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The Level of Effectiveness of The Utilized Self-Learning Modules (SLMS) in Teaching Science to Senior High School

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A B S T R A C T

Education plays a vital role in contemporary world to succeed. It is important because it is used to alleviate most of the challenges faced in life. This study aimed to determine the level of effectiveness of the utilized self-learning modules in teaching science to Senior High School students in the Schools Division of Zambales. This research paper utilized the quantitative descriptive survey research design. As a master plan specifying the methods and procedures for collection and analyzing the needed information, the descriptive method of research involves the description, of composition or the process of phenomena. The self-learning modules evaluated by the respondents were effective in assessing students' performance in science. Assessment of the level of effectiveness of the utilized self-learning modules' was not influenced by the respondents' Highest Educational Attainment, Area of Specialization, Teaching position, and Length of service in teaching but only by the number of modules writing seminars/training they have attended. There is no significant difference in the level of effectiveness of the utilized SLM when responses are grouped according to learning components, learning goals, and learning competency but there is a significant difference when it comes to the number of trainings they attended.

KATA KUNCI

Efektifitas, Utilized Self-Learning Modules (SLMS), Fenomena, Teknik Mengajar, Sekolah Menengah Atas

A B S T R A K

Pendidikan memainkan peran penting dalam dunia kontemporer untuk berhasil. Ini penting karena digunakan untuk meringankan sebagian besar tantangan yang dihadapi dalam hidup. Penelitian ini bertujuan untuk mengetahui tingkat keefektifan penggunaan modul belajar mandiri dalam pembelajaran IPA pada siswa SMA di Divisi Sekolah Zambales. Makalah penelitian ini menggunakan desain penelitian survei deskriptif kuantitatif. Sebagai rencana induk yang menentukan metode dan prosedur untuk mengumpulkan dan menganalisis informasi yang dibutuhkan, metode penelitian deskriptif melibatkan deskripsi, komposisi atau proses fenomena. Modul belajar mandiri yang dievaluasi oleh responden efektif dalam menilai kinerja siswa dalam sains. Penilaian tingkat keefektifan modul belajar mandiri yang digunakan tidak dipengaruhi oleh Pencapaian Pendidikan Tertinggi, Bidang Peminatan, Jabatan Pengajar, dan Lama Pengajar responden, melainkan hanya dipengaruhi oleh jumlah penulisan modul seminar/pelatihan yang mereka miliki. telah hadir. Tidak ada perbedaan yang signifikan dalam tingkat keefektifan SLM yang digunakan ketika tanggapan dikelompokkan menurut komponen pembelajaran, tujuan pembelajaran, dan kompetensi pembelajaran tetapi ada perbedaan yang signifikan ketika datang ke jumlah pelatihan yang mereka ikuti.

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1. Introduction

Education plays a vital role in contemporary world to succeed. It is important because it is used to alleviate most of the challenges faced in life. The knowledge that is achieved through education helps open doors to a lot of opportunities for better prospects in career growth. Education is one of the chief means of acquiring essential knowledge and skills and personal development. It becomes the instrument of the individual to survive, progress, and attain human success. Education leads the people towards good health, empowerment, and employment.

Globalization greatly affects science education, which poses challenges in its alignment with the current perspective on global competencies. Across the world, education is the primary agent of transformation towards sustainable development. It is a fact that quality science education is a vehicle that plays an important role in producing the best quality of graduates [1] who will become great leaders and manpower for the country. As the world becomes increasingly scientific and technological, the impact of science is fully recognized for economic advancement and the nation's prosperity. With this, science education has always been the object of reform so that

