IN-HOUSE ENHANCEMENT TRAINING EMPLOYING COMPETENCY-BASED TRAINING (CBT) APPROACH ON GRADE 12 TVL-ICT-CSS PRACTICAL PERFORMANCE

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In-house Enhancement Training Employing Competency-based Training (CBT) Approach on Grade 12 TVL-ICT-CSS Practical Performance

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Abstract

The challenges brought by the COVID-19 pandemic, Modular Distance Learning (MDL) mode of learning delivery, limited learning facilities, and missed opportunity to avail Joint Delivery Voucher Program (JDVP) hindered students enrolled in the Technical-Vocational-Livelihood (TVL) track of Rizal National High School from learning through hands-on experience. This action research evaluated the impact of in-house enhancement training employing the Competency-Based Training (CBT) approach on the practical performance of Grade 12 students enrolled in the Computer Systems Servicing (CSS) specialization under the Information and Communication Technologies (ICT) strand of the TVL track. The study used a one-group pretest-posttest design to determine students' practical performance levels and whether there was a significant difference before and after the intervention. These competencies include Installing and Configuring Computer Systems, Setting up Computer Networks, Setting up Computer Servers, and Maintaining and Repairing Computer Systems and Networks. The research participants comprised fourteen (14) learners enrolled in Grade 12 TVL-ICT-CSS during the School Year 2020-2021. Data were collected and conveyed using the DepEd's MPS Mastery Level and were treated using paired samples t-test. The study disclosed that after the intervention, the practical performance level of students substantially increased from Average to Closely Approximating Mastery level. The result also revealed a significant difference in the students' practical performance before and after the intervention on the four (4) core competencies. The result implies that their practical performance on every competency in the CSS specialization improved significantly after the in-house enhancement training employing the CBT approach.

Acknowledgment

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Context and Rationale

The COVID-19 pandemic gave rise to unprecedented difficulties and challenges in education systems worldwide. This global outbreak caused an inevitable cancellation of school activities and classes months before the end of the School Year (SY) 2019-2021 in the Philippines. However, during the pandemic, the Department of Education (DepEd) never chooses the comfortable track for SY 2020-2021. Instead, it pursues to find alternatives for learning to continue amidst uncertainties and threats brought about by this health crisis while ensuring everyone's health and safety (DepEd 2020, 1).

DepEd Order No. 12, s. 2020, "Adoption of the Basic Education Learning Continuity Plan for School Year 2020-2021 in Light of the Covid-19 Public Health Emergency," stipulates that the DepEd will guarantee the learning continuity of learners. Further, it highlights K-12 curriculum adjustments, alignment of learning materials, and rollout of varied learning delivery modes while protecting learners' and teachers' safety, health, and well-being.

In this regard, the Rizal National High School (Rizal NHS) surveyed parents and found that they preferred Modular Distance Learning (MDL) for their learners. Hence, Rizal NHS has adopted MDL as the distance learning modality for the School Year (SY) 2020-2021. MDL is a learning delivery mode intended for individualized learning through Self-Learning Modules (SLMs) provided to students either in digital or print format. SLMs are self-instructional learning materials that contain lessons and learning activities for a subject matter. It is designed for students to learn and perform activities independently. Following the survey results, Rizal NHS preferred printed SLMs because most students lack computers or devices to access SLMs in digital form.

The printed SLMs, crafted to be interactive, served as substantial learning resources for learners in guiding and teaching them the essential competencies. However, for learners in the Senior High School (SHS) program, especially those enrolled in the Technical-Vocational-Livelihood (TVL) track, SLMs are insufficient. Courses under the TVL track require authentic and experience-based teaching and learning (Pascual, Loso and Salvino 2017, 269). In these courses, learners learn best and acquire skills by doing. Moreover, Smart and Csapo (2007, as cited in McCarthy 2016) agreed that experiential learning or "learning by doing" yields positive results. They further posited that learning is optimized when learners are proactive in the learning process. Experiential learning that supports the instruction for the TVL track can be anchored on the works of Dewey (1938, as cited in Nabuya et al. 2019, 5). He postulated that experiences provide an essential aspect of learning, and humans learn best when the phenomena under investigation are experienced, hence, coining the phrase "learning by doing" (Nabuya et al. 2019, 5). Moreover, the more recent Kolb's (1984, as cited in McCarthy 2016) Experiential Learning Theory also supports that learning is the process of producing knowledge by transforming experience.

