IMPROVING THE PERFORMANCE LEVEL OF GRADE 7 - CREATIVE SCIENCE STUDENTS THROUGH THE USE OF WORKBOOK IN DISTANCE LEARNING

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ABSTRACT

IMPROVING THE PERFORMANCE LEVEL OF GRADE 7 - CREATIVE SCIENCE STUDENTS THROUGH THE USE OF WORKBOOK IN DISTANCE LEARNING

MANCENIDO, ROSABEL S., Tabas National High School, Paracale, Camarines Norte, May 23, 2022.

Keywords: Improving Performance Level, Science, Workbook, Distance Learning

This study was conducted to improve the performance level of Grade 7- Creative Science students through the use of Workbook in the distance learning. Specifically, it sought to answer to the following questions: 1) What are the problems encountered by the Grade 7 - Creative Science students in distance learning? 2) What is the performance level of Grade 7 - Creative Science students in the pre - test? post-test? 3) Is there a significant improvement in the performance level of the Grade 7 - Creative Science students through the use of workbook in distance learning? 5) What is the level of acceptability of the proposed Science 7 Workbook to the TNHS teachers and expert validators along LRMDS evaluation criterion[9]?

This action research utilized the experimental design and triangulation method as a data gathering procedure through survey questionnaire.

Conclusions derived were as follows: 1) The students encountered problems in distance learning such as unstable internet connection, many of them do not have gadgets such as smart phones and computers, they cannot open or watch video lessons and lastly, they encountered difficulty in understanding the lesson because most of them need somebody to guide them; 2) The result of the post-test increased as compared to the result of the pretest; 3)

It manifested that utilization of workbook will contribute in the improvement in the performance level of the Grade 7 - Creative Science students; 4) the Science Workbook passed the evaluation of the teachers and the experts along the LRMDS criterion. It means that the printed instructional material is acceptable. Based from the findings and conclusions made, the following are recommended: 1) The teachers should design and utilize a supplemental instructional material to help the students understand their science lessons and to facilitate the teaching and learning processes; 2) Further, the the proposed Workbook must be presented to the Department of Education Division of Camarines Norte for further improvement and better utilization of other science teachers in the division.

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CONTEXT AND RATIONALE

The education sectors all over the world made tremendous adjustments due to pandemic. All learners, teachers and other DepEd employees faced a situation where they need to adapt themselves in the abrupt change around them because we all know that education is the backbone of the nation. Hence, the Secretary of the Department of Education (DepEd) Leonor Magtolis Briones ordered to ensure that learning continues while guaranteeing the health safety, and well being of all the people within the institution. This lead to the adoption of the the new Learning Delivery Modalities (LDM). Since face-to-face learning is not possible, schools implemented whichever is applicable among the following: Distance Leaning, Blended Learning, and Homeschooling.

Now, educators must develop learning materials to facilitate teaching and learning that are applicable in the learning modality adopted in the school. According to Pokhrel and Chhetri (2021) COVID-19 pandemic has created the largest disruption of education systems in human history, affecting nearly 1.6 billion learners in more than 200 countries. Social distancing and restrictive movement policies have significantly disturbed traditional educational practices. Within a short span of the COVID-19 pandemic, many researchers have shared their works on teaching and learning in different ways. Several schools, colleges and universities have discontinued face-to-face teachings. The need of the hour is to innovate and implement alternative educational system and assessment strategies.

Although ICT can be used to assist learners, there are places where internet connection is unstable same as the case of the nearby barangays in our school. More so, there are students who do not have gadgets for the distance learning. Since most of the students in Tabas National High School adopted Modular Distance Learning, it is difficult to determine if the learners do really understood the lesson. Teachers are ought to design and utilize an instructional material for the assurance that the quality education is being serve to them. We all know that instructional materials have great impact in the teaching - learning process. Arop et.al. (2015) showed that the use of instructional materials have a favourable effect on students' achievement in science concepts. Recommendations were made among others that teachers should source for instructional materials for effective lesson delivery. More so, Bukoye (2019) investigated the utilization of instructional materials as tools for effective academic performance of students. The findings revealed inadequate use of instructional materials in most schools and majority of the teachers did not take cognizance of the importance derived from the use of instructional materials while teaching. Those that adopted the utilization, did not use them appropriately. No wonder the high rate of students' failure in external examinations. The study confirmed the importance of using and choosing appropriate instructional materials in teaching. Based on the study of Funcion (2019), instructional materials (IM) play an essential role in the teaching and learning process. IM's can be in the form of video, workbook, and textbook to enhance the knowledge and skills of the student. Books and instructional materials are some of the

learning materials that the teacher use to deliver the experience and expertise to the student. However, factory produced instructional materials are insufficient and expensive because of the high-cost instructional material provided by the publishing companies, teachers are encouraged to create instructional materials.

These are some of the reasons why the researcher is motivated to create an instructional material that is appropriate in the present situation. Recognizing this reality, this study aims to help improve the performance of Grade 7 - Creative Science students in Tabas National high School.

PROPOSED INNOVATIONS, INTERVENTION AND STRATEGY

Science 7 - WORKBOOK

This Workbook is a supplemental instructional tool / material in teaching Science to be utilized by the Grade 7 - Creative science students in Tabas National High School starting school year 2021 - 2022. It contained activities on the topics that are least mastered. Answer key is provided at the end of every topic for the assessment of the student's works. The researcher ensured that simple terms are used to be easily understood by the grade 7 students. Further, the visual aspect is likewise considered to make reading enjoyable on their part. Some simple brain exercise games are employed so that students feel that they are playing while learning. Once the workbook is validated, it will be reproduced and be distributed to the learners. It will be returned by the students at the end of the school year. Activities in this workbook will be included in the expected out as indicated in the weekly home learning plan (WHLP).

Moreover, the contents are definitely aligned to the MELCs provided in Science. Brief explanation about a topic is likewise included as well as simplified illustrations to help the learners better understood the different science concepts.

