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Challenges Encountered of Automotive Technology Instructors in Higher Education Institution

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ABSTRACT

The primary purpose of this study is to investigate the lived experiences of automotive technology instructors at Palompon Institute of Technology. A phenomenology research design was used in this study. This was participated by industry workers and instructors of the Palompon Institute of Technology.

Findings revealed that teachers of any vocational or technical level always keep in mind that the welfare of their students is a top priority, so much so that they can work under pressure. They can cope with whatever facilities are available to them. Though availability, adequacy and utilization tend to be keeling on the negative side, the instructors found solutions to every problem met along the way at their level and strata. The perceived effects of students' on their performance when they went to the real world of work were summed up to not being competent, skills and training were mismatched with the industry requirements and exposure to essential tools so much so that the responses from the students'/graduates' correlated perfectly to their being culture shock, having low or poor self-esteem and poor work ethics.

Vocational education and training at the tertiary level can ease the transition from school to work while supplying employers with trained workers. Dual vocational training, which combines structured learning on-the-job with classroom training, leads to certified skills relevant to employers and is portable in the labor market.

Keywords: Automotive Technology, Higher Education

INTRODUCTION

Education for All (EFA)—a law that holds educational institutions accountable for providing quality education and ensuring high academic accomplishment for all children in the country—appears to be nearly impossible for many schools, which face significant obstacles in meeting EFA's standards. We must consider two critical criteria to implement the provisions of this law entirely: (1) a curriculum that ensures student competency on standardized examinations; and (2) an adequate number of teachers capable of efficiently translating the curriculum into meaningful instructional practices. Nonetheless, a third, and perhaps most frequently disregarded, component affecting learners' knowledge acquisition and skills is the physical, educational environment. Hughes (2005) and Lyons (2001) asserted that student performance and attainment were contingent upon the school facility's age, design, and condition.

According to Lyons (2001), learning is a complex process that constantly evaluates students' motivation and the physical conditions of the school. These internal and external resources work in concert to promote holistic learning within an individual. Educators should view each variable as critical to ensuring the process's uninterrupted flow—no one variable operates in isolation (Lyons, 2001). Equally, we must consider the school facilities as an active factor in this process. Thus, stakeholders must be aware of the various ways in which the status of school facilities can either make or break a student's education.

According to the Department of Education's (1999) research findings, public schools face significant challenges regarding the availability of acceptable, relevant, and high-quality school facilities for teaching and learning. Additionally, Schneider emphasized in 2002 that most school facilities in the Philippines are roughly fifty years old and often in bad shape. Filardo (2008) corroborated this conclusion, stating that public schools are continually

challenged with out-of-date designs, worsening conditions, and shifting usage demands. The issue is so readily apparent—deficiencies in physical school facilities have significant consequences for student learning and achievement, teacher quality, and the persistence of health and safety issues for faculty members and children. Exacerbating these challenges is the authorities' incapacity to generate activities to support the acquisition of modern and necessary facilities and train staff in the management of these resources.

Inadequate school facilities raise serious concerns about the general welfare of instructors and pupils. As a result, it becomes critical for policymakers and administrators to consider the functions of school facilities in the acquisition and learning of life-long knowledge and skill skills while establishing a curriculum that is equitable and efficient. Stakeholders should recognize a clear, direct link between student performance and achievement and the quality of school facilities.

Hence, in this line of thought, the researcher has opted to conduct this study to investigate the lived experiences of automotive technology instructors at the Palompon Institute of Technology.

Statement of the Problem

This study generally aims to investigate the lived experiences of automotive technology instructors at the Palompon Institute of Technology.

Specifically, it seeks to answer the following questions:

1. How do the automotive technology instructors' experiences affect the automotive technology instruction at Palompon Institute of Technology?

2. What are the effects of availability, adequacy, and utilization of equipment and facilities on students' performance?

3. What are the problems met by the automotive technology instructors at Palompon Institute of Technology.

Framework of the Study

This study takes hold of the following theories as the foundation of the study.

Theoretical. The researcher embraced Jerome Bruner's constructivism theoretical arguments that learning is an active process in which learners construct new ideas or concepts based upon their current or past knowledge (Bruner, J. 1996). He also argues that humans generate knowledge and meaning from an interaction between their experiences and their ideas. The theory is associated with pedagogic approaches that promote active learning and discovery processes. Hands-on experiences are therefore necessary for effective learning as the learner is required to do something in the process of learning. The teacher should try and encourage students to discover principles by themselves. Chemistry teachers can achieve this by giving practicals in the laboratory. The various laboratory experiences expose the learners to hands-on activities, thus actively participating in the learning process. If well planned in a properly set laboratory, laboratory experiences can develop scientific thinking and also develop practical abilities.

