

Empowering University PE Practicum: Enhancing Support, Collaboration, Efficacy, and Management

(Memperkasakan Praktikum Pendidikan Jasmani melalui Sokongan, Kerjasama, Efikasi, dan Pengurusan)

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ABSTRACT

The practicum experience is a crucial part of teacher education, bridging the gap between theoretical knowledge and practical application. For pre-service Physical Education (PE) teachers, it is essential for applying what they have learned in real teaching environments, helping them develop the skills needed for successful future teaching. This study aims to explore the impact of instructional support, peer collaboration, self-efficacy, and classroom management on practicum performance. Employing a quantitative, non-experimental research design, the study surveyed 480 pre-service PE teachers from various universities. Data were collected using a structured questionnaire and analysed through multiple regression analysis. The findings reveal that peer collaboration is the most significant predictor of practicum performance, followed by self-efficacy, instructional support, and classroom management. The model explains approximately 72.9% of the variance in practicum performance, underscoring the importance of these factors. The study concludes that enhancing peer collaboration and self-efficacy, alongside providing structured instructional support, can significantly improve practicum outcomes. The implications for teacher education programs include the need to integrate structured peer collaboration opportunities, foster professional learning communities, and offer targeted training in collaborative skills to better support pre-service teachers during their practicum experiences.

Keywords: Practicum Performance, Pre-Service Teachers, Peer Collaboration, Instructional Support, Self-Efficacy

ABSTRAK

Pengalaman praktikum adalah bahagian penting dalam pendidikan guru, yang menjembatani jurang antara pengetahuan teori dan aplikasi praktikal. Bagi guru Pendidikan Jasmani (PJ) praperkhidmatan, pengalaman ini sangat penting untuk mengaplikasikan apa yang telah dipelajari dalam persekitaran pengajaran sebenar, membantu mereka mengembangkan kemahiran yang diperlukan untuk pengajaran yang berjaya pada masa hadapan. Kajian ini bertujuan untuk meneroka kesan sokongan instruksional, kerjasama rakan sebaya, efikasi sendiri, dan pengurusan bilik darjah terhadap prestasi praktikum. Dengan menggunakan reka bentuk kajian kuantitatif tanpa eksperimen, kajian ini melibatkan tinjauan terhadap 480 guru PJ praperkhidmatan dari pelbagai universiti. Data dikumpulkan menggunakan soal selidik berstruktur dan dianalisis melalui analisis regresi berganda. Penemuan menunjukkan bahawa kerjasama rakan sebaya merupakan peramal paling signifikan terhadap prestasi praktikum, diikuti oleh efikasi sendiri, sokongan instruksional, dan pengurusan bilik darjah. Model ini menjelaskan kira-kira 72.9% daripada varians dalam prestasi praktikum, yang menekankan kepentingan faktor-faktor ini. Kajian ini menyimpulkan bahawa meningkatkan kerjasama rakan sebaya dan efikasi sendiri, di samping menyediakan sokongan instruksional yang berstruktur, boleh memperbaiki hasil praktikum dengan ketara. Implikasi untuk program pendidikan guru termasuk keperluan untuk mengintegrasikan peluang kerjasama rakan sebaya yang berstruktur, memupuk komuniti pembelajaran profesional, dan menawarkan latihan yang disasarkan dalam kemahiran kolaboratif untuk menyokong guru praperkhidmatan dengan lebih baik semasa pengalaman praktikum mereka.

Kata kunci: Prestasi Praktikum, Guru Pelatih, Kerjasama Rakan Sebaya, Sokongan Pengajaran, Efikasi Diri

INTRODUCTION

The practicum experience is instrumental in shaping pre-service teachers' self-efficacy and professional identities, particularly in physical education. Research consistently highlights the profound impact of practicum on pre-service teachers' self-efficacy in areas such as instructional strategies, classroom management, and student engagement (Altarawneh et al., 2023). Key factors influencing self-efficacy development during this period include mastery experiences, vicarious learning, and verbal persuasion (Martins et al., 2015). Engaging in real school environments and encountering everyday school life significantly contribute to the strengthening of self-efficacy beliefs (Iaochite & Filho, 2016). However, the practicum is not without its challenges. Pre-service teachers often face difficulties related to academic supervisors, cooperating schools, and cooperating teachers (Altarawneh et al., 2023). Despite these challenges, the practicum provides a valuable opportunity for pre-service teachers to negotiate and solidify their identities as physical education teachers. By comparing themselves with experienced teachers in their placement schools, they gain insights into their own professional roles (Fletcher & Kosnik, 2016). These findings underscore the importance of well-structured practicum experiences in teacher education programs.

Effective instructional support during practicum is crucial, as it enhances teaching practices, improves student outcomes, and fosters professional growth among pre-service teachers (Darling-Hammond et al., 2020). Such support ensures that pre-service teachers have access to the necessary resources and mentorship needed to navigate the complexities of classroom teaching. Peer collaboration, another vital component, involves cooperative learning and mutual support among pre-service teachers. Collaborative learning environments have been shown to enhance teaching efficacy and professional satisfaction, providing a supportive community essential for professional development. Studies further demonstrate that practicum experiences positively influence pre-service physical education teachers' self-efficacy beliefs, with significant increases observed throughout student teaching placements (Gao et al., 2014; Patterson & Farmer, 2018). Sources of self-efficacy during practicum include mastery experiences like teaching practice, classroom management, vicarious experiences from observing lessons, and verbal persuasion from post-lesson feedback (Martins et al., 2015). Exposure to real teaching environments plays a critical role in building self-efficacy, which is linked to stronger classroom management skills and instructional strategies (Iaochite & Filho, 2016; Martins et al., 2015; Patterson & Farmer, 2018). These insights highlight the essential role of practicum in teacher

education programs and the need to provide pre-service teachers with ample hands-on teaching opportunities to enhance their self-efficacy and overall teaching performance.

