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Associations Between Teaching Challenges, Professional Self-Esteem, and Instructional Knowledge Among Out-of-Field Teachers: The Mediating Role of Coping Mechanisms

Charlyn M. Capulong, Joana Marie E. Pujanes, Jupert Jasser G. Abellana*, Michael Lloyd A. Bation Gilceline L. Dingding and Maria Rizalia Y. Teves
Mindanao State University - Iligan Institute of Technology
Philippines

Abstract. This study examined how the challenges encountered by out-of-field senior high school (SHS) teachers are associated with their professional self-esteem and instructional knowledge, and whether coping mechanisms mediate these relationships. Using a quantitative, cross-sectional design grounded in a post-positivist paradigm, data were collected from 313 out-of-field SHS teachers in public secondary schools offering Academic Tracks in Northern Mindanao, Philippines. Aided by a structured self-report survey instrument, the relationship between the challenges experienced by out-of-field SHS teachers and their coping mechanisms, professional self-esteem, and instructional knowledge was analyzed using Partial Least Squares Structural Equation Modeling. Results revealed that challenges associated with teaching outside one's field are significantly and negatively linked with both professional self-esteem and instructional knowledge, with a stronger association observed for instructional knowledge. Coping mechanisms showed a significant positive association with both outcomes and partially mediated the relationships between the challenges and teacher outcomes, further indicating a buffering but limited protective role. While all hypothesized paths were statistically significant, effect sizes and explained variances were modest, reflecting the complex, multifactorial nature of teacher experiences in out-of-field contexts. The findings extend social cognitive theory and the Technological Pedagogical Content Knowledge framework by demonstrating that individual coping and self-regulatory processes, while important, are insufficient for fully offsetting the effects of persistent role misalignment. The results underscore the need for institutional and systemic interventions—including but not limited to targeted professional development, mentoring, and better

*Corresponding author: Jupert Jasser G. Abellana; *jupertjasser.abellana@g.msuiit.edu.ph*

alignment of teaching assignments—to support the professional identity and instructional competence of out-of-field SHS teachers.

Keywords: coping strategies**;** instructional knowledge; out-of-field teaching; professional self-esteem; teaching challenges

1. Introduction

The Philippine education system has undergone significant reforms with the implementation of the K–12 curriculum, which expanded basic education and was designed to better prepare learners for higher education and employment (Deysolong, 2023). The legal foundation of this reform is Republic Act No. 10533, also known as the Enhanced Basic Education Act of 2013, which added two years of Senior High School (SHS) to the basic education cycle (Republic of the Philippines, 2013). The implementation of the K–12 program is further guided by the implementing rules and regulations issued by the Department of Education through DepEd Order No. 43, series of 2013.

At the core of the reform is the SHS program, which offers academic, technical-vocational-livelihood, sports, and arts tracks that require teachers with strong subject matter expertise and effective instructional skills. However, national policy reviews and empirical research indicate that many public schools continue to experience teacher shortages and mismatches between teacher specialization and assigned subjects, resulting in widespread out-of-field teaching, particularly at the secondary and senior high school (SHS) levels (Mejia et al., 2025; Second Congressional Commission on Education, 2025). This practice has been shown to negatively affect instructional quality, teacher self-efficacy, and opportunities for professional growth. Empirical studies further identify out-of-field teaching as a persistent structural issue that undermines teacher competence and the effective delivery of SHS curricula, particularly in specialized tracks that require deeper content knowledge (Penuliar & Natividad, 2025).

Out-of-field teaching creates different pressures for teachers, especially on psychological and professional levels. Studies show that being assigned to unfamiliar subjects can reduce teachers' confidence, weaken their sense of self-efficacy, and create stress that affects their professional identity (Bajar et al., 2021; Bugwak, 2021). These experiences are associated with teachers' professional self-esteem, a concept defined as the value a person gives to their profession and linked to competence, belonging, respect, and security (Iqbal et al., 2016). When teachers feel unprepared or misaligned with their assigned subjects, they may experience frustration, uncertainty, and a weakened sense of professional worth. These difficulties can affect the quality of classroom instruction and may also be linked to the overall learning environment (Anselmo & Anselmo, 2024).

Beyond these psychological and professional challenges, out-of-field teaching also has direct implications for instructional knowledge, which includes content knowledge, general pedagogical knowledge, and pedagogical content knowledge (Almunawaroh & Steklács, 2025). The reduced confidence and sense of preparedness discussed earlier often translate into struggles with content

mastery, lesson planning, and assessment creation. Teachers assigned to unfamiliar subjects may find themselves learning the material alongside their students, which heightens nervousness and further diminishes confidence (Anselmo & Anselmo, 2024; Biebricher,, 2023). Limited preparation and lack of training can weaken instructional performance, disrupt the teaching–learning process, and even affect student outcomes (Hobbs & Porsch, 2021).

At the same time, recent studies emphasize that teachers' capacity to navigate and potentially benefit from out-of-field assignments is closely linked to the coping mechanisms they employ. Out-of-field teachers continue to encounter professional challenges associated with their self-esteem and instructional knowledge. Strategies such as seeking help from colleagues, problem solving, managing stress, adapting instructional methods, collaborating with peers, and integrating technology have been shown to help teachers maintain their confidence and classroom performance (Pino et al., 2025; Saldivar et al., 2024).

Philippine studies also highlight that out-of-field teachers who use effective coping mechanisms are better able to handle classroom demands, turn stressful situations into learning opportunities, and stay engaged despite limited resources or content mastery (Anselmo & Anselmo, 2024; Basalan et al., 2024). However, while these studies identify various coping strategies, most adopt descriptive or correlational approaches and provide limited explanation of how and to what extent these mechanisms are associated with the teachers' professional self-esteem and instructional knowledge (Abrantes et al., 2024; Armenia & Ferenal, 2025). Although coping mechanisms are frequently identified as buffers against instructional challenges, few studies have explicitly examined coping mechanisms as a mediating variable linking challenges to professional self-esteem and instructional knowledge using empirical mediation models (Anselmo & Anselmo, 2024; Edulan & Fajardo, 2024; Saldivar, 2024).

