

# Student's Performance in Science and the Factors Affecting Their Modular Distance Learning

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**Abstract**— The study presented in this paper sought to determine the factors affecting the modular distance learning in Science of the Grade 10 students of Magallanes National Vocational High School, School Year 2021-2022. Factors being considered are: Learning Environment, Learning Preferences, Parent's Support, and Teacher's Support. There were 156 Grade 10 students who served as the respondents of the study. The findings in this paper were gathered from the survey questionnaire given to the identified respondents. On the other hand, the performance level of the students was based on the summative test given during the first quarter of the school year.

**Keywords**— factors, modular distance learning, Science.

## 1. INTRODUCTION

Distance learning is one of the latest trends in the education system nowadays. This is because of the sudden spread of the COVID-19 virus around the globe which created a big change in the supervision of the governing agencies including the Department of Education. More than 100 countries have applied nationwide closure that influenced students' education. In the Philippines, the COVID-19 crisis has affected about 27 million learners, 1 million teachers, and non-teaching staff, as well as families of the learners (Obana, 2020). On top of that, schools have decided to shut down due to the health threat of the said virus, thus, paving a way in creating a new normal setup in education which transitioned the traditional face-to-face learning into a distance learning modality to continue the education progression amid the pandemic. As the world continues to grapple with the effects of this infectious and deadly disease- destabilizing the economy and claiming many lives- transforming to distance learning is the most viable alternative so far (Alipio, 2020).

In the Philippines, Modular Learning is the most popular type of distance learning. It is the most suitable type of modality that considers not just students from the urban area but also those rural areas where the internet is not accessible for online learning. With this modality, teachers take responsibility by delivering the printed modules to students who reside far from the school. On the other hand, parents serve as home facilitators to the students. Their primary role in modular learning is to establish a connection with their child and to guide them in their scholastic endeavor. With this type of modality, underlying factors may affect the academic performance of the students in Science.

The purpose of this study is to identify the factors affecting the Modular Distance Learning in Science of the Grade 10 students of Magallanes National Vocational High School. It (1) helps identify the performance of the students in Science concerning the current learning modality, (2) distinguishes the factors affecting their modular distance learning, and (3) accumulates solutions and alternatives for the learners to cope with the new normal trend in the education system.

The researchers are interested to know the level of performance in Science of the Grade 10 students of MNVHS based on their scores in the Learning Activity Sheets and the underlying factors that on the students' academic performance. It is significant to determine these factors so that the learners, the teachers, and the parents will come up with the best way to address this dilemma. Recommendations are presented upon the result of this study.

## 2. RESEARCH METHODOLOGY

The descriptive-quantitative method was utilized as a research design of the study. The perspectives of the students regarding the factors affecting modular distance learning in Science were gathered through a survey. Before the survey, a summative test was administered to determine their performance level in Science. A survey questionnaire was used to identify the factors affecting the participants' performance in modular distance learning. The researchers conducted the study at Magallanes National Vocational High School which is located in an urban area of Magallanes, Sorsogon. Out of five hundred seventy-seven (577) Junior High School students enrolled in Magallanes National Vocational High School for School Year 2021-2022, one hundred fifty-six (156) Grade 10 students

from all sections (4 sections) were chosen as participants of the study. Out of 156 respondents, ninety-four (94) are female comprising 60.26% of the population while sixty-two (62) or 39.74% are male and all of them belong to the age-bracket 15-18. With regards to geographical location, seventy-two (72) or 46.15% of respondents were those living within the town proper, and eighty-four (84) or 53.85% were those living outside the town proper.

A questionnaire written in English was designed to gather data on the following factors: Learning Environment, Learning Preferences, Parental Support, and Teacher Support. The questions used in the questionnaire were validated by the researchers' research advisor. These factors mainly comprised the entire questionnaire. A total of 16 questions were formulated to gather information on all the considered factors. Each statement on the questionnaire was based on the Likert Scale corresponding to 1-never, 2-seldom, 3-sometimes, 4-frequent, and 5 -always.

The survey questionnaires were administered to the respondents together with the Learning Activity Sheet intended for the week. The participants were given one week to complete the survey questions. Afterward, the questionnaires were then collected and recorded for analysis and interpretation. For ethical reasons, all the

data gathered were treated with the utmost confidentiality.

For data analysis, the performance level of the students in Science was analyzed using the mean. On the other hand, the Pearson Product-Moment Correlation (r) was utilized to determine the relationship between the performance level of the students in Science and the factors affecting their modular distance learning in the same subject.