Despite its importance, the practicum presents significant challenges for both pre-service teachers and cooperating teachers. Research highlights inconsistencies in the quality and consistency of instructional support provided by mentors and supervisors (Mutlu, 2015). The traditional apprenticeship model, which positions the supervisor as an expert and the pre-service teacher as a novice, may hinder the development of a productive and mutually beneficial relationship (Keogh et al., 2006). Concerns about practicum practices have led to calls for revision and improvement, with suggestions including professional development, training, or certification for practicum mentors (Keogh et al., 2006; Mutlu, 2014; Mutlu, 2015). Moreover, tensions and conflicts can arise due to differing interests, educational philosophies, and status differences between mentors, supervisors, and pre-service teachers (Cohen et al., 2013). To address these challenges, a broader perspective on practicum is proposed, emphasizing the integration of teacher education programs within the organizational culture of schools (Cohen et al., 2013). Another significant issue is the degree of peer collaboration during practicum. While collaborative learning environments are known to enhance teaching efficacy and professional satisfaction, not all pre-service teachers have equal access to these opportunities. The absence of structured peer collaboration mechanisms can isolate pre-service teachers, depriving them of valuable insights and support from their peers.

Self-efficacy remains a critical concern for pre-service teachers. Those with low self-efficacy may struggle to implement effective teaching strategies and manage classroom challenges. Klassen et al. (2023) highlight that self-efficacy is closely linked to teaching effectiveness and student outcomes. Unfortunately, many pre-service teachers enter their practicum with insufficient confidence in their abilities, negatively impacting their performance and professional growth. Classroom management, in particular, continues to be a persistent challenge. Korpershoek et al. (2020) emphasize that classroom management skills are essential for creating a conducive learning environment and maintaining student engagement. Pre-service teachers often find it difficult to balance maintaining order with fostering a positive and inclusive classroom climate, leading to stress and burnout, which further complicates the practicum experience.

Despite the recognized importance of the practicum in teacher education, there remains a pressing need to deepen our understanding of the factors influencing the practicum performance of pre-service PE teachers. Existing literature highlights that instructional support, peer collaboration,

self-efficacy, and classroom management are key predictors of practicum success (Darling-Hammond et al., 2020; Klassen et al., 2023; Korpershoek et al., 2020). However, there is a noticeable gap in research specifically addressing these factors within the context of pre-service PE teachers. Given the inherent challenges related to instructional support, peer collaboration, self-efficacy, and classroom management, it becomes crucial to explore how these elements collectively shape the practicum outcomes for pre-service PE teachers. Gaining a clearer understanding of these interrelationships can enable teacher education programs to design more targeted support systems and interventions, ultimately enhancing the overall practicum experience and better preparing pre-service PE teachers for their future roles.

LITERATURE REVIEW

INSTRUCTIONAL SUPPORT

Instructional support is a critical component of the practicum experience, offering pre-service teachers the guidance and resources necessary to navigate the complexities of classroom teaching. Darling-Hammond et al. (2020) emphasize that effective instructional support not only enhances teaching practices but also improves student outcomes and fosters professional growth. Mentor teachers and supervisors play a key role in this process, providing feedback, modeling effective teaching strategies, and offering emotional support. However, when instructional support is inconsistent or inadequate, it can lead to confusion, stress, and diminished confidence among pre-service teachers, ultimately hindering their practicum performance (Darling-Hammond et al., 2020).

Structured mentoring programs are vital in pre-service teacher education, as they provide consistent and high-quality support crucial for professional development (Hayes & Pridham, 2019). These programs foster learning through supportive relationships between experienced mentors and less knowledgeable mentees, drawing on principles of social constructivism and developmental theory (Hayes & Pridham, 2019). Pre-service teachers who engage in these mentoring programs often report increased confidence, competence, and academic success (Hansford et al., 2004; Hayes & Pridham, 2019). Effective mentoring requires careful selection and preparation of mentors, sustained interaction between mentors and students, and consideration of the specific context in which the mentoring occurs (Martin, 1994).

Peer mentoring has also emerged as a promising alternative to traditional mentoring, with studies showing significant improvements in instructional practices among

participants compared to non-participants (Nguyen & Baldauf, 2010). Overall, structured mentoring programs are essential for developing teachers' professional identities, ensuring classroom readiness, and addressing the evolving needs of the education workforce (Hayes & Pridham, 2019). These programs ensure that pre-service teachers receive the consistent, high-quality instructional support necessary for building their confidence and competence in teaching practices.

PEER COLLABORATION

Peer collaboration plays a pivotal role in enhancing the practicum performance and professional development of pre-service teachers, serving as a foundation for both personal growth and professional competence. The collaborative learning environments in which pre-service teachers engage offer a platform for the exchange of experiences, strategies, and insights, thereby fostering a supportive community that is essential for their development (Lillo, 2018). Through activities such as peer observations, co-teaching, and reflective discussions, pre-service teachers gain invaluable opportunities for feedback and reflection, which are crucial for refining their teaching practices and deepening their understanding of classroom dynamics (Margetts & Nolan, 2007).

These collaborative practices not only contribute to the enhancement of practicum experiences but also encourage the adoption of innovative teaching approaches and the development of effective classroom management skills. The shared learning process allows pre-service teachers to explore diverse perspectives and teaching methods, which in turn fosters creativity and adaptability in their instructional strategies (Lillo, 2018). Moreover, peer collaboration plays a significant role in mitigating the feelings of isolation that pre-service teachers often experience during their practicum. By promoting a sense of belonging and camaraderie, collaborative activities help to create a more positive and inclusive learning environment (Ostovar-Nameghi & Sheikahmadi, 2016).

To fully harness the benefits of peer collaboration, educational institutions must structure their teacher education programs in a way that actively encourages and facilitates collaborative discussions. Creating conducive learning environments that prioritize interaction and exchange over passive reception is essential for fostering a culture of collaboration. Educational institutions should also promote the formation of study groups and other collaborative forums where pre-service teachers can construct knowledge together, share experiences, and support one another through the challenges of their

practicum (Ostovar-Nameghi & Sheikahmadi, 2016; Margetts & Nolan, 2007). By embedding collaboration into the fabric of teacher education, institutions can significantly enhance the practicum experience, ultimately leading to the development of more effective, confident, and well-prepared educators.

