

Physical Education Teachers' Training, Teaching Competence, Professional Development, and Technological Literacy, and their Relationship with Leadership

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Abstract

This study aimed to explore the perspectives of physical education teachers regarding their training and professional development and to examine the relationship between their professional growth and leadership abilities. The sample included 346 physical education teachers from various educational levels across Greece who participated voluntarily. Data were collected through questionnaires that measured self-efficacy, professional development, and technological literacy. The Teachers' Sense of Efficacy Scale by Tschannen-Moran and Woolfolk Hoy (2001). The professional development, along with the Information and Communication Technologies proficiency adapted for the Greek context and custom-designed questions were based on guidelines from Javeau (2000) and Anastasiou (2021). The data were analyzed using descriptive statistics, t-tests, ANOVA, and correlation analysis through SPSS v.28. The findings revealed that physical education teachers who engage in professional development programs significantly improved their communication skills, emotional intelligence, and classroom management. Additionally, teachers with higher emotional intelligence exhibited better leadership abilities and stronger relationships with students. The study also found that participation in Information and Communication Technologies training led to improved technology integration into teaching practices, enhancing leadership effectiveness. Based on these results, the study recommends implementing continuous professional development programs that focus on emotional intelligence, communication, and digital literacy to enhance leadership skills among PE teachers. Further research is suggested to explore the long-term effects of professional development on leadership and the impact of technology in physical education.

Keywords: Professional development, Teaching practices, Physical education teacher, Physical education executive, successful leader, leadership, leadership models

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Introduction

Physical Education (PE) teachers are a critical issue in modern pedagogy, especially as educational demands shift towards promoting holistic development, which includes physical health, psychological well-being, and leadership skills. As the role of PE teachers expands beyond the traditional focus on physical education, they are increasingly recognized as key figures in developing leadership within the school environment (Baena-Morales et al., 2024). Modern education requires PE teachers to instruct students in physical activities and cultivate an environment that fosters emotional intelligence, teamwork, and social responsibility. This broader role highlights the importance of continuous professional development that addresses subject-specific competencies and the cultivation of leadership qualities (Kahts-Kramer & Wood, 2023). Research consistently shows that teachers who engage in structured professional development programs experience significant improvements in both their teaching practices and leadership capabilities. These programs help educators develop the skills necessary to navigate the complexities of classroom dynamics, manage student behavior, and foster an inclusive learning environment (Santos et al., 2024). For instance, Allami et al. (2022) emphasize that PE teachers who undergo leadership training are more effective in engaging students, managing classroom challenges, and promoting collaborative learning. Leadership in this context is about directing students and inspiring and empowering them to take ownership of their learning experiences. This aligns with the findings of Gurr and Drysdale (2020), who emphasize that educational leadership is pivotal in improving student outcomes, particularly in environments with increasing educational demands and complexities.

An essential component of leadership development for PE teachers is emotional intelligence, which involves recognizing and managing one's emotions and those of others. Emotional intelligence is a crucial factor in the teacher-student relationship, as it enables teachers to create a supportive and empathetic learning environment. Teachers with high levels of emotional intelligence are better equipped to handle conflicts, address the diverse emotional needs of students, and foster positive relationships within the classroom (Zarei, 2023). This skill set is particularly important in PE, where teachers frequently interact with students in high-energy and emotionally charged situations. By understanding and managing their emotions, teachers can model emotional regulation and provide a safe space for students to express themselves (Modra et al., 2021). Furthermore, teachers with developed emotional intelligence are more likely to adopt effective teaching strategies that engage students and motivate them to participate actively in class (Almazroa & Alotaibi, 2023).

