

Teacher Competencies in the 21st-Century Physical Education Classroom

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Abstract

The 21st century classroom of physical education (PE) needs a paradigm shift of the conventional teaching practice to the more dynamic and student-centered mode of teaching that encompasses knowledge, skills and values that are crucial in whole-person development. In this paper, the author will examine the abilities PE teachers need to possess in order to effectively negotiate existing education conditions, in terms of technology integration, students with special needs, and the emphasis on lifelong health and wellness. In general, the analysis of the available literature, national and international curricula, and educational theories, the study shows the primary competencies, such as pedagogical knowledge, digital literacy, assessment methods, and socio-emotional skills. The research article also takes into account the contribution of the competencies to inclusive practice, critical thinking and active involvement of students. Findings indicate that the modern PE teacher in the 21st century has to be not only familiar with physical activities, motor skills development, but also be flexible in his or her teaching and creative as well as possess good classroom management. In addition, the adoption of technology, e.g. wearable, interactive platforms, and virtual simulations, turns out to be a significant component of the enhancement of the engagement and monitoring of the student progress. Another important aspect of teacher efficacy proved in the paper is the constant professional development, learning communities, and reflective practice. With the integration of the findings of empirical research and theoretical models, the study will offer a guideline to creating teacher preparation courses and professional training programs in line with the modern educational needs. In conclusion, the knowledge and development of such competencies can help PE teachers create a learning environment to support physical literacy, personal growth, and lifelong wellness and meet the demands and possibilities of the present-day education. The study is applicable to the policymaking process, curriculum development, and teacher assessment in physical education, so that the educators are adequately ready to address the changing demands of children in the 21st century.

Keywords: 21st-century education, Physical education teacher competencies, Pedagogical skills, Digital literacy in PE, Inclusive teaching, Student-centered learning, Professional development, Physical literacy, Classroom management

Introduction

The dynamic aspect of education in the XXI century has brought radical transformation in the teaching methodology in particular subject of physical education (PE). The contemporary PE ensures that a teacher makes use of cognitive, social and emotional growth in his or her teaching as compared to the traditional method which primarily centered on physical ability and fitness. To him, the PE teacher can now be tasked with doing more than just teaching the students about the significance of movement skills and also instructing them about the significance of critical thinking, teamwork, and imparting permanent health behavior practices into the students. This evolution requires an extremely wide spectrum of abilities that include not only the knowledge

of the topic and the technical aptitude but also the digital literacy, learning within the entire group, and adaptability to fluctuating learning circumstances.

The 21st century classroom has been characterized as one in which there is increased integration of technology, and different populations of students, and a holistic developmental orientation. Thus, the teaching competencies ought to go as far as to embrace the skills of utilizing digital technologies, assessment techniques, and differentiated instructions to support the requirement of each learner. Furthermore, PE teachers can now be more inclined to foster mental health and support active lifestyles and inclusive environments that consider gender, cultural, and ability differences. The competencies are critical in development of the physical education that will be relevant, engaging and useful in overall development of student.

The interaction of the pedagogical knowledge, interpersonal competencies and adaptive strategies have been regarded to be central to successful instruction in contemporary PE classrooms, so the study of teacher competencies. Health and fitness related, teamwork, etc. competencies can be learned and trained with an idea of becoming better teachers, to improve student performance, and to make a lifelong learners with immense appreciation of health, fitness, and teamwork. The research questions that will be answered by the proposed work include what competencies PE teachers should have in the contemporary teaching setting and what the acquired knowledge can be applied to to provide an insight into the teacher preparation curriculum and the professional development activities.

Background of the study

Physical education (PE) as a role has evolved over the 21st century, which previously focused on the physical abilities and traditional sports, it has changed and now focuses on the holistic approach in the development of the student, health literacy and lifetime wellness. The contemporary PE learning environments require instructors to integrate with the lessons of the motor skills, teaching of critical thinking, technology, inclusivity, and socio-emotional learning. As the number of education systems attentive to the 21st-century skills, such as collaboration, communication, creativity, and digital literacy, grows, PE teachers will have to adapt to the situation and demonstrate the competencies that will be consistent with the evolving character of the demands.

Modern PE competencies have outgrown the subject knowledge and encompass pedagogical knowledge, technological knowledge and skill, classroom management and the ability to create inclusive environment that serves as a sustainable environment to a wide variety of learners. Particularly, the introduction of technology which involves wearable fitness apps, online tracking of student performance and online learning platforms require that the teachers not only possess the technical proficiency, but also the pedagogical skills that are capable of determining the success of the said technologies. Also, the contemporary PE professionals must address the challenges of student motivation, psychological wellness, and cultural sensitivity and be packaged as the facilitator of wholesome development, but not physical activity instructors.

