

Factors Influencing Junior High School Technology and Livelihood Education (TLE) Teachers Teaching Out-of-Field in Public Secondary Schools in the Province of Sorsogon

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Abstract

This study examined the factors associated with out-of-field teaching among Junior High School Technology and Livelihood Education (TLE) teachers in selected public secondary schools in the Province of Sorsogon. Grounded in Bandura's Social Cognitive Theory, Herzberg's Two-Factor Theory, Human Capital Theory, Systems Theory, and the Integrated Teacher Competence and Professional Growth (ITCPG) Framework, the study employed a quantitative-descriptive design with a correlational component. Data were collected using a structured survey questionnaire administered to 161 TLE teachers selected through purposive sampling. Descriptive and inferential statistics, including frequency, percentage, mean, ranking, Pearson correlation, and Spearman's rho, were used to analyze teacher profile variables, school-related factors, teacher-related factors, and the extent of out-of-field teaching. Findings revealed that out-of-field teaching is widespread and prolonged, indicating a structural specialization mismatch. Institutional factors such as high teacher-student ratios, insufficient instructional resources, and limited administrative support significantly contribute to this condition. While teachers demonstrated strong motivation, their self-efficacy declined when teaching outside their specialization. Teaching experience was significantly related to school-related factors, whereas demographic characteristics showed no significant relationship with teacher-related factors. The study concluded that out-of-field teaching is primarily a systemic issue and recommended the implementation of an Individual Professional Development Plan (IPDP) incorporating specialization-based training, mentoring, Learning Action Cells, and team-teaching strategies to enhance teacher competence and instructional quality. This study aligns with Sustainable Development Goal (SDG) 4 on Quality Education and SDG 8 on Decent Work and Economic Growth by addressing teacher competence, instructional quality, and working conditions. It contributes to educational, institutional, and socio-economic sustainability by informing policies and professional development systems that support effective teaching and workforce readiness.

Keywords: Administrative Support, Out-Of-Field Teaching, Self-Efficacy, Teacher Profile, Teaching Experience, Teaching Load, Technology and Livelihood Education (TLE), Teacher Motivation

1. Introduction

Teacher quality is central to educational effectiveness, with alignment between teachers' specialization and instructional assignments being critical to instructional quality, teacher well-being, and student achievement. However, out-of-field teaching persists globally as a systemic issue linked to teacher shortages, staffing practices, and institutional constraints. This study examines out-of-field teaching among Junior High School Technology and Livelihood Education (TLE) teachers in Sorsogon, focusing on the interaction of teacher profile, school-related factors, and teacher-related variables such as self-efficacy and motivation, within a quantitative and integrative framework.

1.1 Background of Out-of-Field Teaching among Junior High School TLE Teachers in Sorsogon

Teacher quality is a key determinant of educational effectiveness, particularly when aligned with subject specialization. However, many education systems continue to rely on out-of-field teaching due to staffing shortages, which negatively affects instructional confidence, increases stress, and limits the use of higher-order pedagogies. These challenges are more pronounced in technical and STEM-related disciplines, where specialized knowledge is essential. In the Philippine context, out-of-field teaching is prevalent in public secondary schools, especially in Technology and Livelihood Education (TLE), where competency-based instruction requires technical expertise. Teachers frequently handle multiple subjects beyond their specialization, resulting in reduced content mastery and increased workload. These challenges are further intensified in provincial settings where limited resources, lack of mentoring systems, and insufficient professional development opportunities constrain teachers' adaptability.