This study sought to explore how the challenges encountered by out-of-field SHS teachers relate to their professional self-esteem and instructional knowledge, and whether coping mechanisms mediate these relationships. Empirically, Philippine studies on out-of-field teaching and coping strategies are often limited to specific subjects or localized contexts and have not comprehensively examined the interrelationships among teaching challenges, coping mechanisms, professional self-esteem, and instructional knowledge within the SHS setting (Basalan et al., 2024; Bunda, 2025; Edulan & Fajardo, 2024). Practically, there is a lack of context-specific evidence to guide targeted teacher support programs and professional development initiatives, particularly in regional areas such as Northern Mindanao (Recede et al., 2023; Beley, 2025).

Theoretically, this study extended the application of Social Cognitive Theory and the Technological Pedagogical Content Knowledge framework to explain how coping mechanisms may link instructional challenges to professional self-esteem and instructional knowledge. Methodologically, it addressed this gap by applying mediation analysis to test these relationships empirically. By focusing on out-of-field teachers, the study aimed to understand how coping strategies help manage

work-related challenges and sustain instructional competence and professional self-esteem. The findings contribute to improving teacher support and professional development, and they align with Sustainable Development Goal 4 (Quality Education) by promoting inclusive, equitable, and effective teaching and learning opportunities.

2. Literature Review

This study aims to answer the following research questions:

1. Do the challenges encountered by out-of-field teachers significantly affect their professional self-esteem and instructional knowledge?
2. Do coping mechanisms significantly mediate the relationship between challenges encountered by out-of-field teachers and their professional self-esteem?
3. Do coping mechanisms significantly mediate the relationship between challenges encountered by out-of-field teachers and their instructional knowledge?

2.1 The Effect of the Challenges Encountered on Professional Self-esteem

Research shows that cognitive abilities and high self-esteem allow teachers to perform challenging tasks, such as providing students with suitable learning opportunities and an environment conducive to the development of their innate capacities (Iqbal et al., 2016). However, teaching out-of-field subjects poses significant challenges, including limited subject aptitude, inadequate administrative support, reduced enthusiasm, and difficulty building rapport (Bugwak, 2021).

Teachers also report feelings of disconnection, uncertainty, frustration, and insecurity, which contribute to ineffective instruction and unengaging classroom environments (Anselmo & Anselmo, 2024). These challenges extend to lesson planning, delivery, and assessment design (Bajar et al., 2021) and are linked to heightened stress, reduced confidence and job satisfaction, burnout, low motivation, and poorer outcomes for both teachers and students (Beley, 2025).

In contrast, Hobbs and Quinn (2020) found that school-based support was important for out-of-field teachers as emotional support to build their capacity. Experience teaching out-of-field subjects several times, or the process of trialing, learning, and adjusting practice, led to improvements in out-of-field teachers' perceived capacity (Hobbs & Porsch, 2021). Nevertheless, improvements in teacher knowledge, gained through prior experiences of teaching out-of-field subjects, were linked to increased confidence in teaching capacity and enjoyment of teaching (Hobbs & Quinn, 2020). In this regard, it is hypothesized that:

> *''Hypothesis 1: There is a significant effect of the challenges encountered by out-of-field SHS teachers on their professional self-esteem. ''*

2.2 The Effect of the Challenges Encountered on Instructional Knowledge

Teachers' competence comprises cognitive abilities, including professional knowledge, general pedagogical knowledge, content knowledge, and

pedagogical content knowledge, which are essential for developing effective solutions to teaching-related problems (Almunawaroh & Steklács, 2025). Teachers often express a desire to reach a certain level of proficiency in the subjects they teach, so when teaching out-of-field subjects, they feel like they are in the process of relearning themselves, leading to nervousness and a sense of continuing education (Anselmo & Anselmo, 2024). In the study of Biebricher (2023), results indicated that some teachers perceived themselves as not knowledgeable enough due to teaching out-of-field subjects. Moreover, their limited experience plays out negatively on teaching effectiveness as manifested in poor teaching performance. Thus, it was found that the experience of teaching out-of-field had negatively affected perceived capacity (Hobbs & Porsch, 2021).

However, Biebricher (2023) highlighted that entering unfamiliar disciplinary domains without specialist knowledge can offer valuable learning opportunities. This was supported in the study of Hobbs and Quinn (2020), stating that improvements in teacher knowledge gained through prior experiences of teaching out-of-field subjects were associated with increased confidence in teaching capacity. On the other hand, studies suggest that training and technical assistance from school administration improve the efficacy of out-of-field teachers (Recede et al., 2023) and their content knowledge and pedagogical content knowledge (Hobbs & Quinn, 2020). Ultimately, out-of-field teaching promotes opportunities for knowledge growth, and the experience of educators teaching subjects multiple times increases their perceived capacity (Recede et al., 2023). Hence, it is hypothesized that:

> *''Hypothesis 2: There is a significant effect of the challenges encountered by out-of-field SHS teachers on their instructional knowledge. ''*

2.3 The Mediating Effect of Coping Mechanisms on the Relationship Between Challenges Encountered and Professional Self-esteem

Evidence suggests that coping strategies are closely linked to teachers' self-beliefs about capability, though mediation patterns remain complex. Saldivar (2024) emphasized that resilience and effectiveness among out-of-field teachers stem from a multifaceted approach, including continuous professional competence development, leveraging social networks, efficient resource and technology management, pedagogical adaptability, and prioritizing personal well-being. These components interact dynamically, fostering adaptability and career satisfaction. Similarly, Basalan et al. (2024) found that non-specialized MAPEH teachers in Davao del Sur exhibited moderate coping mechanisms and performance, with time management and appraisal-focused strategies being the most common. These approaches—such as proper time allocation and collegial consultations—enabled teachers to manage instructional and auxiliary responsibilities effectively.

Abrantes et al. (2024) highlighted that both favorable and unfavorable experiences of physical science teachers outside their specialization provided professional development opportunities, reinforcing the importance of maintaining a positive outlook. This aligns with Aventura and Viña (2023), who argued that out-of-field

teaching challenges foster innovativeness, transforming self-doubt and lack of confidence into opportunities for growth beyond comfort zones.

