



## The Relationship Between Multiple Intelligences and Self-Efficacy in Physical Education Pre-Service Teachers

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A B S T R A C T	A R T I C L E I N F O
<p>The formation of Self-Efficacy (SE) was important due to the benefits that can be gained in PE Pre-service teachers' (PSTs) education, as it promotes resilience, confidence, and beliefs to deliver an effective teaching and learning method in a classroom setting. This study applied a simple random sampling method in collecting data from 155 PE PSTs by using a researcher-developed MI instrument along with the Teacher Sense Efficacy Scale (TSES). The descriptive statistic, independent sample t-test, and Pearson Correlation were applied to the data. The findings indicate that males scored higher in Naturalist, Logical-Mathematical, Intrapersonal, and Bodily-Kinesthetic intelligences, while females scored higher in Intrapersonal, Naturalist, Linguistic-Verbal, and Interpersonal intelligences. Consequently, no significant difference in gender between MI profiles. Pearson correlation analysis indicated a moderate positive relationship between MI and SE (<math>r = .396</math>, <math>p &lt; .001</math>), implying that higher MI levels are associated with stronger SE beliefs. Overall, the findings show similar MI profiles in both genders of PE PSTs, highlighting the need to integrate MI-based approaches to enhance their competencies regardless of gender.</p> <p>© 2025 Kantor Jurnal dan Publikasi UPI</p>	<p><b>Article History:</b> <i>Submitted/Received 08 Aug 2025</i> <i>First Revised 25 Aug 2025</i> <i>Accepted 01 Oct Mar 2025</i> <i>First Available online 29 Oct 2025</i> <i>Publication Date 29 Oct 2025</i></p> <hr/> <p><b>Keyword:</b> <i>Multiple Intelligence,</i> <i>Physical Education,</i> <i>Pre-service teacher,</i> <i>Self-Efficacy,</i> <i>Teacher Training Institutes.</i></p>

## 1. INTRODUCTION

Today, education for PSTs determines the competency and effectiveness of our teachers in the future. Therefore, the quality of education in PSTs training should be updated to ensure the readiness of PSTs to shoulder the responsibility to develop individual potential comprehensively. In the Malaysian context, this is in line with the National Philosophy of Education (NPE), which aims to develop individuals who are intellectually, spiritually, emotionally, and physically well-rounded, focusing on holistic development as well as potential (Al-Hudawi et al., 2014; Muslim et al., 2022). In ensuring that the national philosophy can be realized, the role of PE PSTs is crucial in the formation of the three components, which are psychomotor, cognitive, and affective domains (Hansen, 2008; Van Wyk et al., 2024). The cognitive domain develops intellectual capacity through understanding movement concepts and strategies, while the psychomotor domain nurtures physical competence and coordination, and the affective domain shapes positive attitudes, values, and interpersonal skills. The PE subjects were crucial in achieving the essence of NPE by educating individuals to be well-rounded, confident, disciplined, and morally attached to Malaysian culture.

In ensuring this philosophy was achieved, the PE PSTs firstly need to acknowledge and recognize their own strengths and potential by understanding the type of intelligence they have. The acknowledgment of individual potential was related to the framework of the Multiple Intelligences (MI) theory that provides an awareness regarding the potential of individuals' intelligence and strengths (Budu et al., 2022; Elena et al., 2013; M. S. Salem, 2013). By understanding this theoretical framework, they can enhance their beliefs and ability to embark on the teaching journey as effective and competent teachers in the future. Additionally, the acknowledgment of individuals' intelligence and strengths can provide PSTs, especially PE PSTs, with the confidence in delivering various instructional strategies, better handling of classroom management, as well as promoting students' engagement in class due to the unique nature of PE subjects that blend both theoretical and practical in the learning process. Furthermore, the uniqueness of PE also comes with indoor and outdoor classrooms, making the learning process more dynamic and challenging if they cannot recognize their strength in teaching.

