

Determinants of Technology and Livelihood Education Preference Among Grade 9 Students in Bataraza Districts: A Basis for Specialization Plan

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Abstract

This study examined the determinants of Technology and Livelihood Education (TLE) specialization preferences among Grade 9 students in the Bataraza Districts, Palawan, as a basis for developing a responsive specialization plan. Using a descriptive survey research design, data were collected from 316 Grade 9 students across 12 selected public secondary schools through a validated structured questionnaire. Frequency counts, percentages, means, standard deviations, Pearson Product-Moment Correlation, and Chi-Square Test of Independence were employed for data analysis. Findings revealed that most respondents were female (62.03%), aged 15–16 years (61.08%), and from low-income households. Agricultural Crops Production (28.16%), Computer Systems Servicing (22.78%), and Cookery (13.29%) were the most preferred specializations. Community influences and personal factors obtained the highest mean ratings ($M = 3.84$), followed by family and socio-economic factors ($M = 3.55$) and school-related factors ($M = 3.53$). Age, gender, and family income showed no significant relationships with the determinants, whereas parental educational attainment demonstrated significant negative relationships with selected external factors. The findings informed the proposed Project SKILLS, emphasizing career guidance, teacher development, instructional facilities, curriculum contextualization, and community partnerships. The study recommends strengthening learner-centered specialization planning and aligning educational resources with students' interests and local livelihood opportunities. The research supports Sustainable Development Goal (SDG) 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities) through inclusive skills development and livelihood-oriented education. Its potential sustainability contributions include strengthening educational institutions, improving socio-economic opportunities, and promoting community-responsive technical education through evidence-based specialization planning.

Keywords: Bataraza Districts, Community Influences, Educational Sustainability, Grade 9 Students, Livelihood Skills, Parental Educational Attainment, Specialization Preferences, Sustainable Development Goals, Technology and Livelihood Education

1. Introduction

Technology and Livelihood Education (TLE) is an essential component of Philippine basic education that develops practical competencies, technological literacy, and livelihood skills relevant to employment, entrepreneurship, and further education. Students' preferences for TLE specializations are influenced by personal interests, family and socio-economic conditions, school-related factors, and community influences. Understanding these determinants is particularly important in the Bataraza Districts of Palawan, where agriculture,

fishing, and small-scale industries shape local livelihood opportunities. This study examines the determinants of TLE specialization preferences among Grade 9 students to provide an empirical basis for developing a responsive specialization plan aligned with learners' interests, educational needs, and local economic opportunities. Recent international evidence highlights the importance of vocational pathways, skills relevance, and equity in educational opportunities (OECD, 2023). Related research provides context for these considerations (Dumaplin, 2024; de Vries et al., 2024).

Technology and Livelihood Education prepares learners for practical applications of knowledge through specializations in agriculture, home economics, industrial arts, and information and communications technology. These learning areas support skills development, career exploration, and informed educational decisions. As technological advancements transform employment and livelihood opportunities, the relevance of TLE depends on its responsiveness to students' capabilities, interests, and emerging workforce requirements. In the Bataraza Districts, TLE specialization planning must consider both students' preferences and the characteristics of the local economy. However, learners' choices may be influenced by factors beyond personal interests, including household resources, parental guidance, school facilities, instructional support, and community livelihood opportunities. Examining these factors is necessary to identify appropriate educational interventions and develop specialization offerings that respond to learners' needs. Digital skills and adaptable vocational competencies are increasingly important as technology changes educational and employment systems (World Economic Forum, 2025).

The study identifies four interconnected dimensions influencing students' TLE specialization preferences: personal factors, family and socio-economic factors, school-related factors, and community influences. Personal factors include students' interests, abilities, self-efficacy, and motivation, which contribute to their preferences and perceived suitability for particular specializations. Family and socio-economic factors encompass household income, parental educational attainment, family support, and economic circumstances that may influence educational decisions and access to learning resources. School-related factors include instructional quality, curriculum implementation, availability of facilities and equipment, and peer interactions within the learning environment. These conditions affect students' exposure to and participation in different TLE specializations. Community influences involve local industries, cultural practices, peer networks, and available livelihood opportunities that shape learners' perceptions of the relevance and potential benefits of particular skills. Collectively, these dimensions suggest that TLE preferences arise from interactions between individual characteristics and external educational, economic, and social conditions. Their examination provides a basis for understanding students' specialization choices and improving educational planning. Comparative research suggests that educational outcomes and skills development reflect interacting personal, socioeconomic, and institutional conditions (OECD, 2023). Related research provides context for these considerations (Egbo et al., 2024; Marcionetti & Zammitti, 2025).

