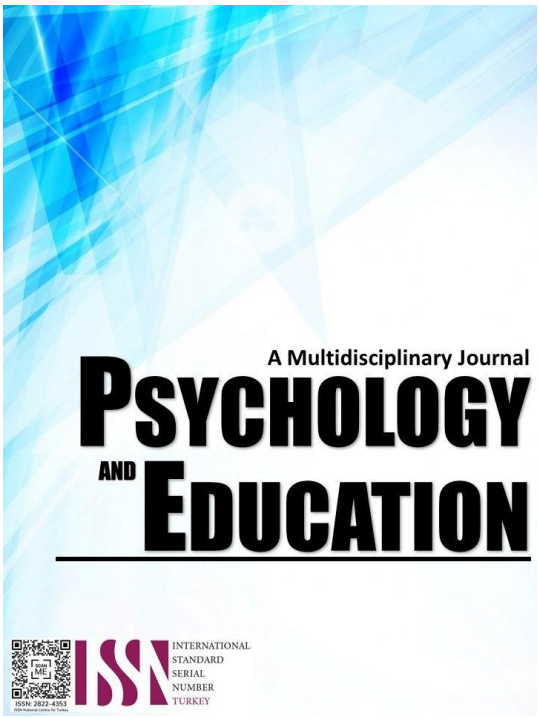
FACTORS INFLUENCING THE USE OF BRAIN-BASED LEARNING ACTIVITY SHEETS TO SELECTED JUNIOR HIGH SCHOOL LEARNERS IN A PRIVATE SCHOOL IN GUMACA, QUEZON



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Research Article

Factors Influencing the Use of Brain-Based Learning Activity Sheets to Selected Junior High School Learners in a Private School in Gumaca, Quezon

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Abstract

This study aimed to determine the factors influencing the use of brain-based learning activity sheets to selected junior high school learners in a private school in Gumaca,Quezon , due to the new normal by means of education and changes to their learning modalities. The study involved 60 respondents from a private school located in Gumaca ,Quezon. The researcher used questionnaires to gather reliable data to be answered by the target respondents. Descriptive method was used to gather the data needed to determine the factors influencing the use of brain-based learning activity sheets to selected junior high school learners in a private school in Gumaca, Quezon. Most of the respondents according to age group of 15-16 years old got 53% , 13-14 years old got 32% and 12 years old got 15%. It revealed that most of respondents belonged to 15-16 years old. According to sex, the respondents are female with 53% and 47% are male which describes that most learner-respondents are female. According to grade level, most of the respondents are from grade 10 with 32%, grade 9 got 25%, grade 8 got 23% and grade 7 got 20%, which describes that most respondents are from grade 10 . The result shows that under behaviour, the highest factor that influence the use of brain-based learning activity sheet to learners learn better when they are engaged in activities with emotions with a mean of 4.38. Under the learning environment when accomplishing learning activity sheet, the factor gaining a highest mean of 4.22 is when a positive atmosphere facilitates effective transfer of learning, and under the learning skills, the factor gaining a highest mean of 4.03 is when learners are given choices and opportunities to make decisions for problem solving. This implies that the behaviour got the highest mean from the given contributing factors. Behaviour of the learners from the junior high school influenced the brain-based learning activity sheets when accomplishing learning activity sheets. With the help of this learning process, learners can develop their behaviour or attitude towards learning.The perception of the learners on the factors influencing the use of brain-based learning activity sheet does not vary when grouped according to age, sex, and grade level.

Keywords: *behaviour, brain-based learning activity sheets, learning environment learning skills*

Introduction

The Learning Activity Sheet is a worksheet comprising various concepts to reflect students' learning and enhance their performance. The sheet is crucial in encouraging children to absorb and internalize the information presented. The teacher can monitor learners who have grasped the content and those who have not yet grasped it while concentrating on the activity sheet. This sheet is one of the teaching materials used to enhance the teacher's function and is critical to the learning process' efficacy. Motivating students can be a difficult task. However, it is one that must be mastered in order to provide a successful education. Students express that they are not interested in what is being taught in the classroom, but in actuality this may not be the case. Lack of interest may not be the problem. Rather, the content is not presented in a manner that is interesting to students, or in ways that keep the attention of the learners.