Due to this reason, the correlation between MI and SE among PE PSTs needs to be determined closely and accurately to identify the factors in MI that contribute towards SE in PE PSTs. According to Ahmad Shukri & Mohd Matore (2023), most SE studies focused on demographic factors such as gender, age, years of teaching, and technology skills among pre-service and in-service teachers. There was less interest in examining the relationship between MI and SE, particularly among PE PSTs, although huge benefits can be taken from the framework of MI. This interplay between both factors remains insufficient, and the need to investigate both factors was crucial. Furthermore, numerous studies were being done independently without considering the effect of gender on MI and SE factors. By identifying the gender differences between PE PSTs, policymakers can pinpoint how the physiological and psychological differences between males and females may affect their performance, motivation, and teaching approaches (Delboub et al., 2025; Heber Dumanjug et al., 2024; Wang & Yu, 2023). Thus, this study was determined to explore the effect of gender and relationships between MI and SE to provide a view into the differences in intelligence between both genders among PE PSTs.

### Literature Review

In ensuring the NPE can be achieved, the education of especially PE PSTs was crucial to prepare them for future education. In this global world, a few challenges have arisen in the

education context that can pose a great challenge for PE PSTs in focusing teaching and learning on 3 types of domains, namely cognitive, psychomotor, and affective. The challenges in our modern education world, such as technological applications in education (artificial intelligence) (Kaeane & Molokomme, 2025; Lavaux et al., 2025), socio-economic differences (third world and first world nations) (BenDavid-Hadar, 2025; Wang & Zhu, 2024), and instructional challenges with different capabilities in one classroom (Abdulah et al., 2025; Ngwacho, 2023), may affect confidence and ability to deliver effective teaching methods. Consequently, these challenges also affect the confidence level, particularly PE PSTs, due to the nature of PE subjects themselves. Furthermore, these challenges were evident in PE pre-service teachers due to the nature of indoor and outdoor learning that related to the learning process of PE subjects. These types of challenges result in the need for SE, as it can provide the capabilities among PE PSTs in adapting, becoming resilient, and adjusting the suitable learning process to the students.

By integrating the MI frameworks in the early education of PE PSTs, they can understand the strength they have and adapt to the challenges in their early years of education in teacher training institutes. Thus, they can develop self-awareness in the early stages and adopt/adapt learning strategies based on their capabilities and understanding of their own intelligence. An example that we can see is that the technology in education has utilized the use of Virtual Reality (VR) and Augmented Reality (AR) in enhancing the learning process in PE subjects. The PE PSTs who have a strong preference for visual-spatial can effectively engage with this type of technology, resulting in enhanced learning experiences with the use of technology. This understanding not only supports their professional growth during the teacher training process but also prepares them with the knowledge to integrate technologies into classroom instruction, resulting in strengthening their SE. Secondly, the concept of MI, which is that each individual has a different intelligence and abilities based on culture, life experience, and socioeconomic status (Altan, 2011; Qutab et al., 2024), is particularly relevant for PE PSTs to have information that everyone is different. This view helps them in designing a teaching and learning process, with a variety of methods and instruction. Subsequently, MI also provides information on the variety of instructional strategies that can be used in PE subjects, such as teacher-centered or student-centered methods, resulting in higher confidence among PE pre-service teachers while in schools. The nature of PE subjects also lies between the theoretical and practical aspects of the subject itself, which focuses on psychomotor (fostering motor skills, fitness education, skills in sports), cognitive (gaining information about a healthy lifestyle, injury prevention), and affective (teamwork, positive behaviors, and good mental health) (Toprak et al., 2021; Zakaria & Mazalan, 2024). Thus, the complex and dynamic nature of PE creates unique challenges that may influence the level of SE among PE PSTs, and it can either help in creating higher SE or diminish it if not handled in the early stages.

The construction of teachers' SE plays a significant role in shaping their confidence, motivation, and classroom control. Teacher self-efficacy can be defined as the perception of their ability to effectively manage classrooms, engage students, and deliver a variety of instructional strategies (Tschannen-Moran & Hoy, 2001). Three components that are related to the SE are student engagement, instructional strategies, and classroom management. The student engagement significantly enhances teachers' self-efficacy by promoting a sense of competence and confidence, as students participate actively in the learning process while in the classroom (Emiru & Gedefaw, 2024; Luginasin & Espinosa, 2024). As an example, in PE subjects, the active role among students in practicing skills, such as kicking the ball, makes the PE PSTs feel accomplished as the students are actively involved in doing the skills, thus resulting in enhancing confidence in teaching the skills. The instructional strategy

