REFLECTIONS OF ENGLISH TEACHERS ON INSTRUCTING SCIENCE-TRACK HIGH SCHOOL STUDENTS

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Abstract: *This study explores the reflections of English teachers instructing high school students who are primarily focused on natural science subject combinations for university entrance exams. In Vietnam, students on science tracks often prioritize mathematics, physics, chemistry, and biology, leading to a deprioritization of English despite its inclusion in national exams. This research investigates how English teachers perceive their roles, adapt pedagogical strategies, and navigate motivational challenges in such contexts. Drawing on reflective teaching theory and sociocultural perspectives, the study employs a qualitative approach using semi-structured interviews with 12 experienced teachers across urban and rural schools. Findings reveal a tension between curriculum mandates and learner priorities, with teachers expressing concerns about engagement, relevance, and assessment pressures. Despite these challenges, many educators adopt adaptive strategies such as contextualized instruction, exam scaffolding, and affective support. The study concludes with implications for teacher training, curriculum design, and policy reform to better support English instruction in science-focused educational pathways.*

Keywords: *English teaching, science-track students, teacher reflection, university entrance.*

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I. INTRODUCTION

In the Vietnamese education system, high school students are often streamed into subject combinations aligned with their intended university majors. Among these, the natural science track, comprising mathematics, physics, chemistry, and biology, is highly favored by students aiming for careers in engineering, medicine, and technology. Despite English being a compulsory subject in the national high school graduation and university entrance exams, it is frequently perceived as secondary by students in science-focused tracks. This perception poses unique challenges for English teachers, who must navigate a classroom environment where learners may lack motivation or perceive English as irrelevant to their academic goals. This study investigates the reflections of English teachers working with science-track students, focusing on their pedagogical strategies, emotional responses, and professional dilemmas. By examining how teachers adapt their instruction to meet the needs of these learners, the study aims to shed light on the broader implications for TESOL practice in exam-driven, subject-specialized educational contexts. The research also explores how systemic pressures, such as curriculum constraints and high-stakes testing, influence teachers' beliefs and classroom decisions. Ultimately, this paper seeks to contribute to the discourse on reflective teaching and provide practical insights for supporting English teachers in science-oriented high school settings.

II. RESEARCH CONTENT

2.1. English Teaching in Science-Focused Contexts

In Vietnam, high school students are often streamed into subject combinations aligned with university entrance requirements. Science-track students typically prioritize mathematics, physics, chemistry, and biology, which can lead to English being perceived as secondary. Studies on curriculum reforms highlight that despite English being compulsory in national exams, students in science-focused tracks often allocate less time and effort to language learning (Le, Mai, Tran, & Nguyen, 2024). Teachers working with these learners face challenges in balancing exam preparation with communicative competence, as students' motivation is shaped by their immediate academic priorities rather than long-term language development. This tension reflects broader issues in exam-driven educational systems where language learning is subordinated to core science subjects.

2.2. Reflective Teaching in TESOL

Reflective teaching has been widely recognized as a means of improving instructional quality and teacher professional development. Borg (2006) emphasizes that teacher cognition, beliefs, knowledge, and reflections, directly influences classroom practices. Farrell (2015) provides a framework for TESOL professionals to engage in systematic reflection, encouraging teachers to critically evaluate their pedagogical decisions and adapt to learner needs. In Vietnam, reflective teaching practices are gaining attention, though

they remain underexplored in science-focused contexts. Recent qualitative studies show that reflection-on-action and in-action reflection help teachers navigate cultural and institutional constraints, fostering adaptive strategies in classrooms where English is undervalued (Pham et al., 2023; Thuy et al., 2023). These findings suggest that reflective practice is crucial for teachers working with science-track students, enabling them to reconcile curriculum demands with learner realities.

2.3. Motivation and Learner Engagement

Motivation is a central factor in second language acquisition. For science-track students, motivation to learn English is often extrinsic, driven by exam requirements rather than intrinsic interest. Nguyen (2011) notes that exam-oriented policies in Vietnam create a utilitarian view of English, where students see it as a hurdle rather than a skill for future use. Teachers report difficulties in sustaining engagement, as learners prioritize science subjects perceived as more relevant to their career paths. Research on motivation in EFL contexts indicates that contextualized instruction and relevance to learners' academic or professional goals can enhance engagement (Nassaji & Fotos, 2011). For science-track students, integrating English with scientific discourse or exam preparation tasks may provide a pathway to increased motivation.