For example, it was commonly believed that intelligence is a fixed characteristic that remains largely unchanged throughout a person's life. However, recent discoveries in cognitive science have revealed that the human brain physically changes when it learns, and that after practicing certain skills it becomes increasingly easier to continue learning and improving those skills. Thus, the more new skills are practiced, the easier learning becomes. A person's emotional state also impacts their learning ability.When information is presented in effective ways, the brain is able to function better, its resilience is increased, and its overall working intelligence is improved.

The researcher's observation on the issues and concern regarding students' answer in LAS, more students say they did not understand much what is in the LAS. They even have difficulty understanding lessons. Also, there are students who submit learning activity sheets with incomplete answer. Learning activity sheets is a self-directed instructional material aimed to guide the learners in accomplishing activities at their own pace and time. With this, the researcher was prompted to determine the factors influencing the use of brain-based learning activity sheets in Eastern Quezon College.

Research Questions

The purpose of this study is to determine the factors influencing the use of brain-based learning activity sheets to selected Junior High school learners in a private school in Gumaca, Quezon. Specifically, this study sought to answer the following questions:

1. What is the profile of the respondents in terms of:
    1.1. age;
    1.2. sex; and
    1.3. grade level?

2. What are the contributing factors influencing the use of brain-based learning activity sheets to the respondents in terms of?
    2.1. learning skills;
    2.2. learning environment when accomplishing LAS; and
    2.3. behaviour?
3. Is there a significant difference on the perceived factors influencing the use of brain-based learning activity sheets when respondents are grouped according to profile?

Methodology

Research Design

This study used descriptive research design that aimed to systematically obtain information to describe a phenomenon, situation, or population. More specifically the factors influencing the use of brain- based learning activity sheets as perceived by the selected junior high school learners in a private school located at Gumaca, Quezon. The researcher used survey questionnaire as an instrument. Based on the survey's result the researcher was able to determine the details of the study.

According to Gay(1992:217), descriptive research involves collecting data in order to test hypothesis or to answer questions concerning the current status of the subject of the study.

Respondents

The study was conducted at Eastern Quezon College Inc. in Gumaca, Quezon. The junior high school learners were the respondents for this study.

Proportionate sampling design was utilized in this research. Proportional sampling is a method of picking an element proportional to its weight, the higher the weight of the object, the better are its chances of being selected.

Proportionate Sampling (https://dictionary.apa.org) is another meaning of probability proportional to size (PPS) sampling. It is an unequal probability sampling technique, in which the probability of selection for each sampling unit in the population is proportional to an auxiliary variable.

Sixty (60) students officially enrolled at Eastern Quezon College Inc. located at Gumaca, Quezon were selected through proportionate sampling.

Instrument

The researcher prepared a questionnaire which was validated by two experts. Part I of the questionnaire included the profile of the respondents. Part II of the questionnaire consisted of the influencing factors of using brain-based learning activity sheets using the Likert scale of ; 5 – Very Much Agree (VMA), 4 – Much Agree (MA), 3 – Moderately Agree (MoA), 2 –Less Agree (LA) and 1 – Least Agree (LeA) as perceived by selected Junior High School learners in a private school in Gumaca, Quezon.

To test the internal consistency of the questionnaire using Cronbach's Alpha, a pilot testing was conducted at Western Tayabas High School Pitogo,Quezon with 12 respondents.

After the computation, the result was 0.70 which is interpreted as acceptable. This means that the questionnaire used was reliable and there is an internal consistency in the research instrument used.

Procedure

Prior to the conduct of the study, the researcher sent a letter to the schools' Principal and Adviser. Upon approval, the researcher administered the instrument to the target respondents.

In administering the questionnaire, the researcher used the time allotted for vacant time to avoid distraction of class discussion. The students were given enough time to answer the questions. After data gathering, the researcher collected them for tallying the scores and to apply the statistical treatment used in the study.