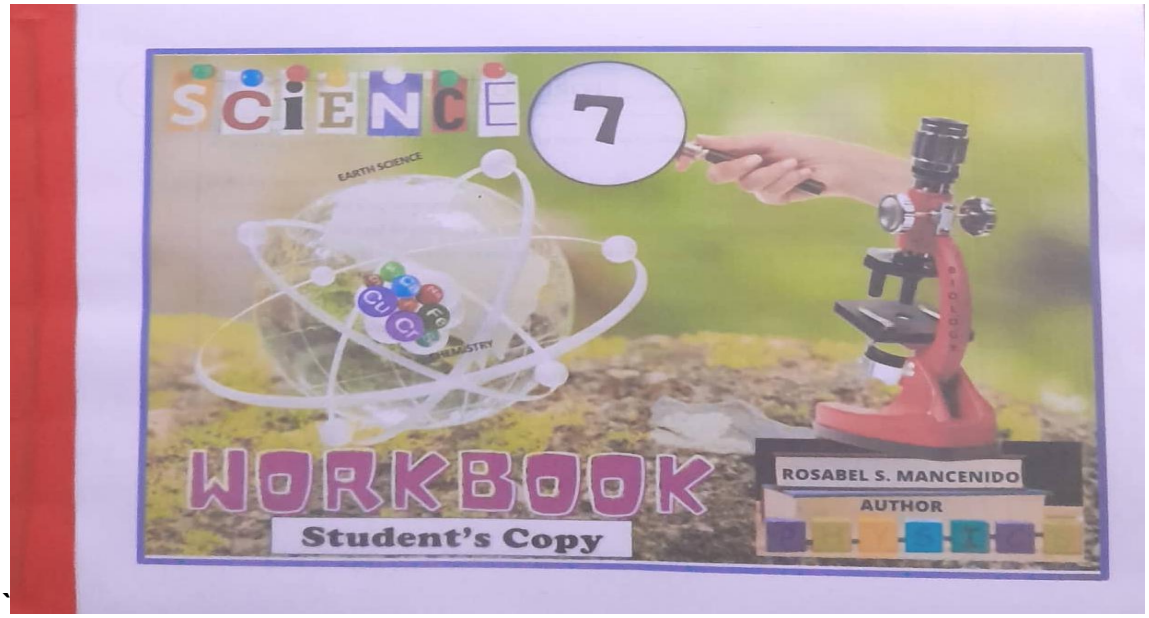

Plate 1: Proposed Science Workbook Cover for Students

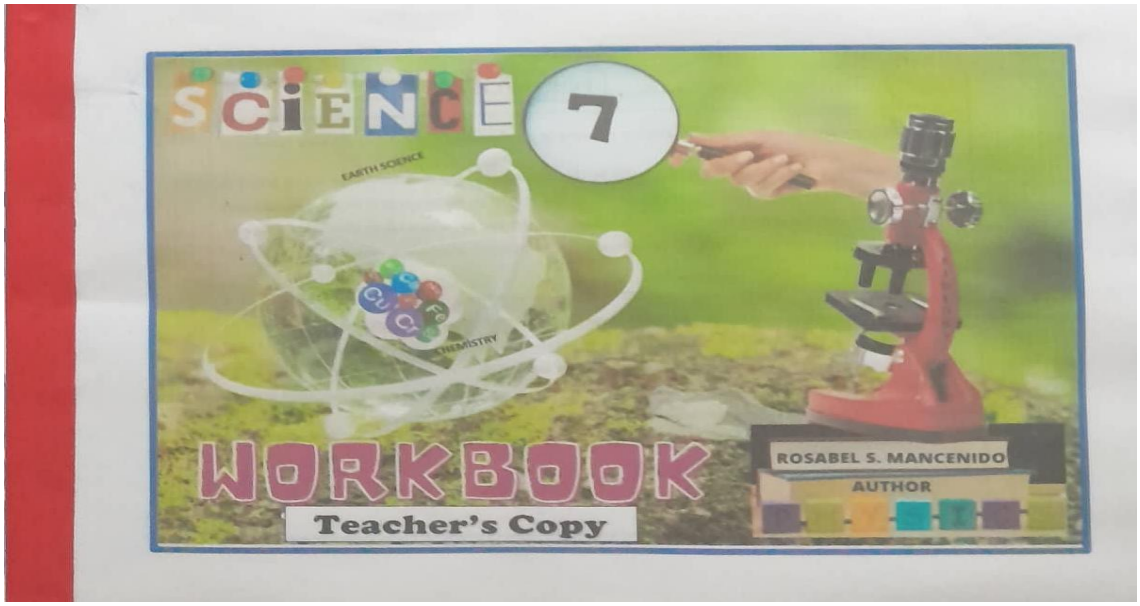

Plate 2: Proposed Science Workbook Cover for Teachers

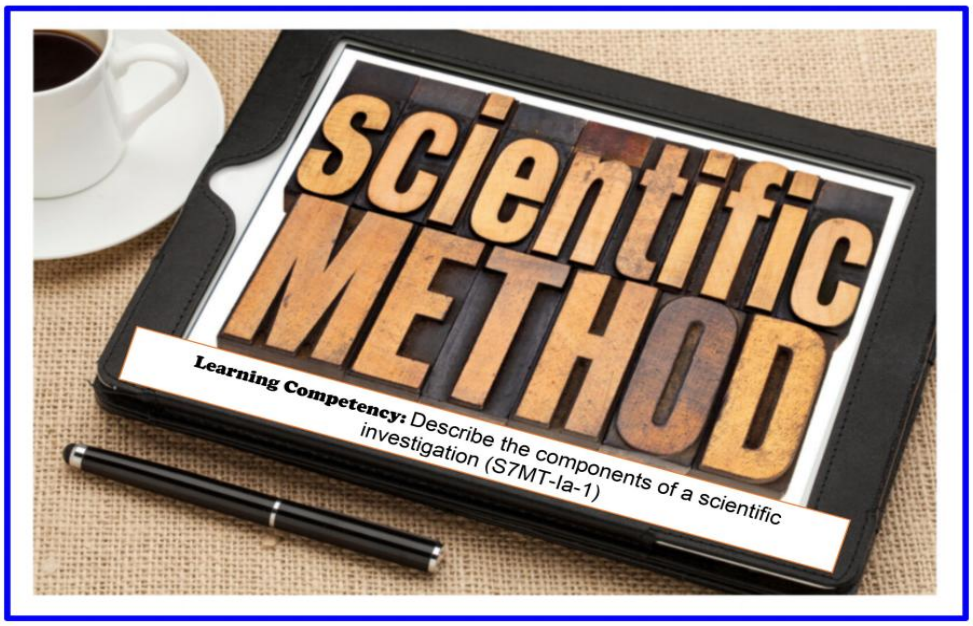

Plate 3: Sample Science Workbook Lesson Title

Plate 4: Sample Science Workbook Lesson Title

Direction: Analyze the picture of plant and animal cell. Compare the parts especially the shape and the outer layer.

