Republic of the Philippines
Department of Education
National Capital Region
Schools Division of Pasig City
MANGGAHAN HIGH SCHOOL

BRICOLAGE APPROACH MODEL: A BLENDED LEARNING INSTRUCTIONS FOR SKILLS DEVELOPMENT

A Completed Action Research Presented to the
Schools Division Research Committee
Schools Division Office of Pasig City

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ABSTRACT

Quasi-experimental pretest/posttest and practical test designs were used to determine any difference in outcomes between the treatment and comparison groups.

Using the purposive sampling technique, the researcher included the one hundred twelve students in Computer Systems Servicing, where 41 students belong to the control group, 32 students for experimental group 1, and 39 students for experimental group 2. Thus, a non-parametric test was used in this study.

Findings showed that based on the results of pretest to posttest, there was a better performance of the control and experimental groups since the computed z values of 5.12 for the control group and 7.22 for the experimental group are above the critical z value of 1.96 or its P-value of 0.000 is less than or equal to 0.05 level of significance, the statistical decision was to reject the null hypothesis.

On the other hand, for the final assessment of the two groups of respondents on the output of the competent students /passed, the computed z value of 3.00 with a P-value of 0.0026 shows that there was a significant difference in their assessments.

The researcher believes through the result of his research and based on the similar findings of the study that the bricolage approach model using blended learning instructions is significantly important and recommended across learning areas including TLE courses. Kauffman (2015) mentioned that using technology as a powerful tool allows students to create and construct powerful ideas, learn basic technical skills, and engages them with material effectively.

Keywords: *Bricolage, Blended learning instruction, skills development, Competent, Not Yet Competent*

I. CONTEXT AND RATIONALE

For centuries, education meant teacher-led classes and student-written papers. However, technology is now pervasive, infiltrating practically every aspect of existence. It has an impact on how individuals interact, communicate, connect, play, and, most importantly, learn. (Wainwright, 2016) Today, according to Purdue University Online, n.d. teachers have access to technological tools that can help them learn more effectively and teach students online efficiently. Kaufman (2015) mentioned the Sloan Foundation annual report, *Going the Distance: Online Education in the United States 2011* that more than 6.5 million elementary and high school students participated in learning online. Also, educators are using technology, a powerful tool that allows students to create and construct powerful ideas. It helps students learn basic technical skills needed later in life, and engages the students effectively. Based on PISA 2012 results, addresses inequalities in access to and use of ICT – referred to collectively as the "digital gap" – that are related to pupils' socioeconomic status, gender, geographic location, and the school a child attend.

Facto's (2016) study shows how blended instruction utilizing the Bricolage Model affected the performance of Grade 6 students in a public

school in Antipolo City. Based on his findings, it was concluded that blended learning utilizing the Bricolage Model is a new educational paradigm and a teaching approach that educators should embrace to help students improve their academic performance, particularly in underserved academic institutions. Aguinaldo (2013) said that the Bricolage Model tolerates other models that apply to the real situation of the university, improvised methodologies to access technologies needed for e-learning, and was developed with empathy, understanding end-user needs and the real situation of the poor academic institution. Facto's and Aguinaldo's findings increased students' knowledge of e-learning tools and provided actual proof of students' positive approval of the Bricolage Approach to teaching in a Blended Learning environment.

Quitalig (2016) had similar findings in his study that combined the strength of face-to-face (F2F) and online learning. As a result, a blended learning technique was developed that can be used to increase learning and maintain or improve student academic performance. Thus, blended learning helped the students specifically the students who are fond of making absences, low performing and high performing students to acquire skills in electronics.

Though some MHS teachers have been adopting the Internet and social media resources for teaching, yet some of the teachers are unskilled,

untrained, and unprepared to infuse their classroom lesson plans with a variety of technology and assigned student activities that involved computer technology. Based on *the MHS Summary of ICT level* December 2018 out of 182 teachers 8% are beginner, 38% are competent, 42% proficient, and 12% expert. Thus, this study was conceptualized by the researcher to find out if the Bricolage Approach Model specifically the blended learning instructions could help MHS teachers using the customized google classroom to facilitate learning, for skills development, and improve students' performance.

The researcher finds it interesting to adopt the bricolage approach model, this is an approach where the teacher customized his classroom instruction to suit the needs of his students. It helped diverse students to cope up with the subject in Computer Systems Servicing. Students are even more competent and advance than teachers in using the technology that is why the researcher took advantage of these aspects to facilitate learning and performance of the students for skills development in Computer Systems Servicing.

II.ACTION RESEARCH QUESTIONS

This study determined the effectiveness in skills development through Bricolage Approach Model in Teaching Computer Systems Servicing, specifically blended learning instructions using the following educational software like Google classroom, Google search, YouTube and recorded video demonstration and the instruction approach (traditional lecture method) in teaching "Copper cable splicing and cable testing" to Grade 9-Computer Systems Servicing students of Manggahan High School S.Y. 2018-2019.

This research sought to answer the following questions:

1. What is the performance of students in the control and experimental groups based on the pretest results?

2. What is the difference in performance between the two groups as evidenced by the posttest results?

3. Is there a significant difference between the pretest and posttest base on the performance of the control and experimental group?

4. Is there a significant difference in skills development between Bricolage Approach Model and Direct Instruction Approach?"

III. INNOVATION/INTERVENTION/STRATEGY

With the implementation of the Kto12 curriculum, Manggahan High School (MHS) offered TLE courses such as Computer Systems Servicing and Illustration, Consumer Electronics Servicing, Technical Drafting, Beauty Care, Housekeeping, Travel Services, and Cookery in line with the courses offered in Technical Education Skills and Development Authority (TESDA).

Below are the terminologies used in this study:

Bricolage Approach Model – customization of teaching and learning process in google classroom. All valuable information was uploaded in google classroom such as PowerPoint lessons, recorded video demonstrations, short quiz, and activities twiz (tweet+quiz) & practical tests. According to Aguinaldo (2013), the Bricolage Approach of Teaching is a blended learning environment to gauge student's knowledge using e-learning tools.

Blended Learning Instructions – the combination of face2face classroom instructions and online learning instructions for learners in teaching Computer Systems Servicing 9 class. Carreon (2018) quoted Deepika that blended learning is a "mix" of two different techniques of training delivery.

Traditional and online learning methods are merged to produce a holistic learning experience in this case.

Skills Development – acquiring and developing learning competencies through skills demonstration. Punjani (2019) Skill development serves as a tool for increasing overall effectiveness and empowering individuals to operate more efficiently.

Using the Bricolage Approach Model like blended learning instruction would have a great impact on teachers and students of MHS. The use of technology, as explained by Quevillon (2015) would motivate the students to learn and to be more involved in the lesson. It would also provide students with a new method of doing their research.

De Dios (2013) specified that a teacher in Quinale Elementary School (QES) in Paete, Laguna conducts remedial lessons using blended learning every afternoon at 4:00 p.m. It is quite beneficial for their students to remediate the subject, particularly in reading. These links are ideal because they go to specific websites where we can simply instruct students.

What makes this study interesting is that all of the students perform well, as well the poor in academic performance and even students who could not come to school was able to perform the activities and learned the competencies needed on the subject.

Research Objectives:

1. To test the effectiveness of the bricolage approach model using blended learning instructions to the Grade 9 CSS students of Manggahan High School;
2. Utilize the bricolage approach model to diverse learners to improve their academic performance and develop skills in Computer Systems Servicing;
3. Introduce the Bricolage Approach Model using blended learning instructions in Manggahan High School and Junior High Schools in the division of Pasig City as a tool for better learning.

The researcher finds it more interesting to adopt and apply the new educational technologies that might help Manggahan High School teachers in teaching their students. Thus, it may serve as a platform to be utilized by the entire Junior High School of the Division of Pasig City once approved.

IV. ACTION RESEARCH METHODS

A. PARTICIPANTS AND/OR OTHER SOURCES OF DATA AND INFORMATION

Using the purposive sampling technique, the researcher included the one hundred twelve (112) students in Computer Systems Servicing, where 41 students belong to the control group, 32 students for experimental group 1, and 39 students for experimental group 2. Thus, a non-parametric test was used in this study. The compositions of the participants were both heterogeneous and both groups have no background on the subject.

