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Students' Interest and Persistence in Physics Education Programs: A Case Study at Indraprasta PGRI University

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Abstract
The declining interest of students in physics education has become a major concern in many universities, as it influences persistence, motivation, and the future supply of qualified physics educators. This study aimed to investigate the reasons behind students' decisions to enter and remain in the Physics Education Program at Universitas Indraprasta PGRI and to explore the extent of their interest in the field. Using a mixed-method descriptive approach, data were collected through questionnaires distributed via Google Forms to 18 participants out of a population of 30 students and analyzed qualitatively and quantitatively. The results revealed that 38% of students expressed strong interest in physics education, 42% reported limited interest, and 20% remained neutral, while factors such as family encouragement, peer influence, and lecturer support emerged as key determinants sustaining students' persistence despite limited intrinsic motivation. The discussion indicates that student engagement in physics education is not merely shaped by individual passion for the discipline but is strongly reinforced by social and contextual factors that enable students to adapt and continue their studies. The implication of this research is that higher education institutions should develop strategic interventions, such as peer mentoring, family-inclusive support systems, and contextualized learning approaches, to strengthen student motivation and reduce attrition in physics education programs.

Keywords: Education Program; Interest; Physics Education; Student Motivation; University Students.

INTRODUCTION

Student interest is a fundamental factor in determining persistence, achievement, and satisfaction in higher education programs. In the context of teacher education, interest becomes even more crucial because it shapes not only the learning experiences of students but also their future professional identities as educators (De-Juan-Vigaray et al., 2024; de Vries et al., 2024; Shin & Alpern, 2024). Interest influences cognitive engagement, motivation, and performance, as students who are genuinely interested in their chosen field tend to exert greater effort, adopt deeper learning strategies, and display stronger commitment to their studies (Chiu, 2021; Harackiewicz et al., 2016; Herpratiwi & Tohir, 2022). Conversely, low levels of interest often lead to disengagement, reduced persistence, and even attrition, particularly in programs perceived as difficult or less prestigious (Chitrakar & P.M., 2023; Song et al., 2019; Wang & Degol, 2014). Therefore, understanding the dynamics of interest within specific disciplines, such as physics education, is vital for ensuring program sustainability and the professional quality of future teachers.

Physics education presents a unique challenge because physics as a subject is often associated with high levels of abstraction, complex mathematical representations, and a perception of difficulty among students (Munfaridah et al., 2021; Pranata, 2024; Soeharto & Csapó, 2021). These challenges contribute to declining interest in physics globally, which in turn affects enrollment in physics education programs that prepare future teachers (Kapanadze et al., 2023; Oon & Subramaniam, 2011; Zalewski et al., 2019). Several studies indicate that many students who enroll in physics education programs do so not primarily out of intrinsic interest in physics, but due to external factors such as family influence, employment prospects, or lack of alternative options (Kácovský et al., 2023; Smith et al., 2022; Yang et al., 2023). This mismatch between students' initial interest and their chosen program can result in

challenges in retention, motivation, and teaching quality.

In the Indonesian context, physics education programs face similar issues. Research has shown that Indonesian students often perceive physics as a difficult subject that requires high cognitive effort, leading to relatively low interest compared to other disciplines (Efwinda et al., 2023; Muchson et al., 2024; Santyasa et al., 2020). Despite this perception, many students still choose physics education programs for reasons beyond personal interest, including parental encouragement, peer influence, or expectations of job stability as teachers (Chen et al., 2022; Pham et al., 2024; Rohmawati et al., 2023). These external factors may help sustain enrollment but do not necessarily translate into genuine engagement or motivation, thereby raising concerns about long-term commitment and professional readiness. Moreover, cultural and institutional contexts in Indonesia play a significant role in shaping students' choices and persistence, as collectivist values often prioritize family and community expectations over individual preferences (Bui et al., 2024; Dubey et al., 2023; Zamecnik et al., 2022).

Studies on student interest in physics education have primarily focused on high school or general physics attitudes rather than the specific context of university-level physics education programs. Internationally, there is substantial literature on factors influencing interest in science education broadly, such as relevance to daily life, teaching quality, and future career opportunities (Sagatbek et al., 2024; Zafeer et al., 2024; Zoechling et al., 2022). However, fewer studies have examined the intersection of personal interest, external support, and persistence within physics teacher education programs, particularly in developing country contexts where social and cultural pressures strongly influence educational choices (Johansson et al., 2023; Maharani et al., 2024; Munfaridah et al., 2022). In Indonesia, while some studies have identified factors influencing students' attitudes toward physics, research on the persistence of students in physics education programs and the role of interest relative to external factors remains scarce (Khusaini et al., 2024; Sundari & Hidayati, 2023; Wandi et al., 2024).