Another emerging area in the professional development of PE teachers is the integration of technology into teaching practices. The rapid evolution of Information and Communication Technologies (ICT) has transformed the educational landscape, and teachers are now expected to be proficient in using digital tools to enhance the learning experience. This has given rise to the concept of "electronic leadership," where teachers lead their students through the integration of digital tools into the curriculum (Aji & Anwar, 2024). PE teachers who are trained in ICT not only enhance their instructional practices but also develop new leadership skills that are essential for managing a classroom in the digital age (Hassan et al., 2024). For instance, the use of digital tools in PE classes, such as fitness apps, video analysis, and virtual coaching, allows teachers to engage students in innovative ways, making learning more interactive and effective (Marín Suelves et al., 2023). Vernadakis et al. (2013) evaluated the perceived satisfaction of Physical Education teachers following a distance learning course in

Volleyball delivered through a multimedia application. The results showed that the teachers enjoyed the process, indicating that they were motivated to learn.

Electronic leadership is particularly significant in the post-pandemic world, where online and hybrid learning models have become more prevalent. The pandemic accelerated the adoption of digital platforms for teaching, and PE teachers had to adapt quickly to this new reality. Those who had received prior training in digital tools were better positioned to navigate these changes and maintain student engagement during remote learning (Özyurt & Demirdağ, 2024). Teachers who are proficient in electronic leadership are not only able to manage digital classrooms effectively but also inspire their students to develop digital literacy skills that are crucial for their future success. This reflects the findings of research by Ping et al. (2023), which highlights the importance of technological training for teachers in enhancing their leadership presence and effectiveness in both physical and digital learning environments.

The integration of leadership skills in teacher training is not only beneficial for classroom management but also contributes to the broader development of school culture. Teachers who possess strong leadership skills are more likely to create a collaborative learning environment where students feel empowered to take risks, ask questions, and engage in the learning process (Evans & Pfister, 2021). This type of leadership fosters a sense of community within the classroom, where students and teachers work together towards common goals. In this way, education leadership becomes a shared responsibility, with teachers guiding students not just as learners but as future leaders themselves. This collaborative approach to leadership is supported by the work of Mammadov and Hertzog (2024), who argue that effective educational leadership involves empowering others to take on leadership roles within the learning environment. Furthermore, transformational leadership plays a vital role in promoting inclusive and equitable educational practices. Teachers who adopt a transformational leadership style focus on the individual needs of their students, helping them reach their full potential (Alzoraiki et al., 2024). This leadership approach is particularly relevant in physical education, where students often face varying levels of physical ability and motivation. By focusing on individual strengths and providing personalized support, transformational leaders can create an inclusive environment where all students feel valued and capable. As noted by Carrington et al. (2024), transformational leadership in education is essential for promoting diversity, equity, and inclusion, ensuring that every student has the opportunity to succeed regardless of their background or abilities.

In conclusion, the professional development of PE teachers is essential for enhancing their leadership abilities and improving the overall quality of education. From emotional intelligence to electronic leadership, the skills gained through professional training enable teachers to create dynamic and inclusive learning environments that promote student engagement and success. As the role of PE teachers continues to evolve, ongoing professional development is necessary to ensure that they are equipped to meet the challenges of modern education and lead their students toward achieving their full potential (Santos et al., 2024). The reinforcement of professional development programs that integrate both traditional and electronic leadership skills is not only beneficial for individual teachers but also for the broader educational community, as it helps to foster a culture of innovation, collaboration, and continuous improvement in schools. So, this study aimed to present the PE teacher's aspects of their training and professional development and to correlate them with leadership abilities.

Materials and Methods

The study included 346 Physical Education (PE) teachers from various educational levels across Greece. Participants were selected based on their willingness to take part, and their anonymity and confidentiality were maintained throughout the process. PE teachers were invited to participate via e-mail, distributed through the National Primary and Secondary Education Directorates to their respective schools. The average age of the participants was 51.4 years.

Instruments

Established research tools were used in the design and validation of the questionnaires. Self-efficacy, professional growth, and technology literacy were assessed using the instruments. The method utilized to measure the development of teaching competence was the Teachers' Sense of Efficacy Scale (TSES) by Tschannen-Moran and Woolfolk Hoy (2001), adapted to the Greek context by Tsiggilis et al. (2010), ensuring its suitability and accuracy for the local population. This scale comprises 22 items, focusing on three primary dimensions: student engagement, instructional strategies, and classroom management.