The descriptive research design method using Likert scale was used in order to rate the factors influencing the use of brain-based learning activity sheets of learners. Data were gathered through "proportionate sampling". Both male and female officially enrolled in the private school in Gumaca, Quezon were selected to fill the questionnaire. Data were gathered through face to face survey following the safety health protocols to prevent the spread of the virus.

Data Analysis

In this study, the researcher used statistical measures to treat the collected data. All the data were carefully read and examined for analysis. They were tallied and entered into a master list of the data collection sheet. Percentage and Frequency were used to interpret the profile of the respondents. To test the significant difference of three or more means, the researcher used the Kruskal-Wallis for non -parametric test.

Results and Discussion

This section deals with the presentation, analysis, and interpretation of the data. All the data gathered were presented here in tabulated form with corresponding interpretation. The first part described the profile of the respondents in terms of age, sex,and grade level. The second part are the factors influencing the use of brain-based learning activity sheets of the junior high school in Eastern Quezon College in Gumaca, Quezon.

Table 1. *Frequency and Percentage Distribution of the Respondents According to Age*

Age	*Frequency*	*Percentage (%)*
12 years old	9	15
13-14 years old	19	32
15-16 years old	32	53
Total	60	100

Table 1 shows frequency and percentage distribution of the respondents according to age. It illustrates that age 15-16 years old has the most number of respondents with a frequency of 32 and percentage of 53% of the sample.The least number of respondents is in the range of 12 years old with a frequency of 9, which is equivalent to 15% of the sample. This implied that most of the respondents who participated in this study are from 15-16 years old.

It conforms with the statement from the DepEd (PISA 2018) as cited by Riya(2022), that Junior High School students in the Philippines are between 13-16 years of age.

Based on the data in Table 1, the majority of respondents (53%) were 15-16 years old, 32% were 13-14 while 15% were 12 years old. This indicated a higher representation of the older age group in the survey. The findings suggested that the survey results predominantly reflected the perspectives and experiences of the 15-16 year-old demographic. This significant representation of older respondents highlighted the importance of considering this age group's views in the study's conclusions.

Table 2. *Frequency and Percentage Distribution of the Respondents According to Sex*

Sex	*Frequency*	*Percentage (%)*
Male	28	47
Female	32	53
Total	60	100

Table 2 shows frequency and percentage distribution of the respondents according to sex where 47% are male and 53% are female which describes that most of the respondents are female.

It conforms to the statement of Becker (2021) that women seem to be more likely than men to respond promptly after the invitation to take part in a survey.

The data showed that there is a limited difference in the number of respondents between male and female.

Table 3. *Frequency and Percentage Distribution of the Respondents According to Grade level*

Grade level	*Frequency*	*Percentage (%)*
Grade 7	12	20
Grade 8	14	23
Grade 9	15	25
Grade 10	19	32
Total	60	100

Table 3 shows frequency and percentage distribution of the respondents according to grade level. It revealed that the most number of respondents are from grade 10 with the frequency of 19 and the percentage is 32% of the sample. Followed by grade 9 with the frequency of 15 and percentage is 25%. Next is grade 8 with the frequency of 14 and the percentage is 23%. Lastly, the least number of respondents in terms of grade level is grade 7 with the frequency of 12 and the percentage is 20%.

It conforms to Santrock (2014) that Junior high school student in their developmental stages are classified as early adolescents. He mentioned adolescence as a transitional period of development that begins around the age of 10 to 12 years, and ends at the age of 18 to 22 years.

Based on the data in Table 3, the most number of distribution in Grade level of respondents are mostly from higher grade level aligned with the findings of (Santrock, 2014) which highlighted the stage of adolescence experience transitional period of development.

Table 4 shows the factors of using brain-based learning activity sheets in terms of learning skills. As shown in the table, respondents much agreed that in using brain based learning activity sheets, students give choices and opportunities to make decision for problems

solving with the mean of 4.03. The lowest mean is indicator 1, because of using brain based learning activity sheets, students develops creativity in answering learning activity sheets with the mean of 3.9. It also revealed that the average mean of 3.97 which means much agree indicated most of the respondents much agreed on the indicators given in terms of learning skills.

