



Case Study of Scholar Graduates' Competencies and Challenges in Teaching Life Sciences in Ilocos Norte

Macki A. Soneda ¹, Eva B. Macugay²

¹Schools Division of Laoag City, Ilocos Norte National High School,
Laoag City, Ilocos Norte, 2900, Philippines

²Mariano Marcos State University, College of Teacher Education,
Laoag City, Ilocos Norte, 2900, Philippines

ABSTRACT

This descriptive case study aimed to examine the perceived and manifested competencies of RA 10612 scholar graduates in Ilocos Norte, the challenges they encountered, and implications for teaching life sciences. Using purposive sampling, data were gathered through interviews and focus group discussions guided by the Philippine Professional Standards for Teachers (PPST), complemented by Results-Based Performance Management System (RPMS) portfolios and Individual Performance Commitment and Review Form (IPCRF). Innovative triangulation strengthened the credibility of findings. Thematic analysis showed that the scholar graduates demonstrated strong teaching competencies, as reflected in portfolios and corroborated by immediate heads, peers, and students. However, they also faced challenges that constrained teaching effectiveness and professional growth, suggesting a gap between training preparation and classroom demands. Despite a small, localized sample, these findings underscore the need for targeted professional development, mentoring, and stronger support systems, with practical implications for enhancing teacher preparation, instructional practice, and professional development.

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Introduction

UNESCO (2024) projects a global deficit of 44 million teachers by 2030. This shortage is worsened by declining US STEM teacher production (Nguyen, 2025). In response to this, countries have implemented alternative certification programs and scholarships such as Teach for America (United States), Teach First (United Kingdom), Teach for Australia, and Singapore's MOE Teaching Scholarship, to attract candidates to teaching through financial support and structured training.

Similarly, in the Philippines, the 2025 DepEd Staffing Summary indicates 47,546 unfilled teaching and non-teaching positions, reflecting a persistent staffing crisis across public schools (EDCOM II, 2025). To address shortages, the Department of Science and Technology–Science Education Institute (DOST–SEI) provides scholarships for sciences, mathematics, and engineering fields, with graduates deployed as Special Science Teachers in public schools under Republic Act No. 10612.

However, despite these interventions, evidence shows that RA 10612 scholar-graduates face transition challenges. The DOST–SEI Tracer Study (2020) found that while they have strong content knowledge, some struggle with instructional delivery and classroom management. This finding suggests that a gap between subject expertise and teaching readiness among some graduates.

In Ilocos Norte, Philippines, DOST Region I records show that 13 RA 10612 scholar-graduates were deployed from 2019 to 2022. As both subject specialists and classroom teachers, it is important to examine how they apply their subject matter expertise in teaching. Their experiences offer insights into how they manage instructional demands and school expectations.

This study examines the competencies and challenges of RA 10612 scholar graduates in Ilocos Norte. Its findings may help improve teacher preparation, instructional practice and professional development, especially in bridging the gap between subject expertise and classroom instruction.

Research Objectives

This study examined the perceived and manifested competencies and challenges of scholar graduates in teaching Life Sciences in Ilocos Norte using Results-Based Performance Management System (RPMS) portfolios and testimonies of immediate heads, peers, and students. It also analyzed implications for teacher preparation, instructional practice, and professional development.

Literature Review

Alternative pathways in teacher education are non-traditional routes that enable entry into teaching through alternative certification programs addressing teacher shortages and workforce demands (National Academy of Education, 2025). These pathways improve access to the profession. Baker et al. (2020) call for further study to enhance outcomes, while Darling-Hammond (2020) emphasizes policies that support teacher recruitment, retention, and deployment.

In the Philippines, RA 10612 provides an alternative pathway by deploying DOST scholar graduates to teach in secondary schools. However, many enter teaching with strong content knowledge but limited pedagogical training because of non-education backgrounds (DOST-SEI, 2020). Although the Philippine Normal University offers LET preparatory programs, the Evaluation Study of the Implementation of RA 10612 (2023) reported that funding delays limited access. This leads to gaps in training, mentorship, and early teaching self-efficacy.

Aligned with professional standards, the Philippine Professional Standards for Teachers (PPST) defines teacher competencies across seven domains for effective teaching and development (DepEd, 2017). However, alignment among RA 10612 scholar-graduates remains a concern due to limited pedagogical preparation and early teaching challenges.