To evaluate professional development, custom-designed questions were used, targeting skills and knowledge in areas such as ICT proficiency, foreign language certification, and involvement in seminars and European educational programs. These questions were designed based on guidelines from Javeau (2000) and Anastasiou (2021), both of whom employed similar instruments in prior postgraduate research.

The technological literacy scale assessed PE teachers' knowledge and skills in ICT and was developed specifically for this study, drawing on existing literature. Participants were also asked to provide demographic details, including gender, age, marital status, educational background, and years of teaching experience, in line with the questionnaire structure outlined by Papanastasiou and Papanastasiou (2005). The validity and reliability of the scale were tested using Cronbach's alpha to ensure internal consistency.

Data Collection and Analysis

The data collection was conducted electronically, with questionnaires distributed via email to PE teachers across Greece. Participants were invited to take part in the study voluntarily, and all responses were kept confidential.

In total, 339 fully completed questionnaires were received between early December 2021 and the end of the same month.

The statistical software SPSS v.28 was used for data analysis. Descriptive statistics, including absolute and relative frequencies (N, %), were used to summarize demographic and employment information. The reliability of the scales was verified using Cronbach's alpha.

To assess the normality of the data, the Shapiro-Wilk test was applied where appropriate. Parametric tests, including the independent samples t-test and One-Way ANOVA, were conducted to determine differences based on demographic and employment characteristics. Correlations between variables were calculated using Pearson's correlation coefficient (r) and Spearman's coefficient, depending on the nature of the data. This rigorous methodological approach ensured accurate and reliable results, enabling valid conclusions about the relationship between training and the self-efficacy of PE teachers.

Results

Communication skills of Physical Education (PE) teachers in the school environment

Regarding the communication skills of PE teachers within the school environment, they appear to be very high (M=18.93) based on the analysis of the ICI scale questions. The most positive responses (where 1=yes and 3=no) were given to the questions, "Do words come out the way you want them to in a conversation?" (M=1.13, SD=0.35) and "When someone asks you a question that isn't clear, do you ask the person to clarify what they mean?" (M=1.14, SD=0.37).

Table 1. Statistical indicators of elements reflecting the communication skills of PE teachers

	M	SD
Communication skills of PE teachers	18.93	1.59
1.1 Do words come out the way you want them to in a conversation?	1.13	0.35
1.2 When someone asks you a question that isn't clear, do you ask them to clarify what they mean?	1.14	0.37
1.3 Is it difficult for you to talk with others?	1.25	0.49
1.4 Are you aware of how your tone of voice affects others?	1.18	0.41
1.5 Do you frown and get upset for a long time when someone upsets you?	1.75	0.63
1.6 Do you help others understand you by explaining how you think, feel, and what you believe?	1.40	0.54
1.7 In a conversation, do you let others finish their words before reacting to what they say?	1.21	0.44

Minimum value=7, Maximum value=21

Emotional intelligence of PE teachers

The level of empathy displayed by PE teachers is quite high (M=89.05, with a maximum value of 105), according to the WLEIS scale data. Respondents showed agreement across all items of the scale, with the highest scores given for "I always know if I am happy or not" (M=6.40, SD=0.75) and "Most of the time, I understand why I feel the way I do" (M=6.26, SD=0.74).