At the local level, the Bataraza Districts of Palawan are characterized by agricultural activities, fishing, and small-scale industries. These economic conditions emphasize the importance of practical education that connects students' skills with community livelihood opportunities. Differences in household resources, school facilities, and access to educational support may also affect students' specialization preferences. At the national level, TLE forms part of the Philippine basic education curriculum and provides foundational competencies for employment, entrepreneurship, and further technical training. Its implementation supports the development of learners who can make informed educational and career decisions. At the global level, technological advancements and changing workforce demands reinforce the importance of technical competencies, adaptability, and practical skills. These developments highlight the need for TLE programs that remain relevant to evolving economic opportunities while responding to local educational conditions. Philippine curriculum guidance and Southeast Asian evidence support contextualized, equitable TLE provision and attention to local digital access (Department of Education, 2024; UNESCO and SEAMEO, 2023).

The study is conceptually grounded in the relationship between students' demographic characteristics, the factors influencing their educational decisions, and their preferences for TLE specialization. The demographic variables include gender, age, grade level, family income, parents' educational attainment, and school of enrollment. The determinant variables comprise personal factors, family and socio-economic factors, school-related factors, and community influences. These dimensions provide the basis for examining the circumstances associated with students' specialization preferences. The study also investigates whether significant relationships exist between demographic characteristics and the identified determinants. The resulting evidence serves as the foundation for proposing a specialization plan that considers learners' interests, capabilities, educational circumstances, and local livelihood demands.

Despite the importance of TLE in developing practical and career-related competencies, the original study identifies limited localized research examining the determinants of specialization preferences among Grade 9 students in the Bataraza Districts. In particular, there is a need to understand how personal characteristics, family and socio-economic circumstances, school conditions, and community influences contribute to students'

specialization decisions. This gap limits the availability of contextual evidence for designing specialization programs that respond to students' interests and the economic characteristics of their communities. Accordingly, the study examines students' demographic profiles, identifies their current or preferred TLE specializations, assesses the four determinant dimensions, and investigates relationships between demographic characteristics and these determinants. The findings are intended to provide an empirical basis for a proposed specialization plan that supports informed educational decisions and strengthens the responsiveness of TLE offerings in the Bataraza Districts.

The study is aligned with three Sustainable Development Goals that correspond to its educational, social, and economic objectives. **SDG 4 – Quality Education.** The study supports the improvement of relevant and accessible skills-based education by identifying factors that shape students' TLE preferences. Its findings may guide the development of specialization programs that respond to learners' needs, interests, and educational circumstances. **SDG 8 – Decent Work and Economic Growth.** By examining preferences for livelihood-oriented and technical specializations, the study contributes to educational planning that prepares learners for future employment, entrepreneurship, and participation in local economic activities. **SDG 10 – Reduced Inequalities.** The examination of family income, parental educational attainment, and school-related conditions provides a basis for identifying socio-economic and institutional differences that may influence students' educational choices. These findings may inform more inclusive specialization planning. These alignments reflect the study's intended contributions to educational access, skills development, and socio-economic opportunities rather than established outcomes of the proposed specialization plan. International education and employment reports likewise connect equitable skills development with inclusion and decent-work transitions (International Labour Organization, 2024; UNESCO, 2023).

