EFFECTIVENESS OF MODULAR LEARNING APPROACH AMONG SECONDARY SCHOOL STUDENTS DURING PANDEMIC IN ZAMBALES, PHILIPPINES

ABSTRACT

The world experienced the COVID 19 Pandemic, which severely affected the quality of Education, especially in the Philippines. This study aimed to determine the effectiveness of the modular learning approach to students' academic performance. The study was conducted in Sta. Cruz District in the province of Zambales, Philippines. A Descriptive Research Design was employed. A total of one hundred fifty-four (154) teacher-respondents were randomly selected. There was a significant difference in the perception towards dimensions on the level of effectiveness in the implementation of modular learning approach as to Technical Support, Subject Content, Construction, Delivery and Retrieval Mechanism, Assessment of Student Achievement, Adherence to IATF Health Observance Protocols, and School and Local Government Unit Support. This modality's modular learning approach has improved and increased students' academic performance. The students were rated "Satisfactory" in their academic performance. On the other hand, there is a negligible relationship between academic performance and the level of effectiveness in implementing the modular learning approach. The researcher recommends revisiting the learning contents and assessment of student output and providing item analysis to determine the vague or gray areas in the self-learning module for improvement. The School may conduct a time management plan for production, delivery, and retrieval to assure the modules had been delivered on time to the students and considerable time was allotted for assessing and accomplishing student learning outputs.

KEYWORDS: ***Effectiveness, Implementation, Modular, Learning approach, Academic performance***

1. INTRODUCTION

1.1 Background

The world is experiencing the COVID 19 Pandemic, which severely affects the business, economy, health, and Education. The Pandemic has brought dramatic change and challenges, particularly in the field of Education. The issue of

Pandemic has become a big burden and stumbling block for acquiring quality instruction. The Pandemic served as a barrier to the realization and desires of the youth to finish their Education to help their parents alleviate poverty and improve their economic status. Because of possible contamination through droplets, the World Health Organization has advised and strongly recommended using face masks, face shields, washing hands and physical, social distancing, and avoiding attending big social gatherings (Saavedra, 2020). In the Philippines' educational setup, the Department of Education, in its adherence to the Inter Agency Task Force (IATF) recommendations, has ordered nationwide not to allow face-to-face classroom activities (Malipot, 2021). The educational system for basic Education, Higher Education, and graduate studies faced a great dilemma in coming up with an intervention program for instruction that would not hinder or cause to stop acquiring of Education among the youths. There are learning institutions, both in public and private, that opt on the use of online learning, flexible learning, blended learning, hybrid learning, or modular learning approach. The utilization and adoption of learning approaches were given options among learning institutions to decide based on the nature of the learners and the availability of resources. When analyzing the modular teaching method, we can understand that this is a more effective, recent and technology-based teaching method in the present educational field. In recent years, the consent of modular curricula has been under discussion in secondary schools. Modular approach provides more flexibility to distance teaching mode as well to learners (Sejpal, 2013). Unlike most traditional curriculum design, modular design gives greater student autonomy in constructing the program and a greater range of entry gates and exit points (Ali et al.,2010).

Modular instruction is one of those teaching methods in which students must learn everything in the module on their own, at their own pace. This method differs from the traditional method in which a teacher presents the lesson and students simply listen to learn the concepts presented. Gonzales suggests that the modular approach may be a good alternative to traditional classroom settings because it is student-centered, self-paced, and does not require note-taking (2015). In many countries, including Western and Asian countries, modular teaching is one of the most widely used and recognized teaching-learning techniques. A modular approach is used in almost all subjects, including natural science, particularly biology and medical education, and even mathematics. This method differs from the traditional method in which a teacher presents the lesson and students simply listen to learn the concepts. to overcome the challenges that

1.2 Research Questions

The study aimed to determine the level of effectiveness on implementing the modular learning approach in relation to students' academic performance in Sta. Cruz District, Division of Zambales during SY 2020-2021. Specifically, the study sought to provide answers to the following questions:

a. What is the profile of the teacher-respondents with regards to: age; sex; civil status; position; length of years in the service; and highest educational attainment?
b. How do the teachers perceived the level of effectiveness on the implementation of the modular learning approach be described in the following dimensions as to: Technical Support; Subject contents; Construction, Delivery and Retrieval Mechanism; Assessment of Student Achievement; Adherence to IATF Health Observance Protocols; and School and local government support?
c. What is the level of student academic performance be as reflected in the general weighted average grade in the first grading period?
d. Is there a statistically significant difference in the perceived dimensions of the level of effectiveness in the implementation of a modular learning approach when respondents are grouped based on profile variables?
e. Is there a significant difference in the perceived dimension on the level of effectiveness when implementing the modular learning approach referred to in problem number 2?
f. Is there a significant relationship between the level of energy in implementing the modular learning approach and the students' academic performance?