components, on the other hand, can promote SE, as they can deliver various instructions towards diverse learners in a classroom, making the learning more meaningful and enjoyable for students (Asare & Amo, 2023; Ma et al., 2021). Additionally, it creates a positive environment that creates an enjoyable classroom management for the students, and the PE PSTs feel confident in moving forward in teaching complex skills in PE subjects (Sciuchetti & Yssel, 2019; Slater & Main, 2020). By applying MI-based approaches to PE PSTs education, they were able to design an inclusive method of teaching either an indoor or outdoor classroom that can increase students' engagement (Hairudin et al., 2023; Yavich & Rotnitsky, 2020). Additionally, the MI also enables teachers to implement a variety of instructional strategies aligned with students' dominant intelligences, fostering more effective teaching (Anggoro et al., 2024; Winarti et al., 2019). Thus, by providing understanding and integrating MI in PE PSTs, it not only supports diverse learning but also strengthens teachers' belief in their ability to manage, instruct, and engage students effectively.

According to Gardner (2001), individuals possess diverse forms of intelligence that influence their learning styles, problem-solving abilities, and professional strengths. By recognizing and developing their dominant intelligences, pre-service teachers can enhance their belief in their teaching capabilities. Thus, by determining the type of MI among PE PSTs, able to equip them with the necessary skills to deliver effective teaching procedures in promoting the 3 domains that have been mentioned above. In MI, 9 components have been proposed by Gardner, which are Linguistic-Verbal, Logical-Mathematical, Interpersonal, Intrapersonal, Bodily-Kinesthetic, Musical, Visual-Spatial, Naturalist, and Existential intelligence. However, due to the definition of existential intelligence, it was not embedded into the study. According to Gardner (1999) and McCoog (2010), existential intelligence is the ability to interpret life with questions such as how we get here, what our purpose is, and what awaits us in the next life, with a tendency to uncover these questions based on their perception and experience. Since Malaysia was a multicultural society with 63.5% Muslim, 18.7% Buddhist, 9.1% Christian, 1.8% with no religion, and 0.9% others, the inclusion of existential intelligence could potentially raise issues of cultural and religious sensitivity. To maintain neutrality and ensure the appropriateness of the instrument for all participants, existential intelligence was therefore excluded from the current study. Therefore, the definition of each component can be seen below:

**Table 1.** Definition of MI Components

Type of Intelligence	Definition
Bodily-Kinesthetics	Capabilities to control body movements as well as limbs, and the tools to create a product
Logical-Mathematical	Capabilities to understand, manipulate, and understand information regarding mathematical concepts, and a preference for the most logical way to understand phenomena.
Visual-Spatial	Capabilities to imagine and manipulate space and the surroundings, and to understand causal images, models, graphics, drawings, etc
Musical-Rhythmic	Capabilities to recognize, understand, and remember patterns relating to tones and rhythm.
Interpersonal	Capabilities to discover others' feelings, moods, and intentions
Intrapersonal	Capabilities to understand one's own emotions, motivations, and goals
Naturalist	Capabilities to differentiate an awareness of living things surrounding them.

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Linguistic-Verbal	Capabilities to express thoughts, feelings, and understand people with the use of effective linguistic skills and easy adaptation to new languages and learning
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A vast study has related to the use of MI in academic success (Pocan, 2022; Qutab et al., 2024; Taj et al., 2025; Yavich & Rotnitsky, 2020), and motivation (Ahmad et al., 2014; Fayazi-Nasab & Ghafournia, 2016; Gebremeskel et al., 2025), but research examining its relationship with self-efficacy, particularly among PE PSTs, remains limited. Moreover, numerous studies have explored gender differences in MI and SE separately (Bayram & Keskin, 2020; Sağlam & Doğan, 2025). However, the correlation between MI and SE across gender remains underexplored, particularly within the context of PE PSTs. Given the distinctive nature of PE, which integrates cognitive, affective, and psychomotor domains, gender may play a unique role in shaping both MI profiles and self-beliefs in teaching ability. Furthermore, the difference in gender needs, cognitive views, and motivation can further influence the type of MI and SE among PE PSTs, and this gap should be filled by implementing a study to determine it. Therefore, this study aims to identify the types of intelligence among PE PSTs related to gender differences and explore the relationship between MI and self-efficacy. The findings are expected to provide valuable insights for teacher education programs before integrating any MI-based strategies that foster higher self-efficacy and professional competence.

