**Level of competency and National Certification II readiness of Grade 12 Automotive students at Pinukpuk Vocational School**

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ABSTRACT

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| This study aimed to determine the level of competency and readiness for National Certification II (NC II) among Grade 12 Technical-Vocational-Livelihood (TVL) Automotive students of Pinukpuk Vocational School. Specifically, it sought to identify the students’ strengths and weaknesses in various automotive tasks, evaluate their level of readiness for certification, and examine the relationship between competency and readiness. A descriptive quantitative research design was employed to analyze students’ competencies and readiness levels. This study was conducted at Pinukpuk Vocational School, Brookside 1, Taga, Pinukpuk, Kalinga, during the academic year 2024–2025. Fifteen Grade 12 students enrolled in the TVL-Automotive strand participated in the study. A structured survey questionnaire, aligned with TESDA's assessment tools, was used to gather data on students’ demographic profiles, level of competency in automotive servicing, and readiness for NC II. Statistical tools including frequency, percentage, weighted mean, and Pearson correlation coefficient were used for data analysis. Results showed that most students (73.33%) were aged 17–18 and all identified as Linimos. The majority came from low-income households, with parents having low educational attainment and employment in farming or domestic work. The overall competency level was rated as “Satisfactory” (mean = 2.67), with strengths in basic mechanical tasks but weaknesses in electrical systems. Readiness for NC II was high, with an overall mean score of 3.86 (“Exceeds Expectation”), particularly in theoretical knowledge (4.05). The correlation between competency and readiness was not statistically significant (r = 0.013388), indicating no strong relationship between these variables. Despite socio-economic challenges, students displayed adequate competency and exceeded expectations in certification readiness. However, gaps in practical skill areas suggest a need for enhanced hands-on training. The absence of a significant correlation between competency and readiness implies that other factors such as confidence, academic instruction, and support systems may influence perceived readiness. |

*KEY WORDS: Automotive students , level of competency and readiness , TVL, Pinukpuk Vocational School*

1. INTRODUCTION

There are constant changes taking place in education because of the impact of internationalization. In order for a nation to stay competitive in the global market, it must be driven by innovation, skills, and worker preparedness for the twenty-first century (Nurtanto et al., 2020). Both learners’ and educators today are battling the difficulties of adjusting to technological changes and obtaining the required competencies up to par with global standards. It is essential to raise a generation that is equipped to thrive in a fiercely competitive sector and foster an environment in line with long-term learning.

Technical Vocational Education (TVE) includes education, training, and building skills concerning a broad spectrum of professional domains, services, and livelihood. The Special Program for Technical and Vocational Education (SPTVE) specifically aims to improve high school (HS) students' performance in skills and academic competence, achievement tests, accreditation and equivalency for certification programs, and upgrade the competency of Tech-Voc teachers in the delivery of basic and certifiable skills in various courses through skills trainings, seminars, and formal studies (Rahmah & Muslim, 2019; Bell, 2011). Additionally, the program seeks to provide students with industrial, technical, and vocational certifications as well as other relevant skills to enable them to be productive citizens of the nation (Rahmah & Muslim, 2019).

Numerous options are included in the Technical-Vocational track with a variety of programs and program ranges different degrees of work-based content, work-based training and skill-building after elementary and high school. As a result, school-based learning which comprises familiarization and exercises in practice are mostly intended to learners for technical vocational training in higher education or for employment (Torres, 2023).

The Department of Education by the academic year 2012–2013, the largest shift in education was implemented in Republic Act No. 10533b, which addresses education, otherwise referred to as the Act Improving Basic Education of 2013. The launch of the K–12 curriculum system in the Philippines has brought about a mixture of views, responses, and understandings of many parties involved (Frovihandika et al., 2019; Pecaso and Pecaso, 2018). The requirements for senior high school Students in the K–12 curriculum in the Philippines have carried with it a number of issues, mostly related to their disparity with the program's expected outcomes.

Specialized education is necessary in the automobile industry, in both emerging and highly industrialized nations (Puchert et al., 2017). Assessing students' skills and proficiency in automotive maintenance include evaluating the product, the method used, and the duration. Although knowledge can be assessed via written examinations, it does not ensure proficiency and truly exhibit the necessary behavior, such as being able to operate a vehicle (Park et al., 2020).