2.4. Exam-Oriented Instruction

Vietnam's education system is characterized by high-stakes testing, with university entrance exams shaping both student priorities and teacher practices. Richards and Rodgers (2014) argue that exam-oriented instruction often reduces language teaching to test-taking strategies, limiting opportunities for communicative practice. In science-track contexts, this tendency is amplified, as students and teachers focus on grammar drills, reading comprehension, and translation exercises aligned with exam formats. While such practices may yield short-term gains in test performance, they often fail to develop communicative competence. Studies on exam-oriented instruction in Vietnam highlight the need for balance: teachers must prepare students for exams while also fostering meaningful language use (MOET, 2018). Reflective teaching can help educators critically assess this balance, ensuring that exam preparation does not entirely eclipse communicative goals.

2.5. Integrating Perspectives

The literature suggests that English teaching in science-focused contexts is shaped by systemic pressures, learner motivation, and teacher cognition. Reflective teaching emerges as a key strategy for navigating these challenges, enabling teachers to adapt instruction to learner needs while maintaining professional integrity. Motivation remains a critical issue, with exam orientation often undermining intrinsic engagement. Teachers who contextualize English instruction, linking it to scientific content or exam requirements, may foster greater relevance and learner investment. Ultimately, the literature underscores the importance of supporting teachers through professional development, curriculum reforms, and policy initiatives that recognize the unique challenges of teaching English to science-track students.

2.6. Methodology

This study adopted a qualitative research design to capture the nuanced reflections of English teachers working with science-track high school students. Qualitative inquiry was chosen because it allows for an in-depth exploration of teachers' beliefs, experiences, and adaptive strategies in contexts where English is often deprioritized. Rather than focusing on numerical data, the study sought to understand the meanings teachers ascribe to their practices and the challenges they encounter in exam-driven environments.

Participants were selected through purposive sampling to ensure diversity in teaching experience, school type, and geographic location. Twelve English teachers from both urban and rural high schools in Vietnam were invited to participate. All had at least five years of teaching experience and were currently instructing classes where students were streamed into natural science subject combinations. This criterion ensured that participants could provide rich insights into the realities of teaching English in science-focused contexts.

Data were collected through semi-structured interviews, which provided flexibility for teachers to elaborate on their reflections while ensuring consistency across participants. Interviews lasted between 45 and 60 minutes and were conducted either face-to-face or via online platforms, depending on logistical constraints. Questions focused on teachers' perceptions of learner motivation, instructional strategies, exam preparation, and emotional responses to teaching in science-track settings. All interviews were audio-recorded with consent and transcribed verbatim for analysis.

Thematic analysis was employed following Braun and Clarke's (2006) six-phase framework.

Transcripts were coded inductively to allow themes to emerge from the data rather than being imposed a priori. Codes were then grouped into broader categories reflecting teachers' reflections, challenges, and adaptive strategies. To enhance credibility, member checking was conducted by sharing preliminary findings with participants for feedback, and peer debriefing was used to validate interpretations. Ethical considerations included informed consent, confidentiality, and voluntary participation.

This methodological approach ensured that the study captured authentic teacher voices and provided a robust foundation for analyzing reflections on English instruction in science-track high school contexts.

2.7. Results and Discussions

Interviews revealed that teachers consistently perceived English instruction in science-track classes as uniquely challenging. Many reflected that students viewed English as peripheral compared to mathematics, physics, or chemistry. Teachers described feelings of frustration when learners openly prioritized science subjects, often allocating minimal time to English homework or preparation. Yet, teachers also acknowledged the systemic nature of this issue, noting that university entrance requirements and parental expectations reinforced the hierarchy of subjects. Reflective accounts highlighted a tension between teachers' professional commitment to fostering communicative competence and the pragmatic reality of exam-driven priorities.

Several recurring challenges emerged. First, low learner motivation was a dominant theme. Teachers reported that science-track students often approached English as a compulsory hurdle rather than a skill with long-term value. This extrinsic orientation limited classroom engagement and reduced opportunities for communicative practice. Second, time constraints were significant. With students devoting most of their study hours to science subjects, teachers struggled to assign meaningful tasks or projects in English. Third, exam orientation shaped instructional practices. Teachers felt compelled to focus on grammar drills, reading comprehension, and translation exercises aligned with national exam formats, even though they recognized the limitations of such methods for communicative development. Finally, emotional strain was evident. Teachers reflected on feelings of discouragement when their efforts to innovate were met with indifference, and some described a sense of professional isolation in science-focused schools.

