning for these pupils. Based on a variety of factors and school contexts, teachers approach their classes with specific approaches, tricks, and attention-keeping programs (Maas, et al. 2019). Felisida and Parojenog (2022) share an instrument used for gauging mastery of ESP competencies but nevertheless deviated from the agency-provided means. In the Department of Education, pupils undergoing the ESP course are graded in three activities. These are summative tests,performance tasks, and quarterly exams. Perez (2017) states that this agency-provided tool is usable and acceptable as attested in her study. Since the launching of the K-12 curriculum, teachers have been using this grading system more than the Knowledge-Process-Understanding-Product (KPUP) grading system (Plata, 2015). Moreover, the shift from KPUP to the new system that puts summative tests, performance tasks, and quarterly exams in its framework was mandated by the agency in the Deped Order 8 series of 2015 titled "Policy Guidelines on Classroom Assessment for the K to 12 Basic Education Program". Summative tests are effective means of assessing

the learners' reception of the intended outcome provided that the tests are assessed with an accepted validating tool. It checks the learning of a particular topic that a class was facilitated into. In the same way, research argues that performance tasks are similar to summative tests in terms of its intent (Furwana, 2019; Geranco, 2021). The only difference is that summative tests are written works while performance tasks are activities that are accomplished in other means besides an objective written task. Albay & Eisma (2021) suggest that performance tasks, ones that are linked with design thinking processes, assist the teachers to facilitate their class well with increased levels of creativity, engagement, originality, and interaction among the learners. Periodical examinations or quarterly assessments are administered at the end of a quarter or a term (Tejones, 2020). Being placed at the end of a term, it assesses the learning of the children over its period. An accumulated set of skills, competencies, knowledge, and different understanding are organized in a long assessment with a variety of types. Some involve multiple choice, identification, true or false, and even matching type items. This system of assessment of learners is still in practice in the academic year of the conduct of this study.

Research Questions

This study aims to describe the academic performance of the Grade 4 and 6 pupils in ESP under the brain-based learning approach. Specifically, it aims to answer the following questions:

1. What are the levels of the pupils' perception of the class instruction under Brain-based instructions relative to:
2. Orchestrated Immersion
3. Relaxed Alertness
4. Active Processing
5. What are the academic grades of the pupils relative to:
6. Summative Tests
7. Performance Tasks
8. Quarterly Exam
9. Is there a relationship between the perception of the learners relative to brain-based instructions to their academic grades?
10. What may be proposed based on the findings of the study?

Scope and Limitations

This study is limited to Grade 4 and 6 pupils of the researcher and his partner-teacher at Fourth Estate Elementary School BF Homes for academic year 2022-2023 in the ESP subject in the second quarter. It is also exclusive to the ESP subject. Bonus scores and score deductions due to a variety of considerations were not discussed nor included in the scope of the study.

RESEARCH METHODOLOGY

Participants

The participants of this study were the five hundred and ninety five (595) pupils composed of Grade 4 and 6 pupils taught by the researcher and his partner teacher at Fourth Estate Elementary School BF Homes during the school year 2022-2023. Total enumeration was utilized to ensure the participation of all the members of the classes.

Survey Instrument

This study utilized an instrument with two sections. This instrument was checked and validated by the master teachers and ESP coordinator of the school using a content validation form. The school head also

noted the material in the instrument presented by the researcher during its presentation. The first section dealt with the levels of perception of the pupils relative to the brain-based learning. It is a questionnaire based on the three core components of brain-based learning as espoused by Caine & Caine (Rodgers, 2015). This section was translated by the researcher and his partner teacher upon its administration so the pupils can better grasp and understand the statements in the questionnaire. The second section dealt with the academic grades of the pupils relative to the summative tests, performance tasks, and quarterly exam. A content validation form was constructed for the evaluators to assess the validity of the inquiries to the problem of the study.

Data Collection

The teacher-researcher collected the data through a printed questionnaire provided by the teacher to the pupils. It was translated to Filipino in its presentation. Responses from both the grade 4 and 6 classes were collected within the day of test administration. To ensure the participation of all 595 pupils, the teacher administered the instrument to those who were absent on the assigned day for the next three days. The second section of the instrument was accessed by the researcher from the class records of ESP classes.