1.2 Themes and Insights on Teacher Profile, School-Related, and Teacher-Related Factors Affecting Out-of-Field TLE Teaching

Global and national literature consistently highlight teacher competence, specialization alignment, and supportive working conditions as essential to educational quality. UNESCO's Education 2030 Agenda emphasizes teacher quality as central to achieving SDG 4 (UNESCO, 2021), while SDG 8 underscores the importance of decent working conditions for sustaining teacher motivation (European Schoolnet, 2022). Out-of-field teaching remains a widespread issue globally, often driven by teacher shortages and administrative staffing decisions prioritizing availability over specialization (UNESCO, 2024; Du Plessis & de Wet, 2022). This mismatch negatively impacts instructional quality, teacher self-efficacy, and student performance, particularly in specialized subjects (Zakariya, 2021; Hanfstingl et al., 2023). Teacher profile variables, including educational qualification, certification, and teaching experience, significantly influence instructional competence (SEAMEO INNOTECH, 2023; Caldis, 2022). Early-career teachers face greater challenges in unfamiliar assignments while experiential learning enhances coping strategies. School-related factors such as workload, teacher-student ratio, resource availability, and administrative support also shape teachers' experiences. Heavy workloads and limited resources contribute to stress and reduced instructional effectiveness (European Commission, 2023; Jomud et al., 2021; Eryilmaz et al., 2025). Conversely, mentoring and collaborative learning improve teacher adaptability (Peleg & Orpaz, 2025). Teacher-related factors—including training, self-efficacy, and motivation—play a critical role in managing out-of-field teaching. Professional development enhances competence (Sancar et al., 2021), while self-efficacy influences instructional confidence (Opoku-Agyemang, 2025). Motivation supports adaptive teaching, although excessive workload may lead to burnout (Antonio & Quirap, 2025; Lindorff, 2022).

1.3 Local, National, and Global Context of Out-of-Field Teaching in TLE and Public Secondary Schools

Globally, out-of-field teaching is prevalent in both developed and developing countries due to teacher shortages and workforce misalignment (UNESCO, 2024; Wilde et al., 2025). STEM and technical subjects are particularly affected because of the scarcity of qualified teachers (Owusu & Mensah, 2022). Nationally, the Philippine education system faces similar challenges, with a significant proportion of teachers assigned outside their specialization (EDCOM 2, 2024). This issue is especially evident in TLE, where teachers often lack specialized training (Baras & Gillo, 2024; Ingersoll & Tran, 2025). Locally, in provincial settings such as Sorsogon, resource constraints, staffing shortages, and limited professional support exacerbate the prevalence and impact of out-of-field teaching. These contextual conditions highlight the need for localized and evidence-based interventions.

1.4 Theoretical and Conceptual Basis of Teacher Profile, School, and Psychological Factors in Out-of-Field TLE Teaching

This study is grounded in Bandura's Social Cognitive Theory (1977), Herzberg's Two-Factor Theory of Motivation (1959), Human Capital Theory (Becker, 1964), and Systems Theory (von Bertalanffy, 1968). Social Cognitive Theory explains how self-efficacy influences teachers' adaptability and instructional performance. Herzberg's theory highlights the role of motivational and hygiene factors such as administrative support and workload in shaping teacher satisfaction. Human Capital Theory emphasizes the importance of education, training, and experience in enhancing instructional competence. Systems Theory frames out-of-field teaching as a systemic issue influenced by organizational and institutional conditions. These theories are integrated through the Integrated Teacher Competence and Professional Growth (ITCPG) Framework, which conceptualizes instructional competence as the result of interacting personal, professional, motivational, and systemic factors. The study further utilizes the Context-Input-Process-Product (CIPP) Model to analyze the relationships among teacher profile, school-related factors, teacher-related factors, and the extent of out-of-field teaching.

1.5 Research Gaps and Rationale on Out-of-Field Teaching among Junior High School TLE Teachers

Despite extensive research on out-of-field teaching, existing studies often examine isolated variables rather than their combined influence. There is limited quantitative and integrative research focusing on technical-vocational subjects such as TLE, particularly within provincial contexts. This study addresses these gaps by simultaneously analyzing teacher profile variables, school-related conditions, and teacher-related factors within a single framework. By adopting a comprehensive quantitative approach, it aims to generate empirical evidence that can inform teacher deployment policies, professional development programs, and institutional support systems.