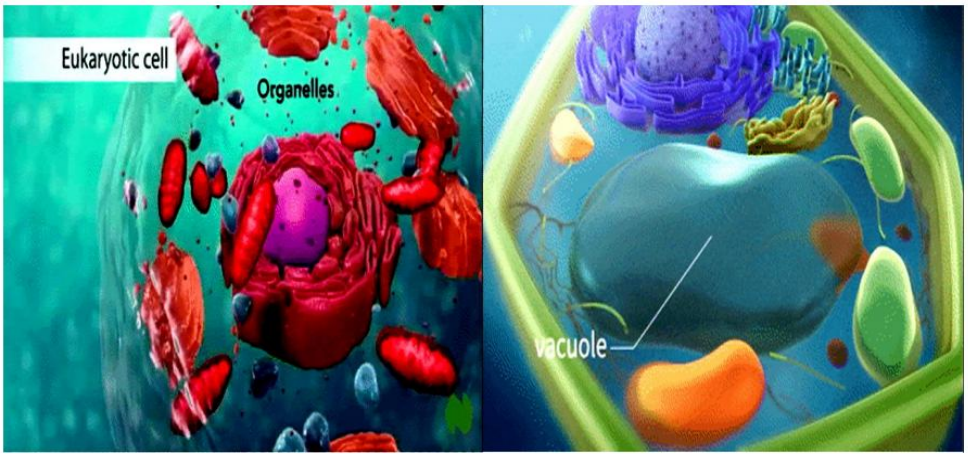

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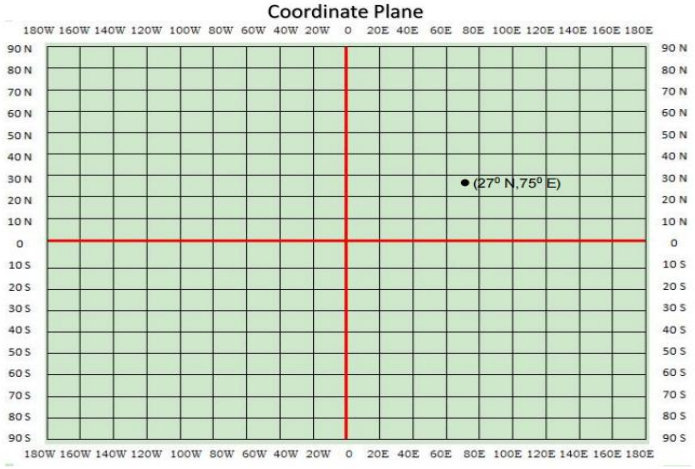
Plate 5: Sample Science Workbook Activity Sheet

ACTIVITY 1: PLOTTING OF COORDINATES IN THE PLANE

Direction: Plot the given coordinates on the coordinate plane below. Put (x)on the specified location then write the coordinate beside the symbol (x). Latitude must be written first. Ex.X (27^0 N,75^0 E). Item no. 1 is done for as an example.



Coordinates

No.	Latitude	Longitude
1	27^{0}N	75^{0}E
2	40^{0}N	8^{0}E
3	16^{0}N	74^{0}W
4	31^{0}N	10^{0}W
5	10^{0}S	50^{0}W

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Plate 6: Sample Science Workbook Activity Sheet

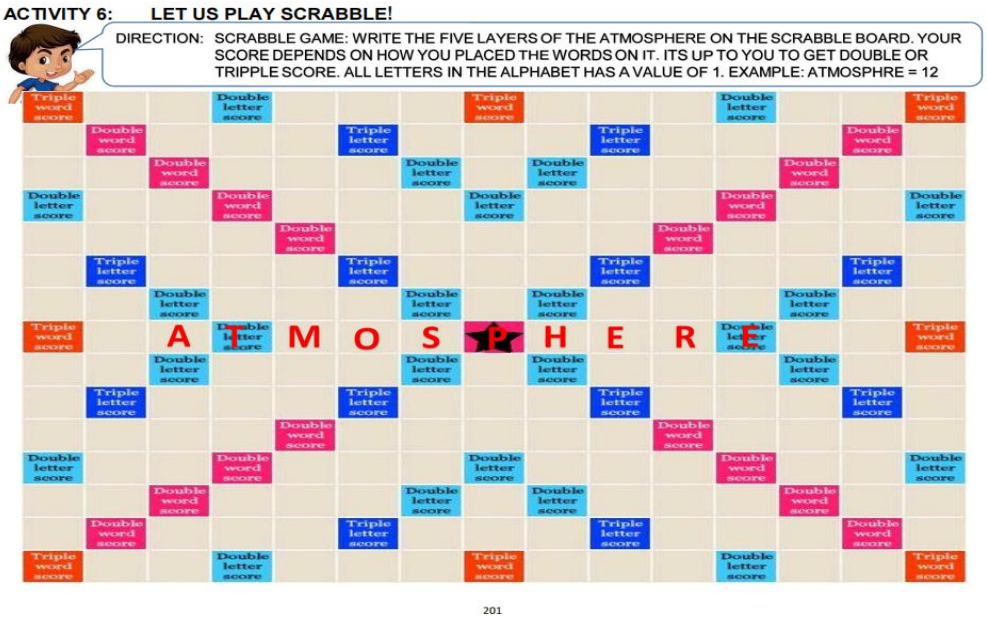


Plate 7: Sample Science Workbook Activity Sheet

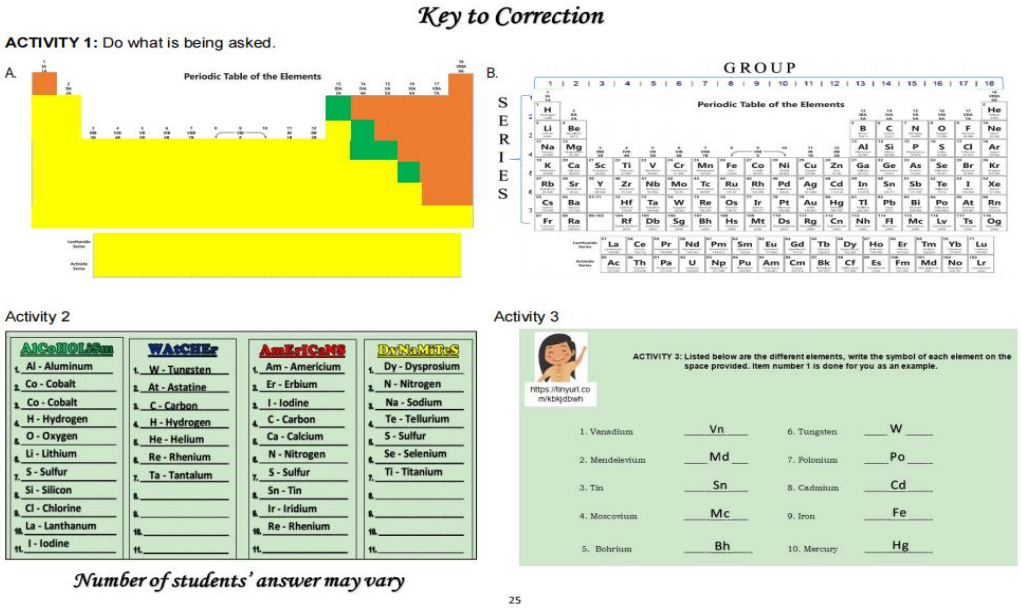
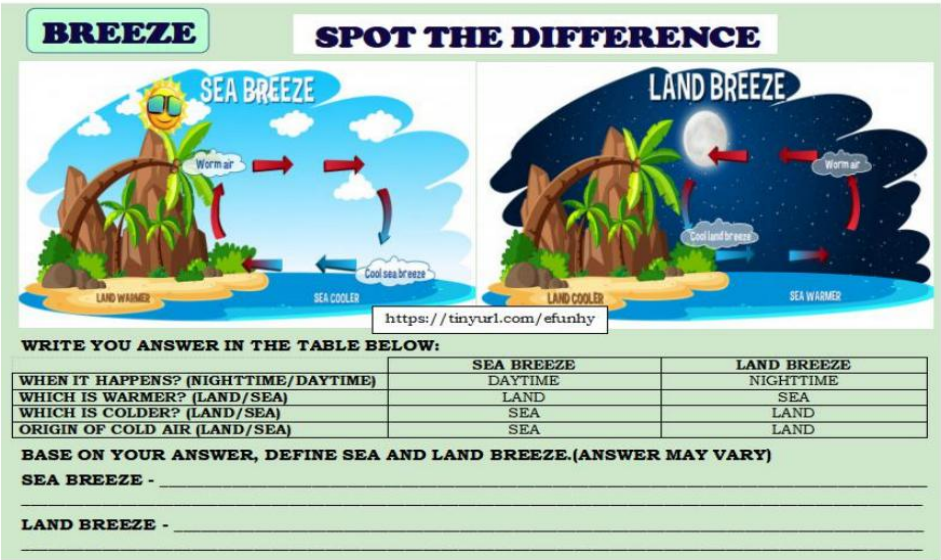