What separates the TVL track from three other SHS tracks, namely: Academic Track, Sports Track, and Arts & Design Track, is its greater focus on skills development. Thus, its specializations are based on the performance criteria and learning outcomes specified in the Training Regulations (TR) from Technical Education and Skills Development Authority (TESDA 2013, 38-53) and Curriculum Guide (CG) from DepEd (2016, 18-27).

For instance, Grade 12 TVL students taking up Computer Systems Servicing (CSS) specialization under the Information and Communications Technology (ICT) strand are delimited by the written tasks of the SLMs. They have had limited learning opportunities since their course requires actual demonstration and application of the concepts learned. Their skills development is achieved through practical tasks in a computer laboratory equipped with tools and materials like computer systems, hand tools, and network devices. Their main goal is to master the four (4) Core Competencies. These are Installing and Configuring Computer Systems, Setting up Computer Networks, Setting up Computer Servers, and Maintaining and Repairing Computer Systems and Networks. Moreover, it is imperative since there is an option for them to take a national assessment and acquire a National Certificate (NC) II in CSS if they pass. The National Certificates that learners obtain can increase their employability after graduating (Official Gazette, n.d.).

However, the school also has limited learning materials for their specialization. In the School Year 2020-2021, fourteen (14) students were enrolled in Grade 12 TVL-

ICT-CSS class. Fortunately, through the school principal's support and initiative, the school raised four (4) available sets of computers that could accommodate four (4) students at a time. Each complete set of computers consists of one (1) desktop computer as the server, one (1) desktop computer as the wired client, one (1) laptop as the wireless client, one (1) network hub, and one (1) wireless router.

With this, the Rizal NHS also took advantage of the DepEd's Joint Delivery Voucher Program (JDVP). It is a program that aims to fill the learning gaps of TVL learners enrolled in public schools with insufficient learning tools and materials. Selected TVL learners will undergo enhancement training from private or non-DepEd public SHSs offering their desired specializations (DepEd 2020, 2). The school has availed of the program since its first implementation, which took place in the School Year 2017-2018. Thirty-four (34) students enrolled in the TVL track were the first recipients from the school. Another thirty-seven (37) students benefited from the program in the following School Year. While in the School Year 2019-2020, another batch of thirty-four (34) learners availed of the intervention. The School Year 2020-2021 came, and despite the pandemic, JDVP was implemented, given that the recipient schools and partners shall employ the strategies stipulated in DM-CI-2020-00162 and Circular No. 062, s. 2020, in the conduct of the JDVP-TVL for the School Year 2020-2021 to safeguard the health, safety, and well-being of teachers, learners, and personnel and prevent the further transmission of COVID-19 (DepEd 2020, 1). Unfortunately, the school could not secure slots for the students, perhaps, due to the minimal slots available.

With these limitations brought by the COVID-19 pandemic, MDL mode of learning delivery, limited learning resources, and missed opportunity to avail JDVP program, students in Grade 12 TVL-ICT-CSS class had difficulty performing the competencies. The attainment of producing a skilled workforce for the country could be at stake. While they could still graduate without earning a national certificate, it would still be a wasted chance if they could not hurdle the national assessment. In addition, it would bring honor and prestige to the proud parents, teachers, school, and community if they could graduate as certified, skilled, and competent in their chosen specialization.

With these expressly conveyed, the teacher-researcher was prompted and motivated to conduct this action research. This study gauged the impact of in-house enhancement training employing the Competency-Based Training (CBT) approach on Grade 12 TVL-ICT-CSS practical performance. In particular, this action research was limited to Grade 12 TVL-ICT-CSS students enrolled in Rizal National High School for the School Year 2020-2021. This action research also addresses the perennial problem of schools offering TVL specializations highlighting the limited facilities. Henceforth, the outcomes of this study will provide substantial and evidence-based input to the implementation of the TVL track and delivery of quality education in public senior high schools as a whole. Moreover, this action research was limited to determining the practical performance of Grade 12 TVL-ICT-CSS students on the four (4) core competencies of the CSS specialization for the School Year 2020-2021.

