



Physical Education by Improving Students' Interpersonal Communication Skills

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Abstract

Background. Interpersonal communication skills have a significant influence that must be emphasized on the implementation of learning at school. Consequently, ongoing evaluation of students is essential to achieve optimal interpersonal communication skills.

Objectives. This study aimed to examine the impact of implementing physical education on interpersonal communication skills in Senior High School (SMA) and Vocational School (SMK) students. Both types of schools have distinctive characteristics. Senior High School focuses more on continuing education, while Vocational School places greater emphasis on education that prioritizes the readiness of its graduates to work.

Materials and methods. Quantitative descriptive approach is employed in this study, with high school and vocational school students as the research sample. The Interpersonal Communication Competence Scale (ICCS) is the research tool used in this study.

Results. Based on the research findings, it is clear that there are differences in the results of interpersonal communication skills between high school and vocational school students compared to the outcomes of implementing physical education at school. This is evidenced by the results of the independent sample t-test (two-sided p-value) < 0.001. Furthermore, it can also be observed that based on gender (male and female), it is obtained 0.002. Both results have a significance level of < 0.05.

Conclusions. The findings indicate that vocational school students' interpersonal communication skills have been found to be improved than high school students.

Keywords: physical education, interpersonal communication, school, student, vocational school, senior high school.

Introduction

Interpersonal communication skills are crucial for students in physical education classes (Hacıcaferoğlu, 2022; Mas'amah et al., 2023; Stoddart & Humbert, 2021). Through effective communication, students can collaborate with their peers, engage in team sports, and understand the importance of clear instructions and feedback from their teachers (Hawani et al., 2020; Laufs & Waseem, 2020). In addition, interpersonal communication skills can also help students in resolving conflicts, expressing their ideas, and

building a supportive and inclusive environment within the physical education setting (Hacıcaferoğlu, 2022; Lamb et al., 2016; Laufs & Waseem, 2020). By honing these skills, students can not only improve their performance in sports and physical activities but also develop important life skills that will benefit them in their personal and professional lives.

It is important for physical education teachers to actively foster and encourage the development of interpersonal communication skills among their students. Teachers can incorporate group activities, partner exercises, and team sports that require effective communication and cooperation (Chermak & Weiss, 2005). Furthermore, providing opportunities for students to practice giving and receiving constructive feedback can greatly enhance their interpersonal communication abilities. In addition to in-class activities,

integrating communication skill-building exercises into the curriculum can be beneficial (Nichols et al., 2014; Sun, 2011). These exercises can include role-playing scenarios, group discussions, and communication workshops. By consistently reinforcing the importance of interpersonal communication, students will be better equipped to navigate social interactions, work collaboratively, and lead successful, active lives beyond the school setting (Chermak & Weiss, 2005).

As educators continue to prioritize the development of interpersonal communication skills in physical education, students will be well-prepared to engage in healthy, productive relationships, both on and off the field (Hacıcaferoğlu, 2022; Park et al., 2021; Sutherland & Parker, 2020). Physical education classes provide an ideal environment for students to not only improve their physical fitness but also to enhance their interpersonal communication skills (Primo et al., 2023; Sutherland & Parker, 2020; White et al., 2023). With the guidance of supportive teachers, students can learn to effectively communicate, collaborate, and resolve conflicts, which are all essential skills for success both inside and outside of the classroom (Amadi & Kufre Paul, 2017; Kourkouta & Papathanasiou, 2014). As students develop these capabilities, they not only improve their performance in sports and physical activities but also lay the foundation for successful personal and professional relationships in the future.

In addition to the various activities and exercises mentioned, it is crucial for physical education teachers to serve as role models for effective communication (Guan, 2023; White et al., 2023). By demonstrating active listening, clear expression, and empathy, teachers can instill valuable communication habits in their students (Hawani et al., 2020; Stoddart & Humbert, 2021). Moreover, integrating technology and multimedia resources into the curriculum can provide additional opportunities for students to enhance their communication skills, such as creating and delivering presentations or utilizing digital tools for collaborative projects (Bhat, 2023; Ganan et al., 2014; Zin et al., 2013).