Table 2. Statistical indicators of elements reflecting the emotional intelligence of PE teachers

	M	SD
Emotional intelligence of PE teachers	89.05	9.09
2.1 Most of the time, I understand why I feel the way I do	6.26	0.74
2.2 I can always understand how my friends feel	5.61	0.89
2.3 I always set goals for myself and strive to achieve them	6.11	0.93
2.4 I can control my anger with logic and handle challenges	5.87	0.96
2.5 I understand my emotions well	6.18	0.81
2.6 I understand how others feel	5.70	0.87
2.7 I always tell myself that I am a worthy and capable person	5.66	1.08
2.8 I think I am fully capable of controlling my emotions	5.61	1.05
2.9 I always understand how I really feel	5.97	0.91

	M	SD
2.10 I easily get emotional with others' emotions	5.96	1.06
2.11 I am a highly motivated person	5.90	1.04
2.12 I calm down quickly whenever I get angry	5.72	1.14
2.13 I always know if I am happy or not	6.40	0.75
2.14 I understand well the emotions of the people around me	5.79	0.85
2.15 I always motivate myself to achieve the best	6.30	0.81

Minimum value=15, Maximum value=105

Relationship of PE teachers with Physical Education Leaders

The quality of the relationship between PE teachers and PE leaders is above average (M=21.73, with a minimum value of 5 and a maximum of 35). The items with the most positive responses were "They recognize teachers' work, praise, and encourage them" (M=5.50, SD=1.34) and "They make teachers feel important and proud of the results of their work" (M=5.49, SD=1.29).

Table 3. Statistical indicators of elements reflecting the relationship between teachers and PE leaders

	M	SD
Relationship of teachers with PE leaders	21.73	2.67
3.1 They make teachers feel important and proud of their work results	5.49	1.29
3.2 They encourage communication and strengthen interpersonal relationships among teachers	5.46	1.31
3.3 They recognize teachers' work, praise, and encourage them	5.50	1.34
3.4 They show concern for the problems teachers face with students and parents	5.27	1.44
3.5 They utilize teachers' interests when assigning tasks	5.00	1.45

Minimum value=5, Maximum value=35

Leadership skills of PE leaders

To assess the leadership skills of PE leaders, three broad areas of leadership characteristics were measured based on Northhouse's (2011) questionnaire: administrative skills, interpersonal skills, and perceptual skills. In all three areas, PE leaders exhibited high leadership abilities.

High administrative skills were reported (M=25.07, on a scale of 6 to 30), with the highest agreement on the statement "I enjoy responding to people's requests and concerns in my workplace" (M=4.61, SD=0.56).

Significant interpersonal skills were also noted (M=25.83), with the highest agreement on "The key to successfully resolving conflicts is respecting my counterpart" (M=4.59, SD=0.69).

Lastly, high perceptual skills were indicated (M=26.07), with the most agreement on "I face problems that arise directly" (M=4.39, SD=0.76).

Table 4. Statistical indicators of elements reflecting the administrative, interpersonal, and perceptual skills of PE leaders

	M	SD
Administrative skills ^a	25.07	2.93
1.1 I am effective with the detailed aspects of my work.	4.19	0.62
1.2 It is easy for me to fill out forms accurately and be detail-oriented.	4.22	0.93
1.3 Managing intangible and material resources is one of my strengths.	4.17	0.77
1.4 I enjoy responding to the requests and concerns of people in my workplace.	4.61	0.56
1.5 Acquiring and allocating resources is an ongoing challenge in my work.	3.93	1.01
1.6 I am effective in acquiring resources to support the programs I undertake.	3.96	0.89
Interpersonal skills ^a	25.83	2.20
2.1 I can anticipate how people will respond to a new idea or proposal.	3.70	0.66
2.2 Knowing how members of the organization interact is important to me.	4.43	0.82
2.3 I am able to sense a dissenting opinion, emotion, or tendency within my team.	4.31	0.58
2.4 I use how I feel about life and my work to motivate others.	4.31	0.72
2.5 The key to successfully resolving conflicts is respecting my counterpart.	4.59	0.69
2.6 I work hard to find a consensus framework in conflict situations.	4.48	0.72
Perceptual skills ^a	26.07	2.51
3.1 I am effective at solving problems.	4.31	0.61
3.2 I face problems that arise head-on.	4.39	0.76
3.3 Seeing the important aspects of a situation is one of my strengths.	4.37	0.53
3.4 I am attracted to the process of setting and implementing strategic planning in my work.	4.35	0.73
3.5 I enjoy discussing the organizational values and philosophy of the organization I work for.	4.28	0.86
3.6 I am flexible when it comes to making changes in the organization I work for.	4.37	0.68