The study contributes primarily to educational, socio-economic, technological, community, and institutional sustainability by examining how TLE specialization preferences relate to learners' personal circumstances and their educational and social environments. In terms of educational sustainability, the findings may assist teachers and school administrators in developing relevant instructional approaches, improving specialization offerings, and strengthening student engagement. Understanding learners' preferences may also support informed career guidance and educational decision-making. For socio-economic sustainability, the study highlights the importance of considering household financial conditions, parental support, and livelihood opportunities when planning technical and vocational learning experiences. Aligning specialization offerings with students' capabilities and local economic activities may strengthen preparation for future employment and entrepreneurship. Regarding technological sustainability, the study recognizes the role of technical competencies and information and communications technology in preparing students for changing workforce requirements. Its findings may guide schools in identifying specialization needs related to practical and technology-based learning. In relation to community sustainability, the research considers local industries, cultural practices, and community influences in students' educational choices. This perspective may strengthen the connection between school-based skills development and community livelihood needs. Finally, the study supports institutional sustainability by providing evidence that school administrators and educators may use in specialization planning, curriculum improvement, and educational resource decisions. Through these contributions, the research seeks to strengthen the relevance, inclusiveness, and long-term responsiveness of TLE programs in the Bataraza Districts. Research on school leadership, learning conditions, and creative competencies supports coordinated institutional planning and teacher development (UNESCO, 2024).

2. Material and methods

2.1 Research Design

The study utilized a descriptive research design, specifically the survey method, to determine the demographic profiles, preferred TLE specializations, and factors influencing specialization choices among Grade 9 students. The research focused on personal, family and socio-economic, school-related, and community influences. The findings served as the basis for developing a proposed TLE specialization plan responsive to students' needs and preferences.

2.2 Locale of the Study

The study was conducted in 12 selected public secondary schools in the Bataraza Districts, Division of Palawan, Philippines. These schools were Amando Carlos Lahoz National High School, Bataraza National High School, Buliluyan National High School, Ocayan Integrated School, Peace and Development National High School, Sarong National High School, Southern Bataraza National High School, Riotuba National High School, Biriran Integrated School, Malihud National High School, Sumbiling National High School, and Tarusan National High School.

2.3 Respondents of the Study

The respondents were Grade 9 students enrolled in selected public secondary schools in the Bataraza Districts, Division of Palawan. They provided information regarding their demographic characteristics, current or preferred TLE specializations, and the factors influencing their specialization preferences.

2.4 Sample and Sampling Procedure

The study involved 316 Grade 9 students from the selected secondary schools in the Bataraza Districts. The sample size was determined using Slovin's formula with a 5% margin of error. The respondents were drawn from the population of Grade 9 students enrolled in the district's participating schools.

2.5 Research Instrument

Data were collected using a structured survey questionnaire consisting of three parts. The first gathered demographic information, including gender, age, grade level, monthly family income, parents' educational attainment, and school of enrollment. The second identified students' current or preferred TLE specializations, while the third assessed the determinants of their specialization choices in terms of personal factors, family and socio-economic factors, school-related factors, and community influences. The questionnaire was evaluated and validated by Ms. Sharon Rose P. Anunciado, Statistician of Western Philippines University, to ensure its content validity, clarity, and suitability.

2.6 Data Gathering Procedure

The researcher obtained written permission from the Schools Division Superintendent, District Supervisors, and school heads of Bataraza Districts 1 and 2 before conducting the study in the 12 selected secondary schools. Following approval, the questionnaires were distributed to the identified Grade 9 respondents. The researcher explained the instructions and assured participants of the confidentiality of their responses. Completed questionnaires were collected immediately after administration.

2.7 Data Analysis Techniques

The collected data were analyzed using descriptive and inferential statistics. Frequency counts, percentages, means, and standard deviations were employed to describe the respondents' demographic profiles, preferred TLE specializations, and factors influencing their choices. Pearson Product-Moment Correlation was used to examine relationships between interval-level demographic variables and determinant factors, while the Chi-Square Test of Independence was applied to determine significant associations between categorical variables and determinant factors.

3. Results and Discussion

3.1 Demographic Profile and TLE Specialization Preferences of Grade 9 Students

3.1.1 Age and Gender Distribution

The results showed that 61.08% of the respondents were aged 15–16 years, with a mean age of 15 years. Female students comprised 62.03% of the sample, while 37.34% were male and 0.63% preferred not to disclose their gender. These findings indicate that most respondents were early adolescents at a stage when educational interests and career preferences begin to develop. This is consistent with Santillan et al. (2025), who emphasized adolescence as an important period for career exploration and identity formation. The predominance of female respondents may influence the overall pattern of specialization preferences, considering that gender differences in TLE choices have been reported (Tangao & Guanzon, 2025).