1.6 Alignment with Sustainable Development Goals (SDGs) in Relation to TLE Instruction and Teacher Working Conditions

This study aligns primarily with: SDG 4 – Quality Education, as it addresses teacher competence, instructional effectiveness, and equitable access to quality education (UNESCO, 2021). SDG 8 – Decent Work and Economic Growth, by examining working conditions, workload, and professional development that influence teacher motivation and productivity (European Schoolnet, 2022). The study contributes to improving teacher specialization alignment, strengthening instructional quality, and supporting workforce readiness through enhanced technical education.

1.7 Importance of the Study to Multidisciplinary Sustainability in Education, Workforce Development, and Institutional Systems

This study contributes to educational sustainability by improving teaching quality and learner outcomes in technical education. It supports socio-economic sustainability by strengthening workforce preparation through effective TLE instruction. It also contributes to institutional and policy sustainability by informing teacher deployment strategies, professional development programs, and administrative support systems. Additionally, the study promotes community sustainability by enhancing the capacity of public schools to deliver relevant skills education that supports local economic development.

2. Material and methods

2.1 Research Design

This study employed a quantitative-descriptive research design to examine the factors affecting Junior High School Technology and Livelihood Education (TLE) teachers teaching out-of-field in selected public secondary schools in Sorsogon Province. The descriptive approach enabled the systematic measurement and interpretation of teacher profile variables, school-related factors, teacher-related factors, and the extent of out-of-field teaching without manipulating variables. A correlational component was also incorporated to determine relationships between teacher profile variables and both school-related and teacher-related factors. Descriptive statistics, including frequency, percentage, mean, and ranking, were used alongside inferential statistics such as Pearson correlation and Spearman's rho to analyze relationships among variables. This approach ensured objective and generalizable findings aligned with the study objectives.

2.2 Locale of the Study

The study was conducted in selected public secondary schools in the Province of Sorsogon, Philippines, located in the Bicol Region. These schools operate under the Department of Education (DepEd) and provide junior high school education, including Technology and Livelihood Education (TLE) as part of the K-12 curriculum. The selected schools were chosen based on the presence of active TLE programs and the availability of teachers handling both specialized and out-of-field assignments. The geographic scope, which included the First Congressional District, Second Congressional District, and Sorsogon City, allowed for the collection of data reflecting diverse school contexts, staffing conditions, and resource availability within the province.

2.3 Respondents of the Study

The respondents consisted of Junior High School Technology and Livelihood Education (TLE) teachers from selected public secondary schools in Sorsogon Province. Teachers included were those currently handling TLE subjects, whether aligned with or outside their specialization, to capture both actual and potential experiences of out-of-field teaching. A total of 161 respondents participated, comprising 105 females, 53 males, and 3 who preferred not to disclose their sex. The predominance of female respondents reflects the general composition of the teaching workforce and aligns with trends reported in national and international studies (UNESCO, 2021; OECD, 2022). Geographically, most respondents were from the First Congressional District, followed by the Second Congressional District and Sorsogon City. This distribution highlights the contextual influence of local teaching conditions, resource availability, and staffing practices on out-of-field teaching (UNESCO, 2021; Darling-Hammond et al., 2023). Despite challenges such as workload constraints, school activities, and weather-related disruptions, data collection was completed through coordinated efforts with school administrators. These experiences reflect common field research conditions and emphasize the importance of adaptability in educational research (Creswell & Creswell, 2023).

2.4 Sample and Sampling Procedure

The study employed purposive sampling to select Junior High School TLE teachers from selected public secondary schools in Sorsogon Province. Respondents included teachers currently handling subjects outside their specialization, as well as those who may potentially experience out-of-field teaching. This sampling approach ensured that participants possessed relevant experience and knowledge of the phenomenon under investigation. By selecting respondents based on established inclusion criteria, the study obtained data that were aligned with the research objectives while allowing representation across different school contexts within the province.