Data Analysis

Descriptive statistics was used in the data gathered for the first two sections, the brain-based instructions survey, and the academic performance of the pupils in ESP. Central tendency statistical tools were utilized such as mean, and standard deviation for each of the variables in academic performance, the summative tests, performance tasks, and third periodical exam. Pearson Correlation Coefficient solution was utilized to determine the relationship of the two measurable variables.

Ethical Issues

A study concerning children may implicate ethical concerns. Primary of those is the awareness that they were participating in a study. The intent to include the class members for a research study was made aware to the parents during the 2nd quarter Parent-Teacher Conference / Card Distribution Day. The researcher prepared and issued a letter of intent addressed both to the parents and the grade 4 and 6 pupils. The permission of the school head was secured both orally and in written form. The pupils themselves were also informed of the teacher-researcher's intent during a homeroom session. Moreover, the study emphasized identity protection using anonymous code representation.

RESULTS

Levels of Brain-Based Instructions as Perceived by the Pupils

Table 1 Summary of the Survey Responses Relative to Brain-Based Instructions

Orchestrated Immersion		Relaxed Alertness		Active Processing	
Statement	Mean / Standard Deviation	Statement	Mean /Standard Deviation	Statement	Mean/Standard Deviation
I am allowed to think critically in my class.	4.55 / 0.50	I feel safe in the class.	4.61 / 0.49	I can work on my activities well.	4.65 / 0.48
I am allowed to work creatively in my class.	4.48 / 0.51	I come to school with a good breakfast.	3.45 / 1.08	I am given the opportunity to work on my tasks properly.	4.45 / 0.51

I am encouraged to produce original work.	4.19 / 0.59	I attend classes coming from a good sleep.	4.13 / 0.61	I explore various resources in completing my tasks.	4.16 / 0.63		
I think well and remember the lessons well.	4.26 / 0.67	I can talk to my teacher about my class progress without the fear of being alienated or scolded.	4.65 / 0.48	I utilize different means of completing my tasks based on my own creativity and intent.	4.32 / 0.70		
I am delegated to work on specific tasks.	4.61 / 0.49	I can focus on my class activities.	4.20 / 0.50	I can work on the errors of my tasks and work on them.	4.48 / 0.51		
Section Mean / SD	4.42 / 0.55	Section Total Mean / SD	4.25 / 0.63	Section Total Mean / SD	4.41 / 0.57		

This table presents a summary of survey responses with three categories based on brain-based instructions as proposed by Caine & Caine (Rodgers, 2015) which are Orchestrated Immersion, Relaxed Alertness, and Active Processing. Each category contains statements related to the teaching-learning environment, and for each statement, there are mean values and standard deviations provided. The mean score for the Orchestrated Immersion category is 4.42 with a standard deviation of 0.55. Most of the participants have a good level of experience in working on specific tasks in the class. It shows a mean of 4.61 and a standard deviation of 0.49. On the other hand, while the experience of being encouraged to produce an original work has the least mean among the given items, it still produced a mean of 4.19 which still amounts to a favorable response. It bears a standard deviation of 0.59. This also suggests that, on average, students in this category responded positively to the statements related to critical thinking, creativity, and the use of resources. The relatively low standard deviation indicates a moderate level of agreement among the students. In the Relaxed Alertness category, the mean is 4.25 and the standard deviation is 0.63. This category reflects students' feelings of safety, well-being, and their physical preparedness for class. The item that has the highest mean is the one related to one's comfortable stance in inquiring about one's progress before the teacher. It has a mean of 4.65 and a standard deviation of 0.48. The higher standard deviation of 0.48 over that of the first category shows a more diverse set of responses in this category. The least item in this set is the one that is concerned with having a good breakfast before going to school. The responses have a mean of 3.45 and a standard deviation of 1.08. The diversity of the responses in this item is expanded in a way that while it has the least mean, the responses do not necessarily concentrate within the mean that much. It could be that there are a good number of pupils who come to school with a full stomach while there are who come with empty ones. The last category in this section is the category relative to Active Processing. Its mean is 4.41 and its standard deviation is 0.57. This category relates to students' ability to work on tasks, seek resources, communicate with teachers, and engage in self-correction. The item relative to independent work has a mean of 4.65 with a standard deviation of 0.48. It has the highest level of responses. On the other hand, the item concerned with the exploration of different resources in completing tasks has the least mean of 4.16 with a standard deviation of 0.63. This shows that students generally feel positive about their ability to engage in active processing. The standard deviation suggests a moderate level of agreement among students.