3.1.2 Parental Educational Attainment and Family Income

The largest proportions of respondents' fathers (24.37%) and mothers (27.22%) were high school graduates. Regarding household income, the highest proportion of respondents reported an average monthly family income below ₱5,000, indicating that many learners belonged to economically disadvantaged households. These characteristics suggest that parental educational backgrounds and household resources may influence students' access to educational support and specialization opportunities. As emphasized by Abalos et al. (2024), parental educational attainment affects students' career decision-making and guidance. Similarly, Munir et al. (2023) reported that socio-economic conditions influence academic achievement and vocational decisions, particularly in resource-limited communities. Research on educational transitions also identifies students' and parents' backgrounds as relevant to higher-education and major-selection decisions (Hwang & Joo, 2024). Evidence from lower-secondary students likewise connects parental educational background, work values, and self-concepts with occupational aspirations (Astleithner et al., 2023).

3.1.3 Distribution of Respondents Across Schools

The largest proportions of respondents came from Rio Tuba National High School (30.38%) and Bataraza National High School (29.43%). The remaining respondents were distributed among other participating public secondary schools in the Bataraza Districts. The concentration of respondents in these two schools suggests that

their educational conditions may have contributed substantially to the overall findings. Nevertheless, the inclusion of several schools provided perspectives from different learning environments. Barcelona et al. (2023) emphasized that school resources and teacher competence influence students' specialization preferences.

3.2 Preferred Technology and Livelihood Education Specializations

3.2.1 Agricultural Crops Production, Computer Systems Servicing, and Cookery

Agricultural Crops Production was the most preferred specialization, selected by 28.16% of respondents, followed by Computer Systems Servicing (22.78%) and Cookery (13.29%). Other specializations, including Dressmaking, Nail Care, Electrical Installation and Maintenance, and Masonry, received fewer preferences, while Animal Production and Computer Programming were among the least preferred. These findings indicate that students generally favor practical specializations associated with livelihood and employment opportunities. Tangao and Guanzone (2025) similarly reported that students prioritize specializations with immediate practical and income-generating value. The preference for Agricultural Crops Production reflects the relevance of agriculture to the local economy, consistent with Technical Education and Skills Development Authority (TESDA, 2023). Meanwhile, interest in Computer Systems Servicing reflects the perceived importance of technological competencies in employment, as supported by Santillan et al. (2025). Cookery remains attractive because of its applications in household livelihood and food-related enterprises, consistent with Baldon et al. (2023). Lower preferences for other specializations may reflect limited exposure, facilities, or instructional resources, as discussed by Barcelona et al. (2023).

3.3 Determinants Influencing TLE Specialization Preferences

3.3.1 Personal Factors

Personal factors obtained an overall mean of 3.84, interpreted as Agree. The strongest indicators included personal interest, enjoyment of specialization-related activities, confidence in relevant skills, and preference for subjects perceived as understandable and manageable. Career considerations also received agreement ratings. These results indicate that students' specialization preferences are strongly associated with intrinsic motivation, perceived competence, and practical career considerations. Curan (2023) emphasized that student engagement in TLE increases when learners feel competent and enjoy practical learning experiences. Likewise, Baldon et al. (2023) reported that economic practicality and family expectations influence vocational decisions, particularly among learners from low-income households. Related vocational education research indicates that students' motivation can be shaped by learning environments that support self-regulated learning (Held & Mejeh, 2024). Studies of tourism vocational education also associate career-related interest and skills self-efficacy with longer-term career choices (Choy & Yeung, 2024).

3.3.2 Family and Socio-Economic Factors

Family and socio-economic factors obtained an overall mean of 3.55, interpreted as Agree. The most influential considerations included the potential to contribute to family income, assist in household livelihood activities, earn money in the future, and afford the required tools, equipment, and uniforms. Parental guidance, family occupations, and encouragement toward in-demand specializations generally received neutral ratings. These findings suggest that students place greater emphasis on the economic usefulness and affordability of specializations than on direct parental influence. Munir et al. (2023) emphasized that socio-economic conditions affect access to educational resources and opportunities, supporting the importance of financial considerations in specialization decisions. Related research provides context for these considerations (James et al., 2024; Tadesse et al., 2022; Yang et al., 2024). Research involving vocational students further links student–parent career congruence and psychological capital with employability development, although these outcomes were not measured in the present study (Sulistiobudi & Kadiyono, 2023).