1.3 Theoretical Framework

The study is related to the modified version of packet theory. This is a modular theory of learning and performance that contains parts that may be labeled perception, memory, and decision. The theory combines ideas from scalar timing theory (Gibbon, Church and Meck, 1984), the learning-to-time model (Machado, 1997), conditioning theories (Rescorla & Wagner, 1972), as well as from several additional sources. Like scalar timing theory, it considers a clock as an accumulation process and uses a threshold for comparison of clock and memory. Like the learning-to-time model, it considers perception and memory as vectors. Like conditioning theories, it uses combinations of values with a

linear operator rule. Packet theory is not unique in being a modular theory: Many theories of conditioning and timing may be regarded as modular (Church & Kirkpatrick, 2001). This feature, however, may be the most important one for the development of theoretical improvements.

Another theory related to this study is by Keegan (1986) which he identified identifies three historical approaches to the development of a theory of distance education. Theories of autonomy and independence from the 1960s and 1970s, argued by Wedemeyer (1977) and Moore (1973), reflect the essential component of the independence of the learner. Peter's (1971) work on a theory of industrialization in the 1960s reflects the attempt to view the field of distance education as an industrialized form of teaching and learning. The third approach integrates theories of interaction and communication formulated by Baath (1982), and Daniel and Marquis (1979). Using the postindustrial model, Keegan presents these three approaches to the study and development of the academic discipline of distance education. It is this concept of industrialized, open, nontraditional learning that, Keegan says, will change the practice of education.

2. METHODOLOGY

2.1 Research Design

The quantitative descriptive-survey research design was used in this study. This method entails observing and describing the level of effectiveness of the modular learning approach implementation in relation to students' academic performance in Sta. During SY 2020-2021, Cruz District, Division of Zambales. Descriptive research is a study that aims to portray the participants accurately. Descriptive research aims to accurately and systematically describe a population, situation, or phenomenon in order to answer what, where, when, and how questions (McCombes, 2020). It allows you to witness the phenomenon in a completely natural and unchanged setting (Canonizado, 2020). Its worth is based on the premise that through observation, analysis, and description, problems can be solved and practices improved..

This is descriptive research because it describes the level of effectiveness of the modular learning approach and describes the respondent who take the study to depict the participant in an accurate way. This is might you to investigate and explain the variable or required information needed in the study and the aim is to describe with higher accuracy and precision, and usually, this is quantitative. And we can explain and observe the characteristics or behavior from the natural set up, like the level of effectiveness of the modular learning approach.

2.2 Sampling Design and Technique

From the total number of two hundred fifty-one (251) faculty members teaching in the secondary level in the entire district of Sta. Using Sloven Formula, Cruz computed sample size would be one hundred fifty-four (154). The teacher-respondents would be randomly selected. Table 1 shows the distribution of teacher-respondents by schools in Sta. Cruz District, Sta. Cruz, Zambales.

Table- 1: Distribution of Teacher-Respondents by Schools in Sta. Cruz District

Name of Schools in Sta. Cruz District	Total # of Teachers	Sample Size	Percentage
Sta. Cruz National High School	40	25	16.23
LipayNational High School	44	27	17.64
St. Michael High School	4	2	1.30
Don Brigido Miraflor Integrated School	36	22	14.38
Sta. Cruz South High School	21	13	8.44
Mena National High School	21	13	8.44
Guis-Guis High School	30	18	11.78
Don Marcelo C. Marty National High School	30	18	11.78

San Fernando National High School	25	15	9.74
Total	**251**	**154**	**100%**

Figure 1: Map of Sta. Cruz, Zambales Showing the Locale of the Study

2.3 Data Gathering

After the validation process, the researcher reproduced the total number of survey instruments based on the computed sample size. Likewise, the researcher had prepared a letter addressed to the Division Superintendent and Principal of the School to request approval to administer the survey questionnaire and on the documentary analysis for the student's academic performance. Because of the present COVID-19 Pandemic and face to face meeting with the teacher-respondent is not allowed, the researcher secured the e-mail addresses of the faculty respondents and converted the survey instrument into Google form for easy delivery and recovery of the instrument. The researcher has allotted fifteen (15) days to assure one hundred percent (100%) retrieval of the instrument.