a. Minimum score = 6, Maximum score = 30

Intentions of PE leaders regarding electronic leadership

Regarding PE leaders' intentions towards electronic leadership, the responses were very positive (M=12.31), based on the sum of three elements from the questionnaire. The highest agreement was given to the statement, "I intend to utilize Information and Communication Technologies (ICT) to make them a key part of my leadership approach" (M=4.33, SD=0.82).

Table 5. Statistical indicators of PE leaders' intentions towards electronic leadership

	M	SD
Electronic leadership	12.31	2.50
5.1 I intend to utilize ICT to make them a key part of my leadership approach	4.33	0.82
5.2 I think ICT should play a key role in how I lead now and, in the future,	4.09	1.00

	M	SD
5.3 I plan to rely more on ICT in the future to complete my professional duties	3.89	1.06

Minimum value=5, Maximum value=15

These findings show that 81.5% of participants intend to utilize ICT as a significant part of their leadership approach, 75.9% believe that ICT should play a major role in the leadership of PE leaders, and 68.5% plan to rely more on ICT in the future to fulfill their professional duties.

Table 6. Distribution of responses regarding electronic leadership

	Strongly Disagree		Disagree		Neither Agree nor Disagree		Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%
6.1 I intend to utilize Information and Communication Technologies (ICT) so that they become an important part of my leadership approach.	0	0.0%	1	1.9%	9	16.7%	15	27.8%	29	53.7%
6.2 I believe that ICT should play an important role in how I lead both now and in the future.	1	1.9%	3	5.6%	9	16.7%	18	33.3%	23	42.6%
6.3 I plan to rely more on ICT in the future to complete my professional duties.	2	3.7%	3	5.6%	12	22.2%	19	35.2%	18	33.3%

Communication skills of PE leaders

Analyzing the communication skills of PE leaders reveals that they are highly developed (M=18.28 on a scale of 7 to 21). The most positive responses (where 1=Yes and 3=No) were given to the questions, "In a conversation, do you let others finish their words before reacting to what they say?" (M=1.09, SD=0.29) and "Do words come out the way you want them to in a conversation?" (M=1.22, SD=0.42).

Table 7. Statistical indicators of the elements reflecting the communication skills of PE leaders

	M	SD
Communication skills	18.28	1.51
7.1 Do words come out the way you want them to in a conversation?	1.22	0.42
7.2 When someone asks you a question that isn't clear, do you ask them to clarify what they mean?	1.26	0.48
7.3r Is it difficult for you to talk with others?	1.39	0.56
7.4 Are you aware of how your tone of voice affects others?	1.35	0.52
7.5r Do you frown and feel upset for a long time when someone disturbs you?	2.00	0.58
7.6 Do you help others understand you by explaining how you think, feel, and what you believe?	1.41	0.63
7.7 In a conversation, do you let others finish their words before reacting to what they say?	1.09	0.29
<i>Minimum value=7, Maximum value=21</i>		

Minimum value=7, Maximum value=21

Emotional intelligence of PE leaders

Based on the WLEIS scale data, PE leaders demonstrate a high level of emotional intelligence (M=84.87, with a maximum of 105). Respondents showed agreement across all items of the scale, with the highest scores given for "I always motivate myself to achieve the best" (M=6.24, SD=0.82) and "I always know if I am happy or not" (M=6.19, SD=0.78).