Research highlights the need to support beginning teachers. Workplace support improves attitudes and reduces difficulties (Thomas et al., 2020), while challenges persist in instruction, classroom management, and learner diversity (Keller-Schneider et al., 2020). Reflection enhances decision-making (Arefian, 2022) and addressing these concerns improves well-being and instructional quality (Jiang et al., 2023).

This study is anchored on Self-Efficacy Theory, which explains teacher development through beliefs in teaching capability. Pressley (2023) found self-efficacy rises, declines, then recovers, highlighting the need for sustained support. Ma et al. (2022) identified mastery experiences and emotional states as key sources, while vicarious experience and social persuasion are less influential. For non-education graduates, self-efficacy bridges the gap between content knowledge and pedagogy in teaching practice.

While international studies highlight the benefits and limitations of alternative pathways, limited research has examined RA 10612 scholar graduates' alignment with PPST competencies and self-efficacy. This gap is critical, as outcomes depend on the quality of preparation, institutional support, and early teaching experiences.

Framework of the Study

This study is anchored on Bandura's Self-Efficacy Theory (1977) and the PPST. This belief is shaped by four sources: mastery experiences, which refer to successful teaching experiences; vicarious experiences, which involve observing effective teachers; social persuasion, which includes feedback and encouragement; and emotional states, which refer to stress or confidence during teaching. These constructs provide a framework for explaining variations in scholar graduates' classroom performance.

Complementarily, the PPST serves as a competency framework and benchmark for evaluating professional practice. It examines how self-efficacy translates into teaching competencies and performance outcomes. Together, both frameworks explain how self-efficacy influences teaching effectiveness and how PPST anchors competency alignment and standards.

Figure 1

Framework of the Study

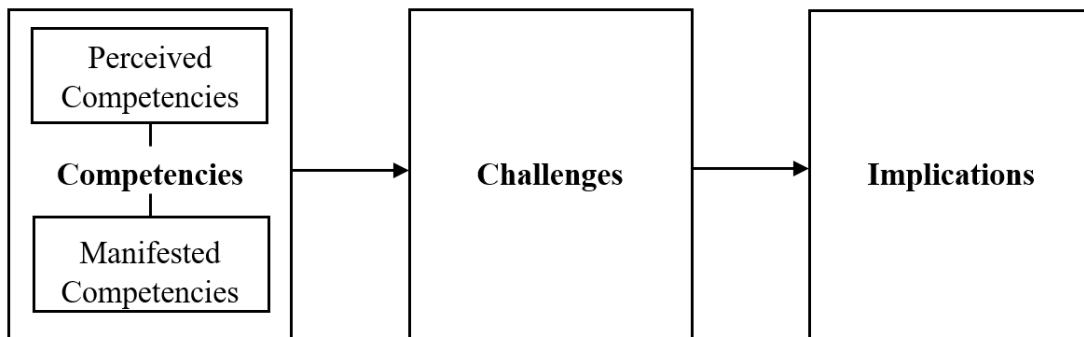


Figure 1 illustrates the relationship among competencies, challenges, and implications in the teaching of Life Sciences among scholar graduates. Competencies are operationalized as both perceived and manifested, providing a representation of instructional capability. These competencies are examined in relation to teaching challenges to identify how competency gaps may influence classroom practice. The resulting analysis informs improvements in teacher preparation, instructional practice, and professional development.

Methodology

Research Design

This study used a descriptive case study design to examine competencies and challenges, and their implications, through interviews and document analysis.

Participants and Sampling Procedure

The study included 19 participants: three scholar graduates, three immediate heads, three peers, and ten students, selected through purposive sampling to ensure information-rich cases relevant to the study. Following Bernard (2013), this sample size (10–20) is sufficient for studies of lived experience and allowed data saturation.

Scholar graduates were identified from the DOST Region I database. Of 13 deployed graduates in Ilocos Norte, five were Life Sciences teachers; three were selected based on: (1) RA 10612 recipient, (2) active teaching service (2019–2022), (3) at least one semester teaching Life Sciences, and (4) availability of at least one Individual Performance Commitment and Review Form (IPCRF).