Plate 8: Sample Science Workbook Answer Key

Key to Correction

ACTIVITY 1



BREEZE **SPOT THE DIFFERENCE**

SEA BREEZE

Worm air

Cool sea breeze

LAND WARMER

SEA COOLER

LAND BREEZE

Worm air

Cool land breeze

LAND COOLER

SEA WARMER

https://tinyurl.com/efunhy

WRITE YOU ANSWER IN THE TABLE BELOW:

	SEA BREEZE	LAND BREEZE
WHEN IT HAPPENS? (NIGHTTIME/DAYTIME)	DAYTIME	NIGHTTIME
WHICH IS WARMER? (LAND/SEA)	LAND	SEA
WHICH IS COLDER? (LAND/SEA)	SEA	LAND
ORIGIN OF COLD AIR (LAND/SEA)	SEA	LAND

BASE ON YOUR ANSWER, DEFINE SEA AND LAND BREEZE.(ANSWER MAY VARY)

SEA BREEZE - _____

_____

LAND BREEZE - _____

_____

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Plate 9: Sample Science Workbook Answer Key

ACTION RESEARCH QUESTION

This action research aims to improve the performance level of Grade 7 - Creative Science students through the use of workbook in distance learning. Specifically, it aims to answer the following research questions:

1. What are the problems encountered by the Grade 7 - Creative Science students in distance learning in terms of the following:
    a. Internet connectivity,
    b. Smart phone or other gadgets,
    c. Instructional Materials in Science for distance learning, and
    d. SLMs or LAS?

2. What is the performance level of Grade 7 - Creative Science students in the pre - test?
3. What is the performance level of Grade 7 - Creative Science students in the post - test?
4. Is there a significant improvement in the performance level of the Grade 7 - Creative Science students through the use of workbook in distance learning?
5. What is the level of acceptability of the proposed Science 7 Workbook to the TNHS teachers and expert validators along LRMDS evaluation criterion:
    a. Content,
    b. Fomat,
    c. Presentation and Organization, and
    d. Accuracy and Up-to-datedness of Information?

ACTION RESEARCH METHODS

This action research utilized the experimental design since its main purpose was to determine whether the utilization of workbook in teaching Science 7 in the distance learning can improve the performance level of the students. Grade 7- Creative students were given pretest and post-test teacher-made test. This action research also utilized triangulation method as a data gathering procedure through survey questionnaire.

Participants and other Sources of Data and Information. This study involved Grade 7 - Creative students of Tabas National High School . Since it is pandemic, only one (1) section of Grade 7 was chosen to have the participating students which is composed of thirty-five (35) students . Teacher respondents were two (2) Science teachers, two (2) Teacher III and one (1) research enthusiast. The researcher sought help from the expert evaluators for the validity of the workbook that is compose of Master Teachers (MT) and Education Program Supervisors (EPS). This study was conducted in Tabas National High School, Paracale District, Division of Camarines Norte, Region V - Bicol.

Data Gathering Methods. The researcher secured approval and permission from the concerned authorities. Upon its approval, proper coordination with the teacher and student participants is done by the researcher. The researcher personally administered the questionnaire to ensure that all items will be answered and 100% percent retrieval will be attained. Proper health protocol is to be strictly followed. A questionnaire will serve as the data gathering instrument in this action research. The questionnaire is divided into two (2) parts. Part I is intended for the student respondents to gather information about the following: 1. The problems encountered by the Grade 7 - Creative science students in the distance learning in terms of the following: a. Internet connectivity, b. Smart phone or other gadgets, c. Instructional Materials for distance learning, and d. SLMs or LAS. Part II gathered information about the acceptability of the proposed Science 7 workbook to the TNHS teachers and expert validators along

LRMDS evaluation criterion: a. Content, b. Fomat, c. Presentation and Organization and d. Accuracy and Up-to-datedness of Information.

The data gathered gave answers to the questions under investigation and the following statistical tools were used for data analysis and interpretation.

Frequency Count and Percentage Technique. As defined by Zulueta and Costales (2004) frequency count refers to the number of observations and occurrences of a variable while percentage technique was used to measure and show the relation of certain portion of data to the entire data. These two were employed to determine the problems encountered by the Grade 7 Creative science students in the distance learning in terms of Internet connectivity, Smart phone or other gadgets and Instructional Materials for distance learning.

One Sample T - test, As defined by Rebecca Bevans (2022) refers to a statistical test that is used to determine whether a process or treatment actually has an effect on the population of interest. The research tested a group come from a single population before and after an experimental treatment. It is utilized to determine the performance level of the students.

Weighted Mean. As defined by Zulueta and Costales (2004), it is used when there are options of different weights. In this study, it was employed to determine the level of acceptability of the proposed Science 7 workbook to the TNHS teachers and expert validators along LRMDS evaluation criterion sated on the Guidelines and Processes for LRMDS Assessment and Evaluation (2009) such as Content, Fomat, Presentation and Organization and Accuracy and Up-to-datedness of Information.

Discussion of Results and Reflection

This part presented the results and reflection data gathered based on the research questions of this study with their corresponding discussions and interpretations.

Problems encountered by the Grade 7 - Creative Science students in distance learning

Covid - 19 pandemic brought many changes in the educational system One of these changes is the implementation of the new mode of learning called distance learning. Distance learning utilizes Self Learning Materials (SLMs) and Learning Activity Sheets (LAS). Gadgets are also important to facilitate teaching and learning processes. The table below shows the problems encountered by the learners in term of Internet connectivity, Smart phone or other gadgets, Instructional Materials in Science for distance learning, and SLMs or LAS. Due to pandemic, limited face to face were implemented. Each section / class is Divided into two groups called set A and set B. Set A is comprised of sixteen (16) students while set B is comprised of nineteen (19) students. Set A were the respondents in problem no. 1.