This research seeks to address this gap by exploring the reasons underlying students' interest and persistence in the Physics Education program at Universitas Indraprasta PGRI. Unlike previous studies that predominantly emphasize either cognitive attitudes toward physics or broad enrollment trends, this study focuses on the lived experiences and perceptions of students who remain in the program despite varied levels of intrinsic interest. The objective is to analyze the extent to which students' choices are influenced by personal interest versus external factors such as family, peers, and lecturers, and to evaluate how these factors contribute to persistence within the program. By doing so, this study contributes to the literature on student interest and persistence in physics education, particularly in the Indonesian higher education context, and offers practical implications for improving program design, student support, and teacher preparation.

METHODS

This study employed a mixed-methods descriptive approach to explore students' interest in the Physics Education Program at Universitas Indraprasta PGRI and to identify the factors influencing their persistence in the program. The research combined qualitative and quantitative elements to capture both the frequency of responses and the underlying reasons behind students' choices, thereby ensuring a more comprehensive understanding of the phenomenon. Data were collected in April 2021 using an online questionnaire distributed via Google Form to 30 students enrolled in the Physics Education Program, of whom 18 voluntarily participated and completed the instrument. The questionnaire consisted of both closed-ended and open-ended questions designed to elicit demographic information, perceptions, motivations, and experiences regarding their enrollment and persistence in the program. Quantitative data from the closed-ended questions were analyzed using descriptive statistics, including frequencies and percentages, to provide a profile of students' levels of interest and the relative weight of different supporting factors. Qualitative data from the open-ended responses were analyzed through descriptive qualitative analysis by coding and categorizing recurring themes, such as personal interest, family encouragement, peer influence, and lecturer support, following established procedures for thematic interpretation (Jowsey et al., 2021; Niederberger & Homberg, 2023; Xu & Zammit, 2020). To ensure trustworthiness, data triangulation was achieved by comparing patterns across both data types, while credibility was strengthened through careful review and interpretation of student narratives. Ethical considerations were observed by ensuring voluntary participation, protecting respondent

anonymity, and clarifying that the information provided would be used solely for academic purposes. Through this methodological design, the study provides valid and reliable insights into the factors shaping students' interest and persistence in physics education, while also offering a foundation for future research that may involve larger and more diverse samples or incorporate longitudinal perspectives.

RESULTS AND DISCUSSION

Reasons for Choosing the Physics Education Program

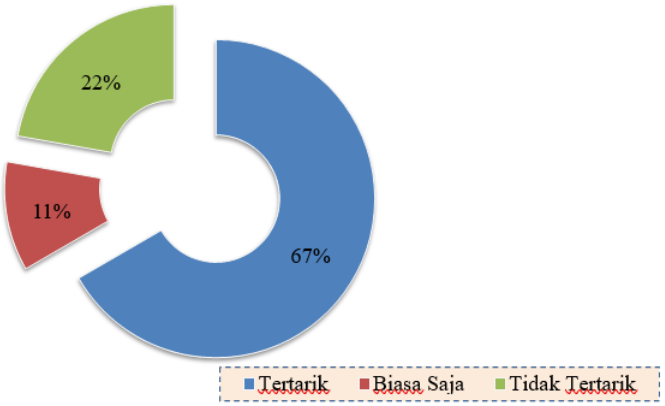

Figure 1. External Influences on Students' Decision to Choose the Physics Education Program

The findings reveal that a majority of students who chose the Physics Education Program at Universitas Indraprasta PGRI were not primarily motivated by intrinsic interest in physics. Instead, 67% indicated external influences such as family encouragement, peer pressure, or perceived job opportunities as significant factors in their decision. Only 22% reported a genuine interest in physics, while 11% entered the program with a neutral stance. This aligns with previous studies showing that students' choice of study programs is often shaped by extrinsic factors such as parental influence, peer support, or societal expectations rather than intrinsic academic interests (Davidovitch & Dorot, 2023; Shengyao et al., 2024; Thai & Luu, 2023). Similarly, research by Saks et al. (2022) and Suryani (2017) emphasizes that students' career aspirations and external encouragement play an important role in sustaining their persistence in teacher education programs. The novelty of this study lies in identifying how extrinsic motivators dominate program choice in the context of physics education, a field often perceived as difficult and less popular among students.