Each scholar graduate was paired with one immediate head and one peer based on (1) supervisory and (2) collegial relationships. Three to four students per scholar participated in focus group discussions (FGDs), selected based on (1) at least one semester under the teacher, (2) current or former student, (3) legal age, and (4) varied academic performance. Non-qualifying participants were excluded.

Immediate heads provided supervisory and evaluative views through observations and appraisals, peers gave collegial insights on instructional practices, and students shared classroom experiences, strengthening data triangulation.

Although only three scholar graduates were focal cases, data saturation was achieved through triangulation with supporting participants. Recruitment ended when interviews and FGDs yielded no new themes, indicating sufficient depth and redundancy.

Table 1

Professional Profile of Scholar Graduates

Scholar Graduate	Bachelor's degree	Teaching Experience	Education Units	LEPT Passed
Joy, RPm	BS in Psychology (2019)	3 years	Master of Arts in General Education	2024
Engr. Salvador	BS Agricultural and Biosystems Engineering (2020)	2 years	Professional Education Units	2023
Marice, RMT	BS Medical Laboratory Science (2021)	1 year	Not Applicable	Not Applicable

Table 1 presents the profiles of scholar graduates using pseudonyms. Codes such as Scholar Pseudonym, Immediate Head, Peer, and Student 1 were used to ensure anonymity.

Research Instruments

The interview guides were the main research instruments, developed from the PPST's seven domains and 37 strands, with one question per strand. Using the PPST framework, questions were aligned across groups: scholar graduates (Domains 1–7), immediate heads and peers (Domains 1–6), and students for FGDs (Domains 1–5) to ensure triangulation. The instruments were content-validated for clarity, adequacy, and relevance.

Data Gathering Procedure

Data collection began after approval from the Ethics Review Board, Reference No. 2023-313. Scholar graduates were identified through DOST Region I, and coordination with Schools Division Offices facilitated the distribution of a Google Forms pre-qualifying questionnaire.

With principals' approval and participants' informed consent, semi-structured interviews were conducted with scholar graduates, immediate heads, and peers, while FGDs were held with students. All sessions were recorded, transcribed verbatim, and analyzed thematically. Triangulation of interviews, FGDs, and portfolio was used to enhance credibility, trustworthiness, and depth of the findings.

Data Analysis

Data were analyzed using Braun and Clarke's (2006) six-phase thematic analysis. An inductive approach was used, with the PPST framework applied as an interpretive lens for contextualizing themes.

In Phase 1, all interview and FGD transcripts were transcribed verbatim and repeatedly read for familiarization, with initial notes recorded. In Phase 2, meaningful segments were manually coded to generate initial codes across all transcripts. In Phase 3, related codes were clustered into potential themes based on emerging patterns. In Phase 4, themes were reviewed against coded extracts and the full dataset and refined, merged, or removed to ensure clarity and distinction. In Phase 5, themes were defined and named. The final analysis produced 37 competency themes and six challenges, interpreted using PPST domains.

To ensure trustworthiness, data triangulation, peer debriefing, and member checking were used. Reflexive journaling and analytic memos enhanced confirmability and reduced bias. The researcher acknowledged positionality as an RA 10612 scholar graduate, and teacher, with continuous reflexivity to keep interpretations grounded in participants' accounts.

Table 2

Sample Thematic Analysis of Testimonies

Verbatim Testimonies	Codes	Categories	Themes
<i>"By utilizing online resources, I try to explore online platforms and educational websites that feature articles and materials on current educational trends and practices, such as YouTube and National Geographic."</i> – Joy	Online resources	Learner-centered and engagement-focused strategies	Utilize the latest research findings and pedagogical practices (Domain 1 Competency 2)
	Current trends		
	Real-life applications	Contextualized and real-world application	
<i>"Maibaga na amin nga examples tapno maawatan mi. Iexamples na nukwa dagidjay balbalita. Agus-usar pay ti websites."</i> (She says all the examples so that we can understand them. She gives examples from the news. She also uses websites.) – Joy's Student 3	Engagement strategies	Evidence-based approaches	
	Learner-centered preferences		
<i>"Ang concern ko is nakaka-take up siya ng maraming time. Ang pagpa-plan ng lesson kasi, syempre, hindi ko naman talaga alam ituro lahat-lahat. Detailed lesson plan ang pinapa-require sa akin. Pero big help ang training ng DOST."</i> (My concern is that it takes up a lot of time. When planning lessons, of course, I do not really know how to teach everything. I am required to prepare detailed lesson plans. However, the training provided by DOST has been a big help.) – Marice	Non-Education Graduate	Lack of Pedagogical Preparation	Weak lesson planning foundation (Domain 4)
	Limited Prior Knowledge	Institutional Training Support	
	Training Support	Perceived Difficulty in Lesson Planning	
	Workload Burden		
	Lesson Plan Types		
	Time Constraints		