Table 1

Problems Encountered by the Grade 7 - Creative students

Factors	Frequency N = 16	Percentage N = 16
Internet Connectivity		
Unstable Internet Connectivity	13	81%
Without Internet Connection	3	19%
Smart Phones or Other Gadgets		
No problem	4	25%
Without Gadget	11	69%
Defective Gadget	1	6%
Instructional Materials for distance learning		
Can't open/watch the video lessons	14	88%
Without answer	2	12%
SLMs or LAS		
Difficulty in understanding the lesson	11	69%
Not clear	3	19%
Without answer	2	12%

As can be seen in table 1, sixteen (16) students out thirty-five (35) respondents have encountered the following problems: In terms of internet connectivity, thirteen (13) respondents out of sixteen (16) or 81% have unstable internet connectivity. In terms of Gadgets, eleven (11) respondents out of sixteen (16) or 69% are without gadget.In the case of instructional materials used in distance learning, fourteen (14) respondents out of sixteen (16) or 88% can't open or watch the video lessons provided by the their Science teacher. Moreover, eleven (11) respondents out of sixteen (16) or 69% also encountered problem with the SLMs and LAS.

There were identified problems in the distance learning of Grade 7 - Creative science students in terms of internet connectivity, gadgets, instructional materials, and Self-Learning Materials (SLMs) or Learning Activity Sheet (LAS). Based on the results, most of the respondents experienced unstable internet

connection, many of them do not have gadgets such as smart phones, desktop computers and laptops, they cannot open video lessons due to unstable internet connectivity and absence of gadgets. Lastly, they encountered difficulty in understanding the lesson because most of them need somebody to guide them. Therefore, teachers should design a supplemental instructional material thus helping them to understand their science lessons in distance learning. These problems of the Grade 7 - Creative students must be addressed to help them cope with their lessons. In this situation, the students definitely need a supplemental or instructional materials to help the learners in understanding the lessons.

In this sense, the researcher believed that the output of this research is especially timely in the time of Covid-19 pandemic. First implication of this research on the problem on the internet connectivity as well as absence of gadgets such as smart phones, desktop computers and laptops, the finding reveals that in a far flung places, even there are lots of available online resources such as video lessons, DepEd TV, LRMDS, and other internet, google and you tube learning resources, the learners unable to access therefore these intervention materials will not help those students who have problems with the internet connectivity and unavailability of gadgets.

A second important implication of the study derives from the finding on the problem encountered difficulty in understanding the lesson because most of them need somebody to guide them. These implications were supported by the study of Akrofi, Godfred K., et. al. (2020) entitiled “Challenges of Distance, Blended,

and Online Learning: A Literature based Approach" challenges of DBOL were realized. These challenges were lack of infrastructure, low or no IT skills, self-disciplinary problems, content issues, policy issues, and social issues. It was strongly advised that, for effective DBOL implementation and operation, there must be in place a solid DBOL policy, adequate infrastructure, and constant training of stakeholders on the use of learning management systems and the development of related IT skills in general.

Based on the study of Acala, Michell, et. Al. (2021) the challenges of teachers were also identified based on how they plan, prepare and distribute modules, monitor students' learning, check, evaluate outputs, and provide feedback on students' performance. Furthermore, teachers used various ways to cope with the challenges encountered in modular distance learning modality such as time management, innovating teaching strategies, adapting to the changes brought by the new normal trend in education, being flexible, providing alternative plans, being optimistic, patient, and equipping oneself with the necessary skills for the new normal ways of education. Various stakeholders need to work and plan for alternatives on different issues that may arise as they are involved in the teaching-learning process considering all the limitations in these trying times brought by the pandemic.

Therefore, teachers should design a supplemental instructional material thus helping them to understand their science lessons in distance learning.

Performance level of Grade 7 - Creative Science students in the pre and post-test

The researcher determined whether the Science 7 Workbook can improve the performance of the Grade 7 science students. The pretest were given without using the workbook. Students used the Learning Activity Sheet (LAS) provided by the teacher. Afterwards Science 7 Workbook were distributed to the students and were given time to read it then they took the post test. Due to pandemic, limited face to face were implemented. Each class is Divided into two groups called set A and set B. Set A is comprised of sixteen (16) students while set B is comprised of nineteen (19) students. Set B were the respondents in problem nos. 2-4.

Table 2
Grade 7-Creative Pre and Post-Test Result

No. of Students	Pretest (No. of items =15)	Post-test (No. of items =15)	Difference
1	7	9	2
2	4	10	6
3	4	5	1
4	7	9	2
5	6	12	6
6	11	15	4
7	3	6	3
8	2	8	6
9	7	9	2
10	11	11	0
11	8	5	-3
12	4	4	0
13	6	7	1
14	8	10	2
15	7	11	4
16	3	8	5
17	4	7	3
18	2	9	7
19	8	9	1
20	10	10	0

As presented in the table, it can be seen that the result of the post-test increased as compared to the result of the pretest. Twenty (20) out of thirty-five (35) students took the fifteen (15) items pre and post test. According to Mark Crocker (2019), after the teacher has taught something, it is natural for him/her to want to know how much the students have learned, what level they are at, and what things need to be considered for the improvement of the students. Tests tell the teacher about the effectiveness of his/her teaching. The basic purpose of an evaluation is to make a judgment about the quality or worth of an educational program, or proficiency of a student's attainments..

In this study, the researcher determined the effectiveness of using workbook in teaching Science. The impact was assessed by providing a specific treatment. The effectiveness of using workbook was known after knowing the significant improvement in the performance of the students who were taught before and after applying the proposed Science 7 Workbook.

Significant improvement in the performance level of the Grade 7 - Creative Science students through the use of workbook in distance learning

Table 3
One Sample t-Test Outcomes Regarding the Comparison of Pretest and Post-test Scores

TESTS	n	p_{α}	df	$\sum D$	$\sum D^2$	t_{TEST}	t_{CRIT}	t_{STAT}	RESULT
Pretest	20	0.05	19	-52	260	-4.54	-1.73	-2.81	$t_{STAT} > t_{CRIT}$
Post-test	20								

See Computation on Appendices

This statistical treatment was employed to determine if the workbook has significant impact on the performance level of Grade 7 - Creative Science students. Crocker (2019) also explained that testing of an individual student's progress or achievements is an important component of evaluation: It is that part of an evaluation, which includes the measurement, and analysis of information about a student's learning. Evaluation surpasses the student's achievements to consider all aspects of teaching and learning and is used to look at how educational decisions are made.Based on the table above, t - tests were given to a single group composed of twenty (20) students. Its degree of freedom (df) is nineteen (19). This test used an alpha value of 0.05.Alpha is a threshold value used to judge whether a test statistic is statistically significant. It is chosen by the researcher. Alpha represents an acceptable probability of a Type I error in a statistical test. Since the t_{STAT} is greater than the $t_{CRIT,}$ the null hypothesis which is "There is no significant difference in the performance level of the students" was rejected. Considering the data in Table 2 and 3, it can be said that "There is a significant difference in the performance level of the students". Therefore it can be concluded that the proposed workbook can help to improve the performance level of the Grade 7 science students of Tabas National High School.