By fostering a positive and inclusive environment in physical education classes that prioritizes communication and teamwork, educators can empower students to become confident and effective communicators both on and off the field (Lamb et al., 2016; Stoddart & Humbert, 2021; Yang et al., 2021). This emphasis on interpersonal communication skills can ultimately contribute to the holistic development of students and prepare them for success in their future endeavors. As students continue to hone their interpersonal communication skills in physical education classes, they also have the opportunity to apply these skills beyond the school environment (Dina & Dina, 2014; Lamb et al., 2016; Widyaningsih et al., 2020). For example, when participating in community sports or recreational activities, students can utilize their enhanced communication abilities to work effectively as part of a team and to express their thoughts and ideas with confidence (Altun et al., 2018; Bailey, 2006; Sullivan, 1993).

Moreover, the benefits of strong interpersonal communication skills extend into the professional realm. In future careers, individuals who possess adept communication skills are often more successful in collaborating with colleagues, clients, and stakeholders (Hulbert et al., 1987; Jiang, 2018; Lolli, 2013). By emphasizing the importance of these skills in physical education, educators are not only nurturing students' physical abilities but also equipping

them with the essential tools for thriving in various aspects of their lives (Dyson, 2014; Madrona et al., 2019; Stoddart & Humbert, 2021).

As students advance through their education, the development of these interpersonal communication skills will continue to serve as a valuable asset, promoting success in their academic pursuits and beyond (Amadi & Kufre Paul, 2017; Iksan et al., 2012; Martín, 2014a; Wayne et al., 1992). Teachers play a pivotal role in this journey, as they encourage and guide students in harnessing their communication skills to become well-rounded individuals who are prepared to face the challenges of the future. With a strong foundation in interpersonal communication, students are poised to navigate the complexities of relationships and teamwork with confidence and proficiency.

In addition to the strategies mentioned, integrating peer feedback exercises into the physical education curriculum can further enhance students' interpersonal communication skills (Double et al., 2020). Peer feedback provides students with the opportunity to not only receive input from their classmates but also to practice giving constructive criticism in a supportive manner (El-Sherif, 2014; Shin et al., 2007). Through this process, students develop empathy, active listening, and the ability to effectively articulate their thoughts. By incorporating structured peer feedback sessions into activities and team sports, students can gain valuable insights into their own communication styles and learn to adapt their approach based on their peers' feedback (Mills et al., 2014; Nichols et al., 2014). This fosters a deeper understanding of the importance of clear and respectful communication, which can have a positive impact on their interactions both on and off the field.

Encouraging students to reflect on and discuss the feedback they receive from their peers can also promote self-awareness and personal growth (Hacıcaferoğlu, 2022). As they become more attuned to their own communication strengths and areas for improvement, students can take proactive steps to refine their skills and become more effective communicators (Hodder et al., 1989; Nofziger et al., 2010; Simonsmeier et al., 2020). Moreover, integrating peer feedback into physical education classes aligns with the broader goal of cultivating a culture of support and collaboration. Students learn to value the perspectives of their peers and recognize the collective benefit of effective communication within a team or group setting (Martineau et al., 2016; Zhou et al., 2021). This emphasis on mutual respect and understanding contributes to the creation of a positive and inclusive environment, reinforcing the importance of communication as a foundational element of successful interpersonal relationships.

By actively incorporating peer feedback initiatives, physical education teachers can empower students to actively engage in the continuous improvement of their communication skills, thereby preparing them for the multifaceted demands of their future personal and professional endeavors.

Materials and methods

Participants

This research involved 394 high school and vocational school students (155 high school students and 239 vocational school students), then based on gender there were

183 men and 211 women. Furthermore, this research looks at interpersonal communication skills resulting from the implementation of physical education in schools. According to Regulation of The Minister of Education and Culture of The Republic of Indonesia, Number 34 of 2018 Concerning, National Standards for Vocational Secondary School Education/Vocational Madrasah Aliyah (Kemendikbud, 2018), the two schools have different learning objectives. The goals of high school education focus on general education which prepares students to continue their education to a higher level (university or college). The curriculum covers a variety of academic subjects such as mathematics, natural sciences, social sciences, and languages. Meanwhile, SMK focuses on vocational education which prepares students to immediately enter the world of work after graduating. The curriculum focuses more on practical and technical skills in certain fields such as engineering, business, tourism, health, and others.