The educational system in Kalinga Province is dynamic and ever-changing, with a focus on technical-vocational training in addition to traditional academic courses to accommodate a wide range of student demands. Broad undergraduate and graduate degree options are available in the province, which is home to a mix of public and private institutions (Abd Samad et al., 2017). By implementing several programs, the DepEd ensures that schools have the necessary resources and that TVL Teachers receive continuous training. Pinukpuk Vocational School offer specialized training in carpentry/building construction, furniture and cabinetry making, bread and pastry, dress making and automotive servicing. This institution can contribute to local and global economic situations by teaching students’ practical skills for both employment and further education, as well as a feeling of community and responsibility for sustainable practices.

In general, the goal of this study is to determine the level of competency of Grade 12-TVL SHS Automotive students of Pinukpuk Vocational School and their level of NC2 readiness. Its specific goals were to: (1) identify strengths and weakness of TVL Senior High School students , (2) determine the level of readiness of TVL SHS students on NC2, and (3) determine the level of competency of the TVL Automotive students in car servicing and maintenance that covers servicing automotive battery, servicing ignition system, testing and repairing wiring/lighting system, servicing starting system, servicing charging system, servicing engine mechanical system, servicing clutch system, servicing clutch and differential and front axle, servicing steering system, servicing brake system, servicing suspension system, performing under-chassis preventive maintenance and overhauling manual transmission.

2. Statement of the Problem

Generally, the purpose of this study aimed to determine the level of competency of Grade 12 TVL SHS - Automotive students of Pinukpuk Vocational School and level of readiness to NC II.

Specifically, the study aims to answer the following:

1. What is the profile of the grade 12-TVL-Automotive students in terms of:

1.1 Age

1.2 Ethnicity

1.3 Educational attainment of parents

1.4 Occupation of parents

1.5 Annual income of parents

2. What is the level of competency of students in TVL-Automotive?

3. What is the level of readiness of TVL-Automotive Grade 12 for National Certification II?

4. Is there a significant relationship between the level of competency and NC2 readiness of G12 TVL-Automotive students?

**3. RESEARCH METHODOLOGY**

**3. 1 Research Design**

The study will utilize a descriptive quantitative approach in determining the implication of the level of competency of TVL-Automotive Grade 12 students of Pinukpuk Vocational School to their level of readiness to National Certification II. Frequency and percentage distribution will be utilized in dealing with the respondents’ profile. Moreover, mean distribution will be used in dealing with the level of competency and readiness of TVL-Automotive Grade 12 students to National Certification II.

The use of a descriptive quantitative approach aligns with the study's goal of providing evidence-based recommendations for teaching-learning intervention, prioritization of budget allocation for procurement of tools and equipment’s in the TVL-Automotive laboratory to supplement the competency of students.

**3. 2 Locale of the Study**

The study will be conducted among the Grade 12 students enrolled in the Technical-Vocational-Livelihood (TVL) track, specifically in the Automotive strand, at Pinukpuk Vocational School (PVS) for the School Year 2024–2025. PVS is situated in Brookside 1, Taga, Pinukpuk, Kalinga, with geographic coordinates approximately at 17°34′34″N latitude and 121°22′3″E longitude. The school occupies a land area of about 20,000 square meters and was established on June 19, 1965, under Republic Act No. 4429.

**3. 3 Respondents of the Study**

The respondents of the study are Grade 12 students under the TVL -Automotive from Pinukpuk Vocational School consisting of fifteen (15) students who are officially enrolled for the school year 2024-2025.

**3. 4 Research Instrument**

The survey questionnaire developed for this study is a key instrument designed to gather quantitative data vital in the realization of the study.

Aligned with the statement of the problem, the questionnaire comprises several sections that explore demographic profiles, level of competency and level of readiness to National Certification II. In the first section of the questionnaire, respondents are asked to provide demographic information, including indicators such as age, ethnicity, and socioeconomic background. This information is vital for understanding the context of the respondents and how their backgrounds may affect their level of competency and readiness to National Certification II. The subsequent sections focus on quantitative measures related to level of competency in which the proponent will adopt TESDA competency assessment tool comprising Data gathering tool for trainee’s characteristics and self-assessment checklist and level of readiness to National Certification II.