Table 4. *Respondents Assessment on the Factors Influencing the use of brain-based learning activity sheets in terms of learning skills*

Brain-based learning activity sheets. . .	*Mean*	*Verbal Interpretation*
1. develop critical thinking skills.	3.98	Much Agree
2. develop creativity in answering learning activity sheets.	3.9	Moderately Agree
3. give choices and opportunities to make decisions for problem solving.	4.03	Much Agree
4. incorporate visual elements that calls attention to the learners interest in the lesson.	3.92	Much Agree
5. help students easily identify words and phrases through breaking large pieces of text into smaller pieces or chunking.	4.00	Much Agree
Grand Mean	3.97	Much Agree

Least Agree (1.0-1.80), Less Agree (1.81-2.60), Moderately Agree(2.61-3.40), Agree(3.41-4.20), Very Much Agree(4.21-5.0)

Nicolette Gramlick (2019) mentioned that motivating students to work without the assistance of a teacher with the help of an effective learning activity sheets, students are able to learn how to confidently problem will be solved independently.

The data from Table 4 clearly indicated that the use of brain-based learning activity sheets in terms of learning skills, give learners choices and opportunities to make decisions for problem solving. These findings were consistent with existing studies, underscoring the importance of the factors influencing the use of brain-based learning activity sheets.

Table 5. *Respondents Assessment on the Factors Influencing the use of brain-based learning activity sheets in terms of learning environment*

When using Brain-based learning activity sheets. . .	*Mean*	*Verbal Interpretation*
1. lighting affects how the students process thoughts effectively.	3.9	Moderately Agree
2. safe space are supported with different learning tool.	4.18	Much Agree
3. minimal distraction such as noise serves as a barrier when the learners accomplish learning activity sheets.	4.02	Much Agree
4. a positive atmosphere facilitates effective transfer of learning.	4.22	Very Much Agree
5. there varied approaches and format of teaching and learning.	4.08	Much Agree
Grand Mean	4.08	Much Agree

Least Agree (1.0-1.80), Less Agree (1.81-2.60), Moderately Agree(2.61-3.40), Agree(3.41-4.20), Very Much Agree(4.21-5.0)

Table 5 shows the factors of using brain-based learning activity sheets in terms of learning environment when accomplishing LAS. As shown in the table, respondents very much agreed that in using brain based learning activity sheets, a positive atmosphere facilitates effective transfer of learning with the mean of 4.22. The lowest mean is indicator 1, when using brain based learning activity sheets, the lighting affects how the students process thoughts effectively with the mean of 3.9. It also revealed that the average mean of 4.08 which means much agree indicated most of the respondents much agreed on the indicators given in terms of learning environment.

Leslie (2014) suggested that it must be built based on trust and respect in a positive learning environment.

The results from Table 5 underscored the factors influencing the use of brain-based learning activity sheets in terms of learning environment with the highest mean which respondents are very much agreed to a positive atmosphere facilitates effective transfer of learning. Positive atmosphere not only increased participation but also fostered a supportive learning environment. The study's findings resonated with existing studies, reinforcing the positive learning atmosphere facilitates effective transfer of learning.

Table 6. *Respondents Assessment on the Factors Influencing the use of brain-based learning activity sheets in terms of behaviour*

When using Brain-based learning activity sheets. . .	*Mean*	*Verbal Interpretation*
1. learners learn better when they are engaged in activities with emotions.	4.38	Moderately Agree
2. learners control and manages moods.	4.15	Much Agree
3. learners became confident in learning and studying the lesson.	4.13	Much Agree
4. it enables the learners to express feelings freely.	4.23	Very Much Agree
5. it develop an open mind of learners.	4.12	Much Agree
Grand Mean	4.20	Much Agree

Least Agree (1.0-1.80), Less Agree (1.81-2.60), Moderately Agree(2.61-3.40), Agree(3.41-4.20), Very Much Agree(4.21-5.0)

Table 6 shows the factors of using brain-based learning activity sheets in terms of behavior. As shown in the table, respondents much agreed that in using brain based learning activity sheets,they learn better when they are engaged in activities with emotions with the mean of 4.38. The lowest mean is indicator 1, because of using brain based learning activity sheets, it develops an open mind of learners. It also revealed that the average mean of 4.20 which means much agree indicated that most of the respondents much agreed on the indicators given in terms of behaviour.

