



# **The Teaching Competencies of Pe Teachers and the Learning Engagement of Students with Orthopedic Difficulty: Basis for Inclusive Multimodal Module**

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## **ABSTRACT**

This paper investigated the teaching competencies of Physical Education (PE) teachers and the learning engagement of students with orthopedic difficulties in exercise-based fitness activities one of the course in Physical Activity towards health and fitness (PAHTFit) within the State Universities and Colleges (SUCs) in Region 9. This paper aimed to provide an inclusive Multi-Modal Module for both the teacher and students with orthopedic difficulties. A descriptive quantitative research designed was utilized in this study and correlational research was used to determine the significant difference of the teaching competencies of the teachers and learning engagement of the students with orthopedic difficulties, as well as its significant relationship. The results showed that this paper underscored the critical role of inclusive teaching competencies in fostering meaningful learning engagement among students with orthopedic difficulties. Teachers who employ differentiated instruction, collaborative methods, and adaptive strategies create environments that support active participation and equitable access to education. Moreover the engagement of the student towards the activities conducted by the PE teachers were moderately participated by the students with orthopedic difficulties during the conduct of the PATHFit activity in the State Universities and colleges in Region 9. Institutional factors such as school affiliation and professional development opportunities significantly influence teaching effectiveness. This paper also emphasized that while PE teachers were generally *competent*, ongoing professional development and targeted resource allocation were necessary to enhance inclusive practices and address specific challenges faced by students with orthopedic difficulties inside the PATHFit classes.

**Keywords:** *Multimodal Module, PAHTFit, Adapted Physical Education, Student with Disabilities, Teaching competencies, Student Engagements, Orthopedics, Teaching Strategies, Professional Development and Teachers Training.*

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## **Introduction**

A sedentary lifestyle can lead to significant public health issues for individuals who do not engage in physical activities. This inactive way of living has been identified as a major contributor to various health problems, including illness, premature death, and disability. The World Health Organization (2002) highlights the impact of sedentary behavior on global health, emphasizing the importance of promoting physical activity to combat these challenges. It is crucial to enhance Physical Education programs in schools to cater to all students, including those with physical or health limitations, ensuring they can participate in modified activities safely and benefit from regular exercise. Inclusive Physical Education refers to an educational approach that recognizes and accommodates the diverse needs and abilities of all students, including those with disabilities in the context of physical education programs. It aims to ensure that every student, regardless of their physical or cognitive abilities, has equal opportunities to engage in physical activities and develop their physical fitness, motor skills, and overall well-being. However, the implementation of inclusive physical education in State Universities and Colleges in Zamboanga Peninsula faces several challenges that need to be addressed.

Students with disabilities face unique challenges in pursuing higher education, particularly in State Universities and Colleges (SUCs) more so in the Region 9, Zamboanga Peninsula. In Zamboanga City, the experiences and needs of these students more specially the students with orthopedic difficulties in SUCs have not been thoroughly examined, leading to limited understanding of their challenges and the necessary enhancements needed to develop inclusive curricula (Villegas, 2020 and Kilat et., al. 2024). Teacher preparedness, inadequate resources, and negative societal attitudes remain major barriers to effective inclusive education (Kilat et., al. 2024). It is evident that in the study of Tanure Alves et al., (2020) that the students with orthopedic difficulties have felt the segregation or exclusion from peers without disability inside the class. The vital contribution of this paper is to provide not just the engagement of the students with disabilities enrolled in tertiary schools but also the Service PE teachers on their teaching strategies as part of their teaching competencies towards the students in their class. Physical education should be enjoyed both students with or without disabilities, according to the Center for Disease control and prevention (2020) that every student, irrespective of their abilities, should aim to achieve the recommended 60 minutes or more of daily physical activity. Schools play a vital role in assisting students in meeting this guideline, by fostering an inclusive environment for physical education and activity, schools can empower all students to embrace a healthy and active lifestyle.

This research would help students with orthopedic difficulties and more specially the teachers who were responsible in delivering the physical education. This would also help the teachers develop their teaching competencies and encourage the engagement of the students with orthopedic difficulties in their PE classes. This will also influence all the teachers in the State Universities and Colleges in region 9- Zamboanga Peninsula teaching service PE classes. Having to include the students with disabilities in a regular PE class session is usual, but the engagement of the students and their interaction in the class is limited (Bertills et. al., 2019). The advantage of the school engagement is evident considering the individual well-being, which was positively associated with the quality of work in the future (Pellegrino et. al., 2012).

It was stated in the Republic act no. 7277 also referred as the Magna Carta Law for Disabled persons, mandates that the government must ensure the equal opportunities for individual with disabilities to enhance their overall well-being. In the section 12 specifically emphasizes that students with disabilities should be granted access to Higher Education and opportunity to be nurtured and be enhanced of their abilities. This approach not only promotes health and fitness but also involves tailored activities designed to cater the diverse needs of the students with disabilities in terms of the use of facilities, equipment and other necessities needed in the school and curriculum.