2.4 Statistical analysis

The data gathered was organized, collated, tabulated, and analyzed according to the following statistical tools using the software Statistical Package for Social Sciences (SPSS) version 20 to interpret the data effectively, the researcher employed weighted mean, t-test, Pearson r Coefficient and Analysis of Variance, all at $\alpha = 0.05$. a statistical software program in data processing such as frequency counts and percentage, mean, weighted mean, Likert scale.

3. RESULTS AND DISCUSSIONS

This is the results and discussion using a tabular form, analyzed and interpreted for a better understanding of the problems asked according to the variables: **Age.** Out of one hundred fifty-four teacher respondents, most were from age group of 31-35 years old with 37 or 24.00%; 33 or 21.40% from 36-40 years old; 27 or 17.50% from 26-30 years old; 21 or 13.60% from 41-45 years old and 18 or 11.705 from 21-25 and 46 years old and above respectively. The computed mean age of the respondents was 35.14 years old. The data clearly manifest that the respondents were relatively young in their early adulthood. Early adulthood which is characterized from ages 20-40 years old, the physical abilities are at their peak including muscle strength, reaction time, and sensory abilities. This study where the teacher-respondents were on the same age level.

Sex. Most of the teacher-respondents were females with 116 or 75.30%, while 38 or 24.70% were males. The data clearly implies on the superiority of the female in the study. Women outnumber men in teaching due to fundamental differences in men's and women's communication skills. Women's worlds were preoccupied with intimacy, consensus, and interdependence,

whereas men's worlds were preoccupied with competition, status, and independence. in **Civil Status**. The majority, 108 (70.10 percent), are married; 45 (29.20 percent) are single; and 1 (0.60%) are divorced. This shows that the majority of respondents are married, which may be attributed to their willingness to handle and accept marital and family responsibilities. This finding is consistent in which married teachers dominate. **Position.** The majority of teacher-respondents (75 or 48.70 percent) were Teacher-I; 31 where the teachers' had the highest Educational Attainment. The majority of the teacher-respondents have attained BS degree with masteral units with 97 or 63.00%; 34 or 22.10% are BS degree; 18 or 11.70% are Masteral degree holders; 3 or 1.90% are MS degree with doctoral units, and 1 or 0.60% is a doctoral degree holder and post-doctoral degree. The data clearly demonstrate that despite of the many pressures at work. The respondents manage to take time and pursue their graduate studies program for professional advancement and promotion in a later period. This finding study where the teacher-respondents are college graduates and have earned masteral units of Education.

Table 2 shows the perception of the teacher-respondents on the level of effectiveness on the implementation of the modular learning approach as to Technical Support.

Table -2: Perception of the Teacher-respondents on the level of effectiveness on the implementation of the modular learning approach as to Technical Support N=154

	Technical Support	Weighted Mean	Qualitative Interpretation	Rank
1	The teachers were given adequate training on the construction of modules.	3.25	Highly Effective	6
2	The teachers were afforded with financial support to augment expenses for module printing as cost for bond paper, ink, cover and other supplies.	3.31	Highly Effective	5
3	The School provides capability building to help teachers on the technical aspects in the construction and development of modules.	3.45	Highly Effective	1

4	The teachers were given free training through online seminar on the principles and technical aspects in the construction of modules	3.44	Highly Effective	2
5	The division conducted training online rollout for implementers on modular learning experiences.	3.40	Highly Effective	3
6	A training was attended for editing and check-up of accuracy of data and information of modules.	3.36	Highly Effective	4
	Overall Weighted Mean	**3.37**	**Highly Effective**	

The teacher-respondents perceived “Highly Effective” on indicator #3. The School provides capability building to help teachers with the technical aspects in the construction and development of modules”, manifested on the computed high mean value of 3.45 and ranked 1st while on the teachers were given adequate training on the construction of modules” with the lowest mean value of 3.25 and ranked 6th. The computed overall weighted mean on the responses towards a level of effectiveness on the implementation of the modular learning approach as to Technical Support was3.37 with a qualitative interpretation of “Highly Effective”.