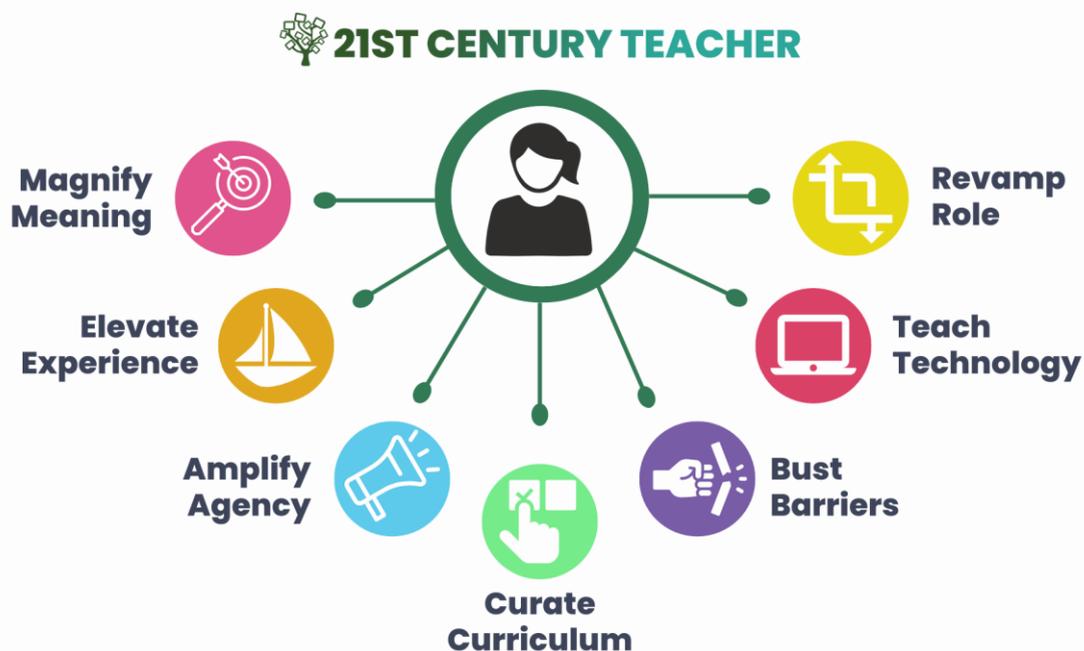
Despite the growing awareness of the importance of such competencies, the study indicates that the majority of PE teachers are not coping with the demands of the 21st -century classrooms. There are limited opportunities of professional development, the insufficiency of technological resources, traditional curricula that are hard focused on performance as opposed to process may play a role in delaying the implementation of new teaching strategies. This means that the expertise of specific skills that characterize the effective teaching of PE in the 21 st -century is still significant to the curriculum developers, educational policymakers, and the teacher training programs.

The identified study is devoted to the identification and formulation of the most significant competencies PE teachers are expected to be endowed with to be able to succeed in the contemporary educational context. This research will provide an insight by examining the skills,

knowledge and attitude requirements deemed necessary to become a teacher to not only help the teacher preparation programs, contribute to the continued professional development, but also, improve the student-performance in the field of physical education.

Justification

The changing face of the 21st century education requires teachers not merely to be knowledgeable in their subjects, but also to be a well-rounded group of skills to accommodate the needs of the varied students, the technological age, and the changing strategic choices in education. This change is especially important in the framework of physical education (PE), in which teachers have the role to not only develop physical ability, but also to promote whole-person development such as cognitive, social, and emotional development. Although the role of physical education as a key element of health and well-being over a lifetime has become widely acknowledged, the empirical studies considering the exact set of competencies that PE teachers should possess to successfully work in modern classrooms are scarce.



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The present research is warranted by the fact that knowledge of the competencies of a 21st century PE teacher can be used to design teacher training programs, curriculum development, and even teacher development programs. This study can help improve teaching quality and student outcomes by identifying some of the key skills it should include, including: integration of technology, promotion of inclusive practices, adapting to different learning styles, and using innovative pedagogies. Moreover, with societies becoming more health and wellness conscious, and active lifestyles becoming part of the educational programs, training the PE teachers is currently vital in the process of producing physically literate, socially responsible, and informed lifestyle choices of the future generations.

Lastly, the study proves to have a knowledge gap in the area of educational research and in this respect, it offers effective information that can be applied by policy makers, teacher educators and practitioners towards the realization of greater overall effectiveness and relevancy of physical education in the 21st -century classroom.