Students' Perceptions Before Entering the Program

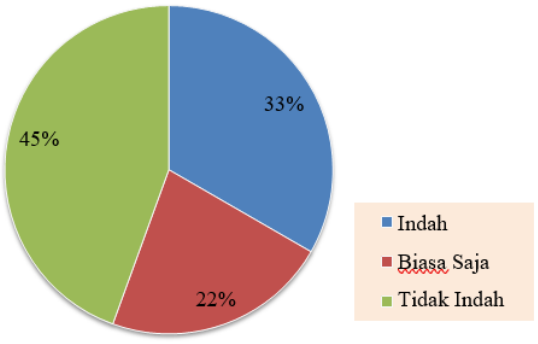

Figure 2. Students' Perceptions of Physics Education Before Enrollment

Prior to enrollment, 45% of students perceived physics education as a challenging program, often associated with abstract concepts and complex mathematical reasoning. Meanwhile, 33% expected the program to be engaging, while 22% held neutral perceptions. These findings mirror international evidence that physics is frequently perceived as a "hard subject," creating barriers to entry and limiting enrollment (Martin-Alguacil et al., 2024). In the Indonesian context, similar concerns about physics being perceived as highly abstract and mathematically demanding have been reported (Kusairi et al., 2019; Zalewski et al., 2019). This study adds to the discourse by demonstrating how initial perceptions, whether positive or negative, influence student motivation and persistence within the program.

Experiences After Enrolling in the Program

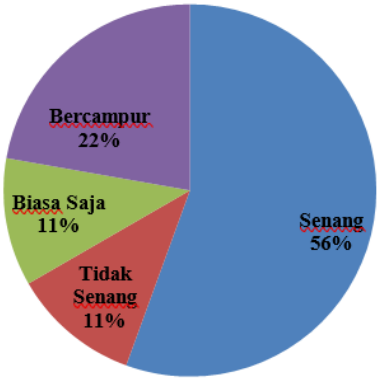

Figure 3. Students' Experiences After Enrolling in the Physics Education Program

The study found that 56% of students felt satisfied after enrolling in the program, citing supportive peers and engaging learning activities as key contributors to their positive experiences. However, 11% reported dissatisfaction due to difficulties in understanding the material, while 22% experienced mixed feelings. These results are consistent with findings by du Plooy et al. (2024), who argued that peer collaboration and supportive social environments strongly influence students' enjoyment and persistence in science programs. Similarly, Acharya et al. (2024) found that collaborative and student-centered pedagogical approaches positively shape students' attitudes toward science learning. The present study highlights the importance of creating a supportive learning community within teacher education programs to foster student satisfaction and reduce attrition rates.

Interesting Aspects of Physics Education

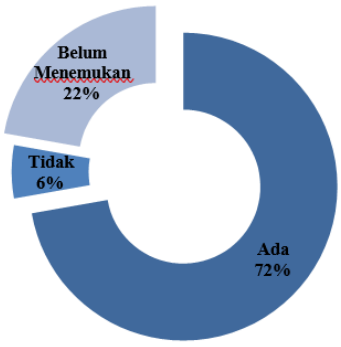

Figure 4. Interesting Aspects of Physics Education Identified by Students

A majority of students (72%) identified certain aspects of the program as interesting and rewarding, particularly opportunities to engage in practical projects and produce creative outputs. However, 22% reported that they had not yet discovered any particularly interesting aspects, and 6% expressed that they found nothing appealing. These results support earlier research indicating that authentic, hands-on learning experiences increase student engagement and motivation in science education (Davidovitch & Dorot, 2023; Khaliq, 2023; Rachman et al., 2023). At the same time, the study highlights a gap: not all students are able to connect with these opportunities, suggesting a need for more personalized and inclusive teaching approaches. The novelty here lies in uncovering the tension between engaging curricular elements and students who remain disengaged, despite exposure to innovative learning practices.