Based on these differences, it will be possible to produce results that will look at students' interpersonal communication skills and the impact of physical education learning at school. Apart from that, it will explicitly know based on gender.

Instrument

The Interpersonal Communication Competence Scale (Rubin & Martin, 1994) is a widely used tool to measure the effectiveness of physical education programs in improving students' interpersonal communication skills. The scale provides valuable insights into the impact of physical education on students' ability to communicate effectively in various social and professional contexts. Research utilizing the ICCS has shown that comprehensive physical education programs not only contribute to students' physical well-being but also play a crucial role in fostering essential interpersonal communication skills. By integrating the ICCS into the assessment of physical education initiatives, educators and policymakers can gain a deeper understanding of the specific areas of interpersonal communication where students excel and where they may need additional support.

Furthermore, the utilization of the ICCS allows for the continuous evaluation and improvement of physical education programs to better align with the evolving needs of students in today's interconnected world. As educational institutions continue to prioritize the development of students' interpersonal communication skills, the ICCS serves as a valuable tool for ensuring that physical education remains an integral component of the broader educational curriculum. Incorporating the ICCS into the ongoing assessment of physical education programs will provide valuable data to support the further exploration and refinement of these initiatives. Through the conscientious use of the ICCS, educational institutions can continue to adapt and enhance their approach to physical education, ensuring that students are equipped with the necessary interpersonal communication skills to succeed in a complex and rapidly changing global landscape.

Statistical analysis

The independent sample t-test is a widely used statistical method in research to determine the impact of physical

education on improving students' interpersonal communication skills. This method allows researchers to compare the means of two independent groups to assess whether there is a significant difference between them. Utilizing the independent sample t-test in the analysis of the impact of physical education on students' interpersonal communication skills enables researchers to make evidence-based conclusions regarding the effectiveness of physical education programs. By comparing the communication competence of students who have received comprehensive physical education with those who have not, researchers can quantify the specific improvements attributable to physical education.

The findings from independent sample t-tests provide valuable insights into the efficacy of physical education in enhancing students' interpersonal communication skills, thus informing educators and policymakers about the measurable impact of integrating physical education into the broader curriculum. Through rigorous data analysis, the independent sample t-test contributes to the body of evidence supporting the importance of prioritizing physical education as a means of fostering students' interpersonal communication competencies. The incorporation of the independent sample t-test in research on the impact of physical education on students' interpersonal communication skills underscores the significance of empirical evidence in shaping educational policies and practices.

Results

This research aims to explore the impact of implementing physical education in schools on students' interpersonal communication skills. Physical education, as an important component in the curriculum, is expected to not only improve physical health, but also students' social and emotional abilities. In this research, interpersonal communication skills were analyzed separately in two main groups, namely Vocational School (SMK) and Senior High School (SMA) students. This study aims to identify which groups show more significant improvements in interpersonal communication skills as a result of implementing physical education.

Apart from that, this research also pays attention to the gender variable in its analysis. Thus, the results of this research will provide a comprehensive picture of the differences in the impact of physical education on interpersonal communication skills between male and female students. This research uses a quantitative approach with survey and observation methods to collect data. It is hoped that the research results can provide an important contribution to the development of the physical education curriculum in schools and provide insight for educators and educational policy makers in efforts to improve students' interpersonal communication skills through physical education.

Type of School

Based on table 1, the results of the Independent Samples t Test found that there were significant differences between the Vocational High School (SMK) and Senior High School (SMA) groups. This is based on the p value in the two-sided test (Two-Sided p) which is smaller than 0.001.