3.3.3 School-Related Factors

School-related factors obtained an overall mean of 3.53, interpreted as Agree. Students were particularly influenced by the success of learners in specific specializations, teacher performance, and recommendations from TLE teachers. Guidance counselor recommendations, peer influence, availability of tools, and scheduling considerations generally received neutral ratings. These findings indicate that instructional quality and visible student achievement are important school-related influences. Barcelona et al. (2023) highlighted that teacher competence and successful learning outcomes contribute to sustained student interest in TLE. The results suggest that students value effective teaching and demonstrated achievement more strongly than other school-related considerations. Related research provides context for these considerations (Remoroza, 2023; Bermundo, 2024).

3.3.4 Community Influences

Community influences obtained an overall mean of 3.84, interpreted as Agree, and were identified as one of the highest-rated determinant dimensions. Strong indicators included the desire to serve the community, inspiration from successful professionals, exposure to local events, community recognition of specialization-related skills, and available employment opportunities. Advice from community leaders and certain local livelihood considerations received neutral ratings. These findings indicate that community experiences, role models, and

employment opportunities shape students' perceptions of TLE specializations. TESDA (2023) emphasized the importance of community-based training in influencing vocational preferences, particularly in rural settings. The results suggest that students consider the relevance of their chosen skills to their communities alongside their personal interests. Related research provides context for these considerations (Egbo et al., 2024; Elizarde, 2024).

3.3.5 Overall Influence of Personal, Family, School, and Community Factors

The four determinant dimensions were all rated Agree. Community influences and personal factors obtained the highest means of 3.84 each, followed by family and socio-economic factors at 3.55 and school-related factors at 3.53. The findings indicate that specialization preferences result from combined personal and environmental considerations rather than a single dominant factor. This agrees with Santillan et al. (2025), who emphasized the multidimensional nature of specialization decisions. The results highlight the importance of considering learners' interests, financial circumstances, instructional experiences, and community opportunities in specialization planning.

3.4 Relationships Between Demographic Characteristics and Determinants of TLE Specialization

3.4.1 Age and Determinant Factors

Age showed no statistically significant relationship with personal, family and socio-economic, school-related, or community factors influencing TLE specialization preferences. This indicates that respondents across different age groups evaluated the identified determinants similarly. Santillan et al. (2025) reported that demographic characteristics such as age may have limited predictive influence compared with motivational and contextual factors. Similarly, Baldon et al. (2023) found that adolescents' career decision-making self-efficacy was more strongly associated with family and school influences than age.

3.4.2 Gender and Determinant Factors

Gender showed no statistically significant association with any of the four determinant dimensions, indicating comparable assessments among male and female respondents. This suggests that students' perceptions of the factors influencing their specialization decisions were not significantly differentiated by gender. Tangao and Guanzon (2025) similarly observed narrowing gender differences in specialization choices, particularly where learners have opportunities to explore ICT and service-oriented fields.

3.4.3 Family Income and Determinant Factors

Family income showed no statistically significant relationship with personal, family and socio-economic, school-related, or community factors. Although many respondents belonged to low-income households, differences in income were not significantly associated with their assessments of specialization determinants. Munir et al. (2023) noted that socio-economic conditions affect access to educational resources but do not necessarily determine how students evaluate career-choice influences.

3.4.4 Father's Educational Attainment and Determinant Factors

The father's educational attainment showed significant negative relationships with family and socio-economic factors, school-related factors, and community influences. However, no significant relationship was found with personal factors. These findings suggest that higher paternal educational attainment is associated with lower reported influence from external considerations when students choose TLE specializations. Abalos et al. (2024) similarly emphasized that parental education can broaden career perspectives and reduce dependence on external influences.

3.4.5 Mother's Educational Attainment and Determinant Factors

The mother's educational attainment showed significant negative relationships with family and socio-economic factors and school-related factors. No significant relationships were found with personal factors or community influences. These results suggest that higher maternal educational attainment is associated with reduced reliance on family and school-related considerations, while personal interests and community influences remain comparatively independent of maternal educational background. The findings indicate that parental educational attainment, rather than age, gender, or household income, was the demographic characteristic most consistently associated with differences in the reported determinants of specialization preference.