Table 2 presents the sample thematic analysis of the perceived and manifested competencies and challenges encountered by the scholar graduates in their teaching roles. The testimonies are presented verbatim and translated into English for clarity and understanding.

Findings and Discussion

This section discusses the perceived and manifested competencies, the challenges encountered, and the resulting implications among scholar graduates teaching Life Sciences.

Table 3

Scholar Graduates' Perceived and Manifested Competencies

PPST Domains	Perceived and Manifested Competencies	Evidence (Portfolio artifacts and testimonies)
(1) Content Knowledge and Pedagogy	1. Create interdisciplinary learning experiences	<i>"She utilizes other activities from DIASS that can be applied to Earth and Life Sciences."</i> – Joy's Peer
	2. Utilize the latest research findings and pedagogical practices	<i>"I also have subscriptions to Academia and ResearchGate. I use ChatGPT in constructing questions when asking students. I would like to relate it to realistic situations. Since I watch Reels and TikTok, sometimes they suggest what is a good way to engage students, like doing games."</i> – Marice
	3. Incorporate positive use of ICT tools	<i>"She allows students to use their mobile phones for research purposes"</i> – Joy's Peer
	4. Promote literacy and numeracy skills	<i>"Teaching students to analyze texts critically, identifying main ideas and supporting details. Making use of graphs, charts, and visual representations."</i> – Joy
	5. Foster critical and creative thinking skills	<i>"I let them conduct experiments, and then they presented it. They also created an alien using the DNA that I showed them. The result of their analysis is that it has three eyes."</i> – Marice
	6. Integrate the mother tongue, Filipino and English languages	<i>"She uses different language for us to understand the lesson well."</i> – Marice's Student 3
	7. Use classroom communication strategies	<i>"She talks to each student individually from the first day, getting to know them personally."</i> – Joy's Peer
(2) Learning Environment	1. Ensure a safe and secure learning environment	<i>"She always makes sure that the classroom is free from any harm."</i> – Marice's Immediate Head
	2. Create a fair and inclusive learning environment	<i>"Different activities are provided so that they will suit the level of students."</i> – Salvador's Peer
	3. Organize and manage classroom activities	<i>"Activities involving teamwork are given. She acknowledges the works of her learners, no matter how simple they may be."</i> – Marice's Immediate Head
	4. Encourage active participation and involvement	<i>"She encourages everyone to participate in recitations and is fair to all her students and provides reinforcement."</i> – Joy's Immediate Head
	5. Foster purposive learning	<i>"We have performance tasks where we apply what we've learned."</i> – Salvador's Student 2
	6. Manage student behavior	<i>"Sometimes, you just need to talk to students in a way that gives them respect. If you nicely address them, they will listen."</i> – Marice
(3) Diversity of Learners	1. Recognize and accommodate the diversity of learners	<i>"She uses different approaches for each section, adjusting to the individual needs of that section."</i> – Joy's Immediate Head
	2. Create an inclusive classroom	<i>"She employed differentiated activity"</i> – Marice's Peer
	3. Plan inclusive teaching strategies for diverse learners	Salvador's Reflection Form (O)