Innovation, Intervention, and Strategy

Through an approved activity proposal from the Schools Division of Zamboanga del Norte and the Local Government Unit of Rizal, the teacher-researcher conducted twenty (20) days of in-house enhancement training employing the Competency-Based Training (CBT) approach to Grade 12 TVL-ICT-CSS students as a learning intervention from May 3-28, 2021.

Generally, this enhancement training aimed to enhance their practical performance vis-à-vis CSS core competencies stipulated in the Curriculum Guide (CG) of DepEd (2016, 18-27) and Training Regulation (TR) of TESDA (2013, 38-53) and prepare them to take the national assessment.

Competency-Based Training (CBT) is a training delivery approach that emphasizes learners' competency development due to the training. It focuses on what the students can perform rather than the teaching and learning process (TESDA, 2012). Moreover, Sullivan and McIntosh (1996, 95) elucidated that CBT underscores mastery of particular skills and knowledge and is student-centered. Hence, it is concerned with

the outcomes and application of skills, knowledge, and attitude, making it the preferred approach of TESDA in producing skilled individuals.

Furthermore, Sullivan and McIntosh (1996, 95) pointed out that skill and competency are the two (2) key terms utilized in CBT. Skill refers to the task or group of tasks conducted to a certain level of proficiency. It commonly uses motor functions and usually needs the manipulation of equipment and instruments (e.g., assembling a computer system unit). Competency relates to the skill carried out to a certain standard under certain conditions.

The CBT approach highlights key characteristics, such as training being based on competency standards, individualized and self-paced. It also assesses and recognizes skills and knowledge where learners may leap competencies already achieved. Moreover, it is modular in its structure, specifies tasks that need to be performed, and collects evidence of the completed work as per competency standards (Sullivan and McIntosh 1996, 96; and TESDA 2012, 4-6).

In this intervention, the training utilized the competency standards developed by TESDA specified in the TR adopted in the DepEd CG for CSS specialization of the TVL track. As learners entered the training, their prior learning was acknowledged through an assessment process to provide activities that meet their learning level. This approach allowed training to enable individualized learning, considering their learning styles, characteristics, and paces. Various learning activities were also introduced and utilized, allowing students to work independently with minimum supervision. Moreover, with the aid of modules as detailed training materials, learners can self-evaluate, thus providing immediate feedback on their performance in every learning activity.

Furthermore, since it is modular, one competency is regarded as one module. Before advancing to the next module, learners must be competent in the studied module. This CBT characteristic is similar to the current MDL learning modality wherein learning is self-paced using the Competency-Based Learning Material (CBLM). Like the SLM, the CBLM also has answer keys, performance criteria checklists, and other monitoring tools to evaluate learners' progress. In this training, learners focused on four (4) core competencies of the CSS specialization. In assessing learners' competency, an institutional competency evaluation was conducted to determine whether the learner can perform the tasks based on the criteria set in the competency standards. Grades were not the bases for assessing learners' competency in CBT. Instead, it focuses on the attainment of the evidence as collected from the performed tasks.

While this CBT approach had similarities with the MDL, this enhancement training was intensive and comprehensive as it was conducted daily. The development and repetitive practice of the skills were put at a premium aside from the knowledge and attitudes required for learners to perform and acquire the four (4) core competencies in CSS specialization.

The researcher viewed the critical characteristics of the CBT approach that would render the in-house enhancement training as the most suitable intervention program for the fourteen (14) TVL-ICT-CSS learners in this pandemic and limited facilities (such as computer units, network devices, and the like). Moreover, the flexibility of learning allowed learners to perform and practice on limited computer sets on a scheduled basis. Advanced learners were the first to utilize available computer sets, while the rest answered the modules or observed others perform. After the advanced learners completed the tasks, they mentored and taught the slow learners.

This intervention is supported by Okoye and Michael's (2015) study that the CBT approach provides the types of workers that the industry needs. It affords an avenue and route towards ensuring learners acquire the relevant information and skills in Technical and Vocational Education and Training (Okoye and Michael 2015, 68). Moreover, Ayonmike, Okwelle and Okeke's (2014) study corroborated that competency-based education training is undoubtedly the way for Technical and Vocational Education programming (298). In addition, Siddique et al. (2020) found that graduates of programs employing the CBT approach were more competent than those with traditional training programs (307).