Level of acceptability of the proposed Science 7 Workbook to the TNHS teachers and expert validators along LRMDS evaluation criterion

According to Microsoft Encarta (2009), evaluation signifies the act of considering or examining something in order to judge its value, quality, importance, extent, or condition the act of considering or examining something in order to judge its value, quality, importance, extent, or condition**.** The level of

acceptability was determined based on the Learning Resources Management and Development System (LRMDS) evaluation criterion such content, format, presentation and organization, and accuracy and up - datedness of information. Following the sequence of the statement of the sub problems, the study revealed the following findings:

Table 4
Acceptability of Workbook along its content

Indicator	Teachers N=5		Experts N = 6	
	WM	**VI**	**WM**	**VI**
1. Content is suitable to the student's level of development	4	VS	4	VS
2. Material contributes to the achievement of specific objectives of the subject area and grade/year level for which it is intended	4	VS	4	VS
3. Material provides for the development of higher cognitive skills such as critical thinking, creativity, learning by doing, inquiry, problem solving, etc.	4	VS	4	VS
4. Material is free of ideological, cultural, religious, racial, and gender biases and prejudices.	3.8	VS	3.8	VS
5. Material enhances the development of desirable values and traits.	3	S	4	VS
6. Materials has the potential to arouse interest of target reader.	4	VS	4	VS
7. Adequate warning/cautionary notes are provided in topics and activities where safety and health are of concern.	4	VS	3.7	VS
Total Points	**26.8**		**27.5**	
Note: Resource must score at least 21 points out of maximum 28 points to pass this criterion	**Passed**		**Passed**	

Evaluation Criteria:

4 - Very Satisfactory (VS)
3 - Satisfactory (S)
2 - Poor (P)
1 - Not Satisfactory (NS)

As indicated in the table, indicators along content as to the evaluation of teachers and experts (master teachers and supervisors) passed this criterion which states that the resource must score at least 21 points out of maximum 28 points. The result of evaluation of the teachers has a total points of 26.8 which means very satisfactory while for experts a total points of 27.5 which also means very satisfactory.

Table 5
Acceptability of Workbook along its format

Indicator	Teachers N=5		Experts N = 6	
Prints				
1. Size of letters is appropriate to the intended user.	4	VS	4	VS
2. Spaces between letters and words facilitate reading.	4	VS	4	VS
3. Font is easy to read.	4	VS	3.8	VS
4. Printing is of good quality	4	VS	3.7	VS
Illustrations				
1. Simple and easily recognizable	4	VS	4	VS
2. Clarity and supplement the text	4	VS	4	VS
3. Properly labeled or captioned	4	VS	3.8	VS
4. Realistic/ appropriate color	4	VS	3.8	VS
5. Attractive and appealing	4	VS	4	VS
6. Culturally relevant	3	S	4	VS
Design and Layout				
1. Attractive and pleasing to look at	4	VS	4	VS
2. Simple (Do not distract the attention of the readers	4	VS	4	VS
3. Adequate illustration in relation to text.	4	VS	3.8	VS
4. Harmonious blending of elements	4	VS	3.8	VS
Paper and Binding				
1. Paper used contributes to easy reading	4	VS	4	VS
2. Durable binding to withstand frequent use	4	VS	3.7	VS
Size and weight of Resource				
1. Easy to handle	4	VS	4	VS
2. Relatively light	4	VS	3.7	VS
Total Points	**71**	**VS**	**70.1**	**VS**
Note: Resource must score at least 54 points out of maximum 72 points to pass this criterion	**Passed**		**Passed**	

Evaluation Criteria:

4	-	Very Satisfactory (VS)
3	-	Satisfactory (S)
2	-	Poor (P)
1	-	Not Satisfactory (NS)

As shown in table above, all the indicators as to format of the printed resource material showed very satisfactory as evaluated by the teachers and experts with a numerical ratings of 71 and 70.1 respectively. This criterion states that a resource must score 54 points out of maximum 72 points. The data gathered revealed that in terms of format, the printed resource passed the evaluation which also means acceptable.

Table 6

Acceptability of Workbook along its presentation and organization

Indicator	Teachers N=5		Experts N = 6	
1. Presentation is engaging, interesting, and understandable	4	VS	4	VS
2. There is logical and smooth flow of ideas	4	VS	4	VS
3. Vocabulary level is adapted to target reader's likely experience and level of understanding	4	VS	4	VS
4. Length of sentences is suited to the comprehension level of the target reader	4	VS	4	VS
5. Sentences and paragraph structures are varied and interesting to the target reader	4	VS	3.8	VS
Total Points	**20**		**19.8**	
Note: Resource must score at least 15 points out of maximum 20 points to pass this criterion	**Passed**		**Passed**	

Evaluation Criteria:

4 - Very Satisfactory (VS)
3 - Satisfactory (S)
2 - Poor (P)
1 - Not Satisfactory (NS)

As can be seen in Table 6, all respondents evaluated very satisfactory on all the indicators as to its presentation and organization. For the teachers, it has a total points of 20, while for the experts, it totaled 19.8 points. The printed resource material passed this criterion. The data gathered manifested that in terms of presentation and organization, the resource is acceptable.

Table 7

Acceptability of Workbook along its accuracy and up-datedness of information

Indicator	Teachers N=5		Experts N = 6	
1. Conceptual errors	4	VS	3.7	VS
2. Factual errors	4	VS	3.8	VS
3. Grammatical errors	4	VS	3.8	VS
4. Computational errors	4	VS	3.8	VS
5. Obsolete information	4	VS	4	VS
6. Typographical and other minor error	3	S	3.7	VS
Total Points	**23**		**22.8**	
Note: Resource must score at least 24 points out of maximum 24 points to pass this criterion	**Failed**		**Failed**	

Evaluation Criteria:

4 - Very Satisfactory (VS)
3 - Satisfactory (S)
2 - Poor (P)
1 - Not Satisfactory (NS)

As can be seen in Table 7, all respondents agreed that the printed resource has typographical and other minor error which resulted to fail this criterion. Resource must score 24 points as indicated on this criterion. The teachers and experts gave scores of 23 and 22.8 respectively. The data gathered manifested that in terms of accuracy and up - datedness of information, the resource failed.