METHODOLOGY

This chapter stipulates the research design, research locale, research participants, research instrument, data gathering procedures, data analysis, and ethical considerations.

Research Design

This study utilized a descriptive- phenomenological research design. A phenomenological research design will be chosen because it provides a means of research that had been underutilized in previous studies examining the lived experiences of automotive technology instructors at Palompon Institute of Technology. Additionally, a phenomenological research approach provided a detailed account of the experiences of automotive technology instructors. The selection of a phenomenological research design was the best fit for this study because it provided readers with a better understanding of the problem through the lived experiences of those individuals who experienced the phenomenon first-hand.

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Research Locale

The locale of this study was in Palompon Institute of Technology. Palompon, Leyte. This institution was chosen as the locale considering that it is the only institution in the Municipality of Palompon offering automotive technology. In addition, this locale is where the researcher is currently connected as an automotive technology instructor.

Research Participants

The participants of this study were the automotive technology instructors and practitioner-graduates at Palompon Institute of Technology, Palompon, Leyte.

The researcher used a non-probability sampling procedure to select participants for this phenomenological study (Creswell, 2013). Criterion sampling was used to ensure that all participants met the following criteria: They are graduates of the automotive technology program, and they are teaching automotive technology program at Palompon Institute of Technology.

This sampling procedure will help the researcher achieve quality assurance for this phenomenological study (Creswell, 2013).

Research Instrument

The research instrument that will be used in this study is a semi-structured interview guide congruent to the objectives of the study so that at the end of this research, all the objectives were attained.

Data Gathering Procedures

The researcher made a formal letter-request address to the College President of the Palompon Institute of Technology through the College Dean seeking permission to conduct the study in the automotive technology department of the Palompon Institute of Technology.

Upon approval, the researcher crafted a separate letter address to the respondents requesting them to be one of the respondents in this study. The researcher personally conducted the interview with the target participants.

Semi-structured interviews allowed the researcher to address specific topics while providing participants with the opportunity to share their experiences with the phenomenon in question (Galletta, 2013).

Data Analysis

The data analysis for this phenomenological study was centered on the research and publications of Creswell (2013), Moustakas (1994), and Saldaña (2015). Data analysis occurred in the following three stages: interview transcript review, coding the data using in vivo coding, and, lastly, theming the codes to identify similarities and patterns between participants' responses. The first stage of data analysis, the interview transcript review, was the crucial first step in organizing data from a qualitative study.

Since this study is a phenomenological study, the participants' voices were served as the primary data in the study, and coding allowed the researcher to capture their words and statements verbatim. When coding was completed, the researcher utilized pattern coding to identify similarities and patterns between participants' responses. The pattern codes will be clustered into themes, which were indicative of the participants' lived experiences with the phenomenon. Then, the resulting themes were used to develop the textural descriptions of the participants' lived experiences (Moustakas, 1994). The final stage of data analysis occurred when the codes were organized into themes reflecting commonalities between the participants' experiences as automotive technology instructors at Palompon Institute of Technology.

Ethical Considerations

There is little ethical or safety risk involved with this study, either by topic or through the nature of the data. Proper steps will be taken to ensure that observation information will be kept confidential and private. Steps will include

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keeping information off the Internet and securing the signed consent information needed to collect information for the study. The consent information will ensure that participants will be voluntarily participating in the research with full property with participants and whom to contact with questions.

Researcher's Reflexivity

In this study, the researcher will focus on staying neutral when the information will be exchanged during the interview so that the presence of the interviewer could have no effect on the perceptions of the answers of the participants. A few minutes were spent for introduction purposes and on reaching ground pertaining to what would be dealt with during the interview.

RESULTS AND DISCUSSION

This chapter sets the scene for the analysis, interpretation, and other relevant findings generated from the interview responses. The results of the study are presented based on the objectives of the study.

Is there enough facility? Is equipment adequate? How often are these

Equipment/ facilities utilized?

When asked if there were equipment and facilities available for every student, and if there were, were they enough for the number of students in a class and how often were they utilized, the participants' responses were categorized to availability, adequacy, and utilization.