Action Research Question

The primary objective of this action research was to determine the impact of the in-house enhancement training employing the Competency-Based Training (CBT) approach on Grade 12 TVL-ICT-CSS practical performance. It sought the practical performance level among the fourteen (14) learners enrolled in Rizal National High School for the School Year 2020-2021. Further, it aimed to examine if there was a significant difference before and after the intervention conducted on May 3-28, 2021. Specifically, it aimed to answer the following questions:

1. What is the students' practical performance level before and after the in-house enhancement training employing the CBT approach on four (4) core competencies in CSS specialization?

2. Is there a significant difference in the students' practical performance before and after the in-house enhancement training employing the CBT approach on four (4) core competencies in CSS specialization?

Action Research Methods

Research Design

This action research used a one-group pretest-posttest design to distinguish the result of the intervention on the participants' practical performance. This design enabled the teacher-researcher to calculate the difference between the pretest and posttest results with the same precision (Okaschareon 2016, 10). In this design, three phases were involved. It started with a pretest to determine students' practical performance level on the four (4) core competencies. It was followed by the application of the intervention to participants. Then, the posttest was administered to distinguish their level of performance again on the competencies. The results were analyzed using statistical tests that determined if significant differences existed in their performance before and after the intervention.

Participants and/or Other Sources of Data and Information

The study participants were fourteen (14) Grade 12 TVL-ICT-CSS students of Rizal National High School of Rizal District, Schools Division of Zamboanga del Norte. The participants were nine (9) males, and five (5) females enrolled in School Year 2020-2021. Since only fourteen learners were enrolled, the study opted for total population sampling. The Grade 12 TVL-ICT-CSS learners were chosen as participants as they expected to have explored most of the lessons and competencies set for their chosen specialization.

Research Instruments

The teacher-researcher employed observation using the scoring tool to gather data and evidence on the practical performance of the participants. The scoring tool consisted of four (4) core competencies with specific competency standards outlined in the CSS NC II qualification Training Regulation (TR). Each core competency has specific competency standards or performance tasks that students must perform. The teacher-researcher gave one (1) point if the student completed the particular task; otherwise, zero (0). For instance, there were five (5) tasks in core competency 1, which can give students five (5) points if they performed them. The observation was employed before and after the conduct of the learning intervention. This evidence-based observation scoring tool was based on and adapted from the TESDA in evaluating learners' performance, whether one is "Not Yet Competent" or "Competent" (TESDA 2012, 46). Since the performance tasks listed in the scoring tool were adapted from the

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institutionalized and standardized tool utilized by TESDA assessors in conducting competency assessments for Computer Systems Servicing NC II qualification, the validity and reliability of the research instrument can be established.

Data Gathering Procedure

The researcher sought permission from the Principal's Office to conduct the study at the school level. Upon granting authorization to pursue the study, the researcher personally asked for the Grade 12 TVL-ICT-CSS parents and students to be included as research participants. The participants were then informed and oriented on the data-gathering procedure upon their approval. The researcher also ensured the parents and students the confidentiality and privacy of all data gathered.

Before starting the intervention, participants were tasked to perform all the competencies. The researcher used the evidence-based observation scoring tool to record their performance. After the intervention, the participants were requested to complete all the tasks again. The researcher again used the evidence-based observation scoring tool to record their performance. Minimum health protocols and standards were stringently observed during the entire data-gathering procedures before and after the intervention.

To protect the data collected, the researcher stored it in a dedicated flash drive for its sole purpose. He kept it in his drawer for at least five (5) years from the conduct of the study.

The data gathering method utilizing the evidence-based observation scoring tool was deemed appropriate as it captured the demonstrated practical performance of the participants.

Data Analysis

Raw scores were collected to analyze the first question on students' practical performance levels before and after the intervention. It was then conveyed following the DepEd's Mean Percentage Scores (MPS) Mastery levels and utilized its descriptive equivalent (DepEd 2012, 1). Hence, the following ranges were used:

MPS	Descriptive Equivalent
96- 100%	Mastered
86-95%	Closely Approximinating Mastery
66-85%	Moving Towards Mastery
35-65%	Average
15-34%	Low
5-14%	Very Low
0-4%	Absolutely No Mastery

A paired samples t-test was used to analyze the second question if there was a significant difference in the students' practical performance before and after the intervention on the four (4) core competencies.