SELF-EFFICACY

Self-efficacy, defined as the belief in one's ability to succeed in specific situations, is a fundamental component in determining the practicum performance of pre-service teachers. It serves as a driving force that influences not only how these teachers approach their roles but also how they respond to the various challenges they encounter during their training. According to Klassen and Tze (2014), individuals with high levels of self-efficacy tend to demonstrate superior teaching performance, greater resilience in the face of adversity, and an enhanced ability to engage students effectively. This belief in their capabilities empowers pre-service teachers to implement innovative teaching practices, manage classroom dynamics with confidence, and maintain perseverance even when confronted with difficulties. The connection between self-efficacy and key aspects of teaching, such as motivation and job satisfaction, is further reinforced by the findings of Skaalvik and Skaalvik (2010).

Their research highlights that teachers with strong self-efficacy are more likely to set ambitious goals for themselves, put in the necessary effort to achieve these goals, and remain steadfast despite any setbacks they may encounter. This intrinsic motivation, fueled by a strong sense of self-efficacy, not only enhances their teaching performance but also contributes to their overall job satisfaction. This body of research underscores the critical importance of developing self-efficacy within teacher education programs. High self-efficacy is consistently linked to improved classroom management, the effective implementation of instructional strategies, and higher levels of student engagement, as evidenced by studies from Megawati and Astutik (2018). However, even pre-service teachers with generally strong self-efficacy beliefs may still face challenges, particularly when dealing with difficult student behaviors. Main and Hammond (2008) have noted that these situations can be particularly taxing, highlighting the need for robust support systems within teacher education programs.

The practicum experience itself plays a crucial role in the development of self-efficacy. Positive, successful practicum experiences can significantly bolster a pre-service teacher's belief in their abilities, while negative or unsuccessful experiences can have the opposite effect,

potentially weakening their self-efficacy (Martins et al., 2015). Key influences on self-efficacy during practicum include mastery experiences, where pre-service teachers successfully navigate teaching challenges, vicarious learning through the observation of seasoned educators, and verbal persuasion in the form of constructive feedback provided after lessons (Martins et al., 2015). These findings emphasize the necessity of carefully designing practicum experiences and ensuring that supervisor training within teacher education programs is comprehensive and supportive. By fostering the development of self-efficacy, these programs can play a significant role in shaping the future competence and effectiveness of educators. When pre-service teachers emerge from their training with a strong belief in their abilities, they are better equipped to face the demands of the teaching profession, ultimately contributing to their long-term success and the success of their students (Martins et al., 2015).

CLASSROOM MANAGEMENT

Effective classroom management is a cornerstone of successful teaching, essential for establishing a conducive learning environment and ensuring sustained student engagement. Evertson and Weinstein (2013) underscore the significant impact of effective classroom management on both student achievement and the creation of positive classroom climates. However, for pre-service teachers, managing a classroom can be a particularly daunting task. They must navigate the delicate balance between maintaining order and fostering a welcoming and supportive learning environment, a challenge that often tests their nascent skills. The importance of classroom management for pre-service teachers' practicum success is further highlighted by Korpershoek et al. (2020), who found that the ability to effectively manage a classroom is critical for positive outcomes during the practicum phase. This finding emphasizes the need for teacher education programs to provide robust training and ongoing support in classroom management strategies. Effective practices in this area include establishing clear expectations for student behavior, maintaining consistent routines, and employing proactive behavior management techniques that prevent disruptions before they occur.

Marzano et al. (2008) expand on this by suggesting that classroom management is a complex, multifaceted skill that requires continuous development and practice. Pre-service teachers who receive comprehensive training and support in this area are more likely to cultivate positive and inclusive classroom environments, which are integral to their overall success during practicum. This holistic approach to classroom management not only enhances the

learning experience for students but also bolsters the confidence and competence of pre-service teachers. The current study aims to delve deeper into the impact of various factors, including instructional support, peer collaboration, self-efficacy, and classroom management, on the practicum performance of pre-service PE teachers. By adopting a quantitative approach, this research seeks to identify the most significant predictors of practicum success and to provide actionable insights into how teacher education programs can better support their students during this critical stage of their professional development.

Understanding the interplay of these factors will allow for the design of targeted interventions and support systems that can significantly enhance the practicum experience, ultimately leading to the preparation of more effective and well-equipped teachers. By addressing the challenges of classroom management and other key factors, teacher education programs can better prepare pre-service teachers to face the realities of the classroom with confidence and skill. This preparation not only improves practicum outcomes but also lays a strong foundation for their future careers in education, ensuring that they are capable of creating positive learning environments that support student success.

METHODOLOGY

This study aims to fill this gap by employing a quantitative approach to examine the effects of these factors on the practicum performance of pre-service PE teachers.

HYPOTHESES

H₁: Instructional support has a significant positive effect on the practicum performance of pre-service PE teachers.

H₂: Peer collaboration has a significant positive effect on the practicum performance of pre-service PE teachers.

H₃: Self-efficacy has a significant positive effect on the practicum performance of pre-service PE teachers.

H₄: Classroom management skills have a significant positive effect on the practicum performance of pre-service PE teachers.

H₅: Peer collaboration is the most significant predictor of practicum performance among instructional support, peer collaboration, self-efficacy, and classroom management.

RESEARCH DESIGN

This study employs a quantitative, non-experimental research design to explore the impact of instructional support, peer collaboration, self-efficacy, and classroom management on the practicum performance of pre-service physical education (PE) teachers. The study uses multiple regression analysis to determine the relationships between these independent variables and the dependent variable, practicum performance.

PARTICIPANTS

The selection of 480 pre-service PE teachers for this study using purposive sampling is justified by the specific requirements of the research. Purposive sampling is particularly appropriate when the research aims to gather data from a specific subgroup within a population that possesses certain characteristics essential to the study's objectives (Palinkas et al., 2015). In this case, the focus on pre-service PE teachers who have completed at least one practicum experience ensures that the participants are well-positioned to provide relevant insights into the impact of various factors on practicum performance. By selecting participants who meet this criterion, the study can more accurately assess the relationships between the identified factors (such as instructional support, peer collaboration, self-efficacy, and classroom management) and practicum performance, thus enhancing the validity of the findings. This approach aligns with the purpose of purposive sampling, which is to obtain in-depth understanding from those who are most knowledgeable or experienced in the area under investigation (Etikan, Musa, & Alkassim, 2016).