an effective science culture will be established in society. Science teaching is a complex activity that lies at the heart of the vision of science education [2]. A key aspect of educational innovation is the change in teaching methodology [3]. In addition, science educators in the early 21st century are facing a myriad of issues. Science is an important subject at the upper primary level and understanding basic science concepts increase the content knowledge of the teachers and students [4]. But for some time, teachers faced difficulties understanding some science concepts. Also, they had occurred difficulties in teaching some science concepts. If these concepts are difficult to understand for the teachers, It will be transferred to students incorrectly and it will create many alternative conceptions. The realization of the goals of science education partly depends on the instructional approaches teachers use in imparting the concepts and skills which are fundamental in building students' understanding of science [5]. Teaching methods practiced by teachers have a crucial effect on enhancing the students' capabilities and potentialities for effective, authentic, and meaningful learning. It is generally observed that the quality of education students get largely depends on the quality of instruction they are given. Undoubtedly, teachers must find ways to enhance learning delivery to make sure that learning is indeed transferred to the students.

This situation of science education got worsened by the present pandemic scenario where face-to-face and mass gathering was prohibited. It puts an extra challenge on the continuity of the learning process in the country's educational system. To solve the challenges in Philippine education specifically in science, the Department of Education (DepEd) mandated the allocation, delivery, and distribution of modules used by teachers and learners (DepEd Order No. 31, s. 2012). Modular teaching is a new approach in classroom settings, for experience taking in encounters in instruction also it has been getting much consideration. The system of taking in modules has turned into a piece of all levels of instructions. Teaching through the module is a self - taking in bundle managing one particular topic/ unit. It could be utilized within any setting helpful to the learner and may be finished at the learner's own particular pace. Modular teaching-learning is the most widespread and recognizes teaching-learning technique in the United States, Australia, and many other countries [6]. The module is the one medium that can make students work independently [7]. In addition, the use of the module can also enhance the efficiency and effectiveness of learning in school, both efficient use of time, funds, facilities, and personnel to achieve the goal of optimally. However, the learning modules used at the start of the K to 12 Program implementation have received much positive and negative feedback. As background, there is a report of the results of some local studies which disclosed that despite the training conducted by DepEd on the K to 12 Curriculum, some teachers commented that the Grade 7 Science Modules were complicated regarding required teaching competencies [8]. Another finding was revealed in students had trouble understanding biological concepts in the Grade 8 Science Module [9].

Given this feedback from previous studies, the researcher aimed to assess if the modules utilized in teaching Senior High School (SHS) science subjects were effective. The researcher recognized that said modules were the product of the collaborative efforts of experts in the field of science from the SHS teachers in the Schools Division of Zambales. But, knowing that those were the first outputs for the first year of implementation of the K to 12 Curriculum, it is then necessary to assess the science modules used in teaching SHS from science teachers and teachers teaching science since they are the experts in the field. The implementation of the program without assessment is much like a dying patient who goes to a doctor to get medicine for a fatal illness but never returns to the medical office to see if the medicine has the needed effect [10].

Teaching is a highly complex situation and the sudden shift of the mode of teaching and learning process in the Philippines Educational system poses a very challenging and demanding role for the teachers. To face challenges considering improving the mode of learning, Self-Learning Modules must be assessed on their effectiveness. The data on the level of effectiveness of the utilized self-learning modules in teaching Senior High School students as assessed by science teachers will be beneficial to mainly to Senior High School Students because it will improve the learning modules used. I will serve as a guide for the teachers in assessing the students' performance using SLMs. School Head would have a basis on how to deal with the appropriate strategy and content in making effective self-learning modules. They would become more aware of the needs and types of motivation that they provide to accelerate the quality of practice, ideal of service, personal and professional growth among their teachers. The outcome of this study would assist the school's division in facilitating the formulation of efficient content and appropriate training needed for writers in making self-learning modules more comprehensive. The facts that this study provided would be used as reference data in conducting future studies related to the effectiveness of self-learning modules. Also, this study will provide information in testing the validity of other related findings. This study aimed to determine the level of effectiveness of the utilized self-learning modules in teaching science to SHS students in the Schools Division of Zambales.

2. Research Method

This research paper utilized the quantitative descriptive survey research design. As a master plan specifying the methods and procedures for collection and analyzing the needed information [11], the descriptive method of research involves the description, composition, or process of phenomena [12].