Finally, Anselmo and Anselmo (2024) underscored the role of continuous professional development in enhancing skills and confidence, offering practical strategies such as adaptable teaching approaches, support networks, emotional well-being prioritization, workload management, and sustained professional learning. These studies affirm that coping strategies, whether individual, social, or organizational, serve as critical mediators that buffer stress, sustain professional identity, and potentially elevate professional self-esteem despite persistent challenges. Based on the literature, it is hypothesized that:

> *''Hypothesis 3: Coping mechanisms mediate the relationship between challenges encountered by out-of-field SHS teachers and their professional self-esteem. ''*

2.4 The Mediating Effect of Coping Mechanisms on the Relationship Between Challenges Encountered and Instructional Knowledge

Coping mechanisms have emerged as a crucial, albeit partial, mediator between the instructional challenges experienced by out-of-field teachers and their overall teaching effectiveness. Recent studies highlight the importance of effective coping strategies in maintaining teacher resilience and enhancing instructional competence. Bunda (2025), employing a qualitative phenomenological approach, examined the experiences of out-of-field Araling Panlipunan teachers and identified various coping strategies, including self-directed learning, collaboration, adaptive instruction, resilience, and technology integration. These strategies were found to mediate the negative effects of instructional challenges, enabling teachers to maintain performance despite resource and knowledge gaps.

Similarly, Edulan and Fajardo (2024) examined out-of-field science teachers in Western Mindanao, highlighting resourcefulness, flexibility, and professional development as key coping mechanisms. Their findings emphasized that institutional support and motivation enhance coping strategies, indirectly improving instructional competence. This aligns with Beley (2025), who stressed the need for targeted professional development programs, institutional support, and policy reforms to strengthen teachers' experiences and performance. Complimenting these insights, Pino et al. (2025) further reinforced the role of professional development and peer collaboration in addressing gaps in content mastery and teaching effectiveness.

Rodriguez (2025) similarly asserted that sustained, well-structured professional development is essential to counter the adverse effects of out-of-field teaching, noting its contributions to heightened teacher satisfaction, strengthened resilience, and improved learner outcomes. Collectively, these studies indicate that coping strategies, supported by institutional interventions, are essential for enhancing teacher resilience, sustaining engagement, and improving instructional quality in out-of-field teaching contexts. Hence, it is hypothesized that:

''Hypothesis 4: Coping mechanisms mediate the relationship between challenges encountered by out-of-field SHS teachers and their instructional knowledge. ''

2.5 Conceptual Framework

Figure 1 illustrates the relationships among the study variables. Challenges encountered serve as the independent variable, while coping mechanisms function as the mediating variable between challenges and both professional self-esteem and instructional knowledge. Meanwhile, professional self-esteem and instructional knowledge are presented as the dependent variables.

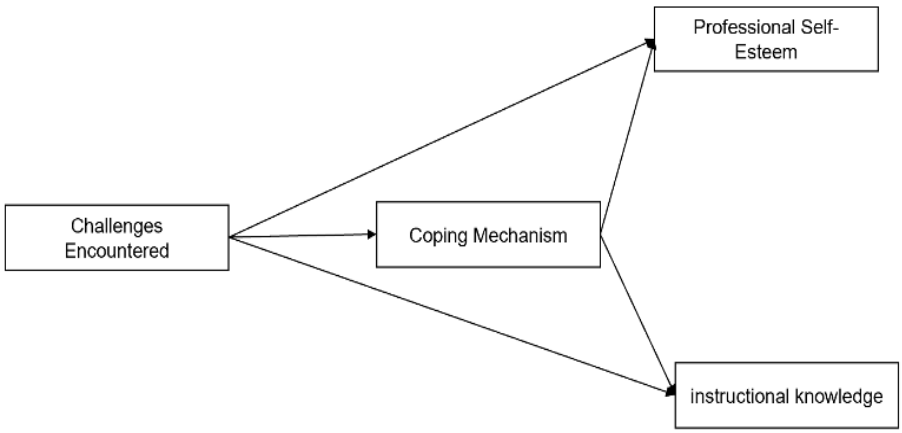

Figure 1: Conceptual framework adapted from Social Cognitive Theory (Bandura, 2001) and the Technological Pedagogical Content Knowledge (TPACK) framework (Schmidt et al., 2009)

The conceptual framework presented in Figure 1 was theoretically grounded in social cognitive theory (SCT) of Bandura (2001) and the TPACK framework of Schmidt et al. (2009). Together, these established frameworks explained how challenges encountered by out-of-field teachers are associated with their professional self-esteem and self-efficacy, or the belief in one's capability to successfully perform professional tasks (Bandura, 2001; Huang et al., 2025). In the teaching context, self-efficacy was reflected in confidence in managing classroom responsibilities and delivering quality instruction (Li, 2023). When teachers faced persistent challenges in subjects outside their specialization, their professional self-esteem was undermined; however, adaptive coping mechanisms enabled them to adjust, preserve self-belief, and sustain professional confidence.

The TPACK framework informed the operationalization of instructional knowledge as a key outcome variable. TPACK emphasized the effective integration of technological, pedagogical, and content knowledge as the foundation of effective teaching practice (Chai et al., 2013; Schmidt et al., 2009). Teaching outside one's field of specialization introduced content- and pedagogy-related challenges that disrupted this integration, thereby weakening instructional knowledge and limiting instructional innovation. Within this framework, coping mechanisms, such as seeking instructional support, adapting

teaching strategies, and engaging in reflective practice, enabled teachers to navigate unfamiliar subject matter and sustain instructional competence (Cheng et al., 2025).

Accordingly, coping mechanisms were positioned as a mediating construct, reflecting SCT's central proposition that individuals actively regulated the impact of environmental challenges on both psychological and performance-related outcomes. The resulting framework represented an integrated adaptation of SCT and the TPACK framework, offering a theoretically grounded explanation of how and why challenges encountered by out-of-field teachers translated into variations in professional self-esteem and instructional knowledge.