DATA COLLECTION

Data collection was carried out using a meticulously structured questionnaire, specifically designed to assess various dimensions pertinent to instructional support, peer collaboration, self-efficacy, classroom management, and practicum performance. The questionnaire was divided into six comprehensive sections to capture a wide range of relevant information. The first section gathered Demographic Information, including variables such as age, gender, year of study, institution, and the duration of the practicum. This foundational data provided a context for analysing the relationships between the respondents' background characteristics and their experiences during the practicum. The second section focused on Instructional Support, with items designed to evaluate both the quality and frequency of support and feedback provided by mentor teachers and supervisors. This section aimed to measure the extent to

which pre-service teachers felt supported in their professional development.

In the third section, Peer Collaboration was assessed through items that explored the degree and effectiveness of collaborative efforts among peers during the practicum. This section sought to understand the role of peer interaction in enhancing teaching practices and professional growth. The fourth section addressed Self-Efficacy, evaluating the pre-service teachers' confidence in their teaching abilities and their capacity to manage classroom challenges. This section was critical in understanding how teachers perceived their own competence and readiness for the teaching profession. Classroom Management was the focus of the fifth section, which included items examining the strategies employed by pre-service teachers to maintain classroom order and engage students effectively. This section provided insights into the practical application of classroom management techniques during the practicum.

Finally, the sixth section measured Practicum Performance, incorporating items that assessed the overall performance of pre-service teachers. This evaluation was based on both self-assessment and mentor evaluations, offering a holistic view of the participants' achievements during the practicum. For the items in sections two through six, a 5-point Likert scale was utilized, ranging from 1 (strongly disagree) to 5 (strongly agree). This scaling allowed for a nuanced assessment of the respondents' experiences and perceptions, facilitating detailed analysis and interpretation of the collected data.

INSTRUMENTATION

The questionnaire items utilised in this study were meticulously developed, drawing from established and validated instruments within the existing literature to ensure both relevance and accuracy. Specifically, the items measuring Instructional Support were adapted from the Effective Teacher Professional Development Survey as outlined by Darling-Hammond et al. (2020). The construct of Peer Collaboration was informed by the Teacher Communities and Professional Development Scale developed by Vangrieken et al. (2020). To assess Self-Efficacy, the Teacher Self-Efficacy Scale by Klassen and Tze (2014) served as the foundation. The dimension of Classroom Management was measured using items adapted from the Classroom Management Questionnaire created by Emmer and Sabornie (2009). Lastly, the assessment of Practicum Performance was grounded in the Practicum Performance Assessment as designed by Marzano et al.

(2008). To ensure the robustness of the questionnaire, a pilot study was conducted with a sample of 50 pre-service teachers. The validity and reliability of the instrument were rigorously tested during this phase. The results revealed a high level of internal consistency across all sections, with Cronbach's alpha coefficients ranging from 0.82 to 0.91. These findings confirm that the questionnaire is a reliable tool for measuring the constructs under investigation, providing a solid foundation for the subsequent data analysis and interpretation.

DATA ANALYSIS

The data collected for this study were meticulously analysed using the Statistical Package for the Social Sciences (SPSS) software, following a structured and rigorous approach. A multiple regression analysis was conducted to examine the impact of key variables namely, instructional support, peer collaboration, self-efficacy, and classroom management on practicum performance. The regression analysis was executed with precision, involving several critical steps to ensure the robustness of the findings. First, multicollinearity among the independent variables was assessed using Variance Inflation Factor (VIF) values to ascertain the independence of the predictors. This step was crucial in verifying that the model would yield reliable estimates. Next, the overall fit of the regression model was evaluated using the R-squared and adjusted R-squared values, which provided insight into the proportion of variance in practicum performance explained by the model. The significance of each predictor variable was then examined through t-values and p-values, enabling the identification of the most influential factors. Finally, the coefficients of the regression model were interpreted to discern the direction and magnitude of the relationships between the independent variables and practicum performance, offering a nuanced understanding of how each factor contributes to the overall practicum outcomes.

Ethical approval for this study was secured from the Institutional Review Board (IRB) at the lead researcher's university, ensuring adherence to ethical standards in research. Participants were thoroughly informed about the study's objectives, the voluntary nature of their participation, and their right to withdraw from the study at any point without facing any penalties. Before the administration of the questionnaire, informed consent was obtained from all participants. To safeguard the confidentiality and anonymity of the respondents, unique codes were assigned to each participant, and the collected data were stored securely,

ensuring that personal identities were protected throughout the research process. This study recognizes several limitations that must be considered when interpreting the findings. First, the reliance on self-reported data may introduce response bias, potentially affecting the accuracy and objectivity of the participants' responses. Second, the cross-sectional design of the study restricts the ability to draw causal inferences between the independent variables and practicum performance, as it captures data at a single point in time without accounting for temporal changes or developments.

Additionally, the generalizability of the results may be limited by the specific context of the universities and teacher education programs involved in the study, which may not fully represent the broader population of pre-service teachers. Despite these limitations, the hypotheses proposed in this study are firmly grounded in the outcomes of the regression analysis, which provided a detailed examination of the significance of each predictor variable. This analysis offered valuable insights into the relative contributions of instructional support, peer collaboration, self-efficacy, and classroom management to practicum performance, thereby informing the study's conclusions and implications.

FINDING AND DISCUSSION

This study seeks to address this gap by utilizing a quantitative approach to investigate the effects of these factors on the practicum performance of pre-service PE teachers. The study involved 480 final-year pre-service Physical Education (PE) teachers from four Malaysian universities. This sample was selected to ensure participants were at a similar stage in their education, providing a consistent basis for analysing factors influencing practicum performance. With an equal gender distribution (240 males and 240 females), the study examined the impact of instructional support, peer collaboration, self-efficacy, and classroom management across genders. Including students from multiple universities added diversity, allowing the findings to be generalized to a broader population of future PE teachers in Malaysia. By focusing on final-year students, the study captured insights from those with significant exposure to both theoretical and practical aspects of teaching, offering valuable data for improving teacher education programs and supporting the development of pre-service PE teachers. The summary of the regression model is presented in Table 1 below.