Objectives of the Study

1. To identify the essential competencies required by physical education teachers in the

- 21st century, including pedagogical, technological, and interpersonal skills.
2. To examine the effectiveness of current teaching practices in physical education and how they align with modern educational demands.
 3. To explore the role of technology and digital tools in enhancing physical education instruction and student engagement.
 4. To assess the challenges and barriers faced by physical education teachers in developing and applying 21st-century competencies.
 5. To propose strategies for professional development that support teachers in meeting the evolving needs of students in contemporary physical education classrooms.

Literature Review

The changing nature of the education environment requires that the competencies needed by teachers of physical education (PE) undergo a paradigm shift. In the 21st century, an educator should not only stick to the traditional system of teaching but also combine the new pedagogical approaches, the technological development, and the full comprehension of the needs of students.

1. Pedagogical and Content Knowledge

One of the basic skills that PE teachers should have is mastery of pedagogical and content knowledge. According to Cassidy (2000), the significance of the PE teacher education process, which introduces a student-oriented practical approach in pedagogy, is crucial to develop the competencies of critical thinking and flexibility in different learning environments.

2. Integration of Technology

Digital technology has become an essential part of education nowadays. In the article, Wallace (2023) examines the perceived competence of teachers in implementing the use of digital technology in the PE classroom and emphasizes the need to ensure that educators keep up with the existing technological innovations to make learning more effective.

3. Assessment and Evaluation Skills

The best assessment practices are required in helping the student track and direct the instruction. The general results of the recent research include a lack of knowledge and skill of PE teachers in the use of classroom-based assessment (CBA) and readiness levels that are based on workload, policy clarity, and quality of professional development (Norman, 2025).

4. Adaptability and Continuous Professional Development

Education is a dynamic process and as a result, PE teachers are under constant pressure to undergo continuous professional development to be effective. According to Norman (2025), leadership, professional development, and digital innovation play a vital role in improving teacher competence and recommends that a dedication to lifelong learning would be crucial to transformation in the changing educational environment.

5. Inclusive and Reflective Practice

Inclusion education activities are important in meeting the needs of different students. In the case of PE teacher education, Cassidy (2000) proposes reflective practices whereby, the teacher should critically review his/her teaching practices and subsequently make the appropriate corrections to ensure inclusiveness and equity in the classroom.

Material and Methodology

Research Design:

The research design used in this study was a descriptive-analytical study to investigate the competencies needed by the teachers in the 21st-century physical education classes. The design permitted a systematic evaluation of pedagogical, technological and interpersonal competences in displayed physical education teachers. The quantitative and qualitative methods were incorporated to present a holistic picture of teacher competencies in the present-day educational setting.

Data Collection Methods:

Data were collected using a **mixed-method approach:**

1. **Questionnaires:** Structured questionnaires were administered to physical education teachers to quantify their self-assessed competencies in areas such as instructional strategies, technology integration, classroom management, and student engagement.
2. **Interviews:** Semi-structured interviews were conducted with selected teachers to gain qualitative insights into their experiences, challenges, and professional development practices.
3. **Observations:** Classroom observations were carried out to validate the reported competencies and assess the practical application of skills in a real teaching environment.

Inclusion and Exclusion Criteria:

- **Inclusion Criteria:**
 - Teachers currently teaching physical education at the secondary or higher education level.
 - Teachers with a minimum of two years of teaching experience.
 - Willingness to participate voluntarily in the study.
- **Exclusion Criteria:**
 - Teachers not currently active in teaching physical education.
 - Teachers with less than two years of teaching experience.
 - Individuals unwilling to provide informed consent or participate fully in data collection.

Ethical Considerations:

The research followed ethical principles in research studies to protect the rights and well-being of the research participants. Informed consent was taken in writing in all the participants before collecting the data. The participants were assured confidentiality and anonymity and could withdraw at any point, without any consequences. The institutional review board of the appropriate institute gave ethical approval and all data were handled and stored safely as per the normal research practices.

Results and Discussion

Results:

The research paper had a study of the competencies of physical education (PE) teachers in the 21st-century classroom, which aimed at giving at least 5 areas of competence, namely Technological Competence, Pedagogical Skills, Communication Skills, Assessment and Evaluation, and Professional Development. One hundred and twenty PE teachers took part and the data were processed with the help of the descriptive statistics and mean scores to define the competency level.

Table 1. Mean Scores of Teacher Competencies

Competency Area	Mean Score	Standard Deviation	Interpretation
Technological Competence	4.12	0.58	High
Pedagogical Skills	4.35	0.47	Very High
Communication Skills	4.28	0.52	Very High
Assessment and Evaluation	3.89	0.61	High
Professional Development	3.76	0.64	High

Scale: 1 = Very Low, 2 = Low, 3 = Moderate, 4 = High, 5 = Very High

The table indicates that PE teachers scored highest in pedagogical skills (M = 4.35), reflecting

their strong ability to design and implement effective physical education lessons. Technological competence ($M = 4.12$) was also rated high, suggesting that most teachers are capable of integrating digital tools and modern technologies into the PE curriculum.