Academic Performance of the Respondents

Table 2 Summary of Academic Performance of Participants

	Summative Tests	Performance Tasks	Periodical Exam
Mean	44.42	47.00	46.39
Standard Deviation	4.46	2.63	2.76

The provided data represents mean scores and standard deviations for three different types of assessments: Summative Tests, Performance Tasks, and Periodical Exams. The mean score for Summative Tests is 44.42. This represents the average performance of the students on this type of assessment. The standard deviation for Summative Tests is 4.46. This indicates the degree of variability in the test scores. A higher standard deviation suggests that the scores are more spread out from the mean. The mean score for Performance Tasks is 47.00. This is the average performance of the students on performance-based assessments. The standard deviation for Performance Tasks is 2.63. This standard deviation is relatively lower compared to Summative Tests, suggesting that the scores are less spread out from the mean. There is less variability in the performance task scores. The mean score for Periodical Exams is 46.39. This represents the average performance of the students on periodical exams. The standard deviation for Periodical Exams is 2.76. Like Performance Tasks, the standard deviation is relatively lower compared to Summative Tests, indicating less variability in the exam scores. Performance Tasks have the highest mean score (47.00), indicating that students, on average, performed best in this assessment type. It has a slightly lower mean (46.39) but is still relatively high. Summative Tests have the lowest mean score (44.42), suggesting that students, on average, performed less well in this assessment type. The standard deviations for both Performance Tasks and Periodical Exams are lower than that of Summative Tests, indicating that scores in these assessment types are clustered closer to their respective means. This suggests that there is less variability in student performance in these two assessment types.

Relationship Between Brain-Based Instructions and Academic Performance

Table 3 Summary of the Pearson Correlation Coefficient Solution Between Brain-Based Instructions Framework and Academic Performance of the Participants

	Summative Tests	**Performance Tasks**	**Periodical Exam**
Orchestrated Immersion	-0.17	0.21 (Positive Correlation)	-0.2
Relaxed Alertness	-0.05	-0.24	0.03 (Positive Correlation)
Active Processing	0.007 (Positive Correlation)	0.69 (Positive Correlation)	0.03 (Positive Correlation)

The table above shows correlations between different types of assessments (Summative Tests, Performance Tasks, Periodical Exams) and three categories (Orchestrated Immersion, Relaxed Alertness, Active Processing). There is a negative correlation of -0.17 between Summative Tests and Orchestrated Immersion. This means that as scores on Summative Tests increase, scores related to Orchestrated Immersion tend to decrease slightly. It suggests a weak negative relationship. There is a positive correlation of 0.21 between Performance Tasks and Orchestrated Immersion. This means that as scores on Performance Tasks increase, scores related to Orchestrated Immersion tend to increase. It suggests a weak positive relationship. There is a positive correlation of -0.20 between Periodical Exams and Orchestrated Immersion. This is a weak negative relationship, suggesting that as scores on Periodical Exams increase, scores related to Orchestrated Immersion tend to decrease slightly. There is a negative correlation of -0.05 between Summative Tests and Relaxed Alertness. This is a very weak negative relationship, indicating that there is little to no clear relationship between the two. There is a negative correlation of -0.24 between Performance Tasks and Relaxed Alertness. This suggests a weak negative relationship where higher scores on Performance Tasks are associated with lower scores on Relaxed Alertness. There is a positive correlation of 0.03 between Periodical Exams and Relaxed Alertness. This suggests a very weak positive relationship, indicating that there is little to no clear relationship between the two. There is a positive correlation of 0.007 between Summative Tests and Active Processing. This suggests a very weak positive relationship, indicating that there is little to no clear relationship between the two. There is a strong positive correlation of 0.69 between Performance Tasks and Active Processing. This strong positive relationship

indicates that as scores on Performance Tasks increase, scores related to Active Processing tend to increase significantly. There is a positive correlation of 0.03 between Periodical Exams and Active Processing. This is a very weak positive relationship, indicating that there is little to no clear relationship between the two.

In summary, the strength of the correlations varies across different categories and assessments. While some correlations are positive, indicating that higher scores on one variable tend to be associated with higher scores on the other, the relationships are generally weak.