The researcher conducted the study in Grade nine (9) level heterogeneous sections taking “Computer Systems Servicing.” They were used for them to experience the same activity but different approaches and to avoid biases in giving the experimentation. The instruction approach (traditional lecture method) was based on teaching the control group while in the experimental group, a blended learning instruction using the bricolage approach model was applied. Thus, the researcher uses the purposive sampling technique.

The researcher created a twenty (20)-item multiple-choice exam on "Copper cable splicing and cable testing" to measure the material's

effectiveness and acceptability using the experimental groups' pretest and posttest results. The exam items were created by the researcher and include simple questions (knowledge), moderate (comprehension, analysis), and challenging (application, and evaluation). The two master teachers in T.L.E. double-checked and approved the questionnaire.

The researcher used modified rubrics from TESDA Grade 10 Learning Module for the students' final output in copper cable splicing and cable testing as a confirmatory test whether or not the experimental and control group has a significant difference in terms of their actual performance during the practical test. Rubrics were used to prove whether the students acquire technical skills and if they were competent (C) / passed or not yet competent (NYC) / failed.

The researcher submitted a written request to the Schools Division Superintendent of the Division of Pasig to seek permission to conduct research in Manggahan High School. Upon approval, the permit from the Division of Pasig City was given to the School Principal requesting permission to conduct a study.

The researcher started with the proposal of the title and formulation of the research problems. After the completion of the action research proposal, the researcher seeks permission from the proper authorities for the conduct of the study.

B. DATA GATHERING METHODS

This study used a quasi-experimental pre-test-post-test/practical design to look into the skills development using Bricolage Approach Model a Blended Learning Approach in teaching Computer Systems Servicing.

White and Sabarwal (2014) explained in the book "Quasi-experimental Design and Methods" that quasi-experimental research designs, like experimental designs, test causal hypotheses. The program or policy is considered as an intervention in both experimental (i.e., randomized controlled trials or RCTs) and quasi-experimental designs, in which a treatment – consisting of the program/aspects policy's – is evaluated. It is tested for how well it achieves its objectives, as measured by a pre-specified set of indicators. However, by definition, a quasi-experimental design does not include random assignment. Self-selection (in which participants choose their treatment) or administrator selection (e.g., by officials, teachers, policymakers, and so on) or both of these pathways are used to assign participants to conditions (treatment vs no treatment or comparison).

They further added that quasi-experimental designs identify a comparison group with baseline (pre-intervention) characteristics as close

as practicable to the treatment group. The outcomes that would have occurred if the program/policy had not been adopted are captured in the comparator group. As a result, any difference in results between the treatment and comparison groups can be attributed to the program or policy. The experimental and control groups' pretest and posttest findings were used to collect data for the study.

The data gathered for the research was based on pretest and posttest results for the experimental and control group. Thus, a confirmatory test was done using rubrics during their practical test which determined if the student is **competent or passed and not yet competent or failed** in Copper Cable Splicing and Testing.

C. DATA ANALYSIS

Data Problem & Statistical Treatment:

The data in problem No. 1 – ***"What is the performance of students in the control and experimental groups based on the pretest results?"*** To process and analyze data, the mean and standard deviation were used. It is the most appropriate statistical treatment because it shows the quantity of data that is average and testing the dispersion of the dataset relative to its mean. When comparing diverse sets of data, the mean can be a useful tool; nevertheless, the impact of extreme numbers might make this strategy disadvantageous. On the other hand, the standard deviation

calculates the square root of the variance. When data points are further from the mean, there is more variance within the data set; as a result, the larger the standard deviation, the more spread out the data is. Ilola (2018)

The data in problem No. 2 – ***"What is the difference in performance between the two groups as evidenced by the posttest results?"*** The mean and standard deviation were used to analyze the data. Checking on the average of the quantitative data using mean and finding the variance and spread of data using standard deviation. Ilola (2018)

The data in problem No. 3 – ***"Is there a significant difference between the pretest and posttest base on the performance of the control and experimental group?"*** The Wilcoxon Rank-Signed Test was used to treat the data. The Wilcoxon signed-rank test should be used since the data is made up of definite scores. The sign test is the proper statistic when the data is not a definite score or if the data is observational, such as "more aggressive" versus "less aggressive." LaMorte (2017)

The data in problem No. 4 – ***"Is there a significant difference in skills development between Bricolage Approach Model and Direct Instruction Approach?"*** The Mann-Whitney Rank Sum Test was used to solve the problem. It's a non-parametric test that compares two sample means from the same population and determines whether they're equal.

When the data is ordinal or the t-test assumptions are not met, the Mann-Whitney U test is usually utilized. La Morte (2017)

V. DISCUSSION OF RESULTS AND REFLECTION

This study was conducted for designing and evaluating the bricolage approach model using blended learning instructions for skills development specifically the software like Google classroom as a customized online classroom for Grade 9 students and intended to determine the implication of the study in teaching Computer Systems Servicing.

Below are the results and interpretation:

Problem No. 1 – "What is the performance of students in the control and experimental groups based on the pretest results?"

Table 1

Pretest Scores using Mean and Standard Deviation

Group (n)	Pretest Mean	Standard Deviation
C (41)	5.72	1.99
X1 (32)	5.37	2.13
X2 (39)	6.26	2.12
Sample (112)	5.81	2.09

Table 1 shows the pretest scores of the students in the control and experimental group. The pretest mean of C was 5.72 was higher than X1 5.37 but X2 pretest mean was 6.26 has a better understanding of the

subject. It only implies that before the conduct of the experiment the three groups have lesser knowledge on the topic.

The result shows that creating activities with technology-infused lessons proves to be a beneficial motivator for every grade level, students enjoy and respond even in a challenging task given by the teachers. De Dios (2015)

It would be a good start to introduce intervention to the experimental groups using a Bricolage Approach model by customizing the lesson on the google classroom which contains valuable information, recorded video presentation, & some exercise for the mastery of the knowledge & skills while the control group who were taught using the traditional or direct instruction approach.

Problem No. 2 – "What is the difference in performance between the two groups as evidenced by the posttest results?"

Table 2

Posttest Scores using Mean and Standard Deviation

Group (n)	Posttest Mean	Standard Deviation
C (41)	13.81	3.57
X1 (32)	13.93	2.85
X2 (39)	16.18	1.73
Sample (112)	14.67	2.99

Table 2 shows the posttest scores of the students in the control and experimental group. The posttest mean of C1 was 13.81 has a very small difference result of the posttest mean of X1 which was 13.93 while the mean of X2 was 16.18 who perform better with the posttest mean of the control group. It only implies that after the experiment, both groups performed better compared to the results of the pretest.

The result was possible through the bricolage approach model specifically the blended learning like on the study of Ferraz (2014), student scores the National Achievement Test (NAT) improved through the use of Quipper School which feature content for standard subjects.

Through Bricolage Approach model by customizing the lesson on the google classroom which contains valuable information, recorded video presentation, & some exercise for the mastery of the knowledge & skills greatly affected the performance of the experimental group as compared to the control group who were taught using the traditional direct instruction approach only.

Problem No. 3 – "Is there a significant difference between the pretest and posttest base on the performance of the control and experimental group?"

Table 3

Test of Significant Difference Between the Pretest and Posttest Performances of the Control and Experimental Groups Using Wilcoxon Signed-Rank Test

Group	*W*	*N*	$z_{computed}$ Value	$z_{critical}$ Value	*P* – Value	Decision	Interpretation
Control	2.50	3 5	5.12	1.96	0.000	Reject the H_0	Significant
Experimental	2415	69	7.22	1.96	0.000	Reject the H_0	Significant

Level of significance □ = 5%

Note: w – a smaller sum in an absolute value of signed ranks

n – Number of pairs where the difference is not 0

H0 – Null hypothesis

As presented in Table 3, the computed z values of the control group (5.12) and experimental group (7.22) are above the critical z value of 1.96 or

its P-value of 0.000 is les//s than or equal to 0.05 level of significance, the statistical decision is to reject the null hypothesis. Hence, there is enough evidence to say that there is a significant difference between the pretest and posttest performances of the control and experimental groups.

Like De Dios study, it was mentioned that "the opportunity to enjoy Internet access in all subject matter resulted in the improvement of academic performance,"

It was very fulfilling on the part of the researcher to know the result of the study that both groups performed better on their posttest scores as compared to their pretest scores. It only implies that both groups learned and acquired skills needed in Computer Systems Servicing.