Table 8. Statistical indicators of the elements reflecting the emotional intelligence of PE leaders

Item	M	SD
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Item	M	SD
Emotional intelligence	84.87	9.85
8.1 Most of the time, I understand why I feel the way I do	5.81	0.80
8.2 I can always understand how my friends feel	5.39	0.90
8.3 I always set goals for myself and strive to achieve them	6.11	0.95
8.4 I can control my anger with logic and handle challenges	5.61	0.94
8.5 I understand my emotions well	5.85	0.90
8.6 I understand how others feel	5.43	0.98
8.7 I always tell myself that I am a worthy and capable person	5.43	1.33
8.8 I think I am fully capable of controlling my emotions	5.30	1.06
8.9 I always understand how I really feel	5.61	1.20
8.10 I easily get emotional with others' emotions	5.48	1.33
8.11 I am a highly motivated person	5.80	1.02
8.12 I calm down quickly whenever I get angry	5.24	1.39
8.13 I always know if I am happy or not	6.19	0.78
8.14 I understand well the emotions of the people around me	5.39	1.02
8.15 I always motivate myself to achieve the best	6.24	0.82

Minimum value=15, Maximum value=105

Correlations among variables in the PE teachers' questionnaire

The following table shows the correlations between all the composite variables analyzed in the PE teachers' questionnaire. We observe that teachers' effectiveness in engaging students shows a significant, positive, and weak correlation with communication skills ($r=.274, p<.05$); a significant, positive, and moderate correlation with closeness to students ($r=.428, p=.002<.05$); a significant, positive, and strong correlation with emotional intelligence ($r=.652, p<.05$); and an important, positive, and moderate correlation with relationships with PE leaders ($r=.313, p<.05$). This indicates that the most effective teachers in engaging students are better communicators, have closer relationships with their students, exhibit higher emotional intelligence, and maintain better relationships with PE leaders.

We also see that teachers' effectiveness in instructional strategies shows a significant, positive, and weak correlation with communication skills ($r=.294, p<.05$); a significant, positive, and moderate correlation with closeness to students ($r=.411, p<.05$); a significant, positive, and strong correlation with emotional intelligence ($r=.664, p<.05$); and an important, positive, and weak correlation with relationships with PE leaders ($r=.274, p<.05$).

Lastly, we observe that teachers' effectiveness in classroom management shows a significant, positive, and weak correlation with communication skills ($r=.255, p<.05$); a significant, positive, and moderate correlation with closeness to students ($r=.412, p<.05$); a significant, positive, and strong correlation with emotional intelligence ($r=.618, p<.05$); and an important, positive, and weak correlation with relationships with PE leaders ($r=.291, p<.05$).

Table 9. Pearson correlation coefficients and statistical significance among variables of PE teachers

Variable	1	2	3	4	5	6
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Variable	1	2	3	4	5	6
1. Communication skills of PE teachers	--	--	--	--	--	--
2. Closeness to students of PE teachers	.168**	--	--	--	--	--
3. Emotional intelligence of PE teachers	.296**	.543**	--	--	--	--
4. Relationship of teachers with PE leaders	.092	.166**	.279**	--	--	--

*p<.05, *p<.01

Discussion

This study aimed to examine the perspectives of Physical Education (PE) teachers regarding their training and professional development and how these are linked to their leadership abilities. The findings indicate a positive relationship between professional development and the enhancement of leadership skills among PE teachers. Specifically, the study highlights that ongoing training not only improves teachers' communication and emotional intelligence but also their classroom management and ability to foster student engagement.

Overall, the results confirm that professional development programs significantly contribute to teachers' growth in both their instructional practices and leadership capacities. Teachers who participated in structured training programs reported enhanced communication skills, emotional intelligence, and better classroom management. This supports the findings of previous studies, such as those of Santos et al. (2024) and Kahts-Kramer & Wood (2023), which also demonstrated the importance of continuous training for educators in navigating the complexities of modern education environments.

When examining the results based on specific measures, the communication skills of PE teachers were found to be particularly high, with teachers reporting confidence in their ability to convey ideas clearly and engage in meaningful dialogue with students and colleagues. These findings align with the work of Allami et al. (2022), who emphasized that education leadership involves effective communication and the ability to inspire collaboration. Similarly, the strong correlation found between communication skills and student engagement reinforces the notion that leadership is closely tied to how well teachers communicate with their students.