Results and Discussions

Table 1: Level of Students' Practical Performance Before and After the Conduct of the Intervention

	Before		After	
	MPS	**Description**	**MPS**	**Description**
Core Competency 1	54.29	Average	97.14	Mastered
Core Competency 2	49.21	Average	91.27	Closely Approximating Mastery
Core Competency 3	35.71	Average	80.95	Moving Towards Mastery
Core Competency 4	31.43	Low	75.71	Moving Towards Mastery
Average MPS	**42.66**	**Average**	**86.27**	**Closely Approximating Mastery**

Table 1 presents the students' practical performance levels in the four core competencies before and after the intervention's implementation. Before conducting in-house enhancement training, students had an MPS of 42.66 percent, which translates to an average level. This result means that students' practical performance in all core competencies is only satisfactory. Looking keenly at the table, it further reveals that the MPS of students even plummets to 31.43 percent, indicating a low practical performance level in the fourth core competency. This result can be attributed to the sudden shift of instruction from face-to-face to distance learning caused by the pandemic. TVL students had insufficient authentic and experience-based learning opportunities.

However, after the intervention, the result discloses that the MPS of the students' practical performance dramatically increased to 86.27 percent, which reveals a closely approximating mastery level. This result implies that the students are close to mastering all core competencies. Interestingly, the table shows that students' practical performance had already reached mastery in the first core competency, with an MPS of 97.14 percent. This result can be attributed to the comprehensive training that provides adequate hands-on learning experiences to students.

Table 2: Test of Significant Difference in the Level of Students' Practical Performance Before and After the Conduct of the Intervention

	MPS	T-Value	df	P-Value	Interpretation
Core Competency 1	54.29	7.81	13	0.000	Significant
	97.14				
Core Competency 2	49.21	8.04	13	0.000	Significant
	91.27				
Core Competency 3	35.71	7.34	13	0.000	Significant
	80.95				
Core Competency 4	31.43	5.28	13	0.000	Significant
	75.71				

Table 2 presents the tests of significant difference in Grade 12 TVL-ICT-CSS participants' practical performance.

All p-values yielded 0.000, which is less than the 0.05 level of significance. Thus, there is sufficient evidence to conclude significant differences between students' practical performance levels in all Core Competencies before and after the intervention. These results imply that the practical performance of Grade 12 TVL-ICT-CSS participants had improved significantly after implementing the in-house enhancement training employing the CBT approach.

The result strengthened the findings of Okoye and Michael (2015) and Ayonmike, Okwelle, and Okeke (2014). They postulated that training programs employing the CBT approach are practical and effective at equipping the students with the necessary knowledge and skills of their chosen TVL specialization. Moreover, the finding supports and reinforces the experiential learning theory of Kolb (1984, as cited in Strange and Gibson 2017, 88), which states that learning is the process in which knowledge is produced by transforming experiences. Learning can be attained, and knowledge can be created through hands-on experience and active observation (Kolb and Kolb 2005, as

cited in Strange and Gibson 2017, 88). This finding was agreed with Smart & Csapo (2007, as cited in McCarthy, 2010), who postulated that experiential learning yields positive results.

Although the intervention was conducted in twenty (20) days with insufficient learning facilities, the Grade 12 TVL-ICT-CSS participants' practical performance improved significantly. This result further discloses that in-house enhancement training employing the CBT approach is viable and beneficial in honing and improving the skills of our learners. Hence, this intervention proves to be an effective strategy for our teachers in the TVL track to implement in their respective classrooms. However, there is no doubt that there is still room for improvement. It is also worth observing that the number of participants in the study was small compared to other schools in the Schools Division of Zamboanga del Norte, with many enrollees.

Conclusions and Recommendations

The study reveals that the first Core Competency, which involves installing and configuring computer systems, has the highest MPS before and after the intervention. This result translates to some participants retaining their skills in installing and configuring computer systems covered before the pandemic and being refreshed or enhanced after the intervention. After the intervention, the MPSs of students' practical performance in the other three (3) core competencies have likewise skyrocketed. Additionally, Core Competencies 3 and 4 are their most challenging competencies as they only attained the Moving Towards Mastery level after the intervention. This result implies they are approaching mastery in setting up computer servers and maintaining and repairing computer systems and networks.

Furthermore, the result discloses a statistically significant difference in the students' practical performance before and after the intervention on the four (4) core competencies. The results imply that Grade 12 TVL-ICT-CSS participants' practical performance had significantly increased after the conduct of in-house enhancement training employing the CBT approach.