Providing technical support by providing in-service training or teacher capability building is essential in implementing the modular learning approach. The teachers will be equipped with the desired knowledge and technical skills to construct and develop modules. There are underlying principles and technical aspects that needs to be greatly consider as to the learning objectives, assessment, learning motivation and appropriate teaching strategies. The effectiveness of modular teaching lies mostly on the contents, usefulness, quality, and relevance of the modules given to the learners (Ambayon, 2020). However, the contents of the modules have identified errors that mislead the learners in learning the correct concepts of the lessons (Magsambol, 2020). Its usefulness is being questioned because the learners and their learning facilitators cannot understand the various activities stipulated in the modules (Adonis, 2020). There is also poor quality of the printed modules because teachers customize their work to have lesser expenses in printing modules. As a result, learners were given booklet-style modules (Magsambol, 2020). In some cases, the contents and activities in the modules are unrelated to the learners' learning needs. The authors or writers fail to consider the levels and situations of the learners when creating the modules (Fareed, 2016).

Table- 3: Effectiveness of the implementation of the modular learning approach as Perceived by Teachers

Level of effectiveness on the implementation of the modular learning approach		Overall Weighted Mean	Descriptive Equivalent	Rank
1	Technical Support	3.37	Highly Effective	5
2	Subject Content	3.49	Highly Effective	4
3	Construction, Delivery and Retrieval Mechanism	3.56	Highly Effective	2
4	Assessment of Students Achievement	3.53	Highly Effective	3
5	Adherence to IATF health observance protocol	3.62	Highly Effective	1
6	School and local government unit support	3.36	Highly Effective	6
	Grand Mean	**3.49**	**Highly Effective**	

Table 3 shows the Summary Table on the responses towards level of effectiveness on the implementation of the modular learning approach. The teacher-respondents perceived the dimensions on level of effectiveness on the implementation of the modular learning approach as to Technical Support, Subject Content, Construction, Delivery and Retrieval Mechanism, Assessment of Students Achievement, Adherence to IATF health observance protocol, and School and local government unit support was “Highly Effective”.

Table 4 shows the distribution on the level of student academic performance be as reflected in the general weighted average grade in the first grading period.

Table -4: Academic performance of Pupils as reflected in the general weighted average grade in the first grading period

Level of Academic Performance	Frequency (f)	Percentage (%)
Fairly Satisfactory (75-79)	26	16.90
Satisfactory (80-84)	32	20.80
Very Satisfactory (85-89)	96	62.30
Total	**154**	**100.00**
Mean of Academic Performance= 84.27 (Satisfactory)		

The students were rated "Satisfactory," manifested on the mean performance of 84.27. The majority of pupil-respondents received grades ranging from 85-89 (Very Satisfactory) with 96 or equivalent to 62.30 percent; 32 or 20.80 percent received grades ranging from 80-84 (Satisfactory); and 26 or 16.90 percent received grades ranging from 75-79 (Satisfactory) (Fairly Satisfactory). The satisfactory academic performance of the students could be ascribed on their study habits and learning styles Academic performance is the measurement of student achievement across various academic subjects. Teachers and education officials typically measure achievement using classroom performance, graduation rates and results from standardized. In the Philippine setting, teachers employ three (3) categories in determining the learners' academic performance. Typically, they use written works, performance tasks, and quarterly assessments. This is used during pre-pandemic, where the learners attend their classes in the School. During the Pandemic, the Department of Education issued interim guidelines for assessing students' academic performance. It is mandated that schools use two (2) categories to assess students' academic performance. This includes written works as well as performance tasks. Teachers are also encouraged to incorporate the use of portfolio assessment as means of evaluating the academic performance of the learners. Some schools include portfolio assessments, while others stick to written works and performance tasks (Mateo, 2020).