The employment of a descriptive survey research design was parallel to the objective of the research to describe the status of an identified variable as it aimed to provide accurate information about a phenomenon, as this sought to measure the level of effectiveness of the utilized self-learning modules in teaching science specifically to the senior high school students. Further stated that the descriptive method is something beyond just gathering data [13]. The true meaning of data collected should be reported from the point of view of the objectives and the basic assumptions of the project underway. This follows the careful classification of data. Facts obtained may be accurate expressions of the central tendency of deviation in correlating, but the report does not research unless discussion of data is carried out to the level of adequate interpretation. Data must be subjected to the thinking process in terms of reasoning. Survey research typically employs questionnaires to determine opinions, attitudes, preferences, and perceptions of interest to the researcher [14].

A descriptive survey research design is appropriate to use in this study in determining the level of effectiveness of the utilized Self-Learning Modules as the sample population considered in the study is large and the variables to be measured are defined in previous related literature. Consequently, the research study intended to propose suggestions on a teacher-development program that will help all teacher-writers enhance their writing skills and evaluate the SLMs used in teaching Science to SHS students in the Schools Division of Zambales.

2.1. Respondents and Location

The respondents of this research work were the Public Senior High School teachers rendering service within the Schools Division of Zambales (Table 1), each municipality was represented from Subic, the southernmost district up to the northernmost Sta. Cruz. The following table summarizes the number of public Senior high schools in different school districts in Zambales.

Table 1. Frequency and Percent Distribution of SHS Teachers in the Schools Division of Zambales using Purposive Universal Population Sampling

District	Frequency	Percentage (%)
Botolan	25	13.59
Cabangan	6	3.26
Candelaria	9	4.89
Castillejos	12	6.52
Iba	17	9.24
Masinloc	9	4.89
Palauig	7	3.80
San Antonio	13	7.07
San Felipe	11	5.98
San Marcelino	17	9.24
San Narciso	5	2.72
Sta. Cruz	30	16.30
Subic	23	12.50
Total	184	100.0

A modified survey questionnaire was used in gathering data. The questionnaire collected the respondents' assessment on the level of effectiveness of the self-learning modules in terms of its (1) Components particularly, the introduction, learning objectives, initial tests, learning activities, and learning assessments, (2) Learning goals like communication, creativity, and critical thinking, (3) achieved learning competency, especially the module coverage and advancement and 21st century learning attainment. Questions regarding the module Component effectiveness were while questions on the effectiveness of the learning goals of the modules were taken [15].

2.2. Validation of the Instrument

The self-designed questionnaire was piloted to 25 JHS science teacher-respondents and was statistically treated to generate an acceptable Cronbach alpha value of 0.884

2.3. Data Collection and Ethical Consideration

Before and during the collection of data, some ethical considerations were undertaken to ensure the following rights of the respondents were safeguarded. Right to Privacy - Respondent information was anonymized as no personal information such as name, address, contact no, email, age, and gender were gathered to protect and secure the privacy of their data.

a. Right to Fairness - The researcher ensured that all the 13 municipalities that made up the Province of Zambales were duly represented in the survey and that no discrimination was made in the selection of the sample population.

b. Right to Safety - In this time of pandemic, the health and safety of the respondents was the primary consideration for the use of a Google survey form in the collection of data.