Availability of Facilities. It was very disheartening to know that the participant-instructors have to deal with very few or limited equipment available at their workshops. To them, it was a real challenge, but then again, their innovation and adjustments came out naturally in battling the issue. As participant 3 narrated," As of last year, since we changed the program of the automotive technology...we have a *lack of tools and equipment*." This was also magnified with participant 1's experience that summed up to, "Teaching with *lack of facilities and equipment* is just like going to war without enough bullets to defend yourself. That is like teaching with lack or in the absence of equipment." And innovation came out, as participant 4 mused, "Since there is lack a lack of facilities and equipment, scheduling is needed."

According to Patel et al. (1999), skills learned within the framework of experiential knowledge that is gained in laboratory shops and through many years in the trade are essential. It should be clear that tools, equipment is of importance to all practicing mechanics and must be regarded simply as one of a number of learning tools required either in the classroom set up or in a miniature car shop.

Adequacy. As cited by the instructors earlier, their miniature shops lack facilities and equipment, so this holds true with adequacy. In Philippine schools, it is a sad reality to have one machinery for ten students; thus, instructors resort to pairing, grouping, and scheduling between lecture and laboratory work just so their students can complete the required training hours. This sad plight was taken from participant 1's experience when he shared, "Because we lack equipment, we *group our students* in two or three groups. “This was also coupled with the thoughts of participant 2, who had to be very decisive. "And also, in times of laboratory activities, we have the *students divided* to accommodate the space and number of equipment.". Therefore it was not always rainbows for them, especially when participant 4 and I chorused, "So it is a matter of *scheduling* and *grouping* because it's not enough" and "They will be *scheduled* on when to conduct their skills demo."

Utilization. Obviously, if facilities are lacking and inadequate, what could be harsher than not being able to maximize, if at all, use any available equipment there is in a class-shop. Participant 2, noting his frustration, blurted, "*If you are going to have laboratory activities, it should have equipment that is properly conditioned and not defective so we cannot use them*." This scenario is further magnified with participant 4's view when he said, "*Because there is scheduling and grouping, the contact time is not enough. We can't use it every day, too.* "

It can be gleaned from the responses that almost all the responses were bleak and not favorable to any reputable institution of learning. Most of the respondents cited that their equipment and facilities were inadequate for a one

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on one and hands-on experience that every trade and technical school so requires; moreover, inadequacy and poor utilization followed as explained above. This was in consonance with the study of Mbaga(2018), where most of our colleges of technical and vocational today, there are not enough equipment and materials neither for teachers to conduct practical activities nor for students to carry out investigative activities or practical work on their own to discover things and improve their practical skills. Adequacy of workshop and training facilities cover a wide variety of issues such as programs, facilities, workshop floor area, storage facilities, lighting, ventilation, machines, and heating system. This must be provided because functional facilities enhance quality learning in whatever angle one may investigate.

Problems Met and Solutions Made to Address these Setbacks

The primary function of a vocational teacher is to impart knowledge regarding the subject. Although most vocational teachers provide classroom instruction, most of their Teaching involves demonstrating skills to their students. For example, they might instruct students on the safe and proper use of tools, equipment, and software. Vocational teachers also instruct students on special safety precautions needed for a particular job, such as how to install an air conditioning system to a vintage car and new models. As students begin their hands-on work, teachers assess their progress, offer suggestions, and correct any unsafe or poor techniques. These and more comprise the myriad roles of an automotive instructor.

The majority of the respondents' statements were keeling on the negative side when asked about their problems met on delivery, instruction, and workshop activities: either the equipment was insufficient and went even from being inadequate to being outdated or obsolete, and instructors themselves were lacking up-to-date training and skills and knowledge have to be upgraded just as well.

Responses were summed up to: *"Big problem is facilities and equipment because it is obsolete (P2). One major problem is the lack of facilities. (P1) Unavailability of the facilities and equipment is a big problem and results in a skills gap. (P3). Another is, as instructors, we need to refresh or we need to update/upgrade our skills (P1)."*