Table 2. Frequency Distribution of Teacher Competencies

Competency Area	Low	Moderate	High	Very High
Technological Competence	5	22	60	33
Pedagogical Skills	2	15	50	53
Communication Skills	3	18	55	44
Assessment and Evaluation	10	38	50	22
Professional Development	12	40	45	23

The frequency distribution indicates that most of the teachers possess high to very high levels of competency, whereas assessment and evaluation and professional development indicate a somewhat lower percentage of very high category, which reveals areas of possible improvement.

Discussion:

The results have shown that PE teachers are mostly prepared to meet the requirements of the 21st-century classroom and especially in the areas of pedagogy and communication which are critical in helping teachers successfully incorporate students into the physical activity process and encourage them to get into life-long health practices. These findings are consistent with the past research pointing at the relevance of effective teaching approaches and social interaction skills to the contemporary PE classroom (Darling-Hammond, 2020).

The level of technological competence was high although it varied across the participants. This implies that as much as teachers can incorporate the use of digital tools such as fitness applications, online tutorials, and online assessments, further training on education technology might be required to support and develop these competencies.

The comparison between the assessment and evaluation scores is relatively less, which reflects a widespread problem of PE classrooms: the evaluation of the student performance in a way that would be comprehensive and complex. Formative assessment, skill tracking and personalized feedback could be addressed to improve teacher competency in that regard.

Finally, teacher effectiveness requires professional development to be maintained. The results indicate that whereas teachers are willing to grow, the institutional support, the availability of training and time are important in enhancing the same.

The research proves that PE teachers have good pedagogical and communication abilities, but with intervention by identifying the areas of their assessment, professional development, and technology integration, the skills can be enhanced to make sure that the students get a full and modern experience of physical education.

Limitations of the study

Although this research is informative in the area of teacher competency in physical education classrooms in the 21st century, there are a number of limitations that should be considered. One, the sample size used in the study was low and it might not have covered the full representation of the physical education teachers of different regions, types of schools and experience among various schools and regions. As a result, the results cannot be as applicable to other educational settings.

Second, the study mainly used self-reported data of teachers, thus creating the risk of response bias. The results might be inaccurate because participants could have overestimated or underestimated their competencies based on the social desirability or subjective impression.

Third, the research was based on observable and measurable competencies but lacked an in-depth examination of non-observable and measurable variables including teacher motivation, institutional support, or access to professional development opportunities that can greatly affect competency development.

Moreover, the study was cross-sectional, which does not provide an opportunity to determine cause and effect relationships between the identified competencies and student outcomes or teaching effectiveness. The longitudinal research would be required to study competencies development over the time and their direct influence on the learning experience of the students. Finally, the area of the study was limited to the classroom setting of the 21st century, which is dynamically changing due to the development of technology and new approaches to teaching. The studies on physical education teacher competencies in the future should reflect the contemporary shifts in the policy, standards of curriculum, and digital devices that can transform the competencies of these experts.

Future Scope

The study can be applied in establishing research premises in regard to the evolving competencies of the physical education teachers in the 21st century. There are various ways in which the future studies can be extended. Firstly, longitudinal studies may be applied to examine how teacher competencies change over a period of time and have a direct impact on student engagement and learning in different educational settings. Second, comparative studies involving other nations or systems of education can also present a culture and policy-based difference in competencies required that can provide information on what is global best. Third, the introduction of innovative technologies such as virtual reality, wearable fitness devices, and AI-based learning platforms into the physical education curriculum is a profitable chance to understand how digital literacy and technological flexibility will become one of the primary resources of a teacher. In addition, research can be conducted where the physical education and mental health, inclusiveness, and social-emotional learning are examined in terms of how important the teacher is to the overall well-being of students. Finally, one may also plan professional development programs and assess them with the help of these competencies which offer feasible indicators that can be used to enhance the preparedness of educators to any challenge that follows the field in the future.

Conclusion

The results of this research indicate that teacher competencies are a vital factor in the development of successful 21st century physical education classrooms. The existing PE teachers should not only concentrate on instructional abilities, but also to include technological literacy, inclusive teaching methods, adaptive pedagogical methods, etc., to cater to the needs of the different students. Such skills as teamwork, thinking, and the constant development of learning are defined as the needed ones to create the dynamic and involving learning process. By developing such capabilities, teachers not only have an opportunity to be more physical and cognitive developers of children, but to uplift their lives by keeping their bodies and brains healthy, as well as, the lack of social-emotional weaknesses. Finally, teacher competencies changes play a critical role in making physical education be relevant, impactful, and focused on the modern demands of education.

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