There was no significant difference in teacher respondents' perceptions of the level of effectiveness of the modular learning approach in terms of Technical Support when they were grouped based on their profiles. The null hypothesis is accepted because values of 0.481, 0.859, 0.767, 0.906, 0.332, and 0.744 are all greater than (>) 5 percent significant. The data clearly indicates that the teacher-respondents share a similar perspective on technical support as a dimension of the level of effectiveness in implementing the modular learning approach. Rapid changes in how technology is used for learning necessitate a technology support strategy that minimizes downtime and provides flexibility. The most effective technical support models are constructed directly from a high-quality technology planning process that integrates technology with other school-wide support goals. Before establishing specific details that define what support will be provided to whom and by whom, successful districts have found it beneficial to think broadly about the best overall approach to meeting support needs comprehensively. While no two districts offer the same combination of tech support products and services to their users, they all have defined core elements that comprise "technical support" and contribute to successfully meeting their local needs. The following questions have assisted districts in defining, planning for, and implementing the core components of technical support. The modular teaching approach allows learners to independently study the proposed program, including goals, objectives, theoretical information, practical exercises, and final tests, and teachers were given adequate training on module construction and financial support. Before establishing specific details that define what support will be provided to whom and by whom, successful districts have found it beneficial to think broadly about the best overall approach to meeting support needs comprehensively. While no two districts offer the same combination of tech support products and services to their users, they all have defined core elements that comprise "technical support" and contribute to successfully meeting their local needs. The following questions have assisted districts in defining, planning for, and implementing the core components of technical support. The modular teaching approach allows learners to study the proposed program independently, including goals, objectives, theoretical information, practical exercises, and final tests. Teachers were given adequate training on module construction and financial support. The data further reveals the similarity and likeness of the respondent’s opinion towards the effectiveness of modular learning as to subject contents. In the study of Barnett el (2004) argued that curriculum receives scant regard in current debates about edifying and learning in higher inculcation but suggests that this may transmutation in the context of quality assurance mechanisms. According to Barnett el (2004) the learnings must be in higher inculcation and the context should be in a quality assurance mechanism to protect the credibility of DepEd that aims the good quality of Education that’s why the DepEd is very careful about the content of the modules to be distributed to the learners in every part of the country.

Use of self-learning modular in teaching is another form of individual used instruction, this is called modular approach of teaching and learning that self-learning modular is another form of teaching and learning approach that we called as of now it is modular.

When grouped according to profile variables, there is no significant difference in perception on the effectiveness of modular learning approach as to the Construction, Delivery, and Retrieval Mechanism manifested on the computed Sig. Values of 0.547, 0.055, 0.901, 0.367, and 0.193 are greater than (>) 5% significant, implying that the null hypothesis is accepted. On the other hand, the computed Sig. Value of 0.019 which is lower than (<) 5% significant level, the null hypothesis is rejected, hence there is a significant difference when grouped according to sex profile variable. Schools establish processes in the distribution and retrieval of modules. This is also presented to the parents during the orientation intended for them (Baccay, 2020). Schools consider the health and safety protocols requiring the parents to wear their face masks and shields upon entering the school premises. Their body temperature must also be recorded, contact tracing log must be filled up, and the health declaration form. Aside from that, they need also to sanitize or wash their hands with soap. It is also important to bring with them their own ballpen, especially in accomplishing the different forms and even the log sheets. From time to time, they are reminded to practice social distancing with the other parents to avoid contamination of the virus. It is important for the parents to follow religiously the roles and processes set by the School. This is for their health and safety. There are also instances when parents neglect to pick up their children's modules. This serves as one of the difficulties and challenges of the teachers (Sherrington, 2020). In this case, teachers contact the parents of the children. They remind them regarding the modules of their children. Most of the time, the teachers deliver the modules of the learners at home to ensure that they have something to use in learning their lessons. It is considered additional expenses for the teachers because they are personally using their funds for transportation. However, because of love of teaching and because of caring to their learners, teachers are happy to serve their learners. They always consider what is best for their learners. They must provide help to their learners to ensure that they will never be left behind in their studies. Being a teacher requires a service with a heart in the retrieval of modules, the same procedures are being implemented by the schools. Parents are signing the distribution and retrieval form as an evidence that they receive and returned the modules of their children (Adonis, 2020). In most cases, the distribution and retrieval of modules are executed on the same day. Teachers make a way that they are available in the schedules during these schedules to immediately address the concerns of the parents There is no significant difference on the level of effectiveness of modular learning approach as to Assessment of Student Achievement when grouped according to profile. As indicated on the computed Sig. Values of 0.887, 0.213, 0.262, 0.786, 0.484 and 0.512 all are higher than (>) 5% significant level, therefore the null hypothesis is accepted. The data simply implies on the conformity of the respondents towards the importance and value of