**3. 5 Research Procedure**

The data gathering procedures for this study will be meticulously structured to ensure the collection of reliable and valid information from the respondents. Initially, the researcher will seek permission from the school administration and relevant authorities to conduct the study within Pinukpuk Vocational School (PVS) Taga, Pinukpuk, Kalinga. Once approval is obtained, the researcher will schedule a convenient time for data collection that aligns with the school’s academic calendar. This step is crucial to minimize disruption to the students' regular learning activities while ensuring that they are available to participate in the survey. Prior to administering the questionnaire, a briefing session will be held to inform the students about the purpose of the study, the significance of their participation, and the confidentiality of their responses.

During the data collection phase, the questionnaire will be distributed to the Grade 12 students in their classroom. Researcher will be present to provide assistance and clarify any questions the students may have regarding the survey items. To enhance the response rate and the quality of the data collected, the researcher will emphasize the importance of honest and thoughtful answers, assuring participants that their responses will remain anonymous. The survey will be administered in a standardized manner to ensure consistency, allowing all respondents to complete the questionnaire under similar conditions. This structured approach is vital for maintaining the integrity of the data collection process and ensuring that the findings accurately reflect the students' experiences.

After the completion of the survey, the collected data will be compiled and organized for analysis. The researcher will conduct a thorough review to check for any incomplete responses or anomalies that may require follow-up. Completed Self- Assessment Survey Questionnaire will now be subjected for statistical treatment and analysis. The use of descriptive statistics will allow the researchers to summarize and interpret the findings effectively.

**3.6. Statistical Analysis**

The following formulas will be used to process data for the research questions:

Frequency and Percentage Distribution

This will be used to assess the demographic profiles of the respondents.

 P=f/n\*100

Whereas:

P = percentage

f = number of respondents’ answers

n = Total number of respondents

Weighted Mean

 This will be used in the assessment of the level of competency and readiness for National Certification II or respondents.

x ̅=(∑x)/n

 Wherein:

∑x = sum of the quantitative variable.

 n = total sample size

Pearson - r

r=([n(Σxy) - ΣxΣy])/√([n(Σx2) - (Σx)2][n(Σy2) - (Σy)2)

Where:

x is the independent variable

y is the dependent variable

n is the sample size

Σ represents a summation of all values.

**LIST 1: Likert Scale**

|  |  |  |
| --- | --- | --- |
| SCALE | MEAN RANGE | DESCRIPTION |
| **Competency**  | **Readiness**  |
| 5 | 4.20 - 5.00 | Outstanding  | Outstanding |
| 4 | 3.40 – 4.19 | Very Satisfactory  | Exceeds Expectation |
| 3 | 2.60 – 3.39 | Satisfactory | Meets Expectation |
| 2 | 1.80 – 2.59 | Unsatisfactory | Needs Improvement |
| 1 | 1.00 – 1.79 | Poor  | Unsatisfactory |

4. results and discussion

Table 1. Demographic study results of respondent

|  |  |  |  |
| --- | --- | --- | --- |
| **Profile** |  | f | P |
| AGE |
|  | 17- 18 | 11 | 73.33 |
|  | 19-20 | 4 | 26.67 |
| CULTURAL AND LANGUAGE BACKGROUND |
|  | a. Linimos  | 15 | 100.00 |
| FATHER |
|  | ­­Elementary Level | 2 | 13.33 |
| Elementary Graduate | 2 | 13.33 |
| High School Level | 2 | 13.33 |
| ­­­High School Graduate  | 5 | 33.33 |
| ­­­College Level | 2 | 13.33 |
| ­­­College Graduate | 2 | 13.33 |
| MOTHER  |
|  | Elementary Level |  |  |
| Elementary Graduate | 1 | 6.67 |
| High School Level | 4 | 26.67 |
| ­­­High School Graduate  | 6 | 40.00 |
|  | ­­­College Level | 4 | 26.67 |
| Father’s Occupation |
|  | Driver  | 4 | 26.67 |
| Farmer  | 11 | 73.33 |
| Mother’s Occupation: |
|  | Baby sitter | 1 | 6.67 |
| Housewife | 13 | 86.67 |
| Businesswoman | 1 | 6.67 |
| Parents Annual Income:  |
|  | 5,000-10,000 | 6 | 40.00 |
| 11,000-20,000 | 4 | 26.67 |
| 21,000-30,000 | 2 | 13.33 |
| 31,000-40,000 |  |  |
| 41,000-50,000 | 2 | 13.33 |
| 51,000 and above  | 1 | 6.67 |

As shown on the table above, the respondents are predominantly aged 17–18 years old, with 73.33% falling in this category. All respondents (100%) identified as Linimos, reflecting a culturally homogenous group. Regarding parents’ education, most fathers had only completed high school (33.33%), while mothers showed a slight edge in educational attainment, with 40% having graduated from high school and 26.67% reaching the college level. This suggests that while some parents have formal education, many still fall short of a college degree. In terms of employment, the majority of fathers work as farmers (73.33%), while mothers are mostly housewives (86.67%), showing a traditional division of labor. The income levels reported are relatively low, with 40% earning only PHP 5,000–10,000 annually, reflecting a socioeconomically disadvantaged background. Such conditions could influence students' academic focus, access to resources, and aspirations, emphasizing the importance of school-based support systems in helping learners achieve career readiness and success in technical-vocational tracks.

Table 2: Level of competency of students in TVL-Automotive

| Level Competency | $$\overbar{x}$$ | DI |
| --- | --- | --- |
| 1. Service Automotive Battery | 3.47 | VS |
| 2. Service Ignition System | 2.70 | S |
| 3. Test and Repair Wiring/Lighting System | 2.22 | U |
| 4. Service Starting System | 2.50 | U |
| 5. Service Charging Systems | 2.43 | U |
| 6. Service Engine Mechanical System | 2.61 | S |
| 7. Service Clutch System | 2.62 | S |
| 8. Service Differential and Front/Rear Axle | 2.66 | S |
| 9. Service Manual Steering System | 2.85 | S |
| 10. Service Brake System | 2.84 | S |
| 11. Service Suspension System | 2.45 | U |
| 12. Perform Under chassis Preventive Maintenance | 2.72 | S |
| 13. Overhaul Manual Transmission | 2.92 | S |
| Overall Mean | 2.67 | S |

|  |  |
| --- | --- |
| MEAN RANGE | DESCRIPTION |
| **Readiness**  |
| 4.20 - 5.00 | Outstanding  |
| 3.40 – 4.19 | Very Satisfactory  |
| 2.60 – 3.39 | Satisfactory |
| 1.80 – 2.59 | Unsatisfactory |
| 1.00 – 1.79 | Poor  |

The competency levels of students in TVL-Automotive show a satisfactory overall performance, with an overall mean of 2.67. Tasks such as "Service Automotive Battery" (3.47) reached a very satisfactory level, while most skills, including "Service Ignition System," "Service Engine Mechanical System," and "Overhaul Manual Transmission," fell within the satisfactory range. However, skills like "Test and Repair Wiring/Lighting System" (2.22), "Service Starting System" (2.50), and "Service Charging System" (2.43) were rated as unsatisfactory, indicating areas needing focused improvement and additional training.The spread of scores suggests students are moderately prepared but exhibit varied proficiency across different competencies. While foundational skills in mechanics are generally well-developed, some specialized systems—particularly electrical components—pose greater challenges. This highlights the need for more targeted instructional strategies, increased hands-on experience, and perhaps curriculum adjustments to reinforce weaker skill areas. Addressing these gaps will be vital for improving both confidence and performance in actual workplace environments.

Table 3: Level of readiness of TVL-Automotive Grade 12 for National Certification II

|  |  |  |
| --- | --- | --- |
| LEVEL OF READINESS | $$\overbar{x}$$ | DI |
| Theoretical Knowledge | 4.05 | EE |
| Practical Knowledge | 3.67 | EE |
| Category Mean | 3.86 | EE |

|  |  |
| --- | --- |
| MEAN RANGE | DESCRIPTION |
| **Readiness**  |
| 4.20 - 5.00 | Outstanding |
| 3.40 – 4.19 | Exceeds Expectation |
| 2.60 – 3.39 | Meets Expectation |
| 1.80 – 2.59 | Needs Improvement |
| 1.00 – 1.79 | Unsatisfactory |

The data reveals that Grade 12 TVL-Automotive students demonstrate a high level of readiness for National Certification II, with a category mean of 3.86, falling under the "Exceeds Expectation" rating. Theoretical knowledge scored 4.05, indicating students are well-versed in conceptual understanding. Practical knowledge scored slightly lower at 3.67, though still within the "Exceeds Expectation" category, showing competence in applying what they've learned in hands-on settings. This high level of readiness reflects well on the training and preparation provided by the school, suggesting that the curriculum is effective in aligning students’ competencies with certification standards. However, the slight gap between theoretical and practical knowledge implies that while students understand concepts well, additional reinforcement through practice may enhance their confidence and skill execution. Emphasizing experiential learning can bridge this gap, ensuring graduates are fully prepared for industry demands and certification exams.

Table 4: Relationship between the level of competency and level of readiness of grade 12 TVL-Automotive students

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable**  | **r - value** | $$α$$ | **decision** |
| Level of Competency | 0.013388 | 0.05 | Accept Ho |
| Level of Readiness  |

The correlation coefficient (r = 0.013388) between the level of competency and readiness of the students is very low, and the decision to accept the null hypothesis (Ho) indicates that there is no significant relationship between these two variables. This implies that a student's competency in specific technical skills does not strongly correlate with their overall readiness for National Certification II, at least within this sample.

This finding may suggest that other factors beyond direct competency—such as confidence, motivation, support systems, or theoretical preparation—may play a significant role in shaping students' readiness for certification. It emphasizes the complexity of educational outcomes and the importance of addressing both hard skills and soft skills. Future interventions might benefit from a holistic approach that combines skill mastery with personal development, assessment preparation, and career guidance.

4. Conclusion

The study provides valuable insights into the demographic characteristics, competencies, and readiness of students in the TVL-Automotive program. The findings highlight that the majority of respondents are young (17-18 years), with a background of relatively low parental education and employment status. This demographic suggests a need for increased support, both financially and educationally, to ensure that these students can fully access and benefit from the opportunities available to them.

In terms of competency, students demonstrated proficiency in fundamental automotive tasks such as servicing automotive batteries and ignition systems. However, there were notable gaps in more complex mechanical tasks, including electrical system testing and manual transmission diagnostics. These gaps indicate areas where the curriculum and training may need to be enhanced to better prepare students for the challenges they will face in the industry.

Regarding readiness for the National Certification II, students exhibited a high level of theoretical understanding, particularly in automotive concepts and industry-standard diagnostic protocols. However, their practical readiness, while generally strong, showed lower scores in specific areas such as servicing clutch systems and suspension systems. This suggests that while students are well-prepared in many aspects, there are still areas requiring further development to ensure they are fully ready for certification and the demands of the automotive industry.

Overall, the study underscores the need for targeted interventions to address the areas where students show lower competency and readiness, particularly in more advanced technical skills. These findings also emphasize the importance of strengthening the connection between theoretical knowledge and practical application to ensure students are equipped with the skills necessary for success in the automotive field.

Consent (where ever applicable)

I confirm that all respondents voluntarily agreed to take part in this study after being thoroughly informed about its purpose, procedures, and potential impacts. Their participation was entirely voluntary, and they were assured of their right to withdraw at any time without any negative consequences. All data collected from respondents were handled with the highest regard for their privacy and confidentiality, adhering strictly to ethical research standards.

Ethical approval (where ever applicable)

The study was conducted with the approval and in accordance with the standards of the college. No ethical approval was required, as the research followed all applicable ethical guidelines, ensuring respect for the respondents' privacy and confidentiality.

**DISCLAIMER (ARTIFICIAL INTELIGENCE)**

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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