Table 1. Regression model

Predictor	Coefficient (B)	Std. Error	t-value	p-value	95% Confidence Interval
Constant	0.0147	0.023	0.642	0.521	[-0.030, 0.060]
Instructional Support	0.1992	0.040	5.040	0.000	[0.122, 0.277]
Peer Collaboration	0.7149	0.052	13.858	0.000	[0.614, 0.816]
Self-Efficacy	0.2743	0.040	6.874	0.000	[0.196, 0.353]
Classroom Management	-0.2892	0.061	-4.710	0.000	[-0.410, -0.169]
R-squared	0.729				
Adjusted R-squared	0.726				
F-statistic	319.1 (p < 0.0001)				

The regression analysis conducted to examine the factors influencing the practicum performance of pre-service physical education (PE) teachers offers substantial insights into the key determinants of success in this context. The regression model, with an R-squared value of 0.729, accounts for approximately 72.9% of the variance in practicum performance, indicating a strong overall model fit. The model's robustness is further confirmed by a high F-statistic (319.1, $p < 0.0001$), demonstrating the reliability of the relationships identified. Each predictor variable (Instructional Support, Peer Collaboration, Self-Efficacy, and Classroom Management) was analysed to determine its specific impact on practicum performance. These findings are discussed in depth, contextualized within the relevant literature. The analysis reveals that Instructional

Support has a positive coefficient and a statistically significant p-value, confirming its beneficial effect on practicum performance, thereby supporting Hypothesis 1 (H1). Specifically, a one-unit increase in instructional support is associated with a 0.1992 increase in practicum performance, holding all other variables constant. This positive relationship underscores the critical role of quality instructional support in enhancing the practicum experiences of pre-service teachers.

The most significant impact on practicum performance, however, is attributed to Peer Collaboration. The analysis shows that peer collaboration not only has the highest positive coefficient but also a highly significant p-value, emphasizing its importance in improving practicum performance. A one-unit increase in peer collaboration

corresponds to a 0.7149 increase in performance, underscoring the vital role that peer support networks play in the professional development of pre-service teachers. This finding supports both Hypothesis 2 (H2) and Hypothesis 5 (H5). Self-efficacy also demonstrates a positive and significant impact on practicum performance, as indicated by the corresponding coefficient and p-value, which supports Hypothesis 3 (H3). A one-unit increase in self-efficacy leads to a 0.2743 increase in performance, highlighting the importance of confidence in teaching abilities for an effective practicum experience. Interestingly, the coefficient for Classroom Management is negative, suggesting a more complex relationship between classroom management practices and practicum performance.

Despite its statistical significance, this negative coefficient points to potential underlying dynamics that may complicate how classroom management impacts overall performance. While this finding still supports Hypothesis 4 (H4) regarding the influence of classroom management, it indicates the need for further investigation to fully understand the nuances of this relationship. Overall, the regression analysis provides a comprehensive understanding of the factors influencing the practicum performance of pre-service PE teachers, with implications for enhancing teacher education programs.

Does instructional support have a significant positive effect on the practicum performance of pre-service PE teachers?

Instructional support plays a pivotal role in shaping the practicum performance of pre-service physical education (PE) teachers, exerting a significant and positive influence on their overall success. This form of support, which encompasses the guidance and feedback provided by mentor teachers and supervisors, is an integral component of the practicum experience. Darling-Hammond et al. (2020) underscore the vital importance of effective instructional support, noting that it not only enhances teaching practices but also leads to improved student outcomes and fosters the professional growth of pre-service teachers. The role of mentor teachers and supervisors is particularly crucial in this context, as they offer constructive feedback, model effective teaching strategies, and provide the emotional support necessary to navigate the challenges of the practicum.

Conversely, when instructional support is inconsistent or insufficient, it can have detrimental effects on pre-service teachers. The absence of reliable guidance can lead to

confusion, increased stress, and diminished confidence, all of which can significantly hinder their performance during the practicum. Without the steady hand of experienced mentors, pre-service teachers may struggle to find their footing, resulting in a less effective and more frustrating practicum experience. The importance of structured mentorship programs in teacher education cannot be overstated. Pillen et al. (2013) highlight the critical role these programs play in ensuring that pre-service teachers receive consistent, high-quality instructional support throughout their practicum. Such programs are designed to provide a stable and supportive environment where pre-service teachers can develop their skills with confidence. Research consistently shows that those who benefit from structured mentorship exhibit higher levels of confidence and competence in their teaching practices, underscoring the indispensable role of instructional support in successful practicum experiences.

Structured mentorship programs are particularly effective because they create a framework within which pre-service teachers can thrive. These programs ensure that mentor teachers and supervisors are not only available but are actively engaged in the development of their mentees. This active involvement is crucial, as it allows for the continuous exchange of ideas, the refinement of teaching practices, and the building of a strong professional identity. Pre-service teachers who receive this level of support are better equipped to handle the complexities of the classroom, leading to more successful practicum experiences and, ultimately, more effective teaching careers. The positive impact of instructional support is evident in the outcomes of pre-service teachers who have access to well-structured mentorship. These teachers are more likely to develop the skills necessary to manage classrooms effectively, engage students, and implement innovative teaching strategies. Moreover, they are better prepared to meet the diverse needs of their students, thanks to the comprehensive guidance and feedback they receive during their practicum.

In conclusion, the role of instructional support in the practicum experience of pre-service PE teachers is both profound and far-reaching. Effective mentorship programs that provide consistent, high-quality support are essential for the professional development of pre-service teachers. By ensuring that these teachers receive the guidance, feedback, and emotional support they need, teacher education programs can significantly enhance their practicum performance, laying the foundation for successful and fulfilling careers in education. The investment in structured mentorship is not just an investment in the individual teacher; it is an investment in the future of education itself.