assessment on student's achievement and progress. It is important that the real scores of the learners are reflected in assessing their performance because this serves as the basis of the teachers in determining the learning needs of the learners. Through these, teachers can prepare a plan and execute these to provide guidance and assistance to the studies of these children It is important for the teachers to determine the learning gaps that the learners are experiencing in the implementation of the modular teaching. Everyone is aware of having no perfect approach that is suited for everyone. This is the reason why there are instances that learners are lagging behind in their lessons. The Analysis of Variance to test difference on the perceived dimensions on the level of effectiveness in the implementation of modular learning approach when grouped according to profile variables as to Adherence to IATF Health Observance Protocol. There is no significant difference the level of effectiveness of modular learning approach as to Adherence to IATF Health Observance Protocol when grouped according to the profile. With the computed Sig. Values of 0.399, 0.605, 0.292, 0.767, and 0.885 are higher than (>) 5% significant level, therefore, the null hypothesis is accepted. On the other hand, the computed Sig. Value of 0.020 which is lower than (<) 5% significant level, the null hypothesis is rejected, hence there is a significant difference when grouped according to highest educational attainment.

The data clearly demonstrate on the divergence of opinion towards Adherence to IATF to IATF Health Observance Protocol when grouped according to highest educational attainment. It is expected and assumed that those teacher-respondents with higher educational attainment could be an in-depth understanding on the vital and important of the IAFT recommendations to ensure health protocols had been strictly complied and followed to avoid contamination and infection of the dreadful disease. In preparation for the opening of classes, schools start their activities by following the health and safety protocols issued by the Inter-Agency Task Force on Emerging Infectious Diseases. They start working on the various signages needed during the distribution and retrieval of modules. They also check the available equipment in the School for the printing of modules. School heads prioritize the purchase of printers, bond papers, and computer inks to be used by the teachers. Teachers find time to coordinate to the higher authorities for the softcopies of the modules of the learners. They need to have the complete sets of modules intended for their grade levels for production purses (Bagood, 2020). During these processes, teachers are experiencing difficulties and challenges in the execution of their assigned work in modular teaching. Most of the time, the 8-hour workday is insufficient to complete their scheduled activity for the day. As a result, they bring home their work to ensure that everything is ready for the opening of classes (Magsambol, 2020).

There was no significant difference on the level of effectiveness in the implementation of the modular learning approach as to School and Local Government Support when respondents were grouped based on profile. As indicated on the computed Sig. Values of 0.383, 0.404, 0.735, 0.794, 0.272 and 0.954 which all are higher than (>) 5% significant level, the null hypothesis is accepted. The data further reveals the respondents' conformity and non-divergence of opinion towards School and

local government support. School and government leaders work together to ensure that the modules were printed and delivered on time. DepEd must address the teachers' difficulties and challenges. They must set aside additional funds to purchase printing equipment. Higher officials must come down to their offices to see what is going on in the schools. They must develop better plans and solutions to the teachers' dilemmas in modular teaching. They must make time to speak with teachers about their difficulties and challenges in implementing modular teaching. This is the best way to learn about the current situation on the ground. Allow teachers to speak up and be heard.

Table 5 shows the Analysis of Variance to test difference on the perceived dimension on the level of effectiveness in the implementation of modular learning approach. There are significant differences on the perception towards dimension on the level of effectiveness in the implementation of modular learning approach as to Technical Support, Subject contents, Construction, Delivery and Retrieval Mechanism. Assessment of Student Achievement, Adherence to IATF Health Observance Protocols and School and Local Government Support manifested on the compute Sig. Value of 0.000 which is lower than (<) 0.05 Alpha Level of Significance, therefore the Null Hypothesis is rejected.

Table- 5: Analysis of Variance to test difference on the perceived dimension on the level of effectiveness in the implementation of modular learning approach

Sources of Variations		**SS**	**df**	**MS**	**Sig.**	**Decision**
*Technical Support * Subject Contents *Construction, Delivery and Retrieval Mechanism *Assessment of Student Achievement *Adherence to IATF Health Observance Protocols *School and local government support	Between Groups	8.419	5	1.684	0.000	**Reject Ho**
	Within Groups	174.944	918	0.191		**Significant**
	Total	**183.363**	**923**			

In many countries, including other Western countries and the Asian region, modular teaching is one of the most widely used and recognized teaching learning techniques. The modular approach is used in almost all subjects, including natural science, specifically biology and medical education, as well as social sciences and computer education, taking into account individual differences among learners, which necessitate the planning for the adoption of the most appropriate teaching techniques to assist the individual in growing and developing at her/his own pace (Sejpal 2013).