## 2. METHODS

This study used a quantitative design to investigate the gender difference in MI and the correlation between MI and SE among PE PSTs. The study included 155 PE PSTs in a teacher training institute. According to Mumtaz et al. (2020), a minimum of 30 people can be used in most behavioral research, with 50 to 100 samples frequently needed for basic regression analysis. Thus, the number of 155 samples is considered adequate for this study since the researcher also considers the mortality factor of the sample. This study employed simple random sampling to ensure an unbiased representation of the population, giving each member an equal chance of selection, minimizing bias, and enabling reliable generalization to the wider group. The self-developed instrument by the researcher was used in assessing the type of MI, which consists of 8 constructs. The instrument has been going through content validity by experts, pre-pilot, Exploratory Factor Analysis (EFA), and reliability using Cronbach's Alpha, and Confirmatory Factor Analysis (CFA) to establish the validity and reliability of the instrument. The instrument uses a 5-point Likert scale. The instrument was considered valid and reliable to identify the type of MI among PSTs in the Malaysian context. The second instrument was TSES, with a short version consisting of 12 items, that have been developed by Tschannen-Moran & Hoy (2001). The instrument used a 9-point Likert scale to collect information. The process of collecting data starts with permission from the Ministry of Education, which is EPRD, and permission from IPG Malaysia. The method of collecting the data was using self-assessment with the researcher's administration of the items.

## 3. RESULT AND DISCUSSION

The demographic table below shows a distribution of gender in this study. The number of male consist of 64 (41.3%) and females consist of 91 (58.7%), totaling about 155 samples used in this study.

**Table 2.** Gender Distribution of the Respondents

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	64	41.3	41.3	41.3
	Female	91	58.7	58.7	100.0
	Total	155	100.0	100.0	

**Reliability**

According to Pallant (2001) and Nunally & Bernstein (1994), the value of 0.6 and above was considered high and acceptable in research. The value of the reliability was between 0.667 to 0.88 for the self-developed MI instrument, while the TSES instrument was 0.797 to 0.896, which is considered adequate to establish the reliability of the instrument. Thus, the value of each instrument was considered acceptable in this research.

**Table 3.** Reliability Analysis of Multiple Intelligence Construct

Multiple Intelligence Instrument	
Construct	Cronbach's Alpha
Bodily-Kinesthetics	0.881
Logical-Mathematical	0.800
Visual-Spatial	0.667
Musical-Rhythmic	0.800
Interpersonal	0.751
Intrapersonal	0.668
Naturalist	0.778
Linguistic-Verbal	0.688

**Table 4.** Reliability of Teacher Sense Self-Efficacy Constructs

Teacher's Sense of Self-efficacy	
Construct	Cronbach's Alpha
Student Engagement	0.797
Instructional Strategies	0.854
Classroom Management	0.896

**Which Multiple Intelligence components have the highest mean scores among male and female PE pre-service teachers?**

Based on the result below, the four highest mean scores for male PE PSTs were naturalist (M= 4.15), logical-mathematical (M= 4.10), intrapersonal (M= 4.08), and bodily-kinesthetic (M= 4.13). For females, PE PSTs were intrapersonal (M= 4.24), naturalist (M= 4.24), Linguistic verbal (M= 3.96), and interpersonal (M= 3.81).

**Table 5.** Descriptive Analysis of the Mean in Male PE Pre-Service Teachers

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
N	22	3.00	5.00	4.1591	.61394
LM	22	2.40	5.00	4.1000	.55463
INTR	22	2.80	5.00	4.0818	.52972
BK	22	2.40	5.00	3.9909	.69138
II	22	2.33	4.50	3.6742	.57385

LV	22	2.00	4.20	3.6000	.49761
VS	22	1.00	5.00	3.4773	.98775
M	22	1.67	5.00	3.4167	.89050
Valid N (listwise)	22				

a. Gender = Male

**Table 6.** Descriptive Analysis of the Mean in Female PE Pre-Service Teachers

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
INTR	133	2.40	5.00	4.2421	.55380
N	133	2.67	5.00	4.2406	.59438
LV	133	2.40	5.00	3.9639	.56399
II	133	1.67	5.00	3.8120	.68023
LM	133	1.40	5.00	3.6030	.79810
VS	133	1.00	5.00	3.5658	.79290
BK	133	1.20	5.00	3.5173	.93618
M	133	1.50	5.00	3.5075	.77331
Valid N (listwise)	133				

a. Gender = Female

**What is the difference between genders in MI profiles in PE pre-service teachers?**

The independent sample t-test was used to differentiate the mean score of MI between the samples. The results showed that the value of  $t(153) = 0.004$ ,  $p = 0.996$ , was not significant. There was no significant difference between the MI profiles of male PE PSTs ( $M = 3.81$ ,  $SD = 0.067$ ) and female PE PSTs ( $M = 3.81$ ,  $SD = 0.035$ ). In simpler words, both genders possess comparable strengths across various intelligence types, highlighting the importance of providing equal opportunities and MI-based approaches in teacher education programs to support all PE PSTs effectively.