According to some studies, positive emotions facilitate learning and contribute to academic achievement, being mediated by the levels

of self-motivation and satisfaction with learning materials(D'Mello et al., 2014) .Conversely, a recent study reported that negative learning-centered state (confusion) improve learning because of an increased focus of attention on learning material that leads to higher performances on post tests and transfer tests . Confusion is not an emotion but a cognitive disequilibrium state induced by contradictory data. A confused student might be frustrated with their poor understanding of subject matter, and this is related to both the seeking and rage systems, with a low-level of activation of rage or irritation, and amplification of seeking. Hence, motivated students who respond to their confusion seek new understanding by doing additional cognitive work. Further clarification of this enhances learning. Moreover, stress, a negative emotional state, has also been reported to facilitate and/or impair both learning and memory, depending on intensity and duration Vogel and Schwabe, (2016).

Table 6 revealed that when using brain-based learning activity sheets in terms of behaviour impacted learners when they are engaged in activities with emotions. These findings were consistent with previous research, indicating that the emotion of the learners has biggest contribution to their academic achievement .

Table 7. *Summary on the perceived Factors Influencing the use of brain-based learning activity sheets of selected Junior High School Students*

Contributing Factors	*Average Mean*	*Verbal Interpretation*
Learning Skills	3.97	Much Agree
Learning Environment when accomplishing LAS	4.08	Much Agree
Behaviour	4.20	Much Agree
Grand Mean	4.08	Much Agree

Least Agree (1.0-1.80), Less Agree (1.81-2.60), Moderately Agree(2.61-3.40), Agree(3.41-4.20), Very Much Agree(4.21-5.0)

Table 7 shows the summary of contributing factors influencing the use of brain-based learning activity sheets with the average mean and verbal interpretation. Behaviour got a mean of 4.20 which means much agree, learning environment when accomplishing LAS got a mean of 4.08, and learning skills got a mean of 3.97. This implies that the behaviour got the highest mean from the given contributing factors.

According to Simbolon et al (2018), teachers are agents of renewal that acts as a facilitator of learning and are responsible for the achievement of learning outcomes of students. The success of students is determined by the strategy undertaken by the teacher. With learning tools, the active learning is achieved in the classroom, which will develop academic performance of students creativity and create a fun learning environment for the students. One of the learning tools which can be used is the students' activity sheets.

The data from Table 7 pointed out that when using brain-based learning activity sheets, the learners behaviour should be the factors influence most. While there were concerns about how the students learn with learning tools, brain-based learning activity sheets. These findings are consistent with previous research, underscoring how learners managed behaviour and create fun learning environment.

Table 8. *Significant difference on the perceived factors influencing the use of brain-based learning activity sheets when grouped according to age*

Groups	*N*	*df*	*P - value*	*Significant Level*	*Decision*
12 years old	9	2	0.178	0.05	Accept Ho
13-14 years old	19				
15- 16 years old	32				

Table 8 shows that the computed P-value 0.178 is greater than the 0.05 level of significance the null hypothesis is accepted. Thus, there is no significant difference between the responses when grouped according to age. It concludes that respondents of ages 12, 13-14, and 15-16 have the same perception on the factors influencing the use of brain–based learning activity sheets.

Previous studies indicate the significant effect of BBL teaching approach on students' motivation and attitude enhancement towards natural science courses Saleh; Uzezi & Jonah, (2017).This fact could indirectly account for the student's academic performance improvement when they were exposed to the BBL teaching approach.

Table 8 pointed out that the learners in Junior High School can improve academic performance when exposed in using brain-based learning activity sheets. These findings are consistent with previous research, underscoring how learners, scientific subject, and cognitive abilities.