Furthermore, prior research has shown that SCT variables, particularly self-efficacy, interact with TPACK dimensions to link teachers' intentions and instructional behavior (Cheng et al., 2025; Dikmen & Dimerer, 2022; Ismaniati et al., 2025). These findings provide theoretical support for the integration of SCT and TPACK in the current study, reinforcing the rationale for positioning coping mechanisms as mediators in the relationship between challenges, professional self-esteem, and instructional knowledge. Empirically, this study examines these relationships in the understudied context of out-of-field SHS teachers in Northern Mindanao, offering both theoretical and practical contributions for teacher support and professional development initiatives.

3. Methodology

3.1 Research Design and Approach

This study employed a quantitative, cross-sectional design to examine the associations between challenges faced by out-of-field SHS teachers, their professional self-esteem, and instructional knowledge, as well as the predictive role of coping mechanisms in these relationships. Data were collected using a structured self-report survey administered at a single point in time. Structural Equation Modeling (SEM) was used to examine the proposed relational and mediational structure among the variables. Because the data were cross-sectional, the analysis focused on identifying patterns of association and prediction, and no causal inferences were made.

3.2 Research Paradigm

The study was guided by the post-positivist paradigm, which assumes that social phenomena can be investigated through systematic observation and statistical analysis, while acknowledging that findings are probabilistic rather than absolute. This paradigm supported hypothesis testing and mediation analysis, providing a strong rationale for using Partial Least Squares SEM (PLS-SEM) to explore predictive relationships among the constructs relevant to out-of-field teaching experiences.

3.3 Population and Sampling Procedure

The study targeted SHS teachers in public secondary schools offering Academic Track strands in Northern Mindanao, Philippines, which included Bukidnon,

Camiguin, Lanao del Norte, Misamis Occidental, and Misamis Oriental. A multi-stage, non-probability sampling approach was used:
Stage 1: Proportionate convenience sampling selected 41 out of 69 schools offering Academic Track strands across the five provinces. Schools were chosen based on proportional representation and logistical feasibility.

Stage 2: Complete enumeration was applied within each selected school, inviting all teachers present during survey administration to participate.

Of the 949 invited teachers, 648 responded (68.28% response rate), of which 54.78% were out-of-field teachers. After data cleaning, 313 out-of-field teachers formed the final analytical sample. While proportionate allocation enhanced representation, the use of convenience sampling might have limited generalizability beyond the participating schools and teachers in Northern Mindanao.

3.4 Research Instrument
Data was collected using a structured survey questionnaire with five sections:
1. Consent, agreement to collect personal data, and demographic profile
2. Professional self-esteem of teachers handling subjects outside their field
3. Instructional knowledge in subjects outside the teacher's specialization
4. Challenges encountered in handling out-of-field subjects
5. Coping mechanisms employed by out-of-field teachers

Items for the Professional Self-Esteem and Instructional Knowledge scales were adapted from validated instruments (Arıcak, 1999; Schmidt et al., 2009) and modified for the context of out-of-field SHS teaching. Following pilot testing and review, 11 items from the original Professional Self-Esteem scale and 17 items from the original Instructional Knowledge scale were removed due to redundancy or lack of relevance. After these revisions, the Professional Self-Esteem scale consisted of 27 items, and the Instructional Knowledge scale consisted of 29 items.

Sections 4 (Challenges, 9 items) and 5 (Coping Mechanisms, 14 items) were developed by the researchers based on a thematic analysis conducted during pilot testing of the questionnaire. The pilot testing ensured that items were relevant, clear, and reflective of the experiences of out-of-field teachers. All items underwent validity checks to ensure clarity, relevance, and appropriateness for the target population.

3.5 Data Collection Procedure
Before the main survey, the questionnaire was pilot tested. Approval to conduct the study was obtained from the head of the Department of Education (DepEd) in Northern Mindanao, Philippines. Participants were briefed on the study objectives, were assured of confidentiality, and provided informed consent prior to participation.

3.6 Data Analysis

To test the hypothesized relationships, PLS-SEM was employed using SmartPLS. This method was chosen for its ability to handle multiple latent constructs, test mediation, and support predictive modeling and theory development (Hair et al., 2021; Hair & Alamer, 2022; Legate et al., 2023; Palangan et al., 2025). SEM enabled estimation of both direct and indirect effects, allowing a rigorous assessment of the mediating role of coping mechanisms between challenges and key teacher outcomes.

4. Results and Findings

The following sections discuss measurement model assessment, structural model, mediation assessment and hypothesis testing.

4.1 Measurements

4.1.1 Measurement model (outer model) assessment

The measurement model analysis evaluated the reliability and validity of the study's constructs. Table 1 presents the factor loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) for the constructs of Professional Self-Esteem, Instructional Knowledge, Coping Mechanism, and Challenges Encountered. All retained indicators showed factor loadings above the acceptable threshold of 0.70, ranging from 0.739 to 0.922, confirming that the indicators appropriately represented their respective constructs (Hair et al., 2021). Cronbach's alpha values ranged from 0.781 to 0.848, exceeding the minimum requirement of 0.70 and indicating internal consistency.

The CR values ranged from 0.828 to 0.866, satisfying reliability standards. The AVE values exceeded the recommended threshold of 0.50, ranging from 0.600 to 0.843, which established convergent validity. Among the constructs, Professional Self-Esteem showed the highest AVE (0.843), followed by Coping Mechanism (0.766), Instructional Knowledge (0.750), and Challenges Encountered (0.600). These results confirmed that the measurement model was both reliable and valid for further structural model analysis (Hair et al., 2021).

Table 1: Measurement Model Assessment of Construct Reliability and Convergent Validity

Variables	Indicators	Factor Loadings	Cronbach's Alpha	Composite Reliability	AVE
Professional Self-Esteem	PS2	0.859	0.815	0.828	0.843
	PS3	0.755			
Instructional Knowledge	IK1	0.877	0.832	0.840	0.750
	IK2	0.912			
	IK3	0.805			
Coping Mechanism	CM2	0.840	0.848	0.866	0.766
	CM3	0.922			
	CM4	0.862			
Challenges Encountered	CH1	0.859	0.781	0.828	0.600
	CH2	0.755			
	CH3	0.740			
	CH4	0.739			

Note: All retained indicators showed factor loadings above 0.70, ranging from 0.739 to 0.922, which confirms that each item appropriately measures its respective construct (Hair et al., 2021). Items CM1, PS1, PS4, and IK4 were removed due to low loadings, which slightly improved the overall reliability and validity of the model.