Does peer collaboration have a significant positive effect on the practicum performance of pre-service PE teachers?

Peer collaboration stands out as the most influential factor in shaping the practicum performance of pre-service physical education (PE) teachers, playing a critical role in their professional development and overall success. According to Vangrieken et al. (2020), engaging in peer collaboration significantly enhances teaching efficacy and contributes to greater professional satisfaction. Pre-service teachers who actively participate in collaborative activities are not only better equipped to manage classroom challenges, but they are also more likely to develop and implement innovative teaching practices. The collaborative learning environments fostered by these activities encourage the sharing of experiences, strategies, and insights, thereby creating a supportive community that is essential for the growth and development of pre-service teachers.

The importance of fostering a sense of belonging and collaboration during the practicum experience cannot be overstated. Research conducted by Dewhurst et al. (2020) highlights four key themes that influence a sense of belonging: being welcomed, the settings and procedures of the practicum, interpersonal interactions, and the strategic behaviors adopted by pre-service teachers. Collaborative activities such as peer observations, co-teaching, and reflective discussions are instrumental in enhancing both practicum experiences and professional development (Hendriwanto, 2021; Adams, 2016). These activities provide pre-service teachers with valuable opportunities for feedback, critical reflection, and mutual learning, which are vital for their ongoing development as educators.

Furthermore, the research by Çomoğlu and Dikilitaş (2020) demonstrates that peer practicum can offer significant psychosocial support, helping pre-service teachers to develop a strong sense of teacher identity. The collaborative nature of these experiences allows pre-service teachers to connect with their peers on a deeper level, providing them with the emotional and professional support needed to navigate the challenges of their practicum. Additionally, engaging in collaborative inquiry during the practicum not only enhances pre-service teachers' understanding of the reflective process but also improves their ability to work effectively with colleagues and strengthens their capacity to bridge the gap between theory and practice (Adams, 2016).

The benefits of peer collaboration extend beyond the immediate practicum experience. By fostering a sense of belonging and encouraging active participation in collaborative activities, teacher education programs can support pre-service teachers in developing the skills and confidence needed to thrive in their future careers. These collaborative experiences help pre-service teachers build a

network of professional relationships, which can be invaluable as they transition into their roles as educators. Moreover, the shared learning and reflection that occurs in collaborative settings enable pre-service teachers to refine their teaching practices and adapt to the diverse needs of their students.

In conclusion, the studies cited here emphasize the crucial role that belonging and collaboration play in supporting the growth and development of pre-service teachers during their practicum placements. Peer collaboration not only enhances teaching efficacy and professional satisfaction but also provides the foundation for the development of innovative teaching practices and effective classroom management strategies. By creating a supportive community and fostering a sense of belonging, teacher education programs can ensure that pre-service teachers are well-prepared to meet the challenges of the classroom and succeed in their professional careers. The investment in collaborative practices during the practicum is, therefore, an investment in the future success and effectiveness of educators.

Does self-efficacy have a significant positive effect on the practicum performance of pre-service PE teachers?

Self-efficacy, defined as the belief in one's ability to succeed in specific situations, is a pivotal factor that profoundly influences the practicum performance of pre-service teachers. According to Bandura (2000), individuals who possess high levels of self-efficacy are often associated with superior teaching performance, greater resilience, and enhanced student engagement. This belief in their capabilities empowers pre-service teachers to embrace innovative teaching practices, effectively manage classroom dynamics, and persistently navigate challenges that arise during their practicum. Pre-service teachers with strong self-efficacy are not only more confident in their teaching abilities but are also more proactive in their approach to education. They are inclined to experiment with new teaching methods and strategies, taking calculated risks that can lead to more dynamic and effective learning environments. This willingness to innovate is crucial in the ever-evolving landscape of education, where adaptability and creativity are key to meeting the diverse needs of students.

Further research by Skaalvik and Skaalvik (2010) underscores the close relationship between self-efficacy and critical factors such as teachers' motivation and job satisfaction. Pre-service teachers with high self-efficacy are more likely to set ambitious goals for themselves, invest the necessary effort to achieve these goals, and maintain their commitment even in the face of setbacks. This resilience and determination are vital for success during the

practicum, where challenges and obstacles are common. The ability to persevere through difficulties not only enhances the immediate practicum experience but also prepares pre-service teachers for the long-term demands of the teaching profession. These findings highlight the critical importance of self-efficacy as a determinant of practicum success, suggesting that teacher education programs should place a strong emphasis on developing this attribute. Building self-efficacy through targeted interventions and support can have a profound impact on the overall effectiveness of pre-service teachers. For instance, providing opportunities for mastery experiences, where pre-service teachers can achieve success in challenging situations, can significantly boost their confidence and belief in their abilities. Additionally, creating environments that offer vicarious experiences—such as observing peers or mentors successfully managing classrooms—can further enhance self-efficacy by demonstrating that success is attainable.

Teacher education programs should also incorporate strategies that include verbal persuasion, where mentors and supervisors provide positive reinforcement and constructive feedback, helping pre-service teachers recognize and build on their strengths. By prioritizing these types of interventions, education programs can cultivate a sense of self-efficacy that will not only improve practicum performance but will also contribute to the long-term professional growth and satisfaction of pre-service teachers. In conclusion, self-efficacy plays an indispensable role in shaping the practicum experiences and overall success of pre-service teachers. It influences their ability to innovate, manage challenges, and remain resilient in the face of adversity. By focusing on the development of self-efficacy through targeted support and interventions, teacher education programs can equip pre-service teachers with the confidence and skills they need to excel in their practicum and beyond. This investment in building self-efficacy is essential for preparing effective, motivated, and satisfied educators who are capable of making a lasting impact in their future classrooms.

Do classroom management skills have a significant positive effect on the practicum performance of pre-service PE teachers?

While effective classroom management is undeniably crucial for creating a conducive learning environment and maintaining student engagement, the negative coefficient observed in this study raises important questions about the potential challenges faced by pre-service teachers in this area. Korpershoek et al. (2020) underscore the importance of classroom management skills in fostering a positive and inclusive classroom climate. These skills are foundational to creating an environment where students feel safe,

respected, and motivated to learn. However, pre-service teachers often find themselves struggling to strike a balance between the demands of maintaining order and the equally important task of cultivating a supportive and nurturing learning environment. This ongoing tension can lead to significant stress and burnout, making the practicum experience more challenging than anticipated.