	4.	Support learners facing difficult circumstances	<i>"The problem with the learners is that they are not keen on opening. So, the strategy of having these personal conferences ensures that they have someone to confide in, and at the same time, they can receive guidance from the teacher."</i> – Joy's Peer
	5.	Plan an inclusive learning environment for Indigenous learners	Salvador's Reflection Form (O)
(4) Curriculum and Planning	1.	Plan and manage the teaching and learning process	<i>"From observation, the different parts seem fine. Her lesson plans are meticulous. She seeks guidance from her co-teachers. At first, there were some minor flaws, but now she has improved."</i> – Joy's Immediate Head
	2.	Ensure that learning outcomes are aligned	<i>"I'm referring to the MELC. We unpack it. I set objectives. I have a book given by our head. It already has objectives in the book."</i> – Marice
	3.	Adapt learning program	Salvador's Proof of Evaluation (O)
	4.	Collaborate with fellow teachers	Joy's and Marice's Reflection Notes (VS)
	5.	Integrate teaching and learning resources, including ICT	<i>"If I'm going to use an ICT tool, it should be interactive. That's my main criterion, for example, simulations."</i> – Salvador
(5) Assessment and Reporting	1.	Design, select, and organize assessment strategies	<i>"She based it on the principles of assessment. She gives assessments that are equivalent to the level of the students."</i> – Marice's Immediate Head
	2.	Monitor and evaluate learner progress and achievement	Joy's and Marice's Grade sheets (O)
	3.	Provide timely and constructive feedback	<i>"She provides feedback promptly, usually a day after submission. She gives grades that reflect what you deserve. You won't feel like your efforts are disregarded. So, I feel motivated to continue what I'm doing."</i> – Joy's Student 1
	4.	Communicate learner development to stakeholders	Joy's Minutes of the Meeting (VS) Marice's Report Cards (O)
	5.	Analyze and use assessment data	Salvador's Remedial Accomplishment Report (O)
(6) Community Linkages and Professional Engagement	1.	Facilitate learning environments that are responsive to community contexts	<i>"I've actively engaged in real-world initiatives, such as participating in Coastal Clean-ups and serving as a resource speaker on Mental Health."</i> – Joy
	2.	Involve parents and the wider school community	<i>"She conducts PTA meetings and communicates through group chat. I accompanied her on home visits twice. I also saw her passion for reaching out to the parents and students who are not attending school regularly, to encourage them to return."</i> – Joy's Peer
	3.	Commit to professional ethics	Salvador's Annotated video/audio recording (O)
	4.	Inform about and adhere to school policies and procedures	Salvador's Certificate of Coach (O)
(7) Personal Growth and Professional Development	1.	Influenced by the philosophies of teaching	Salvador's Lesson plan (O) Joy's (O) and Marice's (VS) Reflection/Journal entry
	2.	Adopt practices that uphold the dignity of teaching	Salvador's documented feedback (O)
	3.	Engage in professional links with colleagues	<i>"Sharing ideas and experiences can lead to the exchange of valuable insights and resources during LACs."</i> – Joy

4.	Engage in professional reflection and learning	IPCRF ratings
		Joy - 4.50 (O)
		Salvador - 4.90 (O)
5.	Plan for professional growth	Marice - 4.48 (VS)
		Updated IPCRF-Development Plan IV
		All scholar graduates (O)

Scholar Graduates' Perceived and Manifested Competencies

Scholar graduates' competencies include perceived competencies, which reflect self-assessed effectiveness, and manifested competencies, as evidenced by portfolios and testimonials. Table 3 presents competencies across PPST domains based on self-perceptions, portfolio artifacts, IPCRF ratings, and testimonials, with ratings ranging from 4 (Very Satisfactory) to 5 (Outstanding). Testimonies were translated for clarity.

Domain 1, Content Knowledge and Pedagogy

Scholar graduates demonstrated strong content knowledge and pedagogical flexibility, integrating interdisciplinary approaches, ICT tools, and multimodal strategies. They adapted concepts across subjects, used digital platforms including AI tools, and designed ICT-enabled activities to enhance engagement.

These practices reflect mastery experiences that enhanced teaching self-efficacy through interdisciplinary lesson design, higher-order thinking activities, and instructional adaptation, and were further shaped by vicarious experiences from peers, interdisciplinary models, and digital learning communities that strengthened instructional strategies.

Sustained exposure to learner-centered strategies enhanced instructional confidence and adaptability. This aligns with Semilarski et al. (2022) on interdisciplinary learning and Yu et al. (2025) on responsible AI and technology integration in teacher education.