3.5 Proposed TLE Specialization Plan Based on the Findings

3.5.1 Development of Project SKILLS

Based on the findings, the study proposed Project SKILLS (Student Knowledge Integration for Livelihood Learning Success), a specialization enhancement plan designed to address students' interests, livelihood needs, and educational opportunities. The plan prioritizes Agricultural Crops Production (28.16%), Computer Systems Servicing (22.78%), and Cookery (13.29%), reflecting the most preferred specializations. It also considers the influence of personal factors ($M = 3.84$), community influences ($M = 3.84$), and family and socio-economic factors ($M = 3.55$). The proposed plan seeks to strengthen student awareness, curriculum relevance, teacher competence, instructional facilities, and partnerships with local government units, industries, and TESDA. These components

respond to the study's findings that students' specialization decisions reflect personal interests, economic practicality, school experiences, and community livelihood opportunities.

3.5.2 Specialization Priorities and Enhancement Strategies

The proposed plan identifies Agricultural Crops Production, Computer Systems Servicing, and Cookery as priority specializations, with Carpentry, Front Office Services, Handicrafts, and Nail Care also considered according to student preferences and local opportunities. Proposed activities include specialization fairs, career guidance, aptitude and interest assessments, contextualized learning modules, teacher training, and improvements to agricultural demonstration areas, computer laboratories, and kitchen facilities. The plan also includes student-led projects and partnerships with community industries and government agencies. These strategies are intended to improve students' understanding of available specializations while aligning educational resources with identified preferences. Curriculum contextualization and teacher development address the need for relevant instruction, while facility improvements and external partnerships support practical learning experiences and local livelihood preparation. Workforce research also points to the need to align skills programs with emerging employment opportunities and sustainable economic transitions (Elizarde, 2024). Related research provides context for these considerations (Dumaplin, 2024; Moriyasu & Kobayashi, 2022).

3.5.3 Monitoring, Evaluation, and Sustainability of the Specialization Plan

The proposed monitoring and evaluation activities include assessing student participation, academic performance, teacher training, facility improvements, industry partnerships, and student engagement in practical projects. The plan identifies participation targets of 80% for student awareness activities and 90% for teacher training. Its sustainability measures include resource mobilization, partnerships with government and industry stakeholders, continuous professional development, equipment maintenance, curriculum enhancement, and annual program evaluation. These measures are intended to support the continued implementation and improvement of TLE specialization offerings. Integrating monitoring activities into school planning and institutional reporting may help administrators assess program implementation, identify resource needs, and maintain the relevance of specialization offerings to students and their communities. Transparent measurement and comparable education indicators can help inform monitoring and resource decisions (Bermundo, 2024).

4. Conclusion & Recommendations

The study concluded that Grade 9 students in the Bataraza Districts were predominantly female, aged 15–16 years, and from low-income households with parents who were generally high school graduates. Agricultural Crops Production, Computer Systems Servicing, and Cookery emerged as the most preferred Technology and Livelihood Education (TLE) specializations. All four determinant dimensions influenced specialization preferences, with community influences and personal factors having the strongest influence, followed by family and socio-economic factors and school-related factors. Age, sex, and family income showed no significant relationships with the identified determinants, whereas parental educational attainment, particularly that of fathers, demonstrated significant relationships with external financial, school-related, and community influences. These findings provided the basis for PROJECT SKILLS (Strengthening Knowledge, Innovation, Livelihood, and Learning in Specializations), a proposed three-year specialization plan for SY 2026–2029 designed to align students' interests, institutional resources, and local livelihood opportunities.

The study recommends strengthening TLE specialization planning through career orientation, peer mentoring, practical skills demonstrations, and informed student decision-making. Teachers should integrate localized learning activities, individualized mentoring, and hands-on instruction while pursuing professional development and relevant technical certifications. Non-TLE major teachers handling TLE subjects should receive instructional guides, peer coaching, and skills development support. Parents should participate in career guidance activities and collaborate with schools to address financial barriers affecting specialization choices. School administrators should improve equitable access to facilities, equipment, and learning resources while establishing partnerships with local industries, agricultural cooperatives, and TESDA-accredited training centers. Policymakers and curriculum planners should align TLE offerings with local industry demands and integrate entrepreneurship and digital literacy competencies into vocational specializations.