As shown in Table 2, the square roots of the AVE values for each construct exceeded the corresponding inter-construct correlations, indicating adequate discriminant validity. The results established that the measurement model meets the criteria for discriminant validity, confirming that the constructs were conceptually distinct and appropriate for further structural model assessment (Hair et al., 2021).

Table 2: Discriminant Validity (Fornell-Larcker) Analysis

Variables	Challenges Encountered	Coping Mechanism	Instructional Knowledge	Professional Self-Esteem
Challenges Encountered	**0.775**			
Coping Mechanism	0.233	**0.875**		
Instructional Knowledge	0.342	0.375	**0.866**	
Professional Self-Esteem	0.226	0.338	0.449	**0.918**

4.1.2 Structural model

Figure 2 presents the structural model illustrating the hypothesized relationships among challenges encountered, coping mechanisms, professional self-esteem, and instructional knowledge.

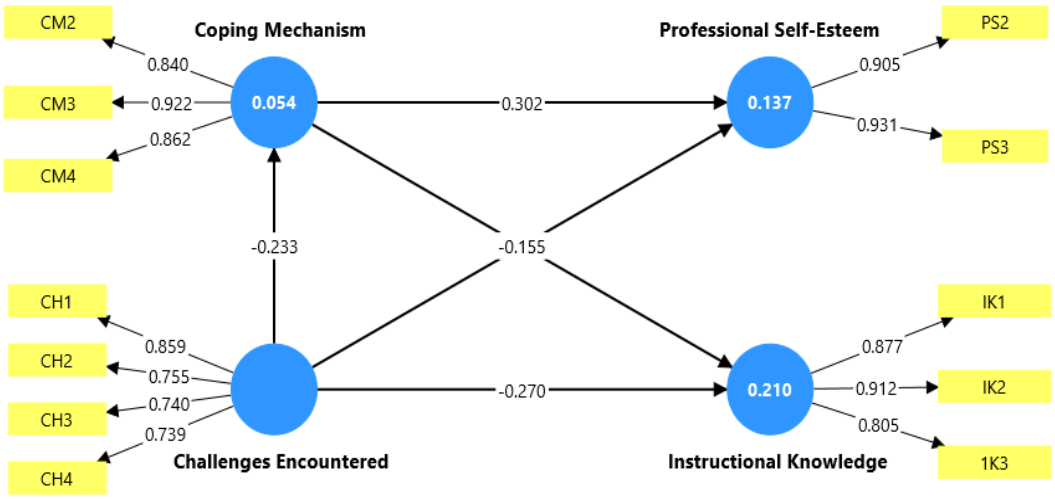

Figure 2: Structural Equation Model

In addition to reliability and validity assessment, the structural model was evaluated using multiple complementary indicators, including coefficients of determination (R^2), effect sizes (f^2), and predictive relevance (Q^2), to provide a transparent and comprehensive assessment of the model's explanatory and predictive performance. The R^2 values presented in Table 3 indicate that the structural model explains a modest proportion of variance in the endogenous constructs. Specifically, challenges encountered account for a small proportion of variance in coping mechanisms ($R^2 = 0.054$), suggesting that coping strategies are influenced by a range of factors beyond teaching challenges alone.

The explained variance for professional self-esteem ($R^2 = 0.137$) and instructional knowledge ($R^2 = 0.210$) falls within the small-to-moderate range, which is consistent with prior educational and psychological research examining complex human behaviors. These findings suggest that while challenges and coping mechanisms are meaningfully associated with teachers' professional outcomes, additional personal, institutional, and contextual variables likely contribute to variations in self-esteem and instructional knowledge. The modest R^2 values underscore the multifactorial nature of these constructs and support a cautious, non-causal interpretation of the model's explanatory power.

Table 3: R^2 Values

Construct	R^2	R^2 Adjusted
Coping Mechanism	0.054	0.053
Professional Self-Esteem	0.137	0.135
Instructional Knowledge	0.210	0.135

Table 4 shows the relationship between Challenges Encountered and Coping Mechanism yielded a small effect size ($f^2 = 0.057$), indicating a limited contribution to variations in coping strategies. Likewise, Challenges Encountered → Professional Self-Esteem showed the lowest effect ($f^2 = 0.026$), reflecting minimal explanatory power. Although all effect sizes were classified as small based on Cohen's (1988) criteria, such magnitudes are common in educational and psychological research involving complex, context-dependent constructs.

Notably, Coping Mechanism → Professional Self-Esteem demonstrated a relatively stronger effect ($f^2 = 0.100$) compared to challenges alone. For instructional outcomes, Challenges Encountered → Instructional Knowledge showed a small effect ($f^2 = 0.087$), while Coping Mechanism → Instructional Knowledge exhibited the largest effect in the model ($f^2 = 0.117$), indicating that coping mechanisms play a more meaningful role in shaping instructional knowledge.

Table 4: Effect Size (f^2) for each path

Relationship	f^2	Effect Size
Challenges Encountered Coping Mechanism	0.057	Small effect
Challenges Encountered Professional Self-Esteem	0.026	Small effect
Coping Mechanism Professional Self-Esteem	0.100	Small effect
Challenges Encountered Instructional Knowledge	0.087	Small effect
Coping Mechanism Instructional Knowledge	0.117	Small effect

Note. Cohen's (1988) guidelines (0.02 = small, 0.15 = medium, 0.35 = large)

The Q^2 values obtained for Coping Mechanism (0.045), Professional Self-Esteem (0.109), and Instructional Knowledge (0.042) were all greater than zero, indicating that the model demonstrates adequate predictive relevance for all endogenous constructs, as shown in Table 5. Among these, Professional Self-Esteem exhibited the highest predictive relevance, suggesting that the model explains this outcome more effectively than Coping Mechanism and Instructional Knowledge.