Despite these challenges, teachers demonstrated resilience and creativity in adapting their pedagogy. One common strategy was contextualized instruction, where teachers linked English lessons to scientific content. For example, reading passages were drawn from biology or physics topics, enabling students to see connections between English and their primary academic interests. This approach was reported to increase relevance and modestly improve engagement. Another strategy was exam scaffolding, where teachers integrated communicative tasks into exam preparation. For instance, grammar drills were followed by short role-plays or discussions, allowing students to apply structures in meaningful contexts while still preparing for test requirements. Teachers also emphasized affective support, recognizing the importance of encouragement and empathy. Several participants described how they motivated students by acknowledging their heavy workloads and framing English as a skill that could support future careers in science and technology.

Teachers' reflections revealed deeper insights into their professional identities. Many expressed a commitment to maintaining high standards of English instruction despite systemic constraints. Reflective practice allowed them to critically evaluate their choices, balancing exam preparation with communicative goals. Teachers described moments of satisfaction when students demonstrated unexpected enthusiasm, such as engaging in scientific debates in English or showing curiosity about technical vocabulary. These reflections underscored the importance of teacher agency in shaping classroom experiences, even within restrictive contexts.

Comparing urban and rural contexts revealed notable differences. Urban teachers reported slightly higher levels of student motivation, attributing this to greater exposure to English through media and extracurricular opportunities. Rural teachers, however, faced additional challenges such as limited resources and lower parental emphasis on English. Despite these differences, reflective accounts across both contexts converged on the central issue of exam orientation. Teachers consistently noted that exam pressures dictated instructional priorities, often at the expense of communicative competence.

The findings carry several implications for TESOL practice. First, professional development should emphasize reflective teaching strategies,

equipping teachers with tools to critically assess and adapt their pedagogy in science-focused contexts. Workshops that model contextualized instruction and exam-integrated communicative tasks could provide practical support. Second, curriculum design should recognize the unique needs of science-track students. Incorporating scientific content into English materials may enhance relevance and motivation. Third, policy reform is necessary to balance exam requirements with communicative goals. Teachers expressed a desire for assessment formats that value practical language use alongside grammar and reading comprehension. Finally, emotional support for teachers should not be overlooked. Reflective accounts highlighted the psychological strain of teaching in undervalued subject areas, suggesting that institutional recognition and peer collaboration could bolster teacher morale.

The results align with existing literature on exam-oriented instruction and motivation in Vietnamese EFL contexts. Nguyen (2011) noted that exam-driven policies foster a utilitarian view of English, a finding echoed in teachers' reflections. Richards and Rodgers (2014) cautioned that exam orientation reduces language teaching to test-taking strategies, a concern repeatedly voiced by participants. The adaptive strategies described, contextualized instruction and exam scaffolding, resonate with Nassaji and Fotos (2011), who advocate for integrating form-focused instruction into communicative contexts. Moreover, the emphasis on reflective practice supports Farrell's (2015) framework, which highlights the role of teacher reflection in navigating complex educational environments.

In summary, teacher reflections revealed a complex interplay of challenges and adaptive strategies in science-track contexts. Low motivation, exam orientation, and emotional strain were significant obstacles, yet teachers demonstrated resilience through contextualized instruction, exam scaffolding, and affective support. Reflective practice emerged as a critical tool for sustaining professional identity and adapting pedagogy. The findings underscore the need for systemic reforms and professional development initiatives that support teachers in balancing exam preparation with communicative competence.

III. CONCLUSION

This study investigated English teachers' reflections on instructing science track high school students in Vietnam, where English is often considered secondary to mathematics, physics, chemistry, and biology. Teachers reported persistent challenges, including low learner motivation, exam oriented priorities, and emotional strain. Despite these difficulties, they showed resilience by adopting adaptive strategies such as contextualized instruction, exam scaffolding, and affective support, linking English learning to scientific content and exam preparation tasks to enhance relevance. Reflective practice emerged as a vital tool, enabling teachers to critically evaluate pedagogical decisions and sustain professional identity in contexts where English is undervalued. The study highlights the importance of professional development programs that provide reflective strategies and context sensitive methods. It also recommends curriculum integration of scientific themes and policy reforms that balance exam requirements with communicative competence. Supporting teachers through systemic recognition and emotional support can strengthen TESOL practice and promote equitable language education.

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