



ENHANCING PHYSICAL EDUCATION LEARNING THROUGH MODERNIZED INTERACTIVE TEACHING APPROACHES: A STUDENT PERCEPTION AND ACADEMIC PERFORMANCE STUDY

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ABSTRACT

The study aimed to evaluate student perceptions of updated teaching approaches and their academic performance in the second semester of 2022-2023. Using a descriptive-correlational design, the research involved 30 college students from Bulacan State University in Physical Education classes. A self-developed questionnaire with a four-point Likert scale gauged opinions on modern teaching. Academic data came from P.E. grades. Results highlighted simulation methods improving theoretical and practical P.E. understanding. Students enjoyed simulation-based classes, found peer teaching effective for confidence and mutual learning, and noted cooperative learning enhanced teamwork and social skills. Problem-solving activities boosted critical thinking and adaptability. Academic performance varied, with simulation correlating slightly stronger. The study shows interactive techniques enhance P.E. learning, despite weak academic correlations. Positive perceptions suggest a potential for enriched P.E. education.

KEYWORDS - Modernized Teaching Approaches; Physical Education; Student Perception; Academic Performance; Simulation Methods; Peer Teaching; Cooperative Learning

INTRODUCTION

Amidst the swiftly changing realm of education, marked by technological progress and learner-centric pedagogy taking precedence (Bronikowski, 2011), the integration of contemporary interactive instructional techniques emerges as a catalytic influence. This transformation is particularly conspicuous in the domain of Physical Education (P.E.), where technology-imbued interactive methodologies are revolutionizing established teaching norms. The advent of the digital revolution has inaugurated an epoch characterized by interactivity, tailored learning, and immediate feedback, thereby reshaping the educational framework (Kumar, 2023).

Educational institutions are acclimating to this emerging reality by adopting inventive strategies that cultivate dynamic involvement, cooperation, and tailored learning journeys. An expanding array of literature has scrutinized the interconnectedness of these updated pedagogical techniques and subsequent scholastic attainment, notably within P.E. contexts (Bessa et al., 2020). Among these burgeoning methodologies, gamification has garnered momentum, presenting an avenue to revolutionize P.E. into an arena conducive to immersive learning environments (Arufe-Giráldez et al., 2022).

The significance of preparing forthcoming professionals through pioneering pedagogical strategies such as games and simulations is formidable. A qualitative expedition into the effects of games and simulations on educational objectives underscores positive impacts on cognitive, behavioral, and affective outcomes (Vlachopoulos & Makri, 2017). Furthermore, the evolving landscape of higher education and the transition to novel educational benchmarks accentuate the importance of top-notch training. Active and interactive instructional approaches have demonstrated their pivotal role in nurturing professional aptitudes, stimulating analytical cogitation, and fostering creativity (Kutbiddinova et al., 2016).

Adopting a broader perspective, this investigation aims to delve into the entrepreneurial psychology of P.E. scholars within the "Internet+" milieu, spotlighting the cultivation of entrepreneurial awareness. This entails harnessing modern educational technologies like motion sensing to elevate physical proficiencies and endorse entrepreneurial self-efficacy as a mediator (Zhou et al., 2011). Furthermore, the shift from traditional, instructor-centric pedagogies to contemporary interactive methodologies holds potential in enhancing students' communication skills and grasp of subject matter (Zhang & Zhang, 2022).



This article draws upon the tenets of constructivist learning theory to comprehensively comprehend the interplay between contemporary interactive instructional techniques and academic accomplishment in P.E. This theory accentuates proactive learning and interaction with the surroundings to construct knowledge (Vygotsky, 1978). Correspondingly, modernized interactive teaching methods align with this theory by fostering dynamic engagement