Table 5: Predictive Relevance (Q^2 values)

Construct	Q^2	Predictive Relevance
Coping Mechanism	0.045	Yes
Professional Self-Esteem	0.109	Yes
Instructional Knowledge	0.042	Yes

Table 6 presents the path coefficient results, which evaluate the magnitude and statistical significance of the hypothesized relationships among the constructs. According to Hair et al. (2019), a path coefficient exceeding 0.10 indicated a meaningful effect, while t-values greater than 1.96 and p-values below 0.05 confirmed statistical significance. In this study, all hypothesized paths were found to be significant, indicating robust relationships among Challenges Encountered, Coping Mechanisms, Professional Self-Esteem, and Instructional Knowledge.

The results revealed that Challenges Encountered had a significant negative effect on Coping Mechanisms (β = -0.238, t = 4.015, p = 0.000), which suggested that as educators faced greater challenges, their ability to cope effectively might have diminished. This was consistent with stress-response models wherein increased workplace pressures weakened adaptive coping responses (Cancio et al., 2018). However, Coping Mechanisms themselves exerted a strong positive association on Professional Self-Esteem (β = 0.303, t = 5.499, p = 0.000), indicating that educators who successfully used coping strategies were more likely to maintain a positive perception of their professional worth and capability (Masoom, 2021).

Moreover, Challenges Encountered negatively predicted Professional Self-Esteem (β = -0.156, t = 2.958, p = 0.003), which reinforced the notion that higher stress levels could erode self-confidence and professional identity. Interestingly, the interaction effect of Challenges Encountered and Coping Mechanisms on Professional Self-Esteem was also significant (β = -0.073, t = 2.975, p = 0.003), showing that coping mechanisms played a buffering but not fully mitigating role. That is, while coping supported self-esteem, high levels of challenges still reduced their overall strength (Dreidi et al., 2024).

In terms of Instructional Knowledge, Coping Mechanisms are positively associated with this construct (β = 0.312, t = 5.035, p = 0.000). This showed that adaptive coping not only protected emotional well-being but also enhanced teaching proficiency and skill application. Conversely, Challenges Encountered negatively affected Instructional Knowledge (β = -0.274, t = 5.559, p = 0.000). This implied that sustained pressures might hinder educators' instructional capacity. The interaction between Challenges Encountered and Coping Mechanisms is also significantly associated with Instructional Knowledge (β = -0.075, t = 2.942, p = 0.003), which suggests that while coping strategies were beneficial, their effectiveness might have been constrained when challenges reached particularly high levels (Segbenya & Anokye, 2023).

Table 6: Path Coefficient Results

Relationship	Sample Mean (M)	t-Statistics	p-value	Results
Challenges Encountered Coping Mechanism	-0.238	4.015	0.000	Significant
Challenges Encountered Coping Mechanism Professional Self-Esteem	-0.073	2.975	0.003	Significant
Challenges Encountered Professional Self-Esteem	-0.156	2.958	0.003	Significant
Coping Mechanism Professional Self-Esteem	0.303	5.499	0.000	Significant
Challenges Encountered Coping Mechanism Instructional Knowledge	-0.075	2.942	0.003	Significant
Challenges Encountered Instructional Knowledge	-0.274	5.559	0.000	Significant
Coping Mechanism Instructional Knowledge	0.312	5.035	0.000	Significant

4.1.3 Mediation assessment

Table 7 presents the mediation analysis examining the role of Coping Mechanisms in the relationship between Challenges Encountered, Professional Self-Esteem, and Instructional Knowledge using SmartPLS-SEM 4. The mediation effects were assessed using bootstrapping procedures, which generated path sample mean (M), t-values, and p-values to determine the statistical significance of both direct and indirect paths. This indicated that Coping Mechanisms partially mediated the relationships between Challenges Encountered and both professional Self-Esteem and Instructional Knowledge, suggesting that coping strategies attenuate, but do not fully offset, the negative associations between challenges and teacher outcomes.

Table 7: Mediation Effect Analysis

Relationship	Sample Mean (M)	t-value	p-value	Results
Challenges Encountered Professional Self-Esteem	-0.156	2.958	0.003	
Challenges Encountered Coping Mechanism Professional Self-Esteem	-0.073	2.975	0.003	*Partial Mediation*
Challenges Encountered Instructional Knowledge	-0.274	5.559	0.000	
Challenges Encountered Coping Mechanism Instructional Knowledge	-0.075	2.942	0.003	*Partial Mediation*

4.1.4 Hypothesis testing

Table 8 presents hypothesis testing results, which examine the direct and mediating effects of the challenges encountered by out-of-field SHS teachers on their professional self-esteem and instructional knowledge, as well as the mediating role of coping mechanisms. The findings provided a clearer understanding of how teachers' experiences of role misalignment are associated with both their professional identity and instructional performance.

Table 8: Hypothesis Testing Results

No.	Hypotheses	Sample Mean (M)	t-value	p-value	Results
H_1	There is a significant effect of the challenges encountered by out-of-field SHS teachers on their professional self-esteem.	-0.156	2.958	0.003	H_1: Supported
H_2	There is a significant effect of the challenges encountered by out-of-field SHS teachers on their instructional knowledge.	-0.274	5.559	0.000	H_2: Supported
H_3	Coping mechanisms mediate the relationship between challenges encountered by out-of-field SHS teachers and their professional self-esteem.	-0.073	2.975	0.003	H_3: Supported
H_4	Coping mechanisms mediate the relationship between challenges encountered by out-of-field SHS teachers and their instructional knowledge.	-0.075	2.942	0.003	H_4: Supported

''Hypothesis 1: There is a significant effect of the challenges encountered by out-of-field SHS teachers on their professional self-esteem. ''

The results showed that the challenges encountered by out-of-field SHS teachers had a significant negative effect on their professional self-esteem (β = -0.156, t = 2.958, p = 0.003). This suggested that as teachers experienced greater difficulties in teaching subjects outside their field of specialization, their confidence in their instructional abilities, professional identity, and sense of competence tended to decrease. This finding was consistent with the existing literature, which indicated that when educators were assigned roles that are misaligned with their training and expertise, they experienced feelings of inadequacy, self-doubt, and a decline in professional fulfillment (Anselmo & Anselmo, 2024).