### 3. RESULT

#### 3.1. Performance Level of the Respondents based on the Summative Test

The study revealed that out of 156 students, 36 students or 23.08% of the class has an outstanding performance level, 31 students or 19.87% of the class are very satisfactory, 37 students or 23.72% of the class are fairly satisfactory and five (5) students or 3.20% of the class did not meet the expectation. Based on the given verbal interpretation, the respondents, having garnered a mean of 17.10, have a satisfactory performance level in Science in this modular distance learning modality. (Betlen, 2021) agreed that using a module as an approach as a corrective teaching material has increased the student's achievement level compared to the traditional way of teaching.

**Table 1: Performance Level of Respondents**

| Level                               | Freq (f) | Percentage (%) | Mean Performance | Interpretation |
|-------------------------------------|----------|----------------|------------------|----------------|
| <b>Outstanding</b>                  | 36       | 23.08          | 17.10            | Satisfactory   |
| <b>Very Satisfactory</b>            | 31       | 19.87          |                  |                |
| <b>Satisfactory</b>                 | 37       | 23.72          |                  |                |
| <b>Fairly Satisfactory</b>          | 47       | 30.13          |                  |                |
| <b>Did Not Meet the Expectation</b> | 5        | 3.20           |                  |                |
| <b>TOTAL</b>                        | 156      | 100            |                  |                |

#### 3.2. Factors Affecting the Modular Distance Learning of the Respondents

Table 4 comprises the identified factors affecting modular distance learning in Science with the mean score and the corresponding description for every statement. Based on the table, the Learning Environment has a mean score of 3.27.

Learning Preferences, Parental Support, and Teachers' Support have mean scores of 3.40, 3.04, and 3.65 respectively. Learning Environment, Learning Preference, and Parental Support fall under the description of Sometimes while Teachers' Support falls under the description of Frequent.

This study revealed that Parental Support got the lowest mean score which is equal to 3.04 with the description, "sometimes". Specifically, statement number 3: My parents have adequate time, resources, and knowledge in helping me answer my modules. This could mean that the parents of the respondents seldom have time, resources, and knowledge in assisting them with answering the modules. According to Gumapac (2021), parents are educational partners that serve as facilitators and para-teachers in modular distance learning. Another study also revealed that parents are having a very serious problem in terms of communication (Kintanat, Elladora, & Cuizon, 2021). Hence, in this kind of learning modality, they must be involved with regard to the educational endeavor of their children.

*Table 2: Learning environment as a factor affecting the MDL in Science*

| Indicators   | MEAN | DESCRIPTION |
|--|------|-------------|
| <b>A. LEARNING ENVIRONMENT</b>   |      |             |
| 1. My study area is well-lighted and well- ventilated.   | 3.03 | Sometimes   |
| 2. My learning environment is free from distraction and stress.  | 3.04 | Sometimes   |
| 3. My learning environment promotes a positive ambiance that makes learners motivated, relaxed and safe. | 3.27 | Sometimes   |
| 4. My learning environment encourages me to foster independence, sense of responsibility and creativity. | 3.37 | Sometimes   |
| <b>GENERAL WEIGHTED MEAN</b>   | 3.27 | Sometimes   |

This study revealed that the learning environment, having a general weighted mean of 3.27, sometimes affects modular distance learning in Science students. It also revealed that a learning environment that is well-lighted and well-ventilated, free from distraction and stress affects the student's academic performance

occasionally. Similarly, a learning environment that promotes a positive ambiance that makes the learners motivated, relaxed and safe and encourages the students to foster independence, a sense of responsibility, and creativity also affects the student's academic performance occasionally.

*Table 3: learning preferences as a factor affecting the MDL in science*

| Indicators   | MEAN | DESCRIPTION |
|--|------|-------------|
| <b>B. LEARNING PREFERENCES</b>   |      |             |
| 1. I find the activities in LAS interesting.   | 3.44 | Frequent    |
| 2. The given time to finish the assigned tasks in LAS is enough.                     | 3.44 | Frequent    |
| 3. I understand the activities given to me in the LAS.                               | 3.26 | Sometimes   |
| 4. The learning activities and exercises in the LAS are suited in my learning style. | 3.46 | Frequent    |
| <b>GENERAL WEIGHTED MEAN</b>   | 3.40 | Sometimes   |

As shown in the table above, this study revealed that the learning preferences of the students sometimes affect their modular distance learning in Science. Interesting activities and ample time is given to them to answer frequently affect their academic performance during

modular distance learning. Similarly, the different learning styles of the students also affect their academic performance. Also, the kind of learning activity in the LAS to be given to the students sometimes affect their academic performance in Science.