**Table 7.** The Difference in Gender Using the Independent Sample T-Test

Group Statistics					
Gende		N	Mean	Std. Deviation	Std. Error Mean
MIT	Male	22	3.8160	.31503	.06716
	Female	133	3.8156	.41283	.03580

**Independent Samples Test**

Levene's Test for Equality of Variances				t-test for Equality of Means			
						95% Confidence Interval of the	
F	Sig.	t	df	Significance	Mean Difference	Std. Error Difference	Difference

						One- Sided p	Two- Sided p		Lower	Upper	
MI	Equal variances assumed	2.911	.090	.004	153	.498	.996	.00041	.09225	-	.18266
	Equal variances not assumed			.005	34.186	.498	.996	.00041	.07611	-	.15505
										.15423	

**What is the correlation between MI and Self-Efficacy among PE pre-service teachers?**

The Pearson correlation was used in determining the relationship between MI and SE among PE PSTs in teacher training institutes. The results showed that there is a moderate positive relationship between MI and SE ( $r = .396, p < .001$ ), suggesting that higher MI levels are associated with stronger SE beliefs.

**Table 8.** Relationship Between MI and Self-Efficacy Among PE Pre-Service Teachers

		MIT	SE
MIT	Pearson Correlation	1	.396**
	Sig. (2-tailed)		<.001
	N	155	155
SE	Pearson Correlation	.396**	1
	Sig. (2-tailed)	<.001	
	N	155	155

\*\* . Correlation is significant at the 0.01 level (2-tailed).

When analyzed by gender, the relationship between MI and self-efficacy was moderate for both male ( $r = 0.393, p = 0.071$ ) and female ( $r = 0.404, p < .001$ ). However, only the female group showed a statistically significant correlation, suggesting that MI may play a stronger role in influencing self-efficacy among female pre-service teachers.

**Table 9.** Relationship Between MI and Self-Efficacy Among Male PE Pre-Service Teachers

		MIT	SE
MIT	Pearson Correlation	1	.393
	Sig. (2-tailed)		.071
	N	22	22
SE	Pearson Correlation	.393	1
	Sig. (2-tailed)	.071	
	N	22	22

a. Gender = Male

**Table 10.** Relationship Between MI and Self-Efficacy Among Female PE Pre-Service Teachers

		MIT	SE
MIT	Pearson Correlation	1	.404**
	Sig. (2-tailed)		<.001
	N	133	133
SE	Pearson Correlation	.404**	1
	Sig. (2-tailed)	<.001	
	N	133	133

\*\* . Correlation is significant at the 0.01 level (2-tailed).

a. Gender = Female

#### 4. CONCLUSION

The integration of MI in PE PSTs was important in elevating the level of SE among them. It is due to the unique challenges that PE PSTs need to face based on the character of the PE subject. In Physical Education (PE), the main challenge is ensuring the development of all three learning domains, cognitive, psychomotor, and affective, amid today's educational demands. These include the integration of technology and artificial intelligence (Baek et al., 2018; Friskawati et al., 2019), diverse socioeconomic backgrounds (Harrisson et al., 2025; Larrinaga-Undabarrena et al., 2023), and varied teaching methods needed to accommodate students with different levels of thinking and learning abilities. Furthermore, PE subjects, which combine theoretical and practical elements through both indoor and outdoor learning environments, present unique challenges. These challenges can either strengthen or diminish PE PSTs' confidence in conducting effective teaching and learning processes. Therefore, integrating MI into early teacher education is crucial to ensure that future PE teachers are well-prepared to face the demands of today's dynamic educational landscape.