Similarly, Recede et al. (2023) noted that role misalignment often triggers stress and emotional strain, which can negatively link teachers' self-perception and professional outlook. In addition, research by Hobbs and Quinn (2020) showed that out-of-field teachers struggled to meet instructional expectations, leading to diminished self-esteem as they compared themselves with peers who possessed stronger subject mastery.

However, this study suggested that professional self-esteem and instructional knowledge among out-of-field teachers were not solely sustained by the availability of mentoring, collaborative support, and ongoing professional development, as noted by Jaison et al. (2024), but were shaped through teachers' coping responses to contextual challenges. Grounded in SCT and informed by the TPACK framework, these supports were understood as facilitating conditions that enhanced teachers' self-regulatory capacities and enabled the integration of pedagogical and content knowledge under demanding instructional contexts.

Nonetheless, the findings indicated that such support did not fully offset the adverse effects of teaching outside one's field. Rather, they attenuated the negative association of challenges encountered on both professional self-esteem and instructional knowledge, underscoring the conditional and context-dependent nature of teacher resilience and instructional competence.

''Hypothesis 2: There is a significant effect of the challenges encountered by out-of-field SHS teachers on their instructional knowledge. ''

The results indicated that the challenges encountered by out-of-field SHS teachers had a significant negative effect on their instructional knowledge (β = -0.274, t = 5.559, p = 0.000). This finding suggested that as the degree of challenges faced by teachers teaching outside their field increased, their mastery and application of effective instructional strategies tended to decline. This was attributed to the lack of content-specific preparation, pedagogical mismatch, and insufficient familiarity with subject matter, which collectively hindered effective lesson delivery and curriculum alignment.

Consistent with this, Rebolledo et al. (2025) emphasized that teachers assigned to areas beyond their expertise often experienced instructional uncertainty, which

impaired their ability to plan and execute lessons effectively. Similarly, Hobbs and Porsch (2021) asserted that limited content knowledge restricted teachers' capacity to scaffold learning and respond to students' misconceptions. These constraints ultimately affected instructional coherence and depth.

Nevertheless, Mercado et al. (2024) suggested that targeted training, peer mentoring, and professional learning communities could mitigate these challenges by enhancing teachers' pedagogical adaptability and content confidence. Hence, institutional support mechanisms remained crucial in strengthening instructional competence among out-of-field teachers.

> *''Hypothesis 3: Coping mechanisms mediate the relationship between challenges encountered by out-of-field SHS teachers and their professional self-esteem. ''*

The results revealed that coping mechanisms significantly mediated the relationship between challenges encountered by out-of-field SHS teachers and their professional self-esteem ($\beta = -0.073$, $t = 2.975$, $p = 0.003$). This implied that while the challenges negatively affected teachers' self-esteem, effective coping mechanisms alleviated this impact by enabling teachers to manage stress and adapt constructively to their professional circumstances.

According to Valencia and Ambalong (2025), coping strategies such as problem solving, seeking collegial support, and reflective practice allowed educators to reframe difficulties as opportunities for growth. These adaptive responses helped preserve a sense of efficacy and value in their teaching roles. Similarly, Wang et al. (2022) found that teachers who employed emotion-focused and resilience-based coping approaches were more likely to maintain positive professional identities even under demanding teaching assignments. Conversely, the absence of adaptive coping behaviors intensified the emotional burden of out-of-field teaching, resulting in diminished confidence and job satisfaction (Rebolledo et al., 2025). Therefore, the mediating role of coping underscored the importance of psychological and institutional resources that empowered teachers to manage professional adversity effectively.

Beyond confirming the statistical significance of mediation, the findings can be understood through the lens of SCT. Coping mechanisms function as self-regulatory processes that shape how teachers cognitively appraise and respond to instructional challenges. When teachers engage in adaptive coping, such as problem-focused strategies, seeking collegial support, or reflective practice, they can reinterpret stressful out-of-field experiences as manageable or improvable rather than threatening. This cognitive reappraisal helps preserve self-efficacy beliefs, which are central to professional self-esteem. In this sense, coping mechanisms do not remove challenges but alter teachers' interpretations of their competence in relation to those challenges, thereby partially buffering declines in professional self-esteem.

> *''Hypothesis 4: Coping mechanisms mediate the relationship between challenges encountered by out-of-field SHS teachers and their instructional knowledge. ''*

Findings showed that coping mechanisms significantly mediated the relationship between challenges encountered by out-of-field SHS teachers and their instructional knowledge ($\beta = -0.075$, $t = 2.942$, $p = 0.003$). This result suggested that coping strategies played a critical role in buffering the detrimental effects of professional challenges on teachers' instructional effectiveness. Through adaptive coping, teachers were able to sustain motivation, engage in continuous learning, and seek pedagogical improvement despite role misalignment.

Wang et al. (2022) argued that teachers who employed active coping strategies, such as collaborative learning, consultation, and self-directed study, tended to compensate for gaps in subject expertise and maintain instructional competence. Furthermore, Ama and Duran (2025) highlighted that coping mechanisms fostered reflective practice, which allowed teachers to identify weaknesses and modify teaching approaches accordingly. In contrast, teachers who relied on avoidance or denial coping exhibited greater instructional stagnation. Thus, coping mechanisms are not only linked to emotional resilience but also contribute to sustained pedagogical performance, underscoring their vital mediating role between professional challenges and instructional proficiency (Lalucan, 2025).

From a TPACK perspective, coping mechanisms are associated with instructional knowledge by enabling teachers to actively compensate for gaps in content expertise. Strategies such as self-directed learning, collaboration with colleagues, and instructional adaptation allow teachers to incrementally rebuild content and pedagogical understanding within unfamiliar subject areas. Rather than passively experiencing instructional difficulty, teachers who employ adaptive coping engage in continuous problem solving and experimentation, which supports the gradual integration of content, pedagogy, and technology. However, because coping operates within existing institutional and resource constraints, its mediating effect remains partial, particularly when structural challenges such as limited training or excessive workload persist.