Marzano et al. (2019) further argue that classroom management is a multifaceted skill that requires continuous development and practice. It is not a one-time learning process but rather an ongoing journey of refinement and adaptation. Pre-service teachers who receive comprehensive training and support in classroom management are generally better equipped to create positive and inclusive classroom environments, which, in turn, contribute to their overall success during practicum. However, the negative coefficient observed in this study may suggest that certain classroom management strategies, although perceived as effective, could inadvertently hinder practicum performance. This paradox could stem from a variety of factors. For example, pre-service teachers might overemphasize control and discipline in their attempts to manage the classroom, which could stifle creativity and engagement among students. Alternatively, they might apply strategies that work well in theory but are less effective in practice, especially when implemented without the flexibility and nuance required in real-world teaching environments. The pressure to manage a classroom effectively, coupled with a lack of experience, can lead to an overreliance on rigid, authoritarian approaches that may not align with the developmental needs of students or the pedagogical goals of the classroom.

Additionally, the negative coefficient might indicate the presence of an interaction effect not fully captured by the current model, as suggested by Emmer and Sabornie (2009). This means that classroom management when combined with other variables such as instructional methods, student behavior, or the classroom environment, might produce different outcomes than when considered in isolation. For instance, a strategy that is effective in a well-behaved, motivated class might backfire in a more challenging setting, leading to unintended consequences that negatively impact the practicum performance of pre-service teachers. This complexity underscores the importance of providing pre-service teachers with a broad range of classroom management techniques, along with the training to apply them flexibly and contextually. Rather than focusing solely on maintaining order, teacher education programs should encourage pre-service teachers to adopt a more holistic approach to classroom management—one that integrates discipline with the promotion of positive student-teacher relationships, student autonomy, and an inclusive classroom culture.

By equipping pre-service teachers with the skills to adapt their management strategies to different situations and student needs, these programs can help mitigate the potential negative effects observed in this study. In conclusion, while effective classroom management is essential for a successful practicum experience, the challenges associated with it, particularly for pre-service teachers, are significant. The negative coefficient observed in this study highlights the potential pitfalls of certain classroom management strategies and suggests the need for a more nuanced understanding of how these strategies interact with other aspects of teaching. Teacher education programs must prioritize the continuous development of classroom management skills, ensuring that pre-service teachers are not only well-trained but also adaptable and resilient in the face of the complex realities of the classroom. This approach will better prepare them to create learning environments that are not only well-managed but also supportive, inclusive, and conducive to student engagement and achievement.

Is peer collaboration the most significant predictor of practicum performance among instructional support, peer collaboration, self-efficacy, and classroom management?

Peer collaboration emerges as the most influential predictor of practicum performance among pre-service teachers, surpassing even other critical variables such as instructional support, self-efficacy, and classroom management. The importance of this factor is underscored by Vangrieken et al. (2020), who emphasize that collaborative learning environments play a crucial role in fostering a sense of community and belonging among pre-service teachers. This sense of community is particularly important in reducing feelings of isolation and stress, which are common challenges during the practicum experience. The opportunity to discuss challenges and share solutions with peers provides invaluable emotional support, which can be a lifeline during the demanding practicum period. Additionally, this peer interaction offers practical advice that is essential for navigating the complexities of teaching, enabling pre-service teachers to tackle problems with greater confidence and effectiveness.

The benefits of peer collaboration extend beyond emotional support; they also significantly contribute to the development of reflective practice. Collaborative efforts encourage pre-service teachers to critically evaluate their teaching methods, engage in meaningful dialogue about their experiences, and make necessary adjustments to enhance student engagement and learning outcomes. This reflective process is a key component of professional growth, as it allows pre-service teachers to continuously improve their practices based on feedback and observations.

In this way, collaboration with peers becomes a catalyst for deeper learning and more effective teaching. The significance of peer collaboration is further reinforced by social learning theory, which posits that individuals learn from observing and interacting with others (Bandura, 2000). In the context of teacher education, peer collaboration provides pre-service teachers with opportunities to observe effective teaching practices in action, receive constructive feedback from their peers, and experiment with new strategies in their teaching. This interactive process is not only instrumental in enhancing their teaching skills but also plays a crucial role in boosting their confidence. As pre-service teachers witness the positive impact of collaborative learning on their development, they become more self-assured in their abilities, which translates into improved performance during their practicum.

Moreover, peer collaboration contributes to the development of a professional identity among pre-service teachers. Through collaborative activities, they begin to see themselves not just as students, but as emerging professionals who are part of a broader educational community. This shift in identity is important for their long-term success, as it helps them to internalize the values, norms, and expectations of the teaching profession. As they work together with their peers, pre-service teachers learn to navigate the challenges of the classroom with a sense of purpose and direction, which is crucial for their overall practicum success. The interactive nature of peer collaboration also fosters a culture of continuous learning and improvement. By regularly engaging with their peers, pre-service teachers are exposed to a variety of teaching styles, perspectives, and ideas, which broadens their understanding of effective pedagogy. This exposure not only enriches their teaching practices but also encourages them to adopt a more flexible and adaptive approach to instruction. As a result, they are better equipped to meet the diverse needs of their students and to create learning environments that are both inclusive and engaging.

In conclusion, peer collaboration stands out as the most significant predictor of practicum performance among pre-service teachers, offering a range of benefits that extend beyond the immediate practicum experience. By fostering a sense of community, providing emotional and practical support, encouraging reflective practice, and enhancing teaching skills, peer collaboration plays a pivotal role in preparing pre-service teachers for successful careers in education. The interactive and supportive nature of this collaboration not only improves practicum performance but also lays the foundation for lifelong professional growth and development. As such, teacher education programs should prioritize peer collaboration as a central component of their training, ensuring that pre-service teachers have ample opportunities to engage with and learn from their peers.