The result supports that experiential learning best suits specializations offered under the TVL track and should be vital in developing skills. Moreover, it strengthens the coined "learning by doing" by John Dewey (1938, as cited in Nabuya et al. 2019, 5) and Experiential Learning Theory by Kolb (1984, as cited in McCarthy 2016, 92). With an experience-based or involved learning method, learners actively acquire skills and knowledge, thus, increasing their retention and understanding of the competencies.

The key characteristics of the CBT approach, such as individualized and self-paced learning, modular training structure, and competency standards-based learning, enable flexibility of learning as a participant will only perform and practice on a set of facilities when he is ready after reading and understanding the printed modules given. Participants carried out practical performances on a scheduled basis, where advanced learners were the first to use the facilities while the rest were still answering the printed modules. Moreover, the approach also helped ensure learners' and teachers' health, safety, and well-being with the observance of the minimum health protocols like social distancing and wearing face masks and face shields could be easily and stringently implemented with the limited number of participants.

While the school has only four (4) complete computer sets, the in-house enhancement training employing the CBT approach enhanced the practical performance of the fourteen (14) participants. Thus, the intervention maximized the use of the available limited facilities. This study provides empirical evidence that the intervention is feasible and effective for enhancing the learners' skills and knowledge. Hence, the researcher intended to institutionalize the intervention.

With these, the teacher-researcher recommends that the Department allocate the funds used for the JDVP program to equip schools with the necessary TVL facilities, which are essential in attaining the skills development of the learners. Moreover, the study recommends that this study be replicated or conducted on other specialization offerings and subsequent batches of Grade 12 TVL students in this school or other institutions. With this, in-house enhancement training employing the CBT approach can be re-evaluated and reinforced.

Action Plan

COMPONENT: Grade 12 TVL Students' Development
KEY IMPROVEMENTS: Practical performance
OBJECTIVES: • Enhance TVL students' practical performance vis-à-vis their specialization's competency standards stipulated in the DepEd's Curriculum Guide (CG) and TESDA's Training Regulation (TR). • Prepare them to take the national assessment in their chosen specialization.

STRATEGIES:
     Implement an in-house enhancement training that employs the Competency-Based Training (CBT) approach to TVL students.
     The training will acknowledge students' prior learning through an assessment process conducted before or as the training commences through the CBT approach. Moreover, this training will focus on individualized learning as learners have different learning styles, characteristics, and paces. Various learning activities or materials will be utilized and provided, such as videos, pictures, slideshow presentations, puzzles, and printed modules. Through printed modules, learners can work independently with minimum supervision. Moreover, the modules will provide them with the necessary knowledge and guide them on performance tasks, which they can self-evaluate after every lesson/activity. Thus, providing them with immediate feedback on their performance in every learning activity.
     Furthermore, every competency is regarded as one module. Before moving to the succeeding competency, learners must perform the required tasks and pass the written assessment of the current competency studied.
     In this training, grades are not the basis for the learners' proficiency—instead, the achievement of the criteria or evidence collected from the performed tasks.

RESOURCES REQUIRED: Printed modules, Printer, Bondpapers, Videos, Laptop/TV/ Projector, Complete sets of computer facilities
PERSONS INVOLVED: TVL Teacher, School Principal, Students
TIME FRAME: More or less 20 days during the 3rd or 4th Quarter
EXPECTED OUTPUTs: Grade 12 TVL students' practical performance is enhanced. Hence, they can perform all Core Competencies in their respective specializations. Also, they get prepared to hurdle the national assessment in their chosen field.

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References

Ayonmike, Chinyere S., Chijioke P. Okwelle and Benjamin C. Okeke. 2014. "Competency Based Education and Training in Technical Vocational Education: Implication for Sustainable National Security and Development." *Journal of Educational Policy and Entrepreneurial Research (JEPER)* 1, no. 2, 290-300. https://www.iiste.org/Journals/index.php/JEPER/article/view/17029

Department of Education Order No. 12, s. 2020. *Adoption of the Basic Education Learning Continuity Plan for School Year 2020-2021 in the Light of the COVID-19 Public Health Emergency.* https://www.deped.gov.ph/2020/06/19/june-19-2020-do-012-2020-adoption-of-the-basic-education-learning-continuity-plan-for-school-year-2020-2021-in-the-light-of-the-covid-19-public-health-emergency/