Domain 2, Learning Environment

Scholar graduates demonstrated effective classroom management by addressing diverse learner behaviors while maintaining safe, inclusive, structured, and participatory learning environments, highlighting classroom management as creating supportive and engaging classrooms.

These practices reflect mastery experiences that strengthened teaching self-efficacy. Positive emotional experiences from learner engagement and cooperation reinforced instructional confidence. Findings suggest that sustained classroom exposure and reflective

practice improve classroom management and emotional resilience, consistent with Göncü and Main (2023) on safe learning environments and Gunersel et al. (2023) on feedback, reinforcement, and teacher–learner relationships.

Domain 3, Diversity of Learners

Scholar graduates demonstrated adaptive and inclusive teaching through differentiated instruction, inclusive strategies, and personalized learner support, commonly used to address learner diversity.

Vicarious experiences were evident as graduates observed colleagues' inclusive practices, refining their own strategies. Successful use of interventions provided mastery experiences that strengthened confidence in handling diverse classrooms. This aligns with Chidlow et al. (2025) on inclusive strategies and Clark and Andreasen (2020) on sustained training for teacher self-efficacy.

Domain 4, Curriculum and Planning

Scholar graduates showed growing autonomy in lesson planning, outcome alignment, adaptation, collaboration, and ICT integration. Guided practice evolved into more independent and refined instructional planning, indicating professional growth.

These patterns suggest that sustained practice, mentoring, collaboration, and social persuasion through feedback and encouragement from heads and peers strengthen teacher self-efficacy alongside mastery experiences. Continuous professional development and support systems can improve instructional quality and consistency. Literature shows that outcome alignment improves clarity and confidence (Prieto-Velasco & Hermán-Carvajal, 2025) and collegial trust strengthens instruction (Mendizábal, 2024).

Domain 5, Assessment and Reporting

Timely and constructive feedback was a consistent strength among scholar graduates, delivered within the week and perceived as fair and performance aligned. This reflects student-centered assessment practices and mastery experiences through sustained use of effective feedback strategies.

Timely feedback serves as social persuasion, strengthening learner confidence and motivation. Structured systems such as rubrics and prompt return of outputs enhance assessment literacy and instructional responsiveness. This aligns with Tomlinson et al. (2025) on scaffolded feedback and Villarroel et al. (2024) on authentic assessment training and feedback-oriented teaching.

Domain 6, Community Linkages and Professional Engagement

Scholar graduates demonstrated community linkages through outreach activities such as coastal cleanups, mental health advocacy, resource speakerships, home visits, PTA involvement, and coaching. These serve as mastery experiences that strengthen competence, confidence, and teacher identity through authentic professional engagement.

Social persuasion is evident through encouragement, recognition, and support from parents, colleagues, and community stakeholders, reinforcing teachers’ self-efficacy and commitment to engagement. This is supported by Ekornes and Bele (2021) on collective efficacy in teacher–parent collaboration and Bastian and Widodo (2024) on emotional intelligence and interpersonal competence.

Domain 7, Personal Growth and Professional Development.

IPCRF results supported continuous reflection and instructional improvement through self-assessment and goal setting. Repeated planning–implementation–refinement cycles served as mastery experiences that strengthened competence over time. Social persuasion was evident through feedback from school heads, which guided instructional adjustments and reinforced professional growth.

The reflection strengthened professional identity and self-efficacy, consistent with Bandura’s theory of self-regulation. Keiler et al. (2020) emphasize feedback in improving teaching practice, while Yang and Rao (2020) highlight mentoring and guided planning as essential to teacher development.

Table 4

Scholar Graduates’ Challenges Encountered

PPST Domains	Challenges Encountered	Testimonies
(1) Content Knowledge and Pedagogy	Subject mismatch	“Research isn’t aligned with my field. Perhaps because I am a laboratory scientist, they assumed it would be appropriate for me to do research. I teach Research, Earth and Life Science, and E-tech. E-tech is a core subject, but I have no exposure to it. It’s difficult for me to teach the subject. I haven’t taught Chemistry, but if I look at my entire study, Chemistry is the most studied subject I learned.” – Marice
	Learner management difficulties	“The behavior of students varies. There’s no training on handling disabilities or indigenous learners. This is the most frustrating part, along with the idea of mass promotion.” – Marice
(3) Diversity of Learners	Limited teaching strategy development	“I need to make sure that strategies are aligned with their strengths, interests, skills, and many more. That is why I always make sure to get to know the learners to know what classroom activities are appropriate for them and what strategies and interventions are needed.” – Joy