Problem No. 4 – "Is there a significant difference in skills development between Bricolage Approach Model and Direct Instruction Approach?"

Table 4

Test of Significant Difference in the Skills Development Between Bricolage Approach Model and Direct Instruction Approach in Teaching Computer Systems Servicing Using Mann-Whitney Rank Sum Test

Groups	*R*	*N*	μ_R	σ_R	$z_{computed}$ Value	$z_{critical}$ Value	*P*-Value	Decision	I
Control	13 05	41	2316	165.5	6.11	1.96	0.000	Reject	S
Experimental	4260	71	.5	7				the Ho	

Level of significance α = 5%

Note: *R* – Sum of ranks for smaller sample size *n* – sample size

I – Interpretation S – Significant

Analyzing Table 4, the computed z value of 6.11 is higher than the critical z value of 1.96, or its P-value of 0.000 is below 0.05 level of significance, the statistical decision is to reject the null hypothesis. Thus, there is sufficient evidence to conclude that there is a significant difference

in skills development between Bricolage Approach Model (Blended Learning Instructions) and the Direct Instruction (Traditional) Approach in teaching Computer Systems Servicing.

Parallel to the study of Kauffman, using technology allow students to create and construct powerful ideas, helps students learn basic technical skills needed later in life, and engages the students with material in a completely new potentially more effective way.

Since the experimental group used their own mobile devices to watch the instructional video uploaded on their google classroom account where it shows the procedures in copper cable splicing & testing so it helps them to perform the practical test easily. They even used the Share-it application for those students who have no data or Internet connections to transfer the file and videos so that others can follow the procedures. Constantly they reviewed the files and they downloaded the video to enable them to follow the procedures correctly.

Therefore, the result on the practical test of the experimental group confirmed that most of the students were competent as compared to the control group.

Based on the results below are the implications of this study:

1. As indicated on the results of the pretest, both control and experimental groups have the same level of understanding of the new lesson and no

background about the topic; thus, a great avenue for the researcher to continue the experiment. De Dios (2015) said that creating activities that students enjoy and respond is a challenging task for teachers of all subjects that's why introducing technology-infused lessons proves to be a beneficial motivator for every grade level.

2. As indicated by the results of the posttest, given the necessary lessons using the direct instruction approach and the experimental ways, respectively, scores of the students improved. According to Ferraz (2014), student scores on the National Achievement Test (NAT) improved through the use of Quipper School which features content for standard subjects such as Mathematics, English, and Science along with localized contents like Filipino and Social Studies.

3. There was a significant difference in the pretest to posttest performance of the control and experimental groups. De Dios, mentioned that "the opportunity to enjoy Internet access in all subject matter resulted in the improvement of academic performance," And quoted Quinale Elementary School's principal's speech, "the opportunity to enjoy Internet access in all subject matter resulted in the descriptive remark of "moving towards mastery" in the recent National Achievement Test (NAT), while other schools received "average mastery."

4. There was a significant difference in the practical test using the direct instruction approach and blended learning approach in teaching "*Computer Systems Servicing*". The result of the practical test determines the skills development of the students in infusing educational technology using blended learning in teaching "Computer Systems Servicing." Kauffman (2015) believe that using technology is a powerful tool that allows students to create and construct powerful ideas, helps students learn basic technical skills and engages the students with material in a completely new potentially more effective way. In addition, Quitalig (2017) concluded that hands-on learning activities provide the participants with practical and valuable experiences to practice programs and other technology.

The researcher felt satisfied with the results of the research though there was no funding yet it became a challenge to push through and it all ends very well. It was not the intention of the researcher to conduct a very rushed study it all began when the researcher was encouraged by higher authority to create new research for classroom instruction. Since the researcher has already experience research, it becomes easy to create and implement the study in his class.

The researcher finds it interesting to adopt the bricolage approach model this is an approach where the teacher customized his classroom instruction to suit the needs of his students. This helped diverse students

to cope up with the subject in Computer Systems Servicing. Through the result of the research and based on the similar findings of other study, the researcher was convinced the significance of the bricolage approach model using blended learning instructions and strongly recommended it across learning areas including TLE courses.

VI. ACTION PLAN FOR DISSEMINATION AND UTILIZATION

Before the implementation of the study, the researcher follows all the protocols including the ethical issues and standards because it's the best way and right thing to do. Specifically on pilot testing of the questionnaire to test the reliability and validity of the test. The researcher validated the test with the help of master teachers then pilot test to the Grade 8 students. During the implementation, the researcher was happy with the results since the computer units in the CSS lab were quite limited, students collaborated by bringing their device (**Bring Your Own Device Approach**) to access on their google classroom account.

Students using a customized online classroom (google classroom) have more control over their learning paths, place, and time to learn. They can open their google classroom account, see the content of the topic, and watch the video tutorial and other information about the subject at their own pace.

Using google classroom in the experimental group required less supervision, rather the teacher plays the role of facilitator, setting project goals and providing guidelines to students.

Grade 9-Guanine & Histidine students appreciate learning with the customized online classroom (google classroom) where class participation was positively affected which was shown by the posttest results and practical test. It is important to understand that today's students are technologically inclined with increased levels of technological proficiency and routinely use technology in their personal lives.

The confirmatory test using rubrics on their output during the practical test affirmed that there was a significant difference in the experimental group using a customized online classroom (google classroom). Thus, this proves that most of the students in the experimental group were likely competent to perform the activity through their exposure to the downloaded video demonstration.

The result of the study was shared through a LAC session to enable other teachers to see the possibilities of using other strategies in teaching other than the usual and traditional one. Part of the LAC session was the demonstration teaching in conducting the Bricolage Approach Model with TLE teachers.

Action Research Work Plan and Timeline

ACTION RESEARCH WORK PLAN AND TIMELINES

	ACTIVITIES	TIMELINE
PRE-IMPLEMENTATION	1. Presentation of the possible title of action research/Permit to conduct study. 2. Construction and consultation of the Action Research Proposal 3. Submission of Action Research Proposal 4. Preparation, Improvement and Evaluation of the research study 5. Orientation/Letter of Consent to Parents about the research study	Dec. 17-18, 2018 Dec. 17-26, 2018 Dec. 27-28, 2018 January 3-20, 2019 January 21, 2019
IMPLEMENTATION PROPER	6. Validation/ Standardize of Questionnaires through Random Sampling 7. Conduct of research study 8. Gathering data, Statistical treatment, Analysis and Interpretation. 9. Formulation of Summary of findings, Conclusions and Recommendations	January 21-31, 2019 1st week of February 2019 2nd week of February 2019 3rd week of February 2019
POST-IMPLEMENTATION	10. Share the research paper during the Learning Action Cell (LAC) session. 11. Evaluations, Consultation, Preparation, Revision of the Final Draft of the Action Research 12. Submission of Action Research for free publication in the Schools Division Office	1st week of March 2019