5. Discussion

This study examined how the challenges encountered by out-of-field SHS teachers affected their professional self-esteem and instructional knowledge, and whether coping mechanisms mediated these relationships. Although research on out-of-field teaching was increasing, few studies had explored these effects in the Philippine SHS context, particularly in Northern Mindanao. By focusing on this setting, the study generated insights that could inform strategies for professional development and teacher support.

5.1 Practical Implications

Given the modest effect sizes observed in the structural model, the practical implications of this study should be interpreted with caution. Rather than suggesting that coping with mechanisms or teaching challenges independently

produce large changes in professional self-esteem or instructional knowledge, the findings indicate that these factors make incremental contributions that may accumulate overtime or interact with other supports.

The findings of this study confirm that the challenges associated with out-of-field teaching exert a significant negative association on both professional self-esteem and instructional knowledge. These results show the detrimental effects of role misalignment, where a lack of subject specialization creates a deficit in pedagogical confidence and content mastery. Consistent with Anselmo and Anselmo (2024) and Recede et al. (2023), the data suggest that when teachers operate outside their area of expertise, the resulting instructional uncertainty does not merely affect lesson delivery; it fundamentally erodes their professional self-concept. The stronger negative effect observed on instructional knowledge implies that while teachers may attempt to maintain their morale, the cognitive and technical proficiencies needed to teach an unfamiliar subject are the first to suffer under the weight of these challenges (Hobbs & Porsch, 2021).

Moreover, a critical finding of this study is the significant mediating role of coping mechanisms in the relationship between challenges and both professional self-esteem and instructional knowledge. The statistical significance of these indirect paths suggests that coping strategies are the primary mechanism through which professional challenges are processed. However, the negative direction of the mediation coefficients reveals a more complex dynamic: rather than fully neutralizing stress, the intensity of out-of-field challenges strains teachers' coping capacities. While adaptive strategies—such as seeking peer support and engaging in reflective practice—are employed (Valencia & Ambalong, 2025), the magnitude of these challenges appears to overwhelm these mechanisms, leading to declines in both self-esteem and instructional knowledge. This aligns with Rebolledo et al. (2025), suggesting that without systemic support, individual resilience alone cannot offset the effects of pedagogical misalignment.

Although previous studies emphasize the protective role of coping mechanisms in enhancing teacher confidence and instructional competence (Bunda, 2025; Hobbs & Quinn, 2020; Recede et al., 2023), the present findings highlight a more limited effect. In resource-constrained contexts, coping strategies alone may slow but cannot fully prevent the negative impact of persistent challenges. Unlike earlier studies where support and repeated exposure increased confidence (Hobbs & Porsch, 2021; Hobbs & Quinn, 2020), these results suggest that individual resilience is insufficient without institutional or systemic interventions (Rebolledo et al., 2025).

5.2 Theoretical Implications

The findings of this study refine SCT by showing that in out-of-field teaching contexts, environmental demands can sometimes outweigh personal agency. While SCT emphasizes self-efficacy and self-regulation, the negative mediation of coping mechanisms suggests that when instructional misalignment becomes persistent and intense, teachers' coping capacities are stretched beyond their limits. Under such conditions, coping does not fully protect professional self-

esteem; instead, ongoing challenges gradually weaken teachers' confidence in their professional capability (Bandura, 2001; Huang et al., 2025).

The study also extends the TPACK framework by highlighting its psychological dimension. The stronger negative effect of challenges on instructional knowledge indicates that effective integration of content, pedagogy, and technology relies not only on technical competence but also on available cognitive and emotional resources. When teachers lack subject specialization, much of their mental energy is redirected toward managing stress and instructional uncertainty, leaving fewer resources for instructional integration and coherence (Chai et al., 2013; Schmidt et al., 2009).

While the statistically significant relationships support the proposed theoretical framework, the modest effect sizes suggest that challenges and coping mechanisms account for only a limited proportion of variance in professional self-esteem and instructional knowledge. This indicates that these outcomes are shaped by a broader constellation of factors, including institutional support, prior training, teaching experience, and school context. Thus, the present findings should be interpreted as highlighting contributory rather than dominant associations within a multifactorial professional environment.

5.3 Limitations

The study employed a cross-sectional survey design and relied on self-reported measures, which impose important limitations on the interpretation of the findings. Although SEM was used to examine the predictive and mediating relationships among constructs, the design does not permit strong causal inferences. The observed relationships should therefore be interpreted as statistical associations rather than definitive causal effects. In addition, self-reported responses may be linked with social desirability or perceptual bias, which could affect the accuracy of the measured constructs. Future studies may strengthen causal interpretation by adopting longitudinal, experimental, or mixed methods designs that allow the temporal ordering of variables and triangulation of data sources.

6. Conclusion

The findings demonstrated that teaching outside one's field of specialization was significantly associated with lower professional self-esteem and diminished instructional knowledge. These results underscored the detrimental effect of role misalignment, particularly on teachers' instructional competence, which appeared more vulnerable than professional self-concept under sustained challenges. Importantly, coping mechanisms were found to play a significant but partial mediating role in these relationships. Adaptive coping strategies contributed positively to both professional self-esteem and instructional knowledge; however, they did not fully counteract the negative effects of persistent teaching challenges experienced by out-of-field teachers in the SHS. This indicated that while individual coping supported resilience and instructional functioning, its protective capacity was constrained when challenges were intense or prolonged. Overall, the modest effect sizes and explained variances highlighted

the multifactorial nature of teacher outcomes and suggested that coping operated as an incremental, rather than dominant, mechanism. The findings supported the SCT and the TPACK framework by illustrating that personal agency and self-regulation were necessary but insufficient in contexts of sustained instructional misalignment. The study concluded that improving the professional well-being and instructional capacity of out-of-field SHS teachers required not only strengthening individual coping skills but also addressing systemic and institutional interventions—such as targeted professional development, mentoring, and more aligned teaching assignments—to meaningfully support teacher instructional effectiveness and professional identity.

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