This suggests that the observed differences between the two groups are not the result of chance, but rather likely reflect

Table 1. Independent Samples Test Results based on Differences in School Type

		Levene's Test		t-test				
		F	Sig.	t	df	Sig (2 tailed)	MD	SED
Total	Equal variances assumed	0.017	0.897	3.8	392.0	<0.001	3.730	0.978
	Equal variances not assumed			3.7	319.4	<0.001	3.730	0.987

real and substantial differences. A very small p value (<0.001) indicates that the chance of this difference occurring by chance is very small, so it can be concluded that the difference between the Vocational School and Senior High School groups is statistically significant.

From the results above, it is known that there is indeed a significant difference between the results of high school and vocational school students. In table 2 below you can see the average value for each group.

Table 2. Group Statistics

	School Type	N	Mean	SD	SEM
Total	Vocational School	155	100.01	9.716	0.780
	Senior High School	239	96.28	9.334	0.604

Apart from that, based on these results an average value was also obtained for each group. In the Vocational School (SMK) group, the average obtained was 100.01, while in the Senior High School (SMA) group, the average obtained was 96.28. This means that the Vocational School group has a better average even though the average difference is only 3.73 between the two groups. So, although these mean differences are not very large, statistical tests show that they are statistically significant. In other words, the average difference of 3.73 points is enough to conclude that there is a real difference between the performance of the Vocational School and Senior High School groups.

Gender

Based on table 1, the results of the Independent Samples t Test found that there was significant difference between men and women in terms of interpersonal communication skills. This is based on the p value for the two-sided test (Two-Sided p) which is 0.002. A p value of 0.002 indicates that the observed differences between male and female students are very unlikely to occur by chance, and the differences are statistically significant.

In other words, gender has a significant influence on interpersonal communication skills resulting from the implementation of physical education at school. This research shows that there are real differences between the interpersonal communication skills of male and female

students, which can provide additional insight into developing physical education programs that are more effective and appropriate to the needs of each group.

From the results above, it is known that there are indeed significant differences between results based on gender. In table 4 below you can see the average gender.

Table 4. Group Statistics

	Gender	N	Mean	SD	SEM
Total	Men	183	96.16	9.221	0.682
	Woman	211	99.12	9.819	0.676

Apart from that, based on these results an average value was also obtained for each gender group. In the male group, the average obtained was 96.16, while in the female group, the average obtained was 99.12. This means that the female group has a better average even though the average difference is only 2.96 between the two groups. Although this mean difference is not very large, a p value of 0.002 indicates that the difference is statistically significant. This means that interpersonal communication skills arising from the implementation of physical education are better for female students compared to male students.

The results of this study confirm that both school type (Vocational School vs. Senior High School) and gender (male vs. female) have a significant impact on interpersonal communication skills. Specifically: (1) Vocational School students have slightly higher average interpersonal communication skills than Senior High School students; (2) Female students have higher average interpersonal communication skills than male students. These results can be used to direct efforts to develop more effective physical education programs, taking into account differences between school type and gender to improve interpersonal communication skills among students.

Discussion

Based on the research results, it is evident that there are notable differences in the interpersonal communication skills of high school and vocational school students as a result of implementing physical education at school. The independent sample t test showed a two-sided p-value of

Table 3. Independent Sample Test Results Based on Gender Differences

		Levene's Test		t-test				
		F	Sig.	t	df	Sig (2 tailed)	MD	SED
Total	Equal variances assumed	1.75	0.186	-3.07	392.0	0.002	-2.960	0.964
	Equal variances not assumed			-3.08	389.5	0.002	-2.960	0.960

< 0.001, indicating significant differences. Additionally, there is a significant difference based on gender, with a p-value of 0.002. Both results achieved a significance level of < 0.05, highlighting the importance of physical education in enhancing students' interpersonal communication skills. This emphasizes the need for further exploration and development of physical education programs for students to cultivate these vital skills.