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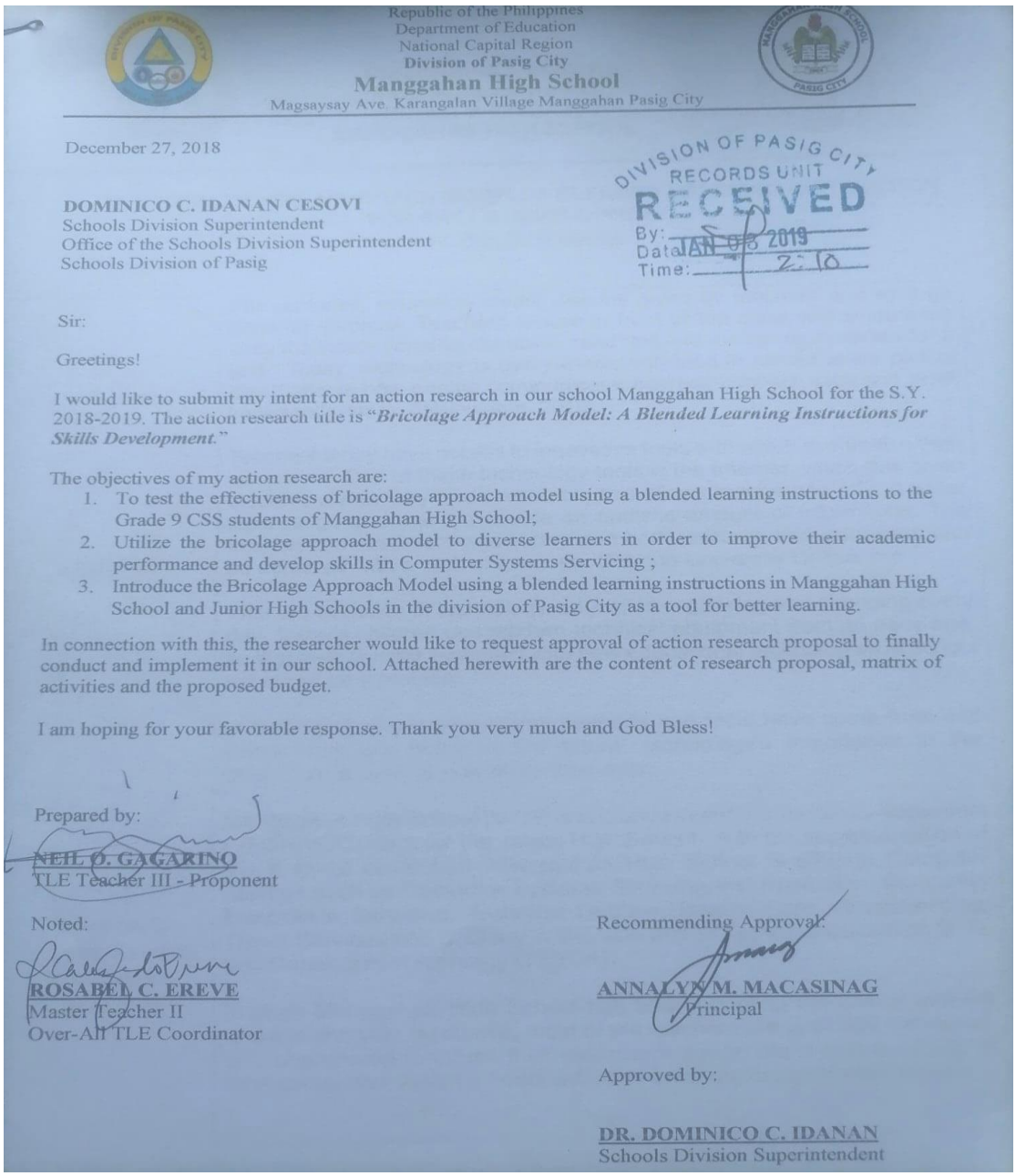
VIII. APPENDICES

Appendix 1: Action Research Proposal Letter, Approved Research Proposal Letter and Final Grade of Implemented Action Research



Republic of the Philippines
Department of Education
National Capital Region
Division of Pasig City
Manggahan High School
Magsaysay Ave. Karangalan Village Manggahan Pasig City

December 27, 2018

DIVISION OF PASIG CITY
RECORDS UNIT
RECEIVED
By:
Date: JAN 08 2019
Time: 2:10

DOMINICO C. IDANAN CESOVI
Schools Division Superintendent
Office of the Schools Division Superintendent
Schools Division of Pasig

Sir:

Greetings!

I would like to submit my intent for an action research in our school Manggahan High School for the S.Y. 2018-2019. The action research title is "***Bricolage Approach Model: A Blended Learning Instructions for Skills Development.***"

The objectives of my action research are:

1. To test the effectiveness of bricolage approach model using a blended learning instructions to the Grade 9 CSS students of Manggahan High School;
2. Utilize the bricolage approach model to diverse learners in order to improve their academic performance and develop skills in Computer Systems Servicing ;
3. Introduce the Bricolage Approach Model using a blended learning instructions in Manggahan High School and Junior High Schools in the division of Pasig City as a tool for better learning.

In connection with this, the researcher would like to request approval of action research proposal to finally conduct and implement it in our school. Attached herewith are the content of research proposal, matrix of activities and the proposed budget.

I am hoping for your favorable response. Thank you very much and God Bless!

Prepared by:

NEIL O. GAGARINO
TLE Teacher III - Proponent

Noted:

ROSABEL C. EREVE
Master Teacher II
Over-All TLE Coordinator

Recommending Approval:

ANNALYN M. MACASINAG
Principal

Approved by:

DR. DOMINICO C. IDANAN
Schools Division Superintendent

Republic of the Philippines
DEPARTMENT OF EDUCATION
National Capital Region
DIVISION OF PASIG CITY
Caruncho Ave., San Nicolas Pasig City
Tel: 641-88-85, 628-28-19 /division.pasig2016@gmail.com

DIVISION OF PASIG CITY
RECORDS UNIT
RELEASED
BY:
DATE: 1.8.19 TIME: 4:32

January 03, 2019

NEIL O. GAGARINO
Researcher
Manggahan High School

Dear Mr. Gagarino:

This is to inform you that your request for permission to gather data relative to your research titled ***"Bricolage Approach Model: A Blended Learning Instructions for Skills Development"*** has been approved. All persons involved in this research are expected to observe the following fundamental research ethics:

a. Ensure that the data to be gathered is correct, accurate, and validated;
b. Properly cite all sources of information;
c. Maintain integrity by avoiding plagiarism, fabrication and falsification of results;
d. Protect the confidentiality and privacy of the participants;
e. Explain clearly the objectives of the research to the participants; and
f. Secure the consent of student-participants and their parents (*if applicable*).

Please take note that participation of school shall be subject to the no disruption of classes policy stipulated in DepEd Order No. 9, s. 2005 entitled *Instituting Measures to Increase Engaged Time-On-Task and Ensuring Compliance Therewith.* Please coordinate with the Principals of your selected schools for the success of this activity.

Furthermore, kindly provide this office with a copy of your completed research through the Planning and Research Section at the 3rd Floor, Office of the Schools Governance and Operations Division.

DOMINICO C. IDANAN, CESO VI
Schools Division Superintendent

sgod.cof/faye

"Think B I G and discover N E W possibilities "

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RESEARCH EVALUATION SHEET

Subject/Title/Problem: Bricolage Approach Model: A Blended Learning Instruction for Skills Development

Researcher/s: Neil O. Gagarino
School / Office: Manggahan High School

	Weight		Score	Computation Weight x Score
A. Subject / Title / Problem	***20%***			
1. Significance of the subject / title / problem		10%	3	0.10
2. Clarity of the statement of the problem		10%	3	0.10
B. Design / Methodology of the Study	***20%***			
1. Clarity and adequacy of design		10%	3	0.10
2. Adequacy and appropriateness of documentation		10%	3	0.10
C. Analysis and Interpretation of Data	***30%***			
1. Sufficiency, validity and reliability of data		10%	2	0.07
2. Clear and orderly presentation of data (graphs, tables, charts)		10%	3	0.10
3. Suitable treatment and analysis of data		10%	3	0.10
D. Findings, conclusions and recommendations	***30%***			
1. Are findings derived from the results?		10%	3	0.10
2. Are the conclusions logically derived from the findings?		10%	3	0.10
3. Are recommendations feasible?		10%	2	0.07
TOTAL SCORE	**100%**			0.93 / 93.33

Evaluated by:

ISABELLE S. SIBAYAN
Education Program Supervisor
School Governance and Operations Division

Noted by:

DR. AURELIO G. ALFONSO
OIC-Assistant Schools Division Superintendent
Chair, Division Research Committee

Date Evaluated: July 9, 2019
Control No. DIVRES-2019-07-09_Gagarino

Perform high in Academics, Service at its best, Inspiring Governance

WE ♥ PASIG

Appendix 2: Permit letter address to the parents of the participants

Republic of the Philippines
Department of Education
Division of Pasig City
Manggahan High School
Karangalan Village Magsaysay Avenue Manggahan, Pasig City

January 21, 2019

Sa mga Magulang:

Peace in Jesus Name!

Nais ko pong inabatid sa inyo na magsasagawa ng ACTION RESEARCH sa Manggahan High School sa asignaturang TLE - Computer Systems Servicing Grade 9 sa loob ng limang araw, Pebrero 4 – 8, 2019. Ang pamagat nito ay Bricolage Approach Model: A Blended Learning Instructions for Skills Development. Ang layunin ng Action Research na ito ay ang mga sumusunod:

1. *Subukan kung epektibo bang gamitin ang Bricolage Approach Model gamit ang Blended Learning Instructions sa piling seksyon ng Grade 9 CSS ng Manggahan High School;*
2. *Gamitin ang bricolage approach model bilang tugon sa iba't ibang uri ng mga mag –aaral upang matulungan sila mahago o mapataas ang kanilang kaalaman at kasanayan sa larangan ng Computer Systems Servicing;*
3. *Maibahagi ang Bricolage Approach Model gamit ang Blended Learning Instructions sa buong Manggahan High School at ang Junior High Schools sa buong dibisyon ng Pasig City para sa mas magandang paraan ng pagkatuto.*

Mangyari po na pirmahan nyo bilang tugon sa liham kong ito; kung kayo po ay pumapayag sa hiling ko para sa karadagang kaalaman at kasanayan ng inyong anak sa Computer Systems Servicing.