2.5 Research Instrument

Data were collected using a structured survey questionnaire designed to gather quantitative information aligned with the study objectives. The instrument covered teacher profile variables, extent of out-of-field teaching, school-related factors, teacher-related factors, and relationships among these variables. The questionnaire was developed based on a review of related literature and existing instruments to ensure content validity and clarity. It included sections on demographic and professional characteristics, breadth and duration of out-of-field teaching, institutional conditions such as teaching load and administrative support, and teacher-related attributes including training, self-efficacy, and motivation. A 4-point Likert scale was used to measure responses, encouraging definitive judgments and improving data interpretability. The instrument

underwent pilot testing with a small group of teachers outside the study sample to ensure reliability, validity, and clarity. This standardized format enabled consistent data collection and efficient statistical analysis.

2.6 Data Gathering Procedure

Data collection followed a systematic and ethical process. Permission was first secured from school authorities to ensure compliance with institutional requirements. Respondents were then oriented on the study's purpose, procedures, and ethical considerations, including voluntary participation, confidentiality, and anonymity. The survey questionnaire was distributed either in printed or online format, depending on accessibility. Respondents were given sufficient time to complete the instrument to ensure thoughtful responses. Completed questionnaires were retrieved and verified for completeness and consistency, with incomplete responses excluded from analysis. Challenges encountered during data collection included misplaced questionnaires, respondents' workload, school activities, and weather-related disruptions such as typhoons. These issues required schedule adjustments, follow-ups, and coordination with school administrators. Despite these constraints, the data gathering process was successfully completed through persistent monitoring and communication.

2.7 Data Analysis Techniques

Data were analyzed using appropriate quantitative statistical methods aligned with the study objectives. Descriptive statistics, including frequency counts and percentages, were used to summarize teacher profile characteristics (Castro et al., 2023; Beley, 2025). The extent of out-of-field teaching, measured in terms of breadth and duration, was analyzed using frequency, percentage, and ranking to identify patterns of specialization mismatch (Castro et al., 2023). School-related and teacher-related factors were analyzed using mean and Average Weighted Mean to determine their level of influence, with ranking used to identify the most significant factors (Beley, 2025; Castro et al., 2023). Inferential statistics, including Pearson Product-Moment Correlation and Spearman's Rank Correlation, were used to examine relationships between teacher profile variables and the identified factors affecting out-of-field teaching (Fessehatsion & Pai, 2025). The results from these analyses were synthesized to identify key influencing factors and served as the basis for developing an Individual Professional Development Plan tailored to the needs of TLE teachers handling out-of-field assignments (Eryilmaz et al., 2025).

3. Results and Discussion

3.1 Profile and Teaching Conditions of Junior High School TLE Teachers

3.1.1 Demographic and Professional Profile of TLE Teachers

The results show that most respondents are 35 years old and below, followed by those aged 41–45, while fewer belong to older age groups. Female teachers constitute the majority, with significantly fewer male respondents. In terms of educational attainment, most teachers have units in a master's degree, followed by bachelor's degree holders, while only a small number have completed graduate or doctoral degrees. Regarding teaching experience, most respondents have 10 years or more in service, with fewer teachers in the early years of their careers. These findings indicate a workforce composed largely of young, predominantly female teachers who are actively pursuing graduate education while possessing varying levels of experience. This aligns with studies showing that demographic and professional characteristics influence teaching adaptability and instructional practices (SEAMEO INNOTECH, 2023). Younger teachers may demonstrate adaptability and openness to innovation, while experienced teachers contribute institutional knowledge and instructional stability (European Commission, 2023; Dube & Mlotshwa, 2022). The diversity in profiles suggests varying levels of readiness and coping capacity in handling out-of-field teaching assignments.