(4) Curriculum and Planning	Weak lesson planning foundation	<i>"I see lesson planning as a burden. I learned through reading and research. There are a lot of lesson plan examples on the internet. During observations, I only asked help from my colleague in making lesson plans. I do not know the different types of lesson plans because the lesson plan given to me before was a detailed lesson plan. I later learned that a simplified version is also possible. That was where I was challenged—my lack of knowledge about the different types of lesson plans. My learning was primarily self-directed."</i> — Salvador
(7) Personal Growth and Professional Development	Delayed training access	<i>"A colleague of mine mentioned the PNU training, but it hasn't happened yet. I've been in service for three years."</i> — Joy
	Unclear career progression	<i>"There is a need for a career path for SSTs to motivate some of us to stay and contribute to the basic education of our country."</i> — Salvador

Scholar Graduates Challenges

Table 4 presents the challenges encountered by scholar graduates across four PPST domains in relation to their teaching roles. Each challenge is supported by participant testimonies and interpreted through Bandura’s self-efficacy theory, which focuses on mastery experiences, vicarious learning, social persuasion, and emotional states as sources of self-efficacy.

Subject Mismatch

Marice’s account shows a subject mismatch, as she was assigned to subjects outside her specialization, despite her stronger background in Chemistry. This resulted in difficulty in instruction and reduced teaching confidence, indicating that teaching outside one’s field lowers self-efficacy.

This aligns with Bandura’s self-efficacy theory, which emphasizes that limited mastery experience weakens perceived teaching capability. Similarly, Widagsa et al. (2025) emphasize that professional development is essential to equipping non-specialist teachers with adequate content knowledge and pedagogical knowledge. Thus, addressing subject mismatch through targeted training and strategic deployment may enhance instructional effectiveness and teacher confidence.

Learner Management Difficulties

Marice experienced challenges in managing learners due to limited training in inclusive education, compounded by pressures from mass promotion. These conditions increased stress and reduced instructional confidence. This suggests that insufficient preparation in inclusive pedagogy and high demands can weaken teachers’ self-efficacy in handling diverse learners, particularly through emotional states such as stress and anxiety, and limited mastery experiences in inclusive classroom management.

Consistent with Bandura's self-efficacy theory, heightened negative emotional states reduce perceived capability in complex teaching contexts. Likewise, Paramita et al. (2024) emphasize that self-efficacy and professional learning significantly influence classroom management strategies, highlighting the need for continuous teacher development.

Limited Teaching Strategy Development

Joy's experience shows difficulty in developing strategies aligned with learners' strengths due to limited pedagogy. This limits opportunities for mastery experiences which may reduce instructional self-efficacy and make strategy adaptation more challenging.

This implies a need for stronger training in differentiated instruction to support learner-centered teaching and improve teachers' confidence in using strategies. Lavrenteva and Orland-Barak (2020) note that teachers develop coping strategies for diverse learners through reflective and situated practice, but without sustained support, these strategies may remain inconsistent and individually driven.

Weak Lesson Planning Foundation

All scholar graduates experienced difficulties with lesson planning, describing it as burdensome and largely reliant on observing colleagues, which indicated weak foundational preparation. Only Marice attended DOST training, which provided structured support and improved her self-efficacy in lesson planning.

These findings suggest that limited formal training reduces planning competence and confidence. In Bandura's framework, reliance on vicarious learning without mastery experiences weakens skill development. Consistent with Alrwaished (2024), structured STEM training enhances lesson planning and instructional design, highlighting the need for targeted professional development.

Delayed Training Access

Delays in training left scholar graduates without timely preparatory support, as Joy reported that promised training had not occurred even after three years of service. As a result, they entered DepEd classrooms with limited early mastery experiences and social persuasion, weakening initial teaching confidence. Although Joy and Salvador later completed education units and passed the LET, the absence of early training affected their initial self-efficacy.