However, the MI comprises a few constructs, which are Linguistic-Verbal, Logical-Mathematical, Interpersonal, Intrapersonal, Bodily-Kinesthetic, Musical, Visual-Spatial, and Naturalist, that need to be identified in PE PSTs before any implementation can be done in their education in teacher training institutes. Based on the findings, the male PE PSTs' type of MI profiles was naturalist, logical-mathematical, intrapersonal, and bodily-kinesthetic. In contrast, for female PE PSTs were intrapersonal, naturalist, linguistic-verbal, and interpersonal. Research done by Sađlam & Dođan (2025) indicates that male PE PSTs in Northern Cyprus were highest in bodily kinesthetic, existential, naturalist, linguistic verbal, and visual spatial, while females were highest in logical-mathematical intelligence. In addition, there is a difference in kinesthetic, visual-spatial, and naturalistic intelligence areas, suggesting a difference in gender preference of MI profiles. Another research finds that the highest intelligence in males was bodily-kinesthetic, naturalist, interpersonal, and logical-mathematical, while the female type of intelligence was bodily kinesthetic, visual spatial, naturalist, and intrapersonal, with no difference between gender in MI constructs (Bayram & Keskin, 2020). The sample used was the PE teachers in Turkey sample. If we analyze the findings, we can see that all three samples in male PE PSTs consist of naturalist and bodily-kinesthetic intelligence, while for females, the intelligence was varied.

The emerging types in bodily-kinesthetic and naturalist intelligences among male samples can be attributed to the physical and environmental nature of PE learning, which emphasizes movement, coordination, and outdoor engagement (Lohmann et al., 2023; Rutkauskaite et al., 2024). Culturally, males are often more involved in sports and physical activities from an early age, reinforcing their intelligence. The sex roles expectation also

contributes to the development of those types of intelligence which is naturalist and bodily-kinesthetic. Males were expected to be mainly doing chores, physical activity that involved nature or outdoor activity, while females were expected to sit at home and manage the house business, expressing modesty as a female character. Furthermore, the culture of females that are expected to be more empathetic, mother character, and emotional expressiveness may contribute towards the intrapersonal intelligence among female samples. However, due to equality and equity in education that have been promoted in Malaysian education culture, it may contribute to no difference in the type of MI between genders. A few factors that can be related such as equal exposure to similar learning experiences and professional training in teacher education institutes, which promote holistic development regardless of gender. Additionally, the evolving educational landscape in Malaysia, where traditional gender roles are becoming less distinct, may contribute to these similarities. The Teacher Education Institute (IPG) curricula are planned and centralized by the Ministry of Education (MoE) with a difference in China, Canada, and Australia, the responsibility for managing PSTs education programs is managed by states and governments (Chee Choy et al., 2020; Yanmei et al., 2024). The advantages of centralized management are to ensure that the national philosophy of education can be applied in the learning and teaching process in IPG, and to assess the quality of education, regardless of location, gender, or culture, resulting in equity and consistency in the education progress of pre-service teachers. Due to the above reason, it can be concluded that the factor of culture and how the teacher training institute was managed contribute towards comparable levels of intelligence between genders. Furthermore, these findings support Gardner's view that intelligence is shaped more by individual experiences and environmental factors than by gender differences alone.

Subsequently, the role of SE was also moderated by various factors such as age, teaching experience, and technology skills (Ahmad Shukri & Mohd Matore, 2023), the collaborative relationship between mentor and PSTs (Johnston & Dewhurst, 2021), and the school-based practicum (Altarawneh et al., 2023), showing that the dynamic factors that support confidence in PSTs. Consequently, these findings also indicate that the factor of MI contributes to a moderate positive relationship in self-efficacy among PE PSTs in Malaysia. Therefore, it can be concluded that PE PSTs who possess higher levels of MI tend to exhibit stronger SE beliefs. This suggests that the development of diverse intelligences may enhance confidence in teaching abilities, classroom management, and instructional strategies during their practicum session and contribute towards the effectiveness when they are teacher in the future.

Nevertheless, other factors that contribute to the level of SE among PE PSTs should not be overlooked and must be developed in parallel. The findings of this study indicate that the development of MI that aligns with the individual characteristics of PE PSTs provides them with an advantage and greater confidence in performing their roles effectively as future PE teachers. Therefore, it is hoped that the integration of MI can be implemented more effectively in the early stages of PE PST education to ensure that they can identify their strengths and abilities and use this knowledge to develop higher levels of confidence throughout their learning process at the teacher training institute.

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