This ensured that there was no face-to-face meet up with the respondents to mitigate the risk of the researcher or the respondents being infected with the Covid 19 virus. However, 63 of the total teachers (34.24%) were not responding and utilizing the Google form. In this case, the researcher had to leave the printed questionnaires in the school premises which were then disseminated by the school head to his/her respective faculty. After the forms have been accomplished, the researcher collects the forms from the guard at the school premises upon notification from the school head. All required health and safety protocols were followed in these instances. Right to Voluntary Participation - Permission from school heads was first sought before teachers were enjoined to participate. Moreover, individual respondents' participation was voluntary. The researcher complied the needed approval letter. The survey questionnaires were directly administered to the respondents to provide the researcher ample time to explain to the respondents the nature of the study, ask further questions and entertain some, if any. The manner of floating the questionnaires was adjusted to the current situation of the world with the CoViD – 19 pandemic, hence personal visits were done with strict observation on all the necessary proper health protocols in abeyance to the Inter Agency Task Force (IATF), Department of Health (DOH), Office of the president of the Philippines and other authority agencies with issuances regarding the prevention of covid-19 infection. As well as online, using different platforms of social media such as Facebook Messenger and Google forms where the researcher privately sent them the tool, and still had an open line of communication that enabled both parties for further questions and explanations and a better chance of retrieval. Help from friends, colleagues and relatives was also requested by the researcher to speed up data gathering.

2.4. Data Analysis

The required data was collected, organized, and tabulated to employ the appropriate statistical treatment necessary to extract the results. As quantitative descriptive research, this attempted to turn raw numbers into meaningful data, which became the basis in either accepting or rejecting the formulated hypotheses.

The researcher utilized the following statistical tools:

a. Frequency Count – This is a simple count equated with entities, the tally for each variable indicator.

b. Percentage – the ratio of any number to the whole, this was used to determine the proportion of the respondents that have the same experiences in the frequency of assessment.

c. Weighted Mean – the average value for a specific variable, this was sought to determine the overall assessment of the respondents on the level of effectiveness in the utilization of Self-Learning modules to Senior High School Students in Teaching Science.

d. Likert Scale – A 4 – point Likert scale was used in interpreting the mean responses on the assessed level of effectiveness on the utilization of self-learning modules. 4-strongly agree;3 Agree;2-Disagree and 1-Strongly disagree.

e. Analysis of Variance – To test the significance of the differences through the mean in the variables, Analysis of Variance (ANOVA) or F was used. It was computed using the software SPSS.

3. Result and Discussion

This chapter presents the results and interpretation of the findings based on collected data, related literature and studies, and the researcher's observations and actual experience.

3.1 Demographic Profile of Senior High School Teacher-Respondents

Table 2 shows the frequency and percentage distribution of the teacher respondents' profile variables of highest educational attainment, area of specialization, length of service in teaching Senior High School, teaching position, and a number of modules writing trainings/seminars attended

Table 2. Frequency and Percentage Distribution on the Senior High School Teacher-respondents' Profile Variables

	Profile Variables	Frequency (f)	Percentage (%)
Highest Educational Attainment	Doctorate Degree	3	1.63
	Units in Doctorate Degree	16	8.70
	Master's degree	27	14.67
	Units in master's degree	100	54.34
	Bachelor's Degree	38	20.65
	Total	184	100.0
Area of Specialization	Accountancy and Business Management	11	5.97
	English	10	5.43
	Filipino	7	3.80
	Mathematics	28	15.22
	Science	72	39.13
	Social Studies	22	11.96
	Technical Vocational Livelihood	34	18.48
	Total	184	100.0
Length of service in teaching Senior High School	Less than 1 year	2	1.09
	1-3 years	73	39.67
	4-5 years	109	59.23
	Total	184	100.0
Teaching Position	Master Teacher II	6	3.26
	Master Teacher	11	5.97
	Teacher III	33	17.93
	Teacher II	82	44.57
	Teacher I	52	28.26
	Total	184	100
No. of Module Writing Trainings/Seminars Attended	5-6	18	9.78
	3-4	49	26.63
	1-2	81	44.02
	No Training	36	19.56
	Total	184	100.0

3.1.1. Highest Educational Attainment

More than half of the respondents had Units in a master's degree with 100 or 54.34 %. Some of the respondents have completed their bachelor's degree with 38 or 20.65 %, and master's degree with 27 or 14.67%, while only a few had Units in Doctorate Degree with 16 or 8.70%, and a Doctorate Degree with 3 or 1.63%. This was correlated in the 2021 study on the training needs of Senior High School Teachers in Zambales conducted by Dizon, De Guzman and Gracia. Most often in the academic field, teachers have upgraded their competencies and educational qualifications to be promoted to the next level position in a school ranking system. Teachers must undertake appropriate ongoing professional development to promote competence in teaching [16].