Solutions made to each problem met by each respondent at his level mostly were inclined to recommend to the school board on revisiting the curriculum, purchasing state of the art facilities and equipment, and onto the instructors' retooling and up skilling knowledge to be responsive to the call of the times and era. Since these instructors - participants have had their ample length of service, and they have designed their recommendations based on each criterion /problem met. Recognizing that a curriculum has to be versatile, participant 4 shared, *"First and foremost is revisit the curriculum, address the gap between academe and the industry."* Further, because it was very obvious that facilities were obsolete, participant 2 had this to say*, "We need to buy blue torch (for example) because facilities are important for students' immersion, "*or with participant 4's view*, "Should be addressed in procuring the exact equipment for both students' and instructors' use."* On retooling and up skilling of instructors, the participants all chimed up and recognized that they themselves need to be updated with knowledge, skills to respond to the times. As such, the responses were: *"Another is, as instructors, we need to refresh, or we need to update/upgrade our skills (P1) and "In terms of knowledge also (P4)"." Our skills are obsolete are also obsolete, so we need to undergo skills training (P3). We need to refresh or update/upgrade our skills in the way of training to the related field or industry. (P1)One solution to that is industry immersion and updated training on equipment (P4)."*

The International Center for Technical Vocational Education and Training has set the standards both for current and prospective workers and that they must acquire new skills and qualifications in order to adequately prepare for and flourish within future labor markets. This study made is necessary and has become a standard, supposed to be. Further, up skilling for work and life is taking on even greater importance in this transitioning world of new work, and investing in the future by building the capacities of TVET leaders and teaching staff is essential for the successful navigation of these transitions.

Will availability, adequacy, and utilization of equipment and facilities affect the performance of students?

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Teaching vocational subjects in this era and the evolution of technology is a challenge and, at the same time, a cause to be alarmed because the reality of availability and adequacy and utilization is starting wide and clear that we're not meeting any of these.

Students will finish a vocational course with fewer skills and knowledge far from what is expected of them, more so, from the industry that they will be spending their work lives on.

Graduates of the Palompon Institute of Technology bring pride and honor to their alma mater and their families, but when asked how these graduates fared in the industry, their instructors feared they would not be as strong-willed as they are expected to be.

Availability, Adequacy, and Utilization of Equipment and Facilities and

Their Effects on Performance of Students (from Instructors' view)

An automotive technology instructor specializes in teaching automotive-related courses, from basic knowledge to hands-on maintenance training. Their job entails preparing lesson plans and coursework materials, conducting quizzes and examinations, arranging activities and demonstrations, grading the students' performances, monitoring the students' progress, maintaining records, and assisting the students as needed. Moreover, when it comes to hands-on activities, an automotive technology instructor must deliver clear instructions and enforce policies and regulations to keep a safe and effective learning environment for everyone.

Despite all these things, the performance of students who were not given all the best opportunities for hands-on training because of several factors mentioned had the participants spilling their thoughts on the matter, and were categorized into:9(1) that students will not be competent in the industry, (2) that students have barely met required laboratory(hours) requirements,(3) that students have not experienced handling basic tools and equipment and that students have not been exposed to "modern" facilities and equipment ;(4) produced graduates who are mismatched with the industry.

Corresponding responses were laid out by the instructor -participants in the order cited above. On the notion of not being competent, responses were summed up to: "*As I have said, the facilities are obsolete, in going to the field, they will not be competent enough, and they will be aliens on the facilities in the field. (P2)*

For not meeting enough laboratory time, these instructors feared that students would not fare well, as shared by participant 1 when he said that *"Grouping nor scheduling was not an assurance; it could not give the students more time explore that skill."* Moreover, another response roved to this claim because "*The contact time in dealing with facilities affect their performance in a way that they cannot perform the desired number of hours accordingly (P4)".*

Basic tools were scarce, how much more with dreams and visions of having state-of-the-art facilities. *"We do not have a blue torch or propane torch for melting the sadaire, even the capillary tube, and the air conditioning. (P2)"*

Then, of course, when they leave school and find jobs, the greatest fear of instructors were on: "*If sent for OJT students will probably be culture shocked because they did not experience in our shop. (P1) There will be a job mismatch and skills gap. There will be a mismatch of our graduates in the needs of the industry. (P1)*

It can be seen that the automotive instructors have laid out all the cards on the table and have foreseen the sad plight of the graduates from the institution. Obviously, there were only negative effects that were cited on the performance of students who were expected to join the workforce after graduation. According to Plantilla (2017), the efficiency of a program in education implemented by an institution can be measured through the performance of the graduates in terms of knowledge and skills gained and utilized in the work environment. Indeed, it is the ultimate aim of learning institutions to produce graduates with vocational and professional competence in the workplace, and that has yet to be achieved in most technical and vocational colleges/universities.

That being laid down, graduates who were expected to be working in industries after passing the necessary requirements were also interviewed by the researcher to confer if the idea of availability, adequacy and utilization of equipment and facilities were affecting their performance as industrial workers. The responses are reflected and

categorized into: when they were working, the culture shock was evident; they felt ignorant and hesitant to use shop tools for fear of destroying them; outmoded/obsolete tools in school vs. industry; and on a personal note, these graduates perceived to have Low self-esteem/poor work ethics and still needing more laboratory work.