3.1.2 Extent and Duration of Out-of-Field Teaching

The findings reveal that a majority of teachers are assigned at least one subject outside their specialization, with many handling multiple additional subjects. Only a smaller proportion teach solely within their specialization. In terms of duration, a significant number of teachers have been teaching out-of-field for five years or more, while many have accumulated several years of such experience, indicating sustained exposure rather than temporary assignments. These results indicate that out-of-field teaching is widespread and prolonged, reflecting a structural staffing practice rather than an isolated occurrence. The assignment of multiple subjects increases workload and divides instructional focus, particularly in skills-based subjects like TLE. This supports findings that specialization mismatch is often driven by systemic workforce constraints rather than teacher competence (Ingersoll & Tran, 2025; European Commission, 2023). Prolonged out-of-field teaching may reduce instructional depth and teacher confidence, contributing to stress and diminished instructional quality (Du Plessis, 2024; Skaalvik & Skaalvik, 2021).

3.2 School-Related Factors Influencing Out-of-Field Teaching

3.2.1 Teacher–Student Ratio and Teaching Load

The results indicate that teacher–student ratio is the most influential school-related factor, with respondents generally agreeing that large class sizes make it difficult to effectively teach TLE. Teaching load, however, shows moderate to low influence, although teachers acknowledge that assignments outside specialization are partly due to staffing shortages. These

findings suggest that large class sizes significantly increase instructional demands, particularly in competency-based subjects requiring hands-on supervision. While teaching load is not consistently rated as excessive, staffing limitations still contribute to out-of-field assignments. This aligns with studies showing that high student-teacher ratios and workforce shortages intensify instructional challenges and influence teacher deployment (European Commission, 2023; Jomuah et al., 2021).

3.2.2 Availability of TLE Equipment, Modules, and Administrative Support

The results show that TLE equipment and instructional modules are generally insufficient, with respondents indicating limited access to tools and learning materials. Administrative support is also rated low, particularly in terms of mentoring, guidance, and assistance for out-of-field teaching. These findings indicate that teachers operate in resource-constrained environments with limited institutional support. Insufficient materials and weak administrative assistance hinder teachers' ability to effectively deliver specialized instruction. This supports literature emphasizing that resource availability and leadership support are critical to instructional effectiveness and teacher adaptability (Eryilmaz et al., 2025; Peleg & Orpaz, 2025). The lack of mentoring systems further limits teachers' capacity to manage unfamiliar teaching assignments.

3.3 Teacher-Related Factors Affecting Out-of-Field Teaching

3.3.1 Trainings, Self-Efficacy, and Motivation

The findings indicate that motivation is the highest-rated factor, with teachers expressing strong commitment to perform well and pursue further training despite out-of-field assignments. Trainings are generally rated as adequate, although variations exist across districts. Self-efficacy is high when teaching within specialization but declines when teachers handle subjects outside their field. These results suggest that teachers possess strong intrinsic motivation, which sustains engagement despite challenges. However, reduced self-efficacy in out-of-field contexts highlights gaps in content mastery and confidence. This aligns with studies showing that self-efficacy and motivation are influenced by professional experiences and support systems (Sancar et al., 2021; Opoku-Agyemang, 2025). While training enhances preparedness, inconsistent access and alignment limit its effectiveness. The findings confirm that teacher-related factors function both as strengths and constraints in out-of-field teaching.

3.4 Relationship Between Teacher Profile and School-Related Factors

3.4.1 Influence of Demographic and Professional Variables on School Conditions

The results show that age, sex, and educational attainment have no significant relationship with school-related factors, while years of teaching experience demonstrate a significant relationship. This indicates that perceptions of institutional conditions are largely independent of demographic characteristics but are influenced by professional experience. More experienced teachers may develop greater awareness of organizational structures and challenges due to prolonged exposure (Gu & Day, 2021; Leithwood et al., 2022). The absence of demographic influence supports findings that school conditions are shaped primarily by institutional factors rather than individual attributes (European Commission, 2023).