Department of Education Order No. 35, s. 2020. G*uidelines on the implementation of the joint delivery voucher program for senior high school technical-vocational-livelihood specializations for school year 2020–2021.* https://www.deped.gov.ph/2020/11/04/november-4-2020-do-035-s-2020-guidelines-on-the-implementation-of-joint-delivery-voucher-program-for-senior-high-school-technical-vocational-livelihood-specializations-for-school-year-2020-2021/

Department of Education. 2016. *K to 12 ICT – Computer Systems Servicing (NC II) Curriculum Guide.* http://www.deped.gov.ph/wp-content/uploads/2019/01/Computer-Systems-Servicing-NC-II-CG.pdf

Department of Education. 2012. *Maximizing Utilization of the National Achievement Test (NAT) Results to Raise the Achievement Levels in Low Performing Schools.* http://www.deped.gov.ph/wp-content/uploads/2012/09/DM_s2012_160.pdf

Department of Human Resource Science and Technology. 2007. *Strategy to Revitalize Technical and Vocational Education and Training (TVET) in Africa.* https://www.academia.edu/25379014/Strategy_to_Revitalize_Technical_and_Vocational_Education_and_Training_TVET_in_Africa_Final_Draft

Laerd Statistics. n. d. "McNemar's test using SPSS Statistics". https://statistics.laerd.com/spss-tutorials/mcnemars-test-using-spss-statistics.php.

McCarthy, Mary. 2016. "Experiential Learning theory: From theory to Practice." *Journal of Business & Economics Research,* 91-100. doi:10.19030/jber.v14i3.9749

Nabuya, Roziel, Reyglenn Demerey, Roy Villarmia, Janine Navarez, Nhalea Chelou Cupat, Dominique Pineda, Kenneth Sumulong and Seth Yumang. 2019. "Students' Experiences on Technical Vocational and Livelihood Program Assessment in Senior High School." https://edarxiv.org/vfjsk/download

Official Gazette. n. d. "The K to 12 Basic Education Program" Accessed May 2, 2021.

Okaschareon, Chusak. *Experimental Studies.* 2016. https://med.mahidol.ac.th/ceb/sites/default/files/public/pdf/ACADEMIC/2016/race612/Experimental_Studies_Module.pdf

Okoye, K.R.E. and Ofonmbuk I. Michael. 2015. "Enhancing Technical and Vocational Education and Training (TVET) in Nigeria for Sustainable Development: Competency-Based Training (CBT) Approach." *Journal of Education and Practice* 6, 66-69.

Pascual, Pet Anthony L., Maricris M. Loso and Maria Jesusa O. Salvino. 2017. "Training regulation-based and entrepreneurship-based approaches in teaching Technology and Livelihood Education (TLE) exploratory courses in the K to 12 program at Leyte Normal University." *Asian Journal of Multidisciplinary Studies,* 5, 268-273. https://core.ac.uk/download/pdf/ 229688275.pdf

Strange, Hannah and Heather J. Gibson. 2017. "An investigation of experiential and transformative learning in study abroad programs." *Frontiers: The Interdisciplinary Journal of Study Abroad* 29, 85-100.

Sullivan, Rick, and Noel McIntosh. 1996. "The Competency-Based Approach to Training." *Medical Journal of Indonesia* 5, 95-98. doi:10.13181/mji.v5i2.853

Technical Education and Skills Development Authority. 2012. *Competency-Based Learning Materials (CBLMs) on Trainers Methodology I, Conducting Competency Assessment.* Marikina City: National TVET Trainers Academy, TESDA.

Technical Education and Skills Development Authority. 2012. *Competency-Based Learning Materials (CBLMs) on Trainers Methodology I, Facilitating Learning Sessions.* Marikina City: National TVET Trainers Academy, TESDA.

Technical Education and Skills Development Authority-Qualification Standards Office. 2013. *Training Regulations for Computer Systems Servicing NC II.* Taguig City, Philippines: TESDA.

Financial Report

The table below shows the cost estimates expended before, during, and after conducting this action research.