Culture Shock

When something is new, students get excited to try them on, but in the case of these student-respondents, it was the complete opposite. For most of them who have a minimum industry experience of 2-3 years, their experiences were sometimes hilarious but had to be taken seriously.

"As an industry practitioner, during the time when in industry, same with others, I experience a culture shock. (P3)"

"Some of the problems that I encounter in the industry, first, the culture shock, and also the equipment that they used is really new. In the industry is computerized while at school is only manual(P4)".

"My experience in the industry, during OJT, from culture shock, you still need to ask others on how to use this, where to use this. (P5)"

Felt Hesitant/Ignorant

"There's always a first time," as the usual adage would claim. But in the case of these graduates of automotive classes, attempting to use a new tool is a horrible experience for them because they feared they could destroy a tool and therefore would suffer consequences from their employers.

"My experience problem is that I felt ignorant in using new tools. Even some of the tools were introduced to me during my college days, but it was not explained to us how to use them. There is a feeling of fear in using it, and I am also afraid that I can break it. (P1)"

"Afraid of using the tools and equipment, because as I said, those are very limited during college time. And also, some of our equipment are new, because we never meet that equipment, like lifter, alignment wheel, using of electronic gadgets, scanner to identify some trouble." (P3)

Outmoded Shop Tools Vs Industry

Consequently, it is now very evident that these industry workers saw how far they have yet to go with tools, and equipment handling. If they were shocked and afraid, as discussed above, the reality would now sink in that their fears have real basis and could be traced back on their schooldays. Responses were made because these graduates have seen it firsthand how outmoded their shop tools were as compared to the industry where they are now venturing in.

'The question here is about experience, and it was good, it was fun and we learn basics. We perform but not exactly in the industry (P3)".

"And also, some of our equipment are new, because we never meet those equipment, like lifter, alignment wheel, using of electronic gadgets, scanner to identify some trouble. Performing of the engine problems, some of the trouble shooting performed in industry we never experienced during college times due to limited time of practice and limited equipment and materials and we never know how to use it (P4)".

"It can affect my performance because when I go to the industry, I cannot apply it because in industry the equipment are more advance which is not available here in PIT. So when I go to industry, it really affects my performance (P6)".

It can be gleaned from the responses that graduates of Palompon Institute of Technology who were in the industry felt they were deprived from training hours needed so that when they went into the real world of work there was real culture shock. Equipment and facilities were new to them so that they were afraid and hesitant to manipulate these tools for fear of destroying and failing the expectations of their employers. Moreover, because they were not exposed to state-of-the-art equipment when they were in school, and all they had were basic to one at all, very low self-esteem followed along with the need of getting another round of training instead of being expected to be ready for the job.

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Billet (1994) and Harris et al (2001) have highlighted the idea that vocational training should largely be located within the 'authentic' culture of the workplace. Although this may be the case, it is important to look at workplace learning in detail to note how skill acquisition actually occurs and what the benefits/limitations are to this type of learning and training.

CONCLUSION, AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusion and recommendations derived from the findings of this paper.

Conclusion

Based on the finding of this study, the following conclusion is drawn.

Based on the overall analysis of the data gathered, the researcher came up with a conclusion that availability, adequacy and utilization of equipment affect the performance of graduates in the industry. Moreover, the teacher-respondents have also shed light on these much obvious inadequacies and have formulated their own ways and means to cope and met the standards as expected of them in the academe and in the industries.

Recommendations

1. Vocational education and training at the tertiary level can ease the transition from school to work while supplying employers with trained workers. Dual vocational training, which combines structured learning on-the-job with classroom training, leads to certified skills that are relevant to employers and portable in the labor market.

2. Vocational training, in particular in a dual form combining vocational schooling and structured learning on-the-job, is often considered to be one of the most important policy solutions in combating youth unemployment and underemployment.

3. Establishing a dual vocational training model is a demanding task, however, and cannot be seen as a quick fix for high youth unemployment. Structural reforms to revive the economy and reduce entry barriers to employment are also needed.

4. A successful dual vocational training system is not easy to implement on a large scale because it requires complex institutional and cultural foundations. To be sustainable and have a major impact, dual vocational training needs to be actively supported by a sufficient number of employers, trade unions, and policymakers, which takes time to develop

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