Factors Supporting Student Persistence

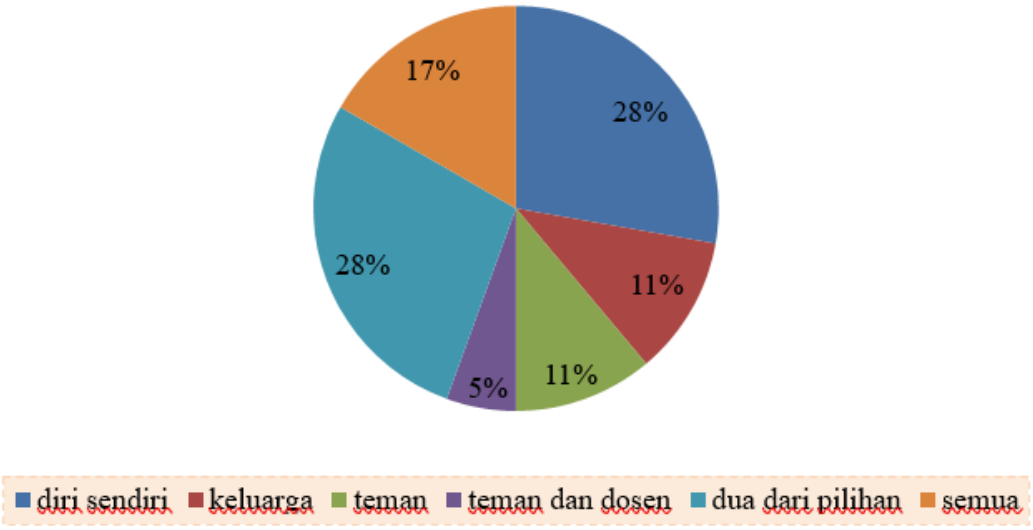

Figure 5. Factors Supporting Student Persistence in the Physics Education Program

The analysis shows that 28% of students persisted in the program due to self-determination, 28% because of peer support, 11% due to family encouragement, and smaller percentages credited lecturers or a combination of factors. These findings echo self-determination theory, which emphasizes the role of autonomy, competence, and relatedness in sustaining motivation (Bandhu et al., 2024; Zhang & Miao, 2024). Comparable studies also reveal that support from peers, family, and educators significantly influences students' persistence in teacher education programs (Fan et al., 2024; Kristensen et al., 2023; Martinot et al., 2022). This study contributes novelty by demonstrating how peer networks, rather than institutional structures, serve as the most dominant support system in sustaining students' engagement in the Indonesian physics education context.

Discussion

Overall, the results confirm that while intrinsic interest in physics among students is limited, persistence is largely sustained through external support systems such as family, peers, and lecturers. This finding adds new evidence to the global literature by contextualizing student persistence in a less-studied environment: Indonesian private universities. The novelty of this research lies in documenting the dominance of extrinsic motivators and peer support in sustaining engagement within a discipline widely perceived as difficult and less attractive.

The theoretical implications suggest that existing models of student persistence should be adapted to include cultural and contextual factors unique to developing countries, particularly the role of social networks in sustaining motivation. The practical implications highlight the importance for

universities and physics education departments to design support systems that leverage peer mentoring, family involvement, and lecturer guidance as strategies to enhance student interest and persistence.

Limitations

Despite its contributions, this study is subject to several limitations. The small sample size (18 participants) restricts the generalizability of the findings, and the reliance on self-reported data may introduce bias. Furthermore, the study was conducted in a single institution, limiting the scope of contextual variation. Future research should employ larger samples across multiple institutions, incorporate longitudinal designs to track changes in student interest over time, and include mixed-method approaches that integrate interviews or classroom observations for richer insights.

CONCLUSION

This study concludes that student interest in the Physics Education Program at Universitas Indraprasta PGRI is influenced by a complex interplay of personal motivation, peer and family support, and perceptions of the discipline itself. While a substantial proportion of students reported limited or neutral interest in physics education, many chose to remain in the program due to external encouragement from family, friends, and lecturers, as well as the discovery of meaningful experiences during their studies. These findings highlight that persistence in physics education is not solely driven by intrinsic passion for the subject but is also shaped by social, cultural, and contextual factors that provide external reinforcement and support. The novelty of this study lies in its exploration of how non-academic factors, particularly interpersonal relationships and environmental influences, sustain student engagement in a field often perceived as difficult and less attractive compared to other disciplines. The results imply that higher education institutions should design targeted interventions, such as mentoring programs, peer collaboration, and family-inclusive initiatives, to enhance motivation and reduce attrition among physics education students. At the same time, the study acknowledges its limitations, including the small sample size and single-institution scope, suggesting the need for broader, multi-site research with larger cohorts to generalize findings and develop comprehensive strategies for strengthening student interest and persistence in physics education.

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