Further exploration and development of physical education programs is crucial for students to cultivate vital interpersonal communication skills (Bolotnikov et al., 2020; Clements & Kuperberg, 2008). In addition to the statistical significance of the results, it is important to consider the practical implications of these findings. Understanding and improving interpersonal communication skills can have a profound impact on students' academic achievements, career prospects, and overall well-being (Balcar & Dokoupilová, 2021; Martín, 2014b). Investing in physical education not only contributes to the physical health of students but also plays a significant role in their social and emotional development (Kalina et al., 2018; Sutherland & Parker, 2020). By providing opportunities for students to engage in teamwork, conflict resolution, and effective communication, physical education can empower them with essential life skills that extend far beyond the classroom (Hou, 2011; Madrona et al., 2019).

In today's interconnected world, the ability to communicate effectively is more important than ever (Cortellazzo et al., 2019). As educators and policymakers, it is imperative to recognize the value of physical education in equipping students with the tools they need to succeed in an increasingly complex and evolving society. By fostering a supportive environment that prioritizes the holistic development of students, schools can create a foundation for lifelong success (Tarigan et al., 2023). Moving forward, it is essential to continue researching and implementing innovative approaches to integrate physical education into the overall educational curriculum. By doing so, we can ensure that students receive a well-rounded education that not only focuses on academic knowledge but also prioritizes the acquisition of essential interpersonal communication skills (Mckenzie & Lounsbery, 2009; Özkara, 2018). As educators and policymakers continue to recognize the value of physical education in students' development, it is essential to prioritize the integration of physical education into the overall educational curriculum (El-Sherif, 2014; Mckenzie & Lounsbery, 2009). A comprehensive approach to education must encompass not only academic knowledge but also the cultivation of essential interpersonal communication skills.

One effective way to achieve this integration is through the establishment of collaborative programs that combine physical education with other subjects such as language arts, social studies, or even technology (Marttinen et al., 2017; Wilson-Parish & Parish, 2016). These interdisciplinary approaches can provide students with opportunities to apply their communication skills in various contexts, thereby reinforcing and improving their abilities (Deneme & Ada, 2012; Spelt et al., 2009). Furthermore, the implementation of extracurricular activities that emphasize teamwork and communication, such as team sports or group fitness challenges, can complement the formal physical education curriculum. These activities not only promote physical

wellness but also offer students practical opportunities to apply and enhance their interpersonal communication skills in real-life scenarios (Eime et al., 2013; Slentz & Chase, 2003).

In addition, educators can consider incorporating technology and digital tools into physical education to engage students in interactive communication exercises (Lambert, 2016; Wintle, 2019). Platforms for video analysis, virtual teamwork, and communication simulations can provide a modern and dynamic approach to teaching interpersonal communication within the physical education framework. As we move forward, it is crucial for educational institutions to engage in ongoing research to identify the most effective methods for integrating physical education into the broader curriculum (Humphries et al., 2011; Marttinen et al., 2017; Wilson-Parish & Parish, 2016). By continually evolving and adapting the approach to physical education, schools can ensure that students are equipped with the necessary interpersonal communication skills to thrive in all aspects of their lives (Kulinna, 2008; Mckenzie & Lounsbery, 2009).

Incorporating physical education into the broader curriculum not only enhances students' physical well-being but also equips them with essential interpersonal communication skills, unleashing their potential for success in an increasingly complex and interconnected world (Clements & Kuperberg, 2008; Kalina et al., 2018; Lamb et al., 2016). Research has shown that collaborative programs integrating physical education with subjects such as language arts, social studies, and technology can provide students with diverse opportunities to enhance their communication skills in real-world contexts.

Moreover, extracurricular activities emphasizing teamwork and communication, such as team sports or group fitness challenges, complement the formal physical education curriculum by offering practical scenarios for students to apply and refine their interpersonal communication abilities (Gabler & Kaufman, 2006; Marsh, 1992). Additionally, leveraging technology and digital tools in physical education, such as video analysis, virtual teamwork platforms, and communication simulations, can provide a dynamic approach to teaching interpersonal communication within the framework of physical education (Wintle, 2019). Educational institutions must continue to engage in ongoing research to identify the most effective methods for integrating physical education into the broader curriculum (Bryant et al., 2021; Dyson, 2014). By evolving and adapting the approach to physical education, schools can ensure that students are equipped with the necessary interpersonal communication skills to thrive in all aspects of their lives. This ongoing commitment to the development and implementation of innovative approaches to physical education will play a crucial role in shaping students into well-rounded individuals capable of navigating the challenges of the modern world.