In Zamboanga Peninsula, students with disabilities most specifically students with orthopedics enrolled in several State Universities and Colleges, despite of their disabilities they participate in the academic and extracurricular activities that the course has to offer, however as it was indicated in the study of Alves et al., (2020) that students were separated from the regular students and these regular students were doing the physical activities meanwhile the students with disabilities specifically the students who were orthopedic difficulties were put to clerical task due to their in-ability to do the task of the regular students.

In the Philippines, there was not enough research study relative to orthopedics students in the tertiary school has been conducted in the past, thus there has been limited evidence that pertains to national data on physical activity which indicates sedentary behavior among students with disability in the Philippines (Kang et.al., 2023). The main goal of this paper was to make an inclusive multimodal module to be used in the inclusive Exercise based fitness activities. As the enrollment of the students with disabilities grows in the State Universities and Colleges in the region, the concerns of all the PE teachers also grow due to the preparations of each of the teachers to educate the students with disabilities in their respective classes (Lieberman et. al., 2017). As Lieberman (2017) define physical education as an integral part of educational process designed to develop the optimum aspects of an individual regardless of their abilities, status and disabilities, they must enjoy the benefit of the physical education brought about them by a well-trained professional. To empower the students with disabilities, the PE instructors should adapt their teaching competencies to accommodate the unique requirements of each of the student. This paper will assist the teachers in determining the most suitable activities that address the individual needs of the students. It was vital to make modifications and providing innovative instructions which cannot be overstated in fostering the growth of the students with disabilities and impairments. Failure to employ effective strategies and skills for the students with additional needs may lead to feeling of isolations, helpless and heightened emotional stress (Heler et al., 1999).

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## Method

This study employed a descriptive correlational research design utilizing quantitative analysis and a questionnaire checklist. It focused on the teaching competencies of Physical Education (PE) teachers and the learning engagement of students with orthopedic difficulties in exercise-based fitness activities across six (6) State Universities and Colleges (SUCs) in the Zamboanga Peninsula (Region 9). Descriptive correlational research was used to explore the relationships between variables and describe their characteristics without manipulation. The objective was to investigate significant differences and relationships within the study to answer pertinent research questions (McBurney & White, 2009). Data were collected to quantify and determine the variables of interest, specifically the profiles of the respondents. The study examined differences in teaching competencies and student learning engagement based on respondent profiles, and also analyzed the relationship between these two variables using a correlational research design.

The study have been conducted in six (6) SUCs in Region 9, coded as *School A*, *School B*, *School C*, *School D*, *School E*, and *School F*. These institutions are members of the Mindanao Association of State Tertiary Schools, Inc. (MASTS), which annually conducts sports programs for its members throughout Mindanao. The respondents were PE teachers handling the PATHFit subject, specifically exercise-based fitness activities, from these six SUCs. These educators were responsible for delivering PATHFit activities in their classes. A total enumeration sampling technique was employed, selecting all available teachers responsible for teaching PATHFit. This approach was chosen due to the relatively small population of PATHFit instructors and the specialized expertise required, making the inclusion of all qualified teachers essential for the research's integrity and depth. The research instrument was developed by the researcher based on relevant literature and validated by three (3) experts in the field. Reliability was tested using Cronbach's Alpha. A questionnaire checklist was distributed to the respondents.

To ensure the robustness of the research instrument, a letter was sent to the panel of experts requesting validation, thereby enhancing its credibility and effectiveness. Additionally, a separate letter was distributed to non-respondents for reliability testing. After validation and reliability testing using Cronbach's Alpha, the results were analyzed to confirm the instrument's validity and reliability. Subsequently, the instrument and relevant documentation were submitted to the Ethics Review Board for clearance. The outcome depended on the Ethics Committee's recommendations, which were incorporated to ensure compliance with ethical standards.

Various statistical methods were used to analyze the data obtained from respondents. Mean distribution was employed to analyze the respondents' profiles. Percentage computation, ranking, frequency determination, and weighted mean were also utilized. Spearman's Rho correlation measured the strength,

direction, and association between the teaching competencies of respondents and the learning engagement of students with orthopedic difficulties. The Kruskal-Wallis test was applied for comparative analysis of teaching competencies based on profile variables. Normality of the data was also tested.