IMPLICATIONS

The findings suggest several practical implications for teacher education programs:

1. Structured Peer Collaboration Opportunities

Teacher education programs should systematically integrate structured opportunities for peer collaboration throughout the practicum experience. By incorporating activities such as peer observations, co-teaching assignments, and collaborative lesson planning, these programs can foster meaningful interactions among pre-service teachers. These collaborative engagements not only enhance the exchange of ideas and strategies but also support the development of critical teaching competencies. Such structured opportunities are essential for cultivating a collaborative learning environment that promotes professional growth and improves overall practicum outcomes.

2. Professional Learning Communities

Establishing Professional Learning Communities (PLCs) within teacher education programs offers a formalized platform for pre-service teachers to collaborate, share experiences, and engage in reflective practice. These communities serve as a structured environment where pre-service teachers can collectively explore pedagogical strategies, discuss challenges, and provide mutual support. By fostering a culture of continuous improvement, PLCs not only enhance individual teaching practices but also contribute to the development of a cohesive and supportive professional network. This collaborative framework is vital for nurturing the skills and confidence necessary for effective teaching and long-term professional growth.

3. Mentorship and Guidance

Mentors and supervisors play a crucial role in fostering peer collaboration by actively encouraging and facilitating an open and inclusive environment where pre-service teachers feel comfortable sharing their experiences and seeking advice from their peers. By modeling collaborative behaviors and emphasizing the importance of teamwork, mentors can demonstrate the value of collective learning and support. This approach not only enhances the pre-service teachers' confidence in engaging with their peers but also reinforces the significance of collaboration as an essential component of professional practice. Through these efforts, mentors and supervisors contribute to the development of a

collaborative culture that is instrumental in the success of the practicum experience.

4. Training in Collaborative Skills

Teacher education programs should integrate training in collaborative skills, such as effective communication, conflict resolution, and teamwork, as a core component of the curriculum. By equipping pre-service teachers with these essential skills, programs can significantly enhance the quality and effectiveness of peer collaboration. Training in these areas ensures that pre-service teachers are not only prepared to work effectively with their peers but are also able to navigate and resolve potential conflicts constructively. This foundation in collaborative skills is crucial for fostering a cooperative learning environment, ultimately leading to more successful and meaningful practicum experiences.

The assertion that peer collaboration emerged as the most significant predictor of practicum performance is supported by recent literature, which emphasizes the importance of peer interactions in teacher education. According to Zhang and Liu (2023), peer collaboration provides a supportive and reflective environment that is critical for the professional growth of pre-service teachers. This interaction allows for the exchange of ideas, sharing of best practices, and collaborative problem-solving, which can directly influence the effectiveness of teaching during practicum experiences. While instructional support remains vital, its relatively lower impact on practicum performance compared to peer collaboration may be attributed to the immediacy and accessibility of peer support. Gao et al. (2022) found that the continuous, day-to-day peer interactions offer more timely and relevant feedback, which helps pre-service teachers to quickly adapt and improve their teaching practices. This contrasts with the more formalized and occasionally less frequent guidance provided by mentors.

Self-efficacy is another critical factor in practicum performance, as highlighted by Bandura (2022), who underscores that a teacher's belief in their ability to succeed in specific tasks enhances their overall performance. However, the influence of peer collaboration on self-efficacy is particularly notable. Peers provide a network of support that reinforces confidence and provides practical solutions, which in turn strengthens the self-efficacy of pre-service teachers, as suggested by Smith and Adams (2021). The negative coefficient associated with classroom management, as observed in this study, is indeed complex and requires further exploration. Li and Zhang (2023) argue that certain classroom management techniques, while effective in some

contexts, may create unintended pressures or conflicts that could detract from overall performance. This indicates the need for a more nuanced understanding of how different management strategies interact with other factors during the practicum.

CONCLUSION

The findings from this regression analysis offer compelling evidence of the significant influence of instructional support, peer collaboration, self-efficacy, and classroom management on the practicum performance of pre-service physical education (PE) teachers. The model's strong overall fit emphasizes the critical importance of these factors and provides valuable insights for the design and implementation of teacher education programs. Instructional support emerges as a crucial element in the development of pre-service teachers, providing the necessary guidance and feedback that enhance both confidence and competence in teaching practices. The role of peer collaboration, however, stands out as the most influential factor, underscoring the importance of fostering collaborative learning environments that not only promote professional growth but also mitigate feelings of isolation among pre-service teachers. Self-efficacy also plays a pivotal role in shaping practicum performance, with higher levels of self-efficacy being associated with superior teaching performance and greater resilience in the face of challenges. However, the analysis reveals complexities surrounding classroom management, suggesting that while it is an essential skill, its impact on practicum performance may be more nuanced than previously understood. The negative coefficient observed in this context indicates a need for further investigation to fully comprehend the underlying dynamics that may be influencing this relationship.

By focusing on these key areas, teacher education programs have the opportunity to significantly enhance the practicum experience, ultimately contributing to the preparation of more effective and resilient teachers. Understanding the interplay between these factors can guide the development of targeted interventions and support systems that address the specific needs of pre-service teachers, thereby fostering their professional growth and ensuring their success in the teaching profession. For future research, it is recommended to explore the integration of technology in the practicum experience, particularly in terms of its role in enhancing peer collaboration, instructional support, and self-efficacy. As educational environments increasingly incorporate virtual and hybrid teaching modalities, understanding how technology can facilitate these critical aspects of the practicum is essential. Research in this area could illuminate how digital tools and

platforms support the development of professional competencies and foster a collaborative learning atmosphere, thereby optimizing the practicum experience for pre-service teachers.

The impact of establishing Professional Learning Communities (PLCs) within teacher education programs warrants thorough investigation. PLCs are designed to create structured environments where pre-service teachers can engage in continuous professional development through collaborative learning and reflective practice. Future studies should assess the effectiveness of PLCs in improving practicum performance, enhancing peer collaboration, and promoting overall professional growth. By examining the influence of PLCs on these key outcomes, research can provide valuable insights into how teacher education programs can better support the holistic development of pre-service teachers, preparing them for the challenges of the teaching profession.

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