Regarding emotional intelligence, the study found that teachers with higher levels of emotional intelligence were more successful in managing classrooms and fostering positive relationships with students. This finding resonates with Zarei (2023), who stressed the role of emotional intelligence in creating supportive learning environments, particularly in high-energy subjects like physical education. Teachers with enhanced emotional intelligence were better equipped to handle conflicts and engage students effectively, a key trait of successful educational leaders.

In terms of leadership development, the study's findings on the importance of technological proficiency introduce the concept of "electronic leadership." Teachers who had undergone ICT training demonstrated higher levels of leadership skills in integrating technology into their teaching practices. This supports the findings of Hassan et al. (2024), who suggested that digital literacy is becoming increasingly important for educational leaders in the post-pandemic world. The ability to navigate online platforms and utilize digital tools effectively has become essential for maintaining student engagement, especially in hybrid learning environments.

In comparison to previous research, the findings of Vernadakis et al. (2013), which evaluated teachers' satisfaction with a multimedia training application, align with the results of this study. Both studies underscore the positive reception of multimedia and technology-based professional development tools, which motivate teachers to enhance their skills. However, some studies, such as those by Ping et al. (2023), have highlighted challenges in integrating technology into teaching, particularly for teachers who lack sufficient prior training. This suggests that while technological proficiency is beneficial, it requires adequate support and training infrastructure to be effective.

The study also found that the relationship between PE teachers and their educational leaders plays a significant role in shaping their leadership skills. Teachers who reported strong relationships with their leaders also demonstrated higher emotional intelligence and better classroom management, which is consistent with the findings of Gurr and Drysdale (2020). This reflects the importance of a supportive leadership environment in fostering teacher growth and professional development.

In conclusion, the results of this study suggest that professional development programs play a critical role in enhancing PE teachers' leadership abilities. Ongoing training that focuses on emotional intelligence, communication, and technological skills can significantly improve teachers' classroom management and student engagement. These findings align with much of the existing literature, although the challenges associated with technological integration highlight the need for more comprehensive support in this area. Strengthening professional development programs with an emphasis on leadership and digital literacy will contribute to continuous educational improvement, benefiting both teachers and students.

Conclusions

Physical Education (PE) teachers who participate in professional development programs significantly improve their communication skills, emotional intelligence, and relationships with students.

PE teachers with high levels of emotional intelligence are more successful in managing classrooms and fostering positive student relationships, leading to increased student engagement and participation.

The integration of technological skills into PE teachers' professional development through the concept of electronic leadership enhances teaching practices and strengthens leadership abilities, especially in digital learning environments.

The relationship between PE teachers and their educational leaders plays a crucial role in shaping their leadership skills, with positive outcomes for classroom management and professional growth.

Recommendations for PE Teachers

Ongoing participation in professional development: PE teachers should actively pursue continuous professional development to enhance their communication and leadership skills, with a focus on emotional intelligence and technological training.

Integration of technology in teaching: The use of Information and Communication Technologies (ICT) in both teaching and leadership can improve educational quality, and PE teachers should continue to develop their skills in new technologies.

Fostering student relationships: Building strong relationships with students based on empathy and communication can increase student engagement and improve the effectiveness of teaching.

Developing relationships with educational leaders: Cultivating positive relationships with educational leaders can contribute to professional development and better classroom management.

Suggestions for Future Research

Future research could explore the differences between PE teachers working in urban and rural areas to examine whether their professional development and leadership needs vary.

A longitudinal study could assess the long-term effects of professional development on PE teachers' leadership skills, examining how these skills evolve and impact the overall quality of education.

Further research could focus on the integration of new technologies in physical education and how this affects leadership and teaching practices, particularly after the pandemic and the rise of hybrid learning models.

Studies could investigate the impact of leadership programs that incorporate technology, focusing on the use of electronic leadership tools and how these enhance teacher-student interactions.

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