Maraming salamat po.

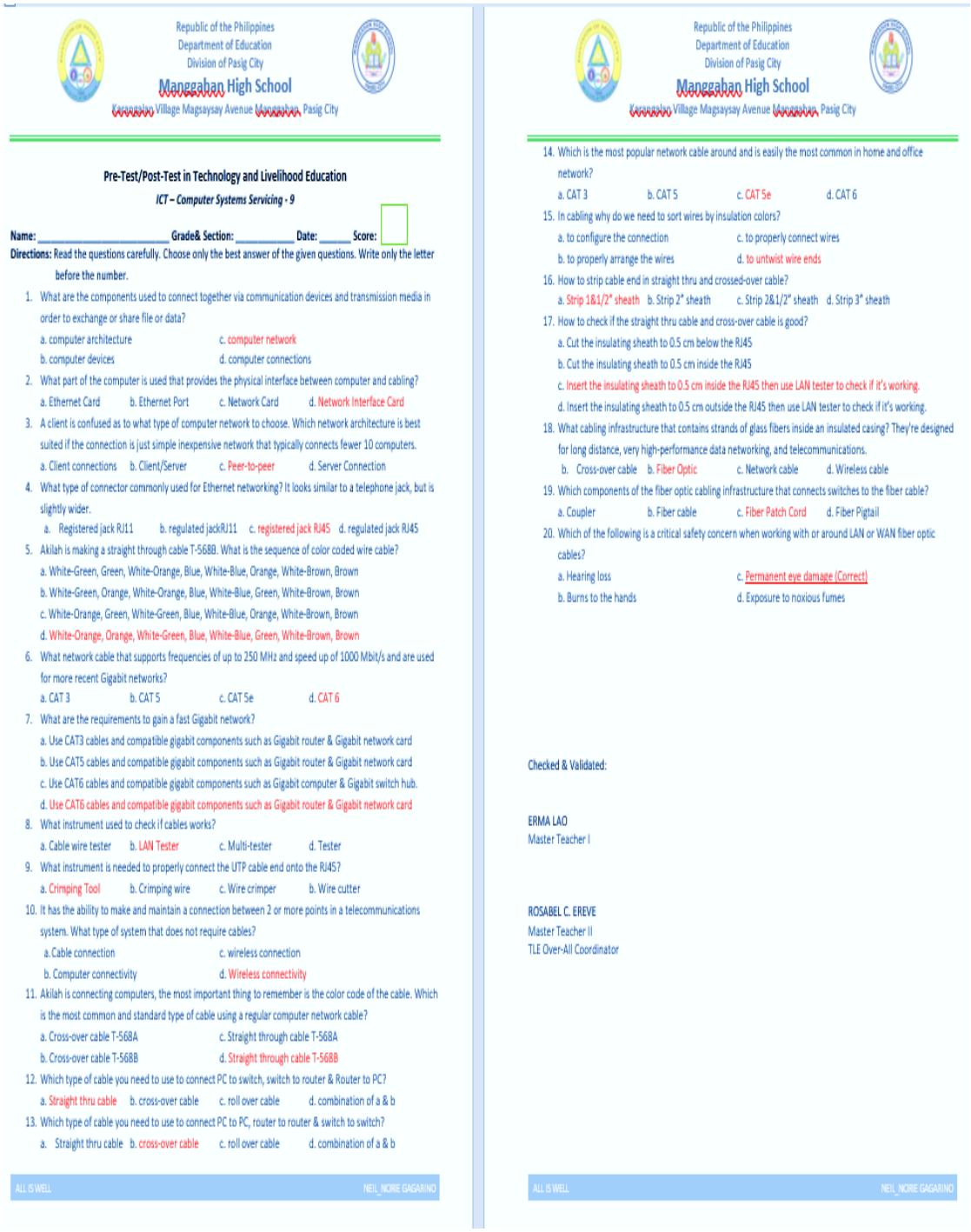
Sumasaiyo,

NEIL O. GAGARINO
Researcher-CSS/TLE Teacher III

Lagda ng Magulang: _____

Noted by:
ROSABEL C. EREVE
TLE Coordinator/ Master Teacher II

Appendix 3: Questionnaire with TOS and Rubrics



Republic of the Philippines
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Division of Pasig City
Manggahan High School
Karangalan Village Magsaysay Avenue Manggahan, Pasig City

Pre-Test/Post-Test in Technology and Livelihood Education

ICT – Computer Systems Servicing - 9

Name: _____ **Grade& Section:** _____ **Date:** _____ **Score:**

Directions: Read the questions carefully. Choose only the best answer of the given questions. Write only the letter before the number.

1. What are the components used to connect together via communication devices and transmission media in order to exchange or share file or data?
   a. computer architecture c. computer network
   b. computer devices d. computer connections
2. What part of the computer is used that provides the physical interface between computer and cabling?
   a. Ethernet Card b. Ethernet Port c. Network Card d. Network Interface Card
3. A client is confused as to what type of computer network to choose. Which network architecture is best suited if the connection is just simple inexpensive network that typically connects fewer 10 computers.
   a. Client connections b. Client/Server c. Peer-to-peer d. Server Connection
4. What type of connector commonly used for Ethernet networking? It looks similar to a telephone jack, but is slightly wider.
   a. Registered jack RJ11 b. regulated jackRJ11 c. registered jack RJ45 d. regulated jack RJ45
5. Akilah is making a straight through cable T-568B. What is the sequence of color coded wire cable?
   a. White-Green, Green, White-Orange, Blue, White-Blue, Orange, White-Brown, Brown
   b. White-Green, Orange, White-Orange, Blue, White-Blue, Green, White-Brown, Brown
   c. White-Orange, Green, White-Green, Blue, White-Blue, Orange, White-Brown, Brown
   d. White-Orange, Orange, White-Green, Blue, White-Blue, Green, White-Brown, Brown
6. What network cable that supports frequencies of up to 250 MHz and speed up of 1000 Mbit/s and are used for more recent Gigabit networks?
   a. CAT 3 b. CAT 5 c. CAT 5e d. CAT 6
7. What are the requirements to gain a fast Gigabit network?
   a. Use CAT3 cables and compatible gigabit components such as Gigabit router & Gigabit network card
   b. Use CAT5 cables and compatible gigabit components such as Gigabit router & Gigabit network card
   c. Use CAT6 cables and compatible gigabit components such as Gigabit computer & Gigabit switch hub.
   d. Use CAT6 cables and compatible gigabit components such as Gigabit router & Gigabit network card
8. What instrument used to check if cables works?
   a. Cable wire tester b. LAN Tester c. Multi-tester d. Tester
9. What instrument is needed to properly connect the UTP cable end onto the RJ45?
   a. Crimping Tool b. Crimping wire c. Wire crimper b. Wire cutter
10. It has the ability to make and maintain a connection between 2 or more points in a telecommunications system. What type of system that does not require cables?
    a. Cable connection c. wireless connection
    b. Computer connectivity d. Wireless connectivity
11. Akilah is connecting computers, the most important thing to remember is the color code of the cable. Which is the most common and standard type of cable using a regular computer network cable?
    a. Cross-over cable T-568A c. Straight through cable T-568A
    b. Cross-over cable T-568B d. Straight through cable T-568B
12. Which type of cable you need to use to connect PC to switch, switch to router & Router to PC?
    a. Straight thru cable b. cross-over cable c. roll over cable d. combination of a & b
13. Which type of cable you need to use to connect PC to PC, router to router & switch to switch?
    a. Straight thru cable b. cross-over cable c. roll over cable d. combination of a & b

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Karangalan Village Magsaysay Avenue Manggahan, Pasig City