DISCUSSION

The learners' experience of brain-based instructions as framed by Caine & Caine (Rodgers, 2015) may have been the key to the high level of performance of the children in achieving the high scores in the three aspects of academic performance. In orchestrated immersion, the high level of experience relative to working specific tasks among the participants shows the level of trust given by the teacher. Apparently, this correlates to a positive correlation with performance tasks. This proves the study of Oghyanous (2017) wherein he suggests that this consideration entices the learners towards learning. Different skills and competencies are drawn out since a particular autonomy towards dealing with their tasks are employed by the teacher. This shows a huge impact to the learning of the learners as performance tasks work in a similar vein with written tasks which is the acquiring of skills and competencies (Geranco, 2021). While the encouragement of originality comes as the lowest mean in the orchestrated immersion category, it must come as a valuable experience and must have contributed to the high level of performance tasks. Originality comes very close to performance tasks as these activities indulge the learners to perform from their own perspective. This is helpful in achieving the intended competencies to be learned as performance tasks increase creativity, originality, class engagement, and other related skills (Albay & Eisma, 2021). Relaxed alertness also imposed a positive impact on periodical exams. As a culminating exam itself, periodical exams are heavily prepared for by the learners (Tejones, 2021). Having a high level of relaxation helps a lot in achieving a good score. Most especially that the participants mostly experience a high level of confidence in inquiring to their teacher, it shows how relaxed they are in classes. This helps when taking exams with a variety of scope, i.e., periodical exams or culminating exams. Studies recommend a positive relationship between teachers and children as they are helpful factors in leading learners to better academic performances (Teygong, et al. 2017). Encouraging children is easier when a positive rapport between them is established. In this case, one can deduce that the pupils have a very strong connection with the teacher as the relaxed stance in inquiring to their teacher is observed in the data. This led to better production academically in the periodical examination. Active processing has the highest level of positive correlation as it yielded the best production in summative tests, performance tasks, and periodical examination. AP is considered helpful in viewing, consolidating, and internalizing incoming information (Solihah, et al. 2018). Participants mostly expressed affirmations on the experience of working their activities well in terms of active processing. Working well with their academic tasks implies well-motivated students. Apparently, brain-based approaches help in the setting of motivations of the learners (Sani, et al. 2018). Having motivated leads to better production, and in this case, the participants showcased their outputs in the three aspects of academic performance. The data on the positive correlation of AP to the three sets of assessments also imply a positive retention with the participants. As mentioned, periodical exams are term culminating exams. Having high levels of scores in this area show a high retention of skill acquisition and knowledge possession vis-à-vis ESP. Concerning its relationship to summative tests, it is assumed that the motivated stances of the learners led to the high scores of the mentioned assessment. It also confirms the summative assessments which were meant to assess the reception of the skills and competencies in the lessons presented during the quarter (Furwana, 2019).

The data shown in these tables suggest the positive potential of brain-based instructions in helping the

learners optimize their learning. This confirms the conclusion of Goyuzesil & Dikici (2015) about the positive effect of this approach towards academic performance. While each brain-based aspect does not carry equal impact to every academic performance, each of them carries a positive correlation to at least one of these performances. Kelleher & Whitman's (2018) suggestion to use this approach as a tool in addressing gaps is worth giving a shot since this study has already confirmed its positive impact to the academic performance of the participant-pupils of the responding school. In this study, the three aspects of academic performance were shown to have been affected positively. This demands an all-discipline inclusive awareness training of the program in the school. The School Learning Action Cell (SLAC) can be utilized as a training means for awareness dissemination. The triadic framework of Caine and Caine's Brain-Based Instructions may be discussed in relation to presentation, awareness, and class management across all subjects.

CONCLUSION AND RECOMMENDATION

There are many educational gaps present now because of the recent pandemic, but the feasibility of this approach is high. ESP is one discipline that can reap heavy benefits from its implementation. As this study shows, the three categories of brain-based instructions give a good boost to the academic performance of the learners whether in summative, performance tasks, or periodical exams. A presentation regarding brain-based instructions, and its threefold categories, should be considered for the teachers. The School Learning Action Cell (SLAC) is a good opportunity to insert this training as a series to help the teachers to be familiar with the concept, and its practice. This will train the teachers to be familiar with the brain-based approach of instructions not only in ESP but across all disciplines. Moreover, this opens up multiple possible research opportunities in other fields of study and its role to a learner diversity in classroom management.

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APPENDIX 1

Questionnaire framed on the threefold brain-based instructions framework.