## Results and Discussion

The study reveals that a significant number of young PE educators (43.5%, or 27 participants, aged 26–30) have been teaching PATHFit classes, while 17.7% of the respondents were even younger (20–25 years old), and 1.6% of the participants were aged 60 and above. This indicates a relatively high number of young educators teaching PATHFit classes in SUCs in Region 9, while only a small percentage were tenured and seasoned in the field. The predominance of young PATHFit educators in Region 9 reflects a broader trend of early-career professionals entering PE roles, as observed in NCR's PATHFit1 programs (Dantes, 2024). The limited presence of seasoned educators (1.6% aged 60+) highlights potential gaps in mentorship, which studies link to effective disciplinary strategies and curriculum implementation (Vilchez et al., 2023).

The largest number of PE educators came from School B (29%), indicating that more PE instructors teach PATHFit in this institution. School A comes in second, with 21% of the PE teachers handling PATHFit classes and students with orthopedic difficulties. These two universities, though within walking distance of each other, have distinct course offerings. School A is more inclined toward academic excellence, making it the leading institution in Region 9 (Course Hero, 2023), while School B is affiliated with the Technical Education and Skills Development Authority (TESDA) and focuses more on technical-vocational courses. According to TESDA (2023), the TVET program plays a crucial role in developing the skills of students with disabilities (TESDA, 2023).

There has been a significant portion of the respondents who were with Master's degree units (54.84%) while 19% of it were full pledge Master's Degree Holder, which aligns with CHED's (2021) emphasis on faculty upskilling for PATHFit programs. The lowest number of the respondents were 8.1% who were Doctorate degree holder. Majority of the respondents have been teaching between 1-5 years of experiences at 45.2%, indicating a relatively young workforce which trends observed in recent studies on PATHFit implementation (Olimpo et al., 2024), while 11.3 % has over 16 years of experience, these data show a blend of both novice and experienced teachers in Physical Education. Which highlights the importance of mentorship and institutional knowledge in adapting to curricular changes mandated by CHED Memo No. 39.

On the other hand, a considerable number of respondents have not attended the trainings and seminars pertaining to the Special Education, Adapted PE and other related trainings at (27) 43.5%. This means that there is a need for more professional development opportunities in their field of Adapted Physical Education, Special Education and/or Inclusive Physical Education, this was similar to the study of Block et al. (2020) showing a systemic gap in professional development for disability-inclusive instruction. However, a 40.3 % have attended at least 1-3 seminar workshop relative to the Special Education, Adapted Physical Education and Inclusive Education. This was a potential for capacity-building, as even limited training enhances educators' ability to support diverse learners (Kudláček et al., 2010).

## Level of Competence of the PE Teachers

The level of teaching competence of Physical Education (PE) teachers in instructing students with orthopedic difficulties, specifically in the use of differentiated instruction, revealed an overall mean score of 3.28. This indicates a "Competent" level of implementation, suggesting that the teachers demonstrate moderately effective teaching practices in PATHFit classes. This implies that the respondents were generally competent across all areas of differentiated instruction. These competencies are crucial for creating an inclusive environment that enhances learning engagement, particularly in promoting the physical fitness and well-being of students with orthopedic difficulties in PATHFit classes.

Based on the data assessment for differentiated instruction, gamification received the highest mean score among all strategies, with a mean of 3.44 (SD-0.64). This indicates that teachers were moderately effective in using gamification to engage students with orthopedic difficulties. This finding aligns with research suggesting that gamification enhances engagement and motivation in physical education, especially for students with additional needs (Olimpo et al., 2024). Partner activities ranked second (Mean-3.42, SD - 0.71), also reflecting moderate effectiveness. This approach pairs students with orthopedic difficulties with regular students for skill progression, supporting Bertills et al. (2024) findings that peer collaboration before physical performance enhances mastery for students with disabilities.

Obstacle courses ranked lowest in effectiveness (Mean- 3.15), likely due to safety concerns and the significant modifications required to accommodate students with orthopedic difficulties (Block et al., 2020). While educators rated themselves as "competent," this rating reflects awareness of the challenges in adapting such activities without specialized training or resources (Haegele et al., 2021). Targeted workshops on inclusive design, as proposed by Kudláček et al. (2010), could help bridge this gap.

Overall, the results indicate moderate effectiveness of differentiated instruction strategies for students with orthopedic difficulties, with most items rated as "competent." Several constraints hamper teachers' ability to implement differentiated instruction effectively. As highlighted by Gibbs (2022), limited resources and insufficient teacher training are significant barriers. Activities such as goal setting, fitness stations, scavenger hunts, fitness journals, and choice boards were rated as "competent" rather than "highly competent," suggesting that while these strategies have merit, they may not be fully optimized for students with orthopedic difficulties (Korkmaz & Yücel, 2023). Mawena et al. (2024) emphasize the critical role of physical activities and sports in enhancing students' motor skills, physical competencies, and behavioral, cognitive, and social abilities. Therefore, it is crucial to ensure that all students, including those with orthopedic difficulties, have access to inclusive and effective physical education programs.