14. Which is the most popular network cable around and is easily the most common in home and office network?
    a. CAT 3 b. CAT 5 c. CAT 5e d. CAT 6
15. In cabling why do we need to sort wires by insulation colors?
    a. to configure the connection c. to properly connect wires
    b. to properly arrange the wires d. to untwist wire ends
16. How to strip cable end in straight thru and crossed-over cable?
    a. Strip 1&1/2" sheath b. Strip 2" sheath c. Strip 2&1/2" sheath d. Strip 3" sheath
17. How to check if the straight thru cable and cross-over cable is good?
    a. Cut the insulating sheath to 0.5 cm below the RJ45
    b. Cut the insulating sheath to 0.5 cm inside the RJ45
    c. Insert the insulating sheath to 0.5 cm inside the RJ45 then use LAN tester to check if it's working.
    d. Insert the insulating sheath to 0.5 cm outside the RJ45 then use LAN tester to check if it's working.
18. What cabling infrastructure that contains strands of glass fibers inside an insulated casing? They're designed for long distance, very high-performance data networking, and telecommunications.
    b. Cross-over cable b. Fiber Optic c. Network cable d. Wireless cable
19. Which components of the fiber optic cabling infrastructure that connects switches to the fiber cable?
    a. Coupler b. Fiber cable c. Fiber Patch Cord d. Fiber Pigtail
20. Which of the following is a critical safety concern when working with or around LAN or WAN fiber optic cables?
    a. Hearing loss c. Permanent eye damage (Correct)
    b. Burns to the hands d. Exposure to noxious fumes

Checked & Validated:

ERMA LAO
Master Teacher I

ROSABEL C. EREVE
Master Teacher II
TLE Over-All Coordinator

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Republic of the Philippines
Department of Education
National Capital Region
Schools Division of Pasig City
MANGGAHAN HIGH SCHOOL

Republic of the Philippines
Department of Education
Division of Pasig City
Manggahan High School
Karangalan Village Magsaysay Avenue Manggahan, Pasig City

TABLE OF SPECIFICATIONS

LEARNING COMPETENCIES / TOPICS	NO. OF DAYS (3 Days)	NO. OF hours	% OF ITEMS	TOTAL	NO. OF ITEMS			PLACEMENT OF ITEMS		
LO 1 INSTALL NETWORK CABLES					Easy	Average	Difficult	Easy	Average	Difficult
Computer network concepts	0.5	30 minutes	17	3	2	1		1-2	3	
Copper cable splicing and cable testing	2	2hrs	66	14	7	5	2	4-10	11-15	16-17
Fiber optic cables splicing and installation requirements	0.5	30minutes	17	3	1	2		18	19-20	
TOTAL	**3Days**	**3hrs.**	**100**	**20**	**10**	**8**	**2**	**10**	**8**	**2**

Prepared by:

NEIL O. GAGARINO
TLE/CSS Teacher III

Checked & Validated:

ERMA LAO
Master Teacher I

ROSABEL C. EREVE
Master Teacher II
TLE Over-All Coordinator

Republic of the Philippines
Department of Education
Division of Pasig City
Manggahan High School
Karangalan Village Magsaysay Avenue Manggahan, Pasig City

Rubrics in Copper Cable Splicing and Cable Testing

Name: _____ **Grade & Section:** _____ **Date:** _____
Subject: TLE – 9 (Computer Systems Servicing)
Time allotment: 1hr
Directions: To assess your performance on how you have applied the skills **Copper Cable Splicing and Cable Testing** using the rubrics below by checking on the appropriate box (points 1 to 4 where 4 being the highest). Compute the rating by multiplying the points earned by the corresponding percentage, then divide each item by 4, multiply by percentage (%) & multiply by 100. Add the products to get the rating. You will be graded by your group leaders and teacher, then add the products and divide it by two. The sum of the combined rating will be your final rating.

Rubrics	%	Points				Leader's Rating	Teacher's Rating	Final Rating
		4	3	2	1			
Workmanship	50%							
Use of Tools	30%							
Use of PPE	10%							
Speed	5%							
Housekeeping	5%							
TOTAL	100%							

Rubrics	4	3	2	1
Workmanship	Followed the steps accordingly without any mistakes.	Followed the steps but missed 1 procedure	Followed the steps but missed 2 or more procedures	Wasn't able to follow and understand the steps and procedure
Use of Tools	Used the tools and materials properly	Misused 1 of the tools and materials	Misused 2 or more tools and materials	Wasn't able to use the tools and materials properly
Use of PPE	Used PPE during the whole activity	Used PPE but forgotten 1 instance	Used PPE but forgotten 2 or more instances	Never used PPE during the whole activity
Speed	Finished before or within the allotted time	Finished 1 to 2 minutes with the allotted time	Finished 5 to 10 minutes with the allotted time	Never finished the activity 15 minutes and beyond the allotted time

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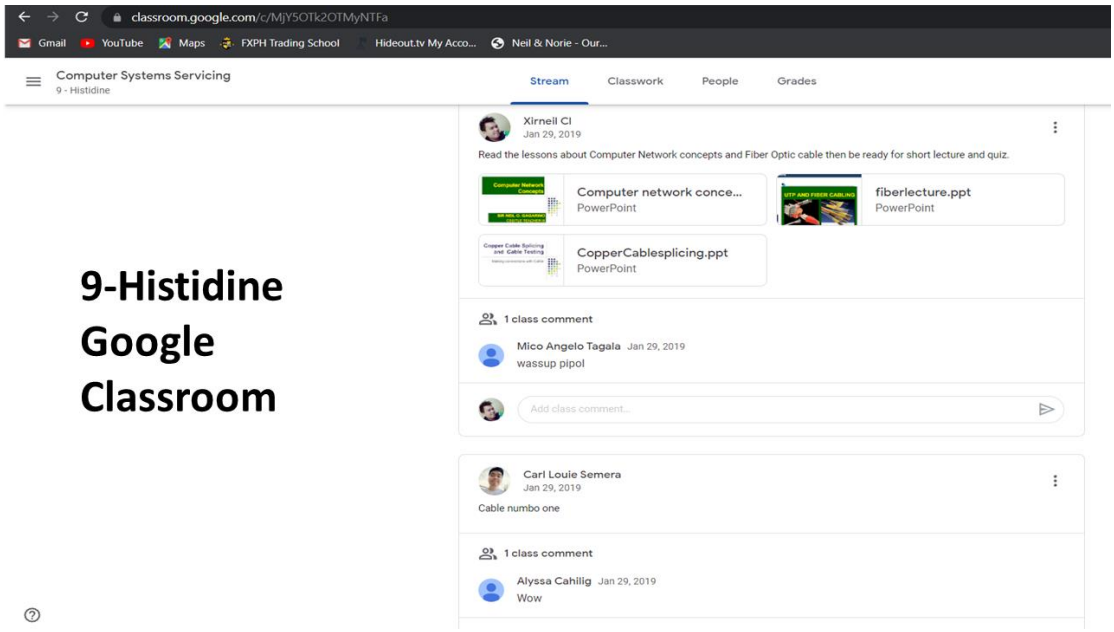
Karangalan Village Magsaysay Avenue Manggahan, Pasig City

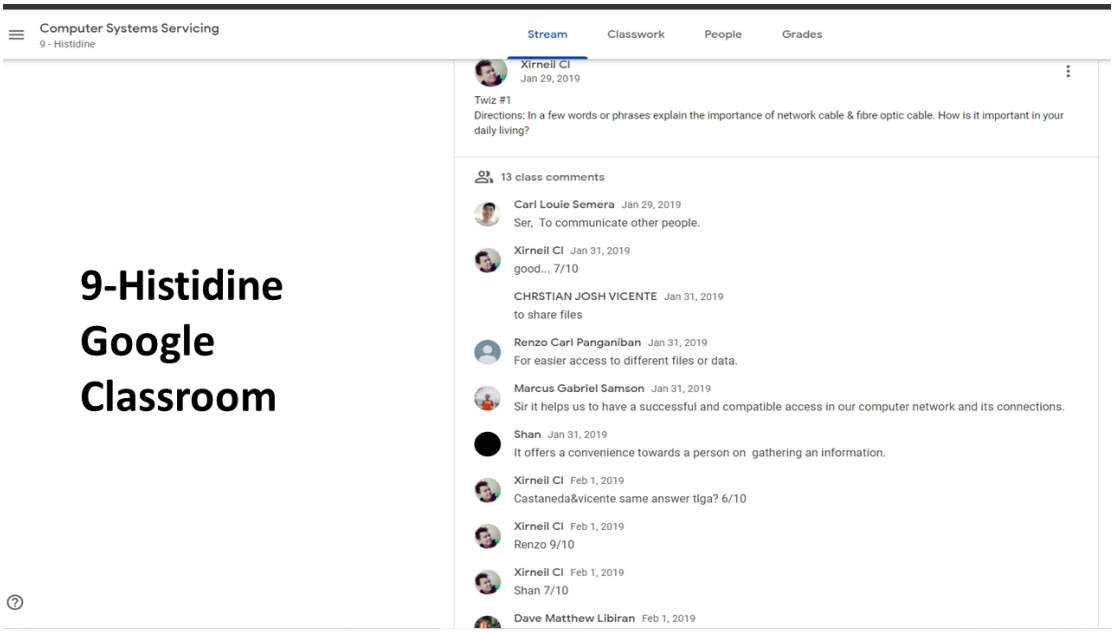
Score/Descriptive Grade	Percentage	Remarks
4 Excellent	88% - 100%	☐ Competent
3 Very good	75% - 87%	
2 Good	66% - 74%	☐ Not Yet Competent
1 Fair	65% - below	
Feedback & Observation:		