*Table 3: Parental support as a factor affecting the MDL in science*

| Indicators   | MEAN | DESCRIPTION |
|--|------|-------------|
| <b>C. PARENTAL SUPPORT</b>   |      |             |
| 1. I can easily ask assistance from my parents in answering the LAS.                       | 2.77 | Sometimes   |
| 2. My parents are constantly communicating with my teacher to check my progress.           | 2.76 | Sometimes   |
| 3. My parents have adequate time, resources and knowledge in helping me answer my modules. | 2.59 | Seldom      |
| 4. My parents understand the importance of modular distance learning.                      | 4.05 | Frequent    |
| <b>GENERAL WEIGHTED MEAN</b>   | 3.04 | Sometimes   |

Meanwhile, as shown in the table above, Parental Support, having a mean score of 3.04, sometimes affects the modular distance learning of the students in Science. Indicators such as “I can easily ask assistance from my parents in answering the LAS” and “My parents are constantly communicating with my teacher to check my progress” are described as “sometimes” affecting the

performance of the students in MDL in Science. Meanwhile, parents, having adequate time, resources, and knowledge in helping answer the modules seldom affects the student’s academic performance. On the other hand, the study also shows that parents frequently understand the importance of modular distance learning.

*Table 4: Teacher’s support as a factor affecting the mdl in science*

| Indicators   | MEAN | DESCRIPTION |
|--|------|-------------|
| <b>D. TEACHER’S SUPPORT</b>  |      |             |
| 1. I can easily reach out my Science teacher whenever I have difficulty in answering my LAS.         | 3.23 | Sometimes   |
| 2. My Science teacher provides feedback about my assessment results.                                 | 3.43 | Frequent    |
| 3. My Science teacher reminds us about the tasks missed and the LAS we failed to submit.             | 3.83 | Frequent    |
| 4. Our Science teacher responds actively in our group chat whenever we have questions about our LAS. | 4.12 | Frequent    |
| <b>GENERAL WEIGHTED MEAN</b>   | 3.65 | Frequent    |

As shown in the table above, teacher's support frequently affects the student's academic performance during modular distance learning. Likewise, indicators such as “providing feedback about the assessment results,” “reminding the students about the tasks missed

and the LAS that failed to be submitted,” and “responding actively to the group chat whenever there is a question about the LAS” were also described as frequently affecting the performance of the students in the MDL in Science.

*Table 5: The relationship between the performance level of students and the factors affecting distance learning*

| FACTORS                 | Pearson r | Interpretation                |
|-------------------------|-----------|-------------------------------|
| A. Learning Environment | 0.769     | High Positive Correlation     |
| B. Learning Preferences | 0.854     | High Positive Correlation     |
| C. Parental Support     | 0.844     | High Positive Correlation     |
| D. Teacher’s Support    | 0.673     | Moderate Positive Correlation |

- Level of Significance: 0.05
- df: 154
- r Critical Value: 0.159

### 3.3. Relationship between the Performance Level of the Students and the Factors Affecting Modular Distance Learning

Table 5 shows that Learning Environment, Learning Preferences, and Parental Support are positively correlated to the Performance Level of the students. On the other hand, the performance level of students shows a moderate correlation with the teacher’s support. This implies that if the teachers assist their students in answering their Learning Activity Sheets, students enhance their performance and learning.

Moreover, having a conducive learning environment that is completely free from distractions affects the students’ performance. According to the study conducted by (Alcazaren, 2021), it is clear that students are willing to learn and participate as long as they are given sufficient educational support and a conducive learning environment. Parental support is also crucial in modular distance learning. As (Valoroso, Idulog, & Baslan, 2022) emphasized, when students participated in remote learning, parents would be the ones to guide and assist their children through the modular classes.

Cos and Pagua (2021) also concluded that parental and teacher support especially for young learners must also be considered since this study singled out that these variables have a significant correlation to the age and grade level of the learners. Therefore, these two are important factors affecting distance learning which must be strengthened and amplified.

## 4. CONCLUSIONS

Based on the findings of this study, the researcher concludes that the performance level in Science of the Grade 10 students of Magallanes National Vocational High School is satisfactory in this modular distance learning modality. Parental involvement in students' learning is lacking or insufficient. Therefore, parents should give sufficient support to their children, especially in their academic performance. Finally, factors such as learning environment, learning preferences, parent support, and teacher support directly affect the academic performance of the students in Science during Modular distance learning.

## RECOMMENDATION

Based on the result gathered in this study, the researchers suggest a re-orientation to the parents on responsible parenthood that focuses on their role in the academic success of their children should be conducted. Constant communication with the learners about their tasks and providing them feedback about their academic



performance should be maintained. There should also be supplemental activities to be given to students who are struggling in their tasks in Science to improve their performance level. In addition, a conducive learning environment should be secured so it won't distract the students from finishing their activities. Lastly, further research emphasizing the role of parents in distance learning is highly necessary.

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