## Level of engagement of the students with orthopedic difficulties

The level of learning engagement of students with orthopedic difficulties in terms of communicative proximity was assessed, revealing an overall mean score of 3.08. This indicates that, cumulatively, students' participation was categorized as "engaged," suggesting moderate involvement in activities where communicative proximity was a primary factor.

Item 9 ranked highest among all items, stating that *"Instructions are supportive and inclusive, accommodating their needs during the sessions,"* with a mean score of 3.39. This demonstrates that students with orthopedic difficulties were actively engaged during activities, showing a moderate level of interest. Item 10 followed closely, noting that *"Students are observed to be more engaged when their PE teachers encourage them to discuss and collaborate with their peers,"* with a mean score of 3.37. This supports findings by Amri et al. (2024), who reported that peer collaboration fosters positive outcomes and meaningful experiences, promoting autonomy and welcoming feedback.

Item 8 ranked third, stating that *"Students with orthopedic difficulties are more engaged when given opportunities for peer mentoring, which the instructor facilitates to enhance their skills,"* with a mean score of 3.31. This indicates moderate participation and aligns with research supporting structured peer mentoring as a means to foster collaborative learning, leadership development, and inclusivity for students with mobility challenges (Murali et al., 2023).

Items 4, 5, 6, and 7 received mid-level scores, indicating consistent but not universal engagement among students. These findings suggest that while students with orthopedic difficulties generally participate in PE activities, advancing to a *"Highly Engaged"* status requires targeted improvements in teacher training, program design, and resource availability. Emphasizing inclusive pedagogy, peer collaboration, and interdisciplinary support will foster equitable participation and long-term success.

Lower-performing items included item 3 (mean score 3.15) and item 2 (mean score 3.03), both rated as *"engaged."* These lower scores highlight challenges in physical education for students with orthopedic disabilities, such as gaps in resources, insufficient teacher preparation, and limited activity customization. Addressing these barriers is critical to improving engagement and ensuring equitable access to physical education programs.

Finally, *"Participation in adapted activities and class discussion"* (item 1) received a mean score of 3.08, ranking tenth overall. While students demonstrated moderate engagement in adapted physical education activities and discussions, this was the lowest-ranked strategy. Barriers such as inaccessible facilities, lack of peer support, and insufficiently adapted activities may hinder fuller participation. Although the overall mean reflects positive engagement, it does not imply uniform effectiveness across all strategies, underscoring the need to refine inclusive teaching methods to enhance participation among students with orthopedic difficulties.

## Conclusion

This study investigated the relationship between the teaching competencies of Physical Education (PE) teachers and the learning engagement of students with orthopedic difficulties in exercise-based fitness activities (PATHFit) across six State Universities and Colleges in Region 9. The findings highlight that inclusive teaching competencies—such as differentiated instruction, collaborative methods, and adaptive strategies—play a pivotal role in fostering meaningful engagement among students with orthopedic difficulties. While most PE teachers demonstrated competence in inclusive teaching, student engagement was observed to be moderate, indicating room for improvement in both instructional strategies and institutional support.

The study also revealed that institutional factors, including school affiliation and access to professional development, significantly affect both teaching effectiveness and student engagement. Younger educators dominate the teaching force, with a notable gap in mentorship from seasoned professionals. Despite the general competence of teachers, ongoing professional development and targeted resource allocation remain necessary to further enhance inclusive practices and address the unique challenges faced by students with orthopedic difficulties. The results underscore the need for a structured, inclusive, and multimodal approach to PE instruction to ensure equitable access and active participation for all students.

## Recommendation

This study recommends that Higher Education Institutions (HEIs) and State Universities and Colleges (SUCs) strengthen professional development by providing regular, targeted training for PE teachers on inclusive education strategies, adaptive physical activities, and the use of assistive technologies. It encourages the implementation of mentorship programs that pair young educators with experienced teachers to bridge gaps in practical knowledge and classroom management.

Institutions should enhance support and resource allocation by increasing funding dedicated to inclusive PE, including accessible facilities, adaptive equipment, and support staff. Prioritizing the integration of inclusive practices within institutional policies and curricula is essential.

Promoting collaborative teaching and peer support is also vital. This involves fostering cooperation among teachers, special education professionals, and allied health personnel to design and implement effective inclusive activities. Additionally, encouraging peer support systems among students can promote social integration and reduce feelings of isolation.

To ensure continuous improvement, mechanisms should be established for regular monitoring and evaluation of both teacher competencies and student engagement levels. Feedback collected should be used to refine teaching strategies and module content to better meet the needs of students with orthopedic difficulties.

Finally, this study advocates for policy and cultural change, urging SUCs and HEIs to collaborate with educational leaders and policymakers to strengthen the enforcement of laws supporting inclusive education, such as the Magna Carta for Disabled Persons.

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