Student's signature: _____ **Group #:** _____
Teacher's signature: _____

*Adopted Rubrics from DEPEDGrade 10 Consumer Electronics Servicing NCII Learner's Material by: Marvin A. Mendoza &Cris F. Difioso

Appendix 4: Documentation using Google Classroom, YouTube, class discussion/demonstration and recorded video





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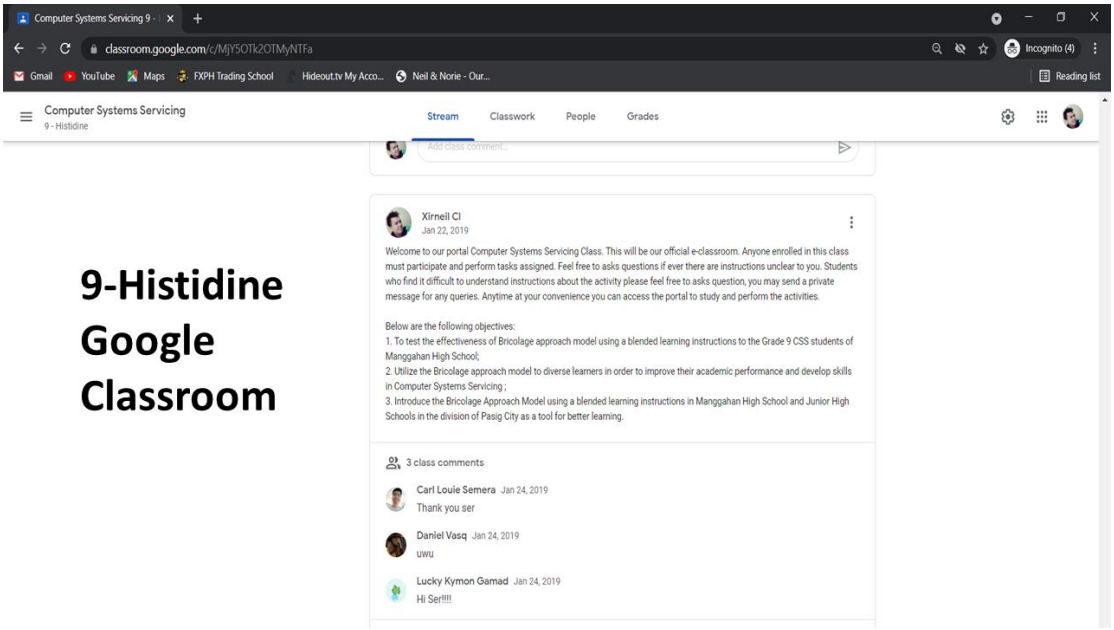
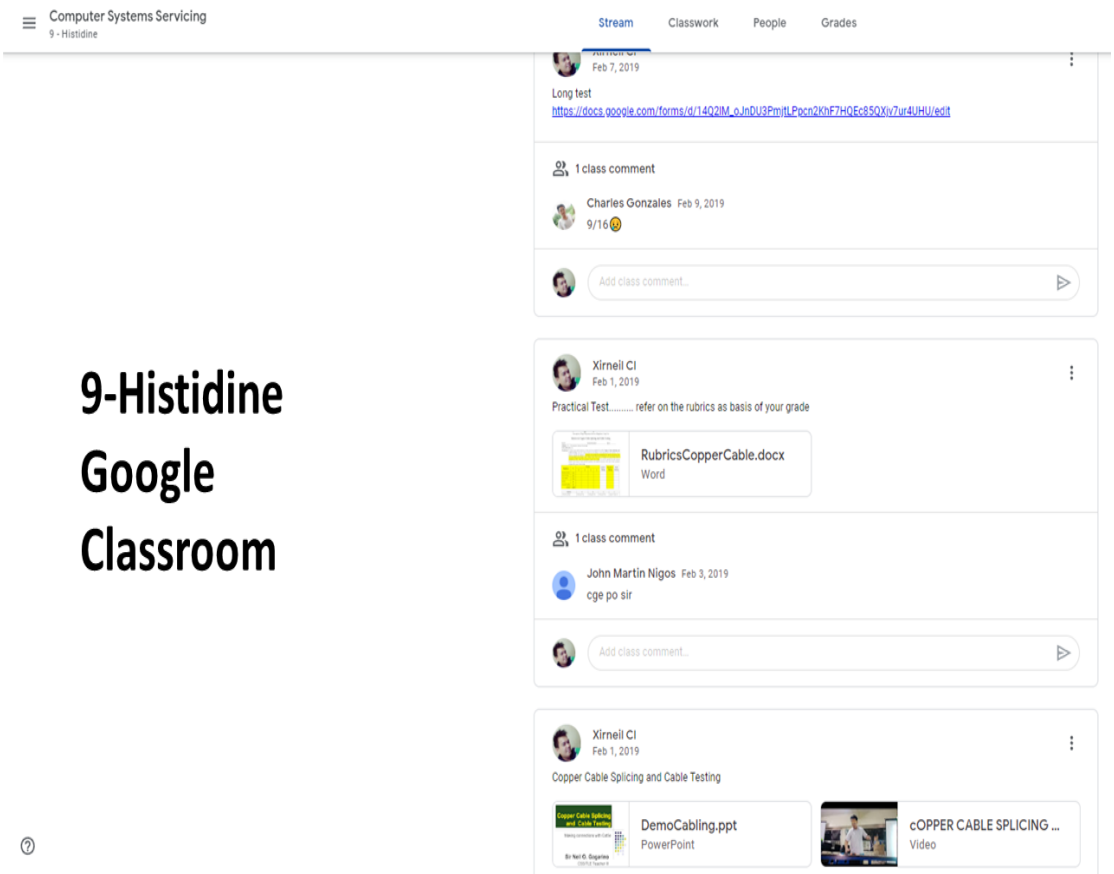