The use of modules as a learning material is no longer new in the field of Education especially in the tertiary level. This teaching-learning material is characterized by small-step, sequential and concept-and/or skill-oriented presentation of a unit of learning It is characteristically self-directing since it includes instruction on how the various investigations would be pursued (Garillos, 2012).

the Pearson Product Moment Coefficient of Correlation to test significant relationship between the level of effectiveness in the implementation of modular learning approach and the students' academic performance. There is negligible relationship between the level of effectiveness in the implementation of modular learning approach and the students' academic performance manifested on the computed Pearson r - value of +0.099. The computed Sig. (2-tailed) test value of 0.222 which is higher than %% significant level, therefore the null hypothesis is accepted.

Table- 6: Pearson Product Moment Coefficient of Correlation to test significant relationship between the level of effectiveness in the implementation of modular learning approach and the students' academic performance

Sources of Correlations		Students' Academic Performance	Level of Effectiveness in the Implementation of Modular Learning Approach
Students' Academic Performance	Pearson Correlation	1	0.099
	Sig. (2-tailed)		0.222
	N	154	154

Level of Effectiveness in the Implementation of Modular Learning Approach	Pearson Correlation	0.099	1
	Sig. (2-tailed)	0.222	
	N	154	154

This finding contradicts the findings of Garillos (2012), who discovered a significant increase in students' pre-test and post-test results when the instructional material was introduced in class (Garillos, 2012). The instructional modules are a significant educational innovation and teaching strategy. According to another study, the developed instructional materials for interactive learning are useful and beneficial for improving students' communication skills. The instructional materials provide content that is appropriate, effective, and caters to different learning styles and preferences, as perceived by the teacher experts who try out the materials and the number of students who used the material.

4. CONCLUSION AND RECOMMENDATION

There is negligible relationship between the level of effectiveness in the implementation of modular learning approach and the students' academic performance manifested on the computed Pearson r- value of +0.099. The computed Sig. (2-tailed) test value of 0.222 which is higher than %% significant level, therefore the null hypothesis is accepted.

The respondent is female in her early adulthood, married, Teacher-I, BS degree and earned masteral units of Education, and had been in the teaching services for almost a decade. The teacher-respondents assessed "Highly Effective" on Technical Support, Subject Content, Construction, Delivery and Retrieval Mechanism, Assessment of Student Achievement, Adherence to IATF Health Observance Protocols, and School and Local Government Unit Support as dimensions on the level of effectiveness on the implementation of modular learning approach. The students were rated "Satisfactory" in their academic performance.

There is a significant difference on the perception of Construction, Delivery and Retrieval Mechanism when grouped according to sex; and significant when grouped according to highest educational attainment towards Adherence to IATF Health Observance Protocols. There is significant difference on the perception towards dimensions on the level of effectiveness in the implementation of modular learning approach as to Technical Support, Subject Content, Construction, Delivery and Retrieval Mechanism, Assessment of Student Achievement, Adherence to IATF Health Observance Protocols, and School and Local Government Unit Support. There is negligible relationship between the academic performance and the level of effectiveness in the implementation of modular learning approach.

The researcher recommends that there is a need to revisit the learning contents and assessment of student output and provide item analysis in order to determine the vague or gray areas in the self-learning module. The School may conduct a time management plan for production, delivery and retrieval to assure the modules had been delivered on time to the students and considerable time was allotted for assessing and accomplishing student learning outputs. The School may provide a technical support mechanism to reimburse the expenses of teachers incurred related to the printing, delivery and retrieval of modules for improvement. Intensify and strengthen linkages to the political leaders, community, corporations, companies, and other stakeholders on their support to the educational and development welfare of the students

5. REFERENCES

Adonis, M. (2020). Chalenges hound online opening classes.http://newsinfo.inquirer.net/1344074/challenges-hound-online-opening-of-classes

Ali,R.,Ghazi,R.,Khan, S.,HussainS., and Fatima,T. (2010). Effectiveness of modular teaching in Biology at Secondary Level.*Indian Social Science,6(9),49-54* Doi:10.5539ass.v6n9p49[Crossref], [Google Scholar]

Ambayon, E.(2020). Modular-based approached and student's achievement in literature. International Journal of Education and Literary Studies, 8(3). https://doi.org/10.7575/aiac.ijels.v.8n.3p.32

Baath, J. (1982). Distance students' learning - empirical findings and theoretical deliberations. Distance Education, 3(1), 6-27.