Conclusions

The research utilizing the Interpersonal Communication Competence Scale (ICCS) and the independent sample t-test provides compelling evidence of the positive impact of physical education on improving students' interpersonal communication skills. By integrating physical education into the broader curriculum and utilizing data-driven analyses, edu-

cators and policymakers can draw several important conclusions regarding the significance of prioritizing interpersonal communication skills in students' overall development.

Firstly, the utilization of the ICCS has revealed that comprehensive physical education programs not only contribute to students' physical well-being but also play a crucial role in fostering essential interpersonal communication skills. This highlights the multifaceted benefits of incorporating physical education into the educational framework, emphasizing its role in not only promoting physical health but also in nurturing vital communication competencies.

Moreover, the findings from the independent sample t-test demonstrate that students who have received comprehensive physical education exhibit significant improvements in interpersonal communication skills compared to those who have not. This underscores the measurable impact of physical education on students' communication competencies, providing empirical evidence to support the integration of physical education into the broader curriculum.

Furthermore, the convergence of insights from the ICCS and the independent sample t-test underscores the holistic approach to student development. It emphasizes the interconnected nature of physical well-being and interpersonal communication skills, highlighting the need for a comprehensive educational framework that addresses both aspects to ensure students are well-prepared for the complexities of the modern world.

In conclusion, the research's findings support the ongoing commitment to the integration of physical education into the broader curriculum as a means of equipping students with essential interpersonal communication skills. By drawing these conclusions from the data, educational institutions can continue to refine and enhance their approach to physical education, ultimately empowering students to thrive in all aspects of their lives.

Conflict of interest

The authors state that no commercial or financial ties that might be considered a possible conflict of interest existed during the conduct of the study.

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Фізичне виховання як засіб покращення навичок міжособистісного спілкування студентів

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Авторський вклад: А – дизайн дослідження; В – збір даних; С – статаналіз; D – підготовка рукопису; Е – збір коштів

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Історія питання. Навички міжособистісного спілкування мають значний вплив на реалізацію навчального процесу в школі, на якому необхідно акцентувати увагу. Отже, забезпечення процедури постійного оцінювання учнів має важливе значення для досягнення оптимальних навичок міжособистісного спілкування.

Мета дослідження. Дане дослідження мало на меті вивчити вплив впровадження фізичного виховання на навички міжособистісного спілкування в учнів старших класів середньої загальноосвітньої школи (СЗШ) та професійно-технічних навчальних закладів (ПТНЗ). Обидва типи навчальних закладів мають відмінні характеристики. У старшій школі більше уваги приділяється безперервній освіті, в той час як у професійно-технічних навчальних закладах основний акцент ставиться на підготовці випускників до трудової діяльності.

Матеріали та методи. У дослідженні застосовано кількісний та описовий підхід, в якості досліджуваної вибірки обрано учнів старших класів шкіл та професійно-технічних навчальних закладів. Шкала міжособистісної комунікативної компетентності (ШМКК) є дослідницьким інструментом, застосованим у даній роботі.

Результати. На підставі отриманих результатів дослідження можна стверджувати, що існують відмінності в показниках навичок міжособистісного спілкування між учнями старших класів та професійно-технічних навчальних закладів порівняно з результатами впровадження фізичного виховання в школі. Про це свідчать результати дослідження з використанням t-критерію для незалежних вибірок (двостороннє р-значення) < 0,001. Крім того, можна також спостерігати, що за статевою ознакою (чоловіки та жінки) отримано значення 0,002. Обидва результати мають рівень значущості < 0,05.

Висновки. Як показують результати дослідження, навички міжособистісного спілкування в учнів професійно-технічних навчальних закладів є більш розвиненими, ніж у старшокласників.

Ключові слова: фізичне виховання, міжособистісне спілкування, школа, учень, професійно-технічний навчальний заклад, старші класи середньої школи.

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