These findings suggest that delayed professional development hinders transition to teaching practice and reduces early teacher readiness and confidence, underscoring the need for timely, coordinated training between scholarship programs and partner institutions. Consistent with Luesse et al. (2022), early structured professional development strengthens teacher self-efficacy and outcomes.

Unclear Career Progression

Career uncertainty weakened scholar graduates' self-efficacy and retention intent. Only Salvador planned to stay in DepEd, while others considered leaving due to low pay and limited career progression. This indicates a lack of clear career pathways for SSTs, reducing motivation and long-term commitment.

This suggests that unclear promotion structures hinder professional growth and weaken teachers' sense of direction, thereby increasing the risk of attrition. In Bandura's framework, the absence of supportive career systems limits the development of self-efficacy. This aligns with Lakew et al. (2025), who found that low pay, limited incentives, and weak professional recognition reduce teacher motivation and retention.

Implications Drawn from the Competencies and Challenges

Table 5

Implications Drawn from the Competencies and Challenges

PPST Domains	Implications
(1) Content Knowledge and Pedagogy	Align teaching assignments with academic backgrounds to enhance mastery experiences and reduce subject mismatch.
(2) Learning Environment	Implement trainings in classroom management and inclusivity to reduce stress, enhance positivity, and build confidence with diverse learners.
(3) Diversity of Learners	Conduct sustained workshops on strategies for learner diversity to promote mastery experiences and vicarious learning that strengthen teachers' self-efficacy.
(4) Curriculum and Planning	Provide training on lesson planning and curriculum development to help teachers progress from observation to mastery through guided practice.
(5) Assessment and Reporting	Standardize assessment and feedback systems to ensure consistency and to promote social persuasion by recognizing effective teaching practices.
(6) Community Linkages and Professional Engagement	Strengthen school and community partnerships to enhance social persuasion and professional validation, boosting teachers' confidence.
(7) Personal Growth and Professional Development	Ensure timely, consistent professional development and mentoring, and clear career pathways to sustain teachers' self-efficacy over time.

Table 5 shows that scholars' competencies and challenges across PPST domains influence key sources of teacher self-efficacy. Aligned assignments and continuous professional development strengthen mastery experiences, while training in classroom management, inclusivity, curriculum, and assessment supports mastery and vicarious learning. Feedback, evaluation, and recognition enhance social persuasion and confidence, while support systems help manage stress and negative emotional states. Overall, these strategies strengthen teacher self-efficacy and instructional performance.

Conclusion and Recommendations

This study examined the competencies, challenges, and implications of RA 10612 scholar graduates teaching Life Sciences, addressing gaps in the literature on non-education graduates teaching within the PPST framework and contributing evidence to the limited literature on their professional preparedness.

Findings show that participants perceived themselves as competent across PPST domains, as supported by portfolio and testimonies. This reflects self-efficacy theory, where perceived competence is reinforced by demonstrated teaching performance. Results reveal challenges indicating that competence is shaped by both individual capacity and institutional support, consistent with self-efficacy theory.

Overall, the findings indicate that the development of proficient competencies among scholar graduates, but gaps hinder optimal performance. The study underscores the need for mentoring, sustained professional development, and stronger policy support for non-education graduates in teaching.

Limitations include a small, context-specific sample and a qualitative design, limiting generalizability. Self-reported data may introduce bias despite triangulation. Future research should use larger, mixed-method, or longitudinal designs to validate and expand findings across broader contexts and time.



Statements and Declarations

1. Funding details

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2. Disclosure statement

The author reports no competing interests to declare.

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4. Ethical Approval

This research was conducted following the ethical standards of the University

5. Declaration of Generative AI in Scientific Writing

During the preparation of this work, the author used ChatGPT as an AI-assisted writing tool to help organize ideas, refine language, and manage word count. It was employed as a supplementary tool to enhance clarity and coherence. All AI-generated content was carefully reviewed, edited, and validated by the author, who assumes full responsibility for the accuracy and integrity of the final manuscript.

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Bionote

Macki A. Soneda is a Special Science Teacher I at Ilocos Norte National High School. He earned a BSEd in Biological Sciences in 2018 and an MAEd in Biology in 2024 from Mariano Marcos State University. He began teaching in 2019. His research interests include DOST-SEI scholarship and instructional materials.