General Descriptions	Quantity	Unit	Unit Price	Total Estimated Costs
Short Bond paper sub. 20	1	ream	275	275
Ink for printer	4	bottles	271.25	1,085
Internet Costs			2,000	2,000
Printing and Binding (14pax * 4 modules)	56	copies	20	1,120
Ballpen	15	pcs	6	90
Total				4,570

Appendix A

Scoring Tool

Instructions: Use this scoring tool to determine the student's practical performance. Put a score of "1" to indicate that the student did perform the specified performance task and "0" to indicate that the student did not perform the specified task.

	Score
Core Competency 1 - Install and configure computer systems During the demonstration of skills, the student:	
1. *Set up computer hardware*	
2. *Prepared software installers*	
3. *Installed OS and drivers for devices and peripherals*	
4. *Set up software*	
5. *Conducted documentation and testing*	
Core Competency 2 - Set Up Computer Networks During the demonstration of skills, the student:	
1. *Obtained equipment, tools, and testing devices necessary to conduct the installation task based on established methods and check for proper safety and operation*	
2. *Utilized proper personal protective equipment (PPE) and adhered to OH & S procedures and policies*	
3. *Executed cable splicing following the standards such as the 568B and 568A cabling standards*	
4. *Installed network cables and cable raceway following established installation requirements and procedures*	
5. *Observed 3Rs and 5S according to environmental guidelines*	
6. *Examined network connectivity of each terminal per network design*	
7. *Remedied and Diagnosed network problems or faults in line with the standard operating procedures*	
8. *Set Wi-Fi/router/repeater configuration/wireless access point*	
9. *Set up client device systems settings following the manufacturer's end-user preference, instructions, and network design*	
Core Competency 3 - Set Up Computer Servers During the demonstration of skills, the student:	
1. *Created user directory following the network OS features*	
2. *Set up user access levels based on NOS features and established network access policies and end-user requirements*	
3. *Updated/Installed add-ons/required modules based on NOS installation practices*	
4. *Examined operation of network services following user/system requirements*	
5. *Conducted documentation, testing, and pre-deployment processes*	
6. *Performed pre-deployment procedures following enterprise procedures and policies*	
Core Competency 4 - Maintain and Repair Computer Systems and Networks	

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		Score
During the demonstration of skills, the student:		
	1. *Prepared and planned maintenance and diagnosis of errors consistent with job requirements*	
	2. *Checked and obtained equipment, tools, and testing devices for proper safety and operation*	
	3. *Examined computer networks and systems for maintenance against service/job order specifications and instructions*	
	4. *Tested normal function of computer networks and systems following manufacturer's manual and instructions*	
	5. *Observed OHS procedures and policies*	

Appendix B

Republic of the Philippines
Department of Education
REGION IX – ZAMBOANGA PENINSULA
SCHOOLS DIVISION OF ZAMBOANGA DEL NORTE
RIZAL NATIONAL HIGH SCHOOL
WEST POBLACION, RIZAL, ZAMBOANGA DEL NORTE

INFORMED CONSENT

The undersigned will be conducting an action research study titled **"In-house Enhancement Training Employing Competency-based Training (CBT) Approach on Grade 12 TVL-ICT-CSS Practical Performance"**.

The study aims to evaluate the impact of an in-house enhancement training employing the Competency-Based Training (CBT) approach on the practical performance of Grade 12 students enrolled in the Computer Systems Servicing (CSS) specialization under the Information and Communication Technologies (ICT) strand of the TVL track. The study's respondents are the school's fourteen (14) Grade 12 TVL-ICT-CSS learners in the School Year 2020-2021.

In line with this, your son/daughter has been chosen as one of the study participants. Data on his/her practical performance will be gathered. Rest assured, strict implementation of privacy measures will be observed, and all collected information will be kept confidential and only used for aggregated analysis.

Participation of your son/daughter in this research is voluntary, and he/she is free to refuse participation when he/she is uncomfortable.

Overall, the study will take twenty (20) days from May 3-28, 2021. Do you fully understand the terms above and agree to let your son/daughter participate in the study? Kindly check the appropriate response.

_____ Yes, I agree to let my son/daughter participate in this study.
_____ Apologies, but I do not agree to let my son/daughter participate in this study.
            Date:

Thank you very much. I will warmly welcome any comments, suggestions, or questions regarding the conduct of the study. You may contact me at 0919-723-5567.

_____   _____
Signature over Printed Name of Parent/Guardian   Signature over Printed Name of Student

ALGIE B. REGAÑON
Teacher-researcher

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Zamboanga Peninsula