3.1.2. Area of Specialization

Most of the respondents were teaching Science with 72 or 39.13%. Some are specialized in Technical Vocational Livelihood with 34 or 18.48%, Mathematics with 28 or 15.22%, and Social Studies with 22 or 11.96%. The rest handle Accountancy and Business Management with 11 or 5.97%, English with 10 or 5.43%, and Filipino with 7 or 3.80%. The findings signify that the teacher respondents are teaching their area of specialization. The same demographic findings that the majority of Senior High School teachers in Zambales specialize in the Academic Track was found the assessment of teacher training needs [17].

3.1.3. Length of service in teaching Senior High School

More than half with 109 or 59.23% of the respondents had Corpuz been teaching for 4-5 years, some with 73 or 39.67% have 1-3 years of service while very few 2 or 1.09% have been in the service for less than a year. Clearly garnered from the data that most of the respondents are not new to the service. The dominance of the teachers who served for 1-5 years on Out of Field Teaching in Relation to the Teachers' Work Performance in Zone 4 [18]. The result implies that most of the teachers are seasoned educational experts and stay in service because of the security of tenure and pay; the advantages of being employed in the government sector under the Department of Education.

3.1.4. Teaching Position

Close to half of the total respondents had the position of Teacher II with 82 or 44.57%. Some were Teacher I with 52 or 28.26%, and Teacher III with 33 or 17.93%. Only a few hold Master Teacher I with 11 or 5.97%, and Master Teacher II with 6 or 3.26% positions. This further implies that respondents are in the middle teaching position as correlated with their highest

educational attainment, most of the respondents who have units in a master's degree program have been promoted to Teacher II status [19]. The same demographic findings that most Senior High School teachers in Zambales are in this position were found in the assessment of teacher training needs [16].

3.1.5. Number of Training/Seminars Related to module Writing

It is also presented that many of the respondents had attended 1-2 related seminars with 81 or 44.02 %. Some had attended 3-4 seminars with 49 or 26.63% while there were still others who had no module-writing training with 36 or 19.56%. Those who had undergone 5-6 seminars with 18 or 9.78% were quite few. This result implies that most of the science teachers doesn't have enough training in module writing. To be able to produce quality modules, teachers are not only required to follow the curriculum guides from the Department of Education (DepEd). As for educational activities, teachers are better to be trained and to be knowledgeable on alignment of the objectives to all learning processes, done to promote learning and retention [20]. Training will also help the teacher become adept in writing that will upgrade the quality of output because it will enhance their knowledge and skills [21]. Training is related to effectiveness in attaining specific objectives [22] which are then supported by teachers that training increases the knowledge and skills. As educators and subject specialists, teachers are more adept at making modules given their expert knowledge in their areas of specialization as well as the rigors and years they have spent in service, making their lessons in accordance with the course requirements given by DepEd.

3.2 Level of Effectiveness of the Utilized Self-Learning Modules as Assessed by the Respondents

The data on the assessed level of effectiveness of the utilized Self-Learning modules is presented in Table 3. There are ten (10) dimensions in the levels of effectiveness of the utilized SLMs as to introduction, objectives, initial tests, learning activities, learning assessment, creativity, communication, critical thinking, coverage, and advancement and 21st Century learning attainment.