The study was limited to Grade 9 students enrolled in selected public secondary schools in the Bataraza Districts, Division of Palawan. It focused on respondents' demographic characteristics, preferred TLE specializations, and personal, family and socio-economic, school-related, and community factors influencing specialization choices. Consequently, the findings reflect the characteristics and experiences of the participating students and may not fully represent learners in other grade levels, educational settings, or geographic locations. The proposed specialization plan was developed from the study findings, but its implementation and effectiveness were not evaluated within the scope of the research.

5. Compliance with ethical standards

The study was conducted with due consideration for established research procedures and the confidentiality of participants' responses. Written permission was secured from the Schools Division Superintendent, District Supervisors, and respective school heads of the participating public secondary schools in the Bataraza Districts, Palawan. Before administering the survey questionnaires, the researcher explained the instructions to the Grade 9 respondents and assured them that their responses would be treated with confidentiality. The research instrument was also evaluated and validated to ensure its clarity, suitability, and content validity. These procedures supported the responsible collection and handling of data throughout the study.

REFERENCES

- Abalos, M. A., Ecao, M. J., & Lalosa, A. A. (2024). Parental factors and their influence on career choices among Grade 12 students. *World Education Connect Multidisciplinary E-Publication*, 4(1).
- Astleithner, F., Vogl, S., & Kogler, R. (2023). Occupational aspirations at the end of compulsory schooling: The interplay of parents' educational background, work values and self-concepts in the reproduction of inequality. *Österreichische Zeitschrift für Soziologie*, 48, 333–358. <https://doi.org/10.1007/s11614-023-00541-3>
- Baldon, D. M., Roxette, D. C., Sotes, A. J., Enriquez, C. F., & Bacatan, J. (2023). Parent career behavior and career decision-making self-efficacy among senior high school students. SSRN.
- Barcelona, K. E. P., Daling, B. A. J., Doria, P., Balangiao, S. J., Mailes, M. J., & Chiang, P. M. (2023). Challenges and opportunities of TLE teachers in Philippine public schools: An inquiry. *British Journal of Multidisciplinary and Advanced Studies*.
- Bermundo, D. R. L. (2024). The case of distance learning modalities among technical vocational students in one state college in the Philippines. *RA Journal*, 7(11), 18–25. <https://doi.org/10.18535/raj.v7i11.480>
- Choy, M. W., & Yeung, A. S. (2024). Tourism vocational education: Relations of input and output. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 34, 100479. <https://doi.org/10.1016/j.jhlste.2024.100479>
- Curan, N. J. C. (2023). Factors affecting students' interest in learning TLE competencies in junior high schools in Echague, Isabela. *CIIAHE Journal*.
- de Vries, N., Meeter, M., & Huizinga, M. (2024). Does interest fit between student and study program lead to better outcomes? A meta-analysis of vocational interest congruence as predictor for academic success. *Educational Research Review*, 44, 100619. <https://doi.org/10.1016/j.edurev.2024.100619>
- Department of Education. (2024). MATATAG curriculum: EPP/Technology and Livelihood Education (Grades 4–10). <https://www.deped.gov.ph/matatagcurriculumk147/>
- Dumaplin, A. H. (2024). Factors that influence technical vocational students' choice of specialization in relation to their academic performance in DepEd Division of Sorsogon. *United International Journal for Research & Technology*, 5(7), 414–422. <https://uijrt.com/paper/factors-influence-technical-vocational-students-choice-specialization-relation-academic-performance-deped-division-sorsogon>
- Egbo, A. C., Uzuagu, S. C., & Egbo, C. E. (2024). Determinants of career choice among secondary school students in Enugu East education zone. *World Journal of Advanced Research and Reviews*, 22(3), 1786–1795. <https://doi.org/10.30574/wjarr.2024.22.3.1852>
- Elizarde, F. (2024). Assessing the attitudes towards work immersion and the career pathways selection among technical vocational Grade 12 students at Eulogio Rodriguez Vocational High School. *Asia Research Network Journal of Education*. <https://so05.tci-thaijo.org/index.php/arnje/article/view/268548>
- Held, T., & Mejeh, M. (2024). Students' motivational trajectories in vocational education: Effects of a self-regulated learning environment. *Heliyon*, 10(8), e29526. <https://doi.org/10.1016/j.heliyon.2024.e29526>
- Hwang, Y., & Joo, Y. H. (2024). The determinants of students' admission to higher education and major choice: Focusing on student and parental background factors. *Journal of Vocational Education & Training*, 27(1), 31–54. <https://doi.org/10.36907/krivet.2024.27.1.31>
- International Labour Organization. (2024). Global employment trends for youth 2024: Decent work, brighter futures. <https://www.ilo.org/publications/major-publications/global-employment-trends-youth-2024>
- James, H. A., Prayer, N. B., & Saleh, M. (2024). Parental influence on the selection of subjects for career choice among senior secondary school students in Damaturu metropolis, Yobe State, Nigeria. *International Journal of Educational Researchers*, 15(1), 1–16. <https://doi.org/10.29329/ijer.2024.652.1>
- Marcionetti, J., & Zammitti, A. (2025). Perceived support and influences in adolescents' career choices: A mixed-methods study. *International Journal for Educational and Vocational Guidance*, 25, 423–446. <https://doi.org/10.1007/s10775-023-09624-9>
- Moriyasu, R., & Kobayashi, T. (2022). Impact of career education on high school students' occupational choice: Evidence from a cluster-randomized controlled trial. *Japan and the World Economy*, 63, 101146. <https://doi.org/10.1016/j.japwor.2022.101146>