Table 8
Overall Evaluation

Indicator	Teachers N=5		Experts N = 6	
Content	26.8	Passed	27.5	Passed
Format	71	Passed	70.1	Passed
Presentation and organization	20	Passed	19.8	Passed
Accuracy and up-datedness of Information	23	Failed	22.8	Failed
Average Points	**140.8**		**140.2**	
Note: Resource must score at least 114 points out of maximum 144 points to pass this criterion	**Passed**		**Passed**	

These data implies that the teachers and experts (master teachers and supervisors) scored the printed resource material 140.8 and 140.2 respectively. This means that the printed resource passed the evaluation. The proposed workbook was found to be very much acceptable for it passed the given criterion for printed instructional materials as the expert - validators validated it. Guidelines ad Processes for LRMDS Assessment and Evaluation (2009) states that LRMDS provides access to quality resources including information on quantity and quality and location of textbooks and supplementary materials, and cultural expertise, access to learning, teaching and professional development resources in digital format and locates resources in print format and hard copy, standards, specifications and guidelines for: assessing & evaluating, acquiring &

harvesting, modification, development and production, storage and maintenance, and; publication and delivery.

The findings reveal that the use of student workbook gives beneficial impact on students' learning since it can be one of the sources of learning besides the teacher's explanation. It also makes students easier in understanding the materials with simple content and various practices.

As supported by the study of Alvi Raihan Utami, et.al (2020), one effort that teachers can do to improve their learning process is by developing learning resources for themselves and their students. They also emphasized that teachers can use student workbook to be used as a source of learning for students. A student workbook that contains material summaries can help students more effectively understand the materials. Student workbook containing a variety of practice questions is believed to affect the effectiveness of student's learning.

Reflection

This study was conducted to improve the performance level of Grade 7-Creative Science students through the use of Workbook in the distance learning. Conclusions derived were as follows: 1) The students encountered problems in distance learning; 2) It manifested that utilization of workbook will contribute in the improvement in the performance level of the students; 3) the Science Workbook passed the evaluation of the teachers and the experts along the LRMDS criterion which means that the printed instructional material is acceptable. Based from the findings and conclusions made, the following are recommended:

1) The teachers should design and utilize a supplemental instructional material to help the students understand their science lessons and to facilitate the teaching and learning processes; 2) The proposed Workbook must be presented to the Department of Education Division of Camarines Norte for further improvement and better utilization of other science teachers in the division.

The factors that contributed to the success of the research are 1) wisdom from the Almighty; 2) determination to accomplish this study; 3) cooperation of the participants and the 4) support system such as school administrator, research advisers, BERF, and colleague. Future implementation may be improved if the proposed science workbook will be used consistently in teaching science in the distance learning as well as in the face to face learning. Furthermore, its effectiveness will be validated through continued use. Support from the internal and external stakeholders definitely contributes to its enhancement. Additionally, durable binding must also be considered.

Covid-19 pandemic made the teaching and learning process more challenging. It brought great changes in the educational system. It affected my teaching performance as well as made my work more stressful. Indeed, the new set - up requires lots of adjustments. If it is difficult on the part of the teacher, more so with the students due to absence of teachers who basically assist them. These inspired me do a research that may help my students. Although the students are presently inclined to the present technology, I want my students feel that I still care and want to contribute on their learning. I tried to determine the problems they encountered in the new normal. This inspired me to start

designing a instructional material which is aligned to the MELS. During the conduct of research, gathering of data is also a problem due to health protocols. I planned to stop the research but I know the fact that our students need us. Despite these challenges and changes, teachers showed resiliency in this challenging situation for the welfare of the students. As a teacher, the researcher realized that educators should not dwell on the problems along the way, instead we should adapt and immune ourselves with the various challenges to sustain our stamina in providing support to our learners. Pandemic altered the typical approach in teaching and learning which termed “new normal”. Surprisingly, this resulted to creating strategies to overcome hindrances. Let’s not focus on the problem hence focus more on the solution.

Utilization, Dissemination and Advocacy

The research result was disseminated to the teachers as well as the parents. Due to pandemic, the result will be cascaded to the students in the future activities. It was implemented during the In-Service Training (INSET) wherein the researcher was the speaker who discussed how to make an action research. The researcher used the output of this research as an example. On the other hand, the researcher discussed the results and findings. The benefit of the workbook as supplemental instructional material in teaching Science was emphasized during the stakeholders’ meeting. Further utilization, dissemination, and advocacy will be done as indicated in the action plan which contains future activities regarding Utilization, Dissemination, and Advocacy..

Action Plan
for the SY 2022-2023

Programs/ Projects/ Activity	Activities	Budget	Timeline	Performance Indicator (Activity & Output)
Reproduction of the Science 7 Workbook	Seek support from the SH and other stakeholders	Solicitation	4th week of August 2022	Reproduce at least 50 Workbooks to be utilized by the learners SY 2022-2023
Dissemination of the results and findings to the students	Informing the students about the results of the study through: ● Group Chat (GC) ● Face-to-Face	N/A	3rd week of August 2022	Screenshots of GC messages Photo documentation of of the activity during Face-to-face
Dissemination of the results and findings to the parents	Informing the parents regarding the results and findings through: ● HPTA meeting Consult the parents on how to replicate and utilize the Workbook	N/A	On the scheduled HRPTA meeting of Grade 7	Minutes and attendance of the HRPTA meeting Photo documentation
Publication in local Journal Upload the results and findings in some some social media platforms	Publish the written results and findings in Bicol Post once the AR is completed and approved by the authorities Seek advice from EPS-LRMDS (Ma'am Amy Dumail)	500.00 N/A	1st week of Sep 2022 Depends on the approval of EPS-LRMDS or concerned authorities	Certificate of Authorship and copy of the journal Screenshots as proof (if ever uploaded in the LRMDS)
Seminars/ Conferences	Consult the proponent and principal for an schedule of dissemination during SLAC Prepare and submit a proposal for the conduct of seminar to Grade 7 Science teachers within the cluster	N/A Approxi-mately 5,000.00	3rd week of June	Accomplishment Reports One of the presenters during the webinars
Seek supports from other stakeholders	Coordinate with the school administrator and SPTA officials to help in the out-sourcing of funds for the replication of these instructional materials	N/A	During the meeting of SGC and SPTA	Acquire additional budget for the reproduction of workbooks and answer sheets (if possible)
	TOTAL	**5,500.00**		

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Financial Report

ACTIVITY	CASH OUT	BALANCE
BERF Action Research Fund		Php 15,000.00
1. Crafting and preparation of Action Research paper	Php 430.00	Php 14,570.00
2. Crafting of Workbook	Php 8,375.00	Php 6,195.00
3. Conduct/ Implement the Research and Gathering of data	Php 4,378.00	Php 1,817.00
4. Preparation of Completed Action Research/Accomplishment Report	Php 1,817.00	0.00

Prepared by:

ROSABEL S. MANCENIDO
Researcher

ANNEXES

Cost Estimates

ACTIVITIES/ STRATEGIES	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL PRICE
PRE - IMPLEMENTATION PHASE				
Preparation of Action Research Proposal Submission of Action Research Proposal Revision (if any) Crafting of Workbook	A4 Bond paper Epson Ink (Printer: Epson L120) Black Magenta Cyan Yellow Transportation and meal	3 1 1 1 1	Reams Bottle Bottle Bottle Bottle	600.00 200.00 200.00 200.00 200.00 500.00
IMPLEMENTATION PHASE				
Printing of Workbook Conduct/ Implement the Research (Documentation) Gathering of data	A4 Bond paper Black Plastic Comb Ring Binder (12mm) Sliding Folder Epson Ink (Printer: Epson L120) Black Magenta Cyan Yellow Transportation and meals (Gathering of Data) Repair of printer (in case of damage in printing)	25 13 50 3 3 3 3	Reams Pcs pcs Bottles Bottles Bottles Bottles	5,000.00 200.00 450.00 600.00 600.00 600.00 600.00 1,650.00 1,500.00

POST - IMPLEMENTATION PHASE				
Preparation of Completed Research/Accomplishment Report	A4 Bond paper	3	Reams	600.00
	Epson Ink (Printer:			
Submission of	Epson L120)	1	Bottle	200.00
Accomplishment Report	Black	1	Bottle	200.00
	Magenta	1	Bottle	200.00
Revision (if any)	Cyan	1	Bottle	200.00
	Yellow			
Re-submission and acceptance of the Final Report	Transportation Meals			500.00
		TOTAL ESTIMATED COST		**15,000.00**

COMPUTATION OF T-TEST

NO. OFSTUDENTS	PRE TEST	POST TEST	D	D^2
1	7	9	-2	4
2	4	10	-6	36
3	4	5	-1	1
4	7	9	-2	4
5	6	12	-6	36
6	11	15	-4	16
7	3	6	-3	9
8	2	8	-6	36
9	7	9	-2	4
10	11	11	0	0
11	8	5	3	9
12	4	4	0	0
13	6	7	-1	1
14	8	10	-2	4
15	7	11	-4	16
16	3	8	-5	25
17	4	7	-3	9
18	2	9	-7	49
19	8	9	-1	1
20	10	10	0	0
		$\sum D$	**-52**	**$\sum D_2$** **260**

H_o: There is no significant difference in the performance level of the students

H_a: There is a significant difference in the performance level of the students

STATISTICAL COMPUTATION USING T -TEST

px = 0.05

n = 20

Degree of Freedom = 19 (n - 1)

$$t = \frac{\sum D}{\sqrt{\frac{n(\sum D^2) - (\sum D)^2}{n-1}}}$$

$$t = \frac{-52}{\sqrt{\frac{20(260) - (-52)^2}{20-1}}}$$

$$t = \frac{-52}{\sqrt{\frac{20(260) - (-52)^2}{20-1}}}$$

$$t = \frac{-52}{\sqrt{\frac{5{,}200 - 2{,}704}{19}}}$$

$$t = \frac{-52}{\sqrt{131.37}}$$

$$t = \frac{-52}{11.46}$$

$t_{TEST} = -4.54$

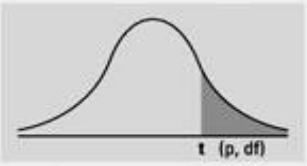
$t_{CRIT} = -1.73$

$t_{STAT} = -2.81$

$t_{STAT} > t_{CRIT}$

Reject H_0

Numbers in each row of the table are values on a *t*-distribution with (*df*) degrees of freedom for selected right-tail (greater-than) probabilities (*p*).



df/p	0.40	0.25	0.10	0.05	0.025	0.01	0.005	0.0005
1	0.324920	1.000000	3.077684	6.313752	12.70620	31.82052	63.65674	636.6192
2	0.288675	0.816497	1.885618	2.919986	4.30265	6.96456	9.92484	31.5991
3	0.276671	0.764892	1.637744	2.353363	3.18245	4.54070	5.84091	12.9240
4	0.270722	0.740697	1.533206	2.131847	2.77645	3.74695	4.60409	8.6103
5	0.267181	0.726687	1.475884	2.015048	2.57058	3.36493	4.03214	6.8688
6	0.264835	0.717558	1.439756	1.943180	2.44691	3.14267	3.70743	5.9588
7	0.263167	0.711142	1.414924	1.894579	2.36462	2.99795	3.49948	5.4079
8	0.261921	0.706387	1.396815	1.859548	2.30600	2.89646	3.35539	5.0413
9	0.260955	0.702722	1.383029	1.833113	2.26216	2.82144	3.24984	4.7809
10	0.260185	0.699812	1.372184	1.812461	2.22814	2.76377	3.16927	4.5869
11	0.259556	0.697445	1.363430	1.795885	2.20099	2.71808	3.10581	4.4370
12	0.259033	0.695483	1.356217	1.782288	2.17881	2.68100	3.05454	43178
13	0.258591	0.693829	1.350171	1.770933	2.16037	2.65031	3.01228	4.2208
14	0.258213	0.692417	1.345030	1.761310	2.14479	2.62449	2.97684	4.1405
15	0.257885	0.691197	1.340606	1.753050	2.13145	2.60248	2.94671	4.0728
16	0.257599	0.690132	1.336757	1.745884	2.11991	2.58349	2.92078	4.0150
17	0.257347	0.689195	1.333379	1.739607	2.10982	2.56693	2.89823	3.9651
18	0.257123	0.688364	1.330391	1.734064	2.10092	2.55238	2.87844	3.9216
19	0.256923	0.687621	1.327728	1.729133	2.09302	2.53948	2.86093	3.8834
20	0.256743	0.686954	1.325341	1.724718	2.08596	2.52798	2.84534	3.8495
21	0.256580	0.686352	1.323188	1.720743	2.07961	2.51765	2.83136	3.8193
22	0.256432	0.685805	1.321237	1.717144	2.07387	2.50832	2.81876	3.7921
23	0.256297	0.685306	1.319460	1.713872	2.06866	2.49987	2.80734	3.7676
24	0.256173	0.684850	1.317836	1.710882	2.06390	2.49216	2.79694	3.7454
25	0.256060	0.684430	1.316345	1.708141	2.05954	2.48511	2.78744	3.7251
26	0.255955	0.684043	1.314972	1.705618	2.05553	2.47863	2.77871	3.7066
27	0.255858	0.683685	1.313703	1.703288	2.05183	2.47266	2.77068	3.6896
28	0.255768	0.683353	1.312527	1.701131	2.04841	2.46714	2.76326	3.6739
29	0.255684	0.683044	1.311434	1.699127	2.04523	2.46202	2.75639	3.6594
30	0.255605	0.682756	1.310415	1.697261	2.04227	2.45726	2.75000	3.6460
z	0.253347	0.674490	1.281552	1.644854	1.95996	2.32635	2.57583	3.2905
CI	———	———	80%	90%	95%	98%	99%	99.9%