Table 3. Assessed Level of Effectiveness of the utilized SLM Assessed by the Senior High School Science Teacher Respondents as to its Learning Components, Goal,s and Competency

Learning Domains		Weighted Mean	Descriptive Equivalent
1	Introduction	3.32	Strongly Agree
2	Learning Objectives	3.38	Strongly Agree
3	Initial Test	3.28	Strongly Agree
4	Learning Activities	3.31	Strongly Agree
5	Learning Assessment	3.31	Strongly Agree
6	Creativity	3.32	Strongly Agree
7	Communication	3.31	Strongly Agree
8	Critical Thinking Skills	3.31	Strongly Agree
9	Coverage & advancement	3.33	Strongly Agree
10	21st Century Skills Attainment	3.31	Strongly Agree
	Overall Weighted Mean	3.32	Strongly Agree

Teacher respondents obtained a qualitative interpretation as strongly Agree on learning objectives with a mean rating of 3.38. Coverage & advancement with a weighted mean rating of 3.33. Introduction and Creativity has a weighted mean of 3.32, While Learning activities, learning assessment, Communication, Critical thinking skills, 21st century Skills Attainment with a mean rating of 3.31, and the initial test with a mean rating of 3.28. Overall, the teacher-respondents strongly agree that the utilized self-learning modules components, goals and competency are effective with a general mean rating of 3.32.

The MELC-aligned SLM is the backbone of distance learning aimed at making education accessible to students, both online and offline, most especially to those who live in far-flung rural areas without internet access. Moreover, policy standards that were set for new modes of learning delivery during the COVID-19 pandemic stipulated that the content of the SLM uses constructivist, inquiry-based, reflective, collaborative, and integrative pedagogical approaches. In designing the modules, teachers utilized corresponding policy guidelines that defined constructivism as a pedagogical approach that aims to develop learners as active constructors of meaningful knowledge [23]. Such an outcome could be achieved by designing lessons that engage students in internalization, self-reflection, and real-life problem solving [24]. Thus, teachers need to incorporate learning goals anchored on the important skills that the students must acquire. Administrative support must also be strengthened to provide teachers with adequate retooling and upskilling activities in SLM designing and preparation.

3.3 Test of Difference on Level of Effectiveness of the utilized Self-Learning Modules when Teacher Respondents are grouped according to Profile Variables

Analysis of Variance to test the difference in the Level of Effectiveness of the utilized Self-Learning Modules

when Teacher Respondents are Grouped According to Profile is presented in Table 4.

Table 4. Analysis of Variance to test the difference in the Level of Effectiveness of the Utilized Self-Learning Modules when Teacher Respondents are Grouped According to Profile Variables

Profile Variables	Source of Variation	Sum of Squares	df	Mean Square	F	P-value	Interpretation
Highest Educational Attainment	Between Groups	0.5	4	0.127	0.633	0.640	Ho is accepted
	Within Groups	35.94	179	0.201			Not Significant
	Total	36.45	183				
Area of Specialization	Between Groups	1.49	6	0.249	1.259	0.279	Ho is accepted
	Within Groups	34.96	177	0.198			Not Significant
	Total	36.45	183				
Length of service in teaching Senior High School	Between Groups	0.010	2	0.005	0.051	0.821	Ho is accepted
	Within Groups	36.44	182	0.200			Not Significant
	Total	36.45	183				
Teaching position	Between Groups	1.203	4	0.301	1.527	0.196	Ho is accepted
	Within Groups	35.25	179	0.197			Not Significant
	Total	36.455	183				
Number of seminars/ training attended related to module writing	Between Groups	1.735	3	0.578	2.998	0.032	Ho is rejected
	Within Groups	34.720	180	0.193	0.000	0.000	Significant
	Total	36.455	183				

There was a significant difference in the level of effectiveness of the utilized self-learning modules when respondents are grouped according to several seminars/training attended related to module writing (Sig. = 0.032). The computed significance values (Sig.) were less than (<) 0.05 alpha level of significance, therefore the null hypothesis is rejected.

However, the computed significance value (Sig.) for Length of service (Sig. = 0.821), Highest educational attainment (Sig. = 0.640), Area of specialization (Sig. = 0.279), and Teaching position (Sig. = 0.196) were all greater than (>) 0.05 alpha level of significance. The results indicate that there was no significant difference in the level of effectiveness of the self-learning modules when respondents are grouped according to highest educational attainment, area of specialization and teaching position. Therefore, the null hypothesis is accepted. Examine the association between training attended of teacher-writers and the component of modules [20]. In their study, it was found out that teachers are better to be trained and to be knowledgeable on the alignment of the content as to its introduction, objectives and assessment to all learning processes done to promote learning and retention. Training will also help the teacher become adept in writing that will upgrade the quality of output because it will enhance their knowledge and skills [21].