Table 9. *Significant difference on the perceived factors influencing the use of brain-based learning activity sheets when grouped according to sex*

Groups	N	df	P - value	Significant Level	Decision
Male	28	1	0.424	0.05	Accept Ho
Female	32				

Table 9 reveals the decision on the significant difference in the perceived factors influencing the use of brain-based learning activity sheets when grouped according to sex. The P value of 0.424 which is greater than the 0.05 level of significance with a division of accept the null. The null hypothesis is accepted indicating no significant difference between the responses of the groups. It implies that

males and females have the same perception of factors influencing the use of brain-based learning activity sheets.

Similar findings have emerged from a small number of studies, concerning Biology courses. More specifically, the organization of a learning environment with activities designed on the basis of BBL principles, for selected units in Biology, had a significant effect on increasing secondary-education-level students' academic achievement, ranging from 11 to 14 years of age (Varghese & Pandya, 2016; Vyas & Vashishtha, 2013). The instruction of the unit "substance transportation in cells" with BBL activities in the ninth grade increased student achievement but it did not create any difference in their attitudes towards the Biology course.

Table 9 pointed out that males and females have no differences in perception of factors influencing the use of brain-based learning activity sheets. Although the general instructional designs in the above studies are based on BBL, as far as the individual lessons planning, learning activities, and teaching tools are concerned, there are differences among them, depending on the students' grade, scientific subject, and cognitive abilities that are under research.

Table 10. *Significant difference on the perceived factors influencing the use of brain-based learning activity sheets when grouped according to grade*

Groups	*N*	*df*	*P - value*	*Significant Level*	*Decision*
Grade 7	12	3	0.764	0.05	Accept Ho
Grade 8	14				
Grade 9	15				
Grade 10	19				

Table 10 presents that the P-value 0.764 which is greater than 0.05 level of significance, the null hypothesis is accepted. Thus, there is no significant difference between the responses when grouped according to grade. It implies that Grade 7, Grade 8, Grade 9, and Grade 10 students have the same perception of factors influencing the use of brain-based learning activity sheets.

According to the meta-analysis, 83.34% of the studies indicated that the effectiveness of brain-based learning was positive (Gozuyesil & Dikici, 2014). According to the random effects model, data yielded the standard error of 0.110 with 95% confidence and an effect size of 0.649 Gozuyesil & Dikici, (2014).

Table 10 pointed out that the conclusion when using brain-based learning has a positive effect on the academic achievement of K-12 students regardless of gender, age, or nationality as stated by (Gozuyesil & Dikici,2014). These findings indicate that brain-based learning theory can inform educational practice.

Conclusions

Based on the findings, the following conclusions are derived:

Most of the respondents are female, 15-16 years old and Grade 10 learners.

Learning skills of the learners from the junior high school influenced the brain-based learning activity sheets when accomplishing learning activity sheets gives choices and opportunities to make decisions for problem solving.

Learning environment of the learners from the junior high school influenced the brain-based learning activity sheets when accomplishing learning activity sheets gives positive learning atmosphere for effective transfer of learning.

Behaviour of the learners from the junior high school influenced the brain-based learning activity sheets when accomplishing learning activity sheets. With the help of this learning process, learners can develop their behaviour or attitude towards learning.

The perception of the learners on the factors influencing the use of brain-based learning activity sheet does not vary when grouped according to age, sex, and grade level.

As a result of the study, the researcher would like to recommend the following:

To the School Administrators, they may encourage teachers to innovate and provide intervention program for improvement in both areas of academic, social and emotional behaviour .

To the Parents, they may support their children to develop their behaviour towards accomplishing the learning activity sheets.

To the Teachers, they may choose the best approach to facilitate learning that will be implemented in the school to improve the behaviour or attitudes when accomplishing learning activity sheet.

To the Students, they may continue to participate in the intervention program with emotional positive learning environment to acquire more effective learning skills in accomplishing the learning activity sheets for better learning outcomes.

To the Future Researchers, they may conduct a parallel study using larger population to help additional information on their studies. A deep exploration of this topic could reveal further information on brain-based learning to benefit student behaviour towards learning.

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