9-Histidine Google Classroom



9-Histidine Google Classroom

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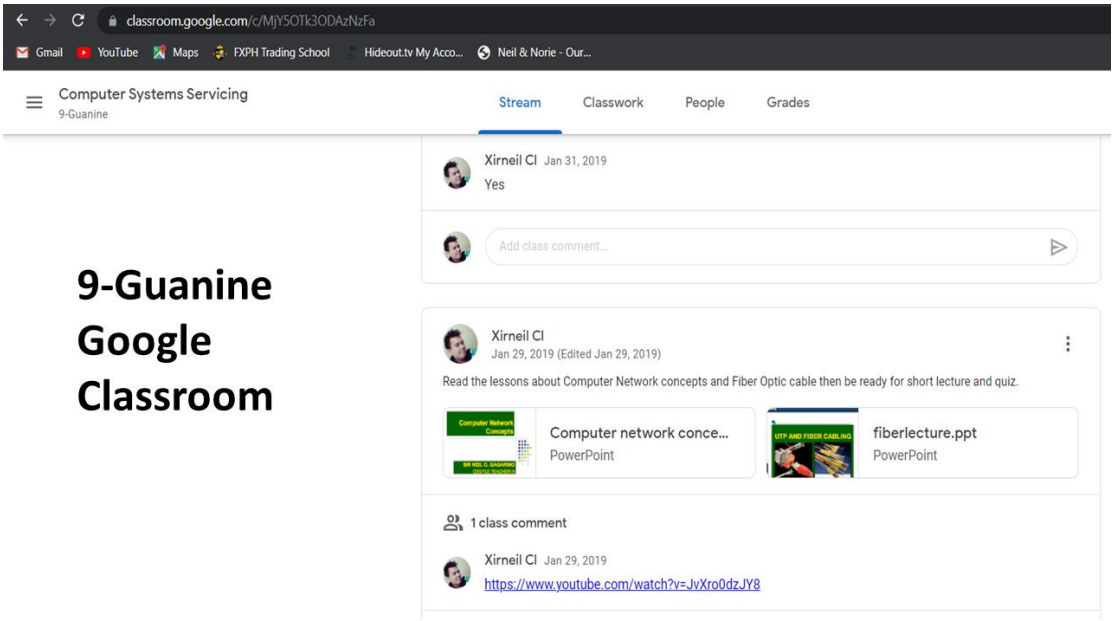
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Gmail
YouTube
Maps
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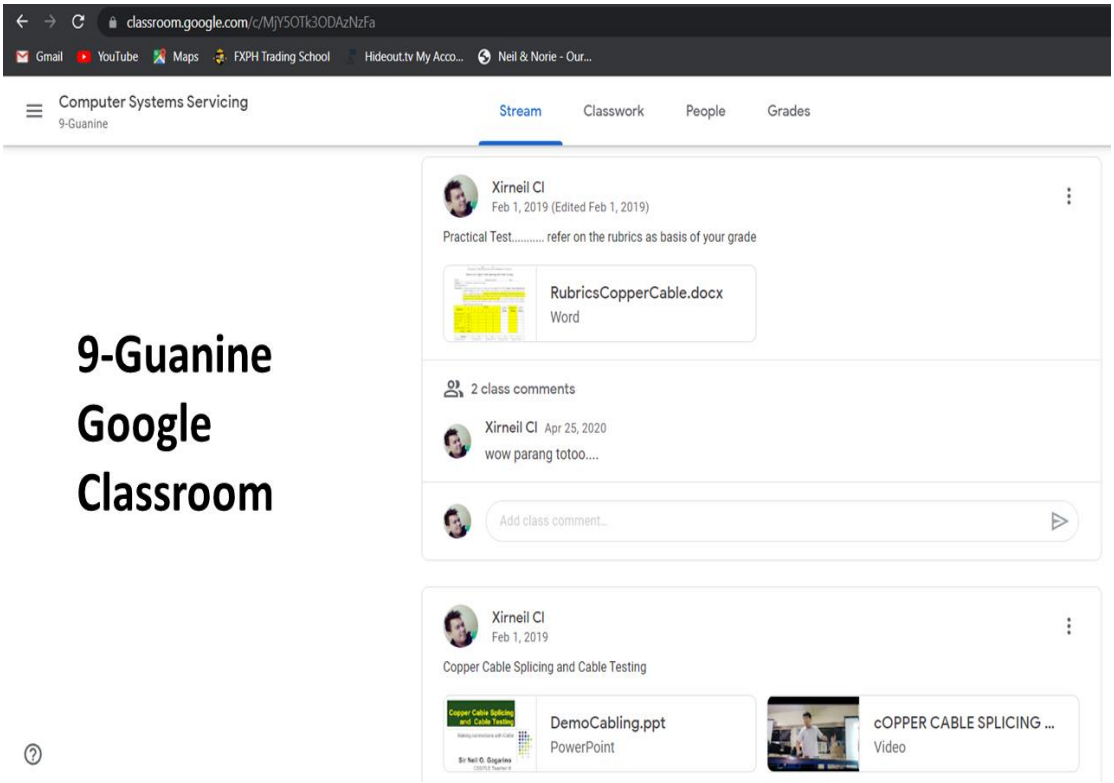
Hideout.tv My Acco...
Neil & Norie - Our...
Computer Systems Servicing
9-Guanine
Stream
Classwork
People
Grades
Xirneil Cl Jan 31, 2019
Yes
Add class comment...
9-Guanine
Google
Classroom
Xirneil Cl
Jan 29, 2019 (Edited Jan 29, 2019)
Read the lessons about Computer Network concepts and Fiber Optic cable then be ready for short lecture and quiz.
Computer network conce...
PowerPoint
fiberlecture.ppt
PowerPoint
1 class comment
Xirneil Cl Jan 29, 2019
https://www.youtube.com/watch?v=JvXro0dzJY8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Feb 1, 2019 (Edited Feb 1, 2019)
Practical Test..... refer on the rubrics as basis of your grade
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2 class comments
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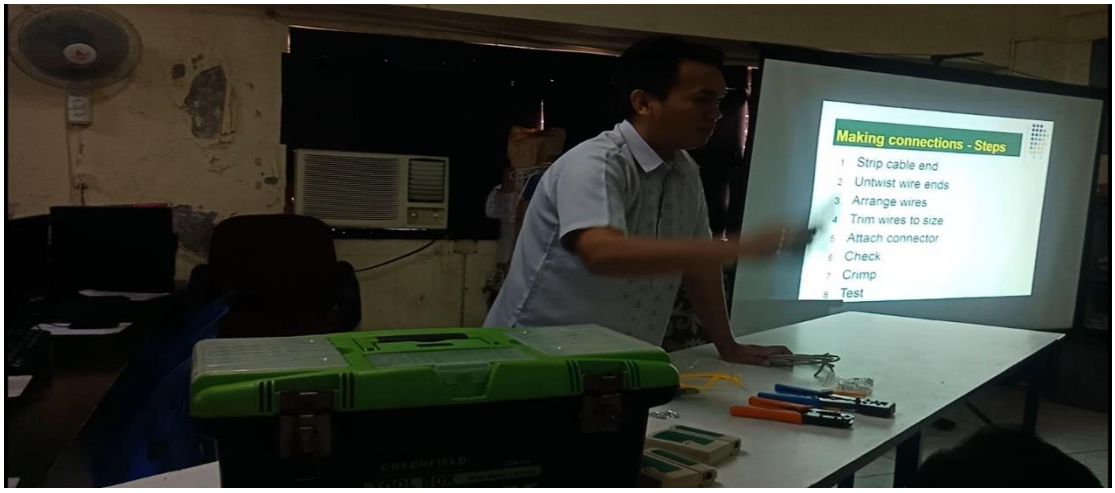
Making connections - Steps
1 Strip cable end
2 Untwist wire ends
3 Arrange wires
4 Trim wires to size
5 Attach connector
6 Check
7 Crimp
8 Test


Step 3 – Arrange wires

Appendix 5: Documentation During the conduct of the Study/ Demonstration Teaching using the Bricolage Approach Model

Appendix 6: FINANCIAL REPORT

Item	Cost Per Unit (P)	Number	Total Cost (P)
Printing of the Research Paper Proposal Report materials and supplies • ink for printer • Short Bond paper	 1200 160	 1 set 1 Ream	 1200 160 **1,360.00**
Printing Final Action Research • Short Bond paper	 160	 1 Ream	 **160.00**
Miscellaneous			**1,000.00**
Contingency			**1,500.00**

TOTAL: Php 4,020.00

DECLARATION OF ANTI-PLAGIARISM AND ABSENCE OF CONFLICT OF INTEREST

1. I, NEIL O. GAGARINO, understand that plagiarism is the act of taking and using another's ideas and works and passing them off as one's own. This includes explicitly copying the whole work of another person or that of the undersigned proponents and/or using some parts of their work without proper acknowledgment and referencing.

2. I hereby attest to the originality of this research proposal and has cited properly all the references used. I/We further commit that all deliverables and the final research study emanating from this proposal shall be of original content. I/We shall use appropriate citations in referencing other works from various sources. I/We also hereby attest that this research has not yet been finished and is not part of the proponent/s' thesis/dissertation.

3. I understand that violation from this declaration and commitment shall be subject to consequences and shall be dealt with accordingly by the Department of Education.

NEIL O. GAGARINO – MT1
Name and Signature of Lead Proponent
October 7, 2021
Date

Name and Signature of Proponent
Click or tap to enter a date.
Date

Name and Signature of Proponent
Click or tap to enter a date.
Date

DOC. NO.: _____
PAGE NO.: _____
BOOK NO.: _____
SERIES OF: _____