3.4 Analysis of Variance on the Difference Among the Level of Effectiveness of the Utilized Self-Learning Modules When Responses Are Grouped According to Learning Components, Learning Goals, And Learning Competency

3.4.1. Self-Learning Components of Modules

The computed significance values (Sig.) when data between groups (Sig. = 0.207) is higher than the level of significance of 0.05 hence, the null hypothesis is accepted. This means that there is no significant difference in the effectiveness of the utilized self-learning modules' when grouped according to Learning Components. Table 5 shows the difference in the level of effectiveness of the utilized self-learning modules when responses are grouped according to Learning Components. Table 5 shows the difference in the level of effectiveness of the utilized self-learning modules when responses are grouped according to Learning Components.

3.4.2. Learning Goals of The Students

The significance values (Sig.) when data between groups is (Sig. = 0.846) which is higher than the level of significance of 0.05 hence, the null hypothesis is accepted. This means that there is no significant difference in the effectiveness of the modules' Utilization when grouped according to Learning Goals. Table 6 shows the difference in the level of effectiveness of the utilized self-learning modules when responses are grouped according to Learning Goals.

Table 5. The difference in the Level of Effectiveness of Self-Learning Modules when Grouped According to Self-Learning Modules Components

Source of Variation	Sum of Squares	df	Mean Square	F	P-value	Interpretation
Between Groups	1.193	4	0.298	1.479	0.207	Ho is accepted
Within Groups	184.591	915	0.202			Not Significant
Total	185.784	919				

Table 6. The difference in the Level of Effectiveness of Self-Learning Modules when Grouped According Learning Goals of the Students

Source of Variation	Sum of Squares	df	Mean Square	F	P-value	Interpretation
Between Groups	0.069	2	0.034	0.167	0.846	Ho is accepted
Within Groups	112.744	549	0.205			Not Significant
Total	112.813	551				

3.4.3. Achieved Learning Competency of Students

The significance values (Sig.) when data between groups is (Sig. = 0.649) which is higher than the level of significance of 0.05 hence, the null hypothesis is accepted. This means that there is no significant difference in the effectiveness of the modules' Utilization when grouped according to Achieved Learning Competency of Students. Table 7 shows the difference in the level of effectiveness on the Utilization of the self-learning modules when grouped according to Achieved Learning Competency of Students.

Table 7. The difference in the Level of Effectiveness of the Utilized Self-Learning Modules when Grouped According to Achieved Learning Competency of Students

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.	Interpretation
Between Groups	0.041	1	0.041	0.207	0.649	Ho is accepted
Within Groups	72.120	366	0.197			Not Significant
Total	72.161	367				

4. Conclusion

The self-learning modules evaluated by the respondents were effective in assessing students' performance in science. All the 10 dimensions were effective since the module writers were subject teachers who were experts in their field, and they adhered to the content requirements and guidelines mandated by the Department of Education in designing and writing the SLMs. Assessment of the level of effectiveness of the utilized self-learning modules' was not influenced by the respondents' Highest Educational Attainment, Area of Specialization, Teaching position, and Length of service in teaching but only by the number of modules writing seminars/training they have attended. There is no significant difference in the level of effectiveness of the utilized SLM when responses are grouped according to learning components, learning goals, and learning competency but there is a significant difference when it comes to the number of trainings they attended. Based on the findings and the conclusions arrived at, the researcher recommends having an evaluation of the modules used in teaching Science to JHS students in the Schools Division of Zambales. The researcher also recommends that future researchers may conduct follow-up assessments of students as the end-users of SLMs should be conducted to get a balanced view of the effectiveness of the SLMs currently being used in SHS.

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