Baccay, O.T. (2020). CHED encourages SUCs to adopt. Flexible learning mode. Philippine Information Agency. Available at https://pia.gov.ph/news articles/1042458

Bagood, J.B. (2020). Teaching-learning modality under the new normal. Philippine Information Agency. https:pia.gov.ph/features/articles/1055584

Barnett, R., G. Parry and Coute(2004). Conceptualizing Curriculum Change. In M. Tight (ed.), The Routledge Falmer Reader in Higher Education. Routledge Falmer
Church, R. M., & Kirkpatrick, K. (2001). Theories of conditioning and timing. In R. R. Mowrer & S. B. Klein (Eds.), Handbook of contemporary learning theories (pp. 211-253). Mahwah, NJ: Erlbaum.

Daniel, J., & Marquis, C. (1979). Interaction and independence: getting the mixture right. Teaching at a Distance, 15, 25-44.

Fareed, M.,Ashraf, A., & Bilial, M. (2016). ESL Learners Writing Skills: problems, Factors and suggestions. Journal of Education and Social,4,81-92 https://doi.org/10.20547/jess0421604201

Garillos, M. N. T. (2012) Development and Validation of Instructional Module in Biology for Second Year High School. TVC-Sta. Teresa National High School

Gibbon, J., Church, R. M., & Meck, W. H. (1984). Scalar timing in memory. Annals of the New York Academy of Sciences, 423, 52-77.

Gonzales, E. E. (2015). A Modular Approach Utilizing Decision Tree in Teaching Integration Techniques in Calculus, Department of Arts, Sciences and Teacher Education, City College of Calamba, Calamba City, Laguna, Philippines.

Isagani Costales Canonizado,(2020). Modular Approach in Teaching and Learning: The Experiences of Parents and Learners. Retrieved from: https://discover.hubpages.com/education/Modular-Apoach -In-Teaching-And-Learning-The-Experiences-Of-Parents-and-Learners

Keegan D. (1986). The foundations of distance education (Second Edition). London: Routledge.

Machado, A. (1997). Learning the temporal dynamics of behavior. Psychological Review, 104, 241-265

Malipot, M. (2021). Face-to-face classes still prohibited, guidelines for SY 2021-2022 issued by DepEd. Manila Bulletin newspapers

Mateo,J. (2020). DepEd seeks more fund for blended learning. https://www.philstar.com/headlines/2020/06/04/2018586/deped-seeks-more-funds-blended-learning.

McCombes, S. (2019). Descriptive Research | Definition, Types, Methods & Examples. https://www.scribbr.com/methodology/descriptive-research/

Moore, M. G. (1973). Toward a theory of independent learning and teaching. Journal of Higher Education, 44, 66-69.

Peters, O. (1971). Theoretical aspects of correspondence instruction. In O. Mackenzie & E. L. Christensen (Eds.), The Changing World of Correspondence Study University Park, PA: Pennsylvania State University.

Rescorla, R. A., & Wagner, A. R. (1972). A theory of Pavlovian conditioning: Variation in the effectiveness of reinforcement and nonreinforcement. In A. H. Black & W. F. Prokasy (Eds.), Classical conditioning II: Current research and theory (pp. 64-99). New York: Appleton-Century-Crofts

Saavedra, J. (2020). Educational Challenges and opportunities of the Coronavirus (COVID-19)pandemic. Education for Global Development.

Sejpal, K. (2013). Modular method of teaching. International Journal for Research in Education, 2(2), 169-171.

Magsambol, B. (2020). FAST FACT: DepEd's Modular learning. Retreived from https://www. edglosarry.org/assessment/#:~:text=In%20education%2C%20the%20term%20assesment, or%20educational

Sherrington, (2020). Learning Rainforest: Great Teaching in Real Classroom-books.google.com