3.5 Relationship Between Teacher Profile and Teacher-Related Factors

3.5.1 Influence of Teacher Profile on Self-Efficacy, Motivation, and Training

The results reveal that age, sex, educational attainment, and years of service do not have significant relationships with teacher-related factors such as self-efficacy, motivation, and training. These findings suggest that teacher-related attributes are not determined by demographic or professional background but are shaped by contextual and institutional conditions. This aligns with studies indicating that self-efficacy and motivation develop through professional environments, training, and support systems rather than static characteristics (Skaalvik & Skaalvik, 2021; Sims & Fletcher-Wood, 2022). The lack of significant relationships reinforces that out-of-field teaching challenges are systemic rather than individual in nature (Eryilmaz et al., 2025; Hobbs & Törner, 2021).

3.6 Overall Synthesis of Findings

The findings show that out-of-field teaching among Junior High School TLE teachers is widespread and sustained, reflecting systemic staffing and deployment practices. Teachers demonstrate strong motivation and adaptability, yet their effectiveness is constrained by reduced self-efficacy, limited training alignment, insufficient resources, and weak administrative support. These results emphasize that out-of-field teaching is primarily a structural issue shaped by institutional conditions rather than individual teacher characteristics. While professional experience enhances awareness of organizational challenges, it does not fully mitigate the effects of specialization mismatch. The findings align with literature highlighting the need for systemic interventions, including improved teacher deployment, targeted professional development, and strengthened institutional support systems to enhance instructional quality and teacher effectiveness.

4. Conclusion & Recommendations

The study established that out-of-field teaching among Junior High School Technology and Livelihood Education (TLE) teachers in selected public secondary schools in the Province of Sorsogon is widespread and sustained, indicating that specialization mismatch is a structural issue rather than a temporary condition. The findings revealed that the teaching workforce is largely composed of female, experienced teachers pursuing professional development but lacking specialization-aligned technical certifications. Institutional factors, including high teacher–student ratios, heavy workloads, insufficient instructional resources, and limited administrative support, significantly contribute to the persistence of out-of-field teaching. While teachers demonstrate strong motivation, their self-efficacy declines when assigned outside their specialization, and although teaching experience enhances adaptability, demographic characteristics show no significant influence. Overall, the results highlight the need for a structured and responsive intervention, particularly through the implementation of an Individual Professional Development Plan (IPDP), to enhance teacher competence, confidence, and instructional quality.

Based on the findings, it is recommended that educational authorities strengthen specialization-aligned qualifications and technical certification programs, implement data-driven teacher deployment and staffing policies, and improve institutional conditions through better workload distribution, adequate resource provision, and enhanced administrative support. Schools should adopt an Individual Professional Development Plan (IPDP) that includes specialization-based training, TESDA-aligned programs, mentoring, Learning Action Cell (LAC) participation, and team-teaching strategies to address competency gaps and improve instructional confidence. Furthermore, structured mentoring, coaching, and collaborative learning systems should be institutionalized, alongside teacher support and well-being programs, to sustain motivation and reduce professional strain. Continuous monitoring, evaluation, and coordinated policy implementation are also necessary to ensure the effectiveness, sustainability, and responsiveness of interventions addressing out-of-field teaching.

The study is limited to Junior High School TLE teachers in selected public secondary schools in the Province of Sorsogon, which restricts the generalizability of the findings to other regions or educational contexts. The use of self-reported survey data may also introduce response bias based on participants' perceptions and experiences. Additionally, the study focuses primarily on teacher-related and school-related factors without directly measuring student learning outcomes, and the proposed intervention plan is context-specific, limiting its applicability to similar settings.

Compliance with ethical standards

The author adhered to established ethical standards in the conduct of this educational research. Permission was obtained from appropriate school authorities prior to data collection, and participants were informed of the study's purpose, procedures, and ethical considerations. Participation was voluntary, and confidentiality and anonymity of respondents were ensured. The data gathering process respected participants' rights, and only complete and valid responses were used to maintain the integrity and accuracy of the research findings.

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