- Munir, J., Faiza, M., Jamal, B., Daud, S., & Iqbal, K. (2023). The impact of socio-economic status on academic achievement. *Journal of Social Sciences Review*, 3(2), 695–705.
- OECD. (2023). Education at a glance 2023: OECD indicators. <https://doi.org/10.1787/e13bef63-en>
- Remoroza, J. R. (2023). Predictors of students' performance in TLE field of specialization: Basis in crafting a career preference primer. *Psychology and Education: A Multidisciplinary Journal*, 13(4). <https://ejournals.ph/article.php?id=21556>
- Santillan, L. E., Caño, M. B., Molina, J. M. L., Jagdon, M. A. T., Minguito, R. P., & Pantaleon, A. T. (2025). Assessing factors influencing students' selection of TLE specialization. *Psychology and Education: A Multidisciplinary Journal*, 46(5), 612–620.
- Students' motivational trajectories in vocational education: Effects of a self-regulated learning environment. (2024). *Heliyon*, 10(8), e29526. <https://doi.org/10.1016/j.heliyon.2024.e29526>
- Sulistiobudi, R. A., & Kadiyono, A. L. (2023). Employability of students in vocational secondary school: Role of psychological capital and student-parent career congruences. *Heliyon*, 9(2), e13214. <https://doi.org/10.1016/j.heliyon.2023.e13214>
- Tadesse, E., Gao, C., Sun, J., Khalid, S., & Lianyu, C. (2022). The impact of socioeconomic status on self-determined learning motivation: A serial mediation analysis of the influence of Gaokao score on seniority in Chinese higher vocational college students. *Children and Youth Services Review*, 143, 106677. <https://doi.org/10.1016/j.childyouth.2022.106677>
- Tangao, N. M. B., & Guanzon, R. S. (2025). Acceptability of Technology and Livelihood Education specialization profiler. *GEO Academic Journal*, 6(1).
- Technical Education and Skills Development Authority (TESDA). (2023). Trends in Philippine technical-vocational education and training. TESDA Reports.
- UNESCO and SEAMEO. (2023). 2023 Southeast Asia report: Technology in education—A tool on whose terms?. <https://www.unesco.org/gem-report/en/publication/2023-southeast-asia-report-technology-education>
- UNESCO. (2023). Global education monitoring report 2023: Technology in education—A tool on whose terms?. <https://www.unesco.org/gem-report/en/publication/technology>
- UNESCO. (2024). Global education monitoring report 2024/5: Leadership in education—Lead for learning. <https://www.iicba.unesco.org/en/africa-education-knowledge-platform/global-education-monitoring-report-2024/5-leadership-education-lead-learning>
- World Economic Forum. (2025). The future of jobs report 2025. <https://www.weforum.org/publications/the-future-of-jobs-report-2025/>
- Yang, Q., Xie, R., Ding, W., Li, J., & Li, W. (2024). Parent-child relationship and career adaptability of secondary vocational students: From the perspective of career construction theory. *Journal of Psychological Science*, 47(6), 1496–1506. <https://doi.org/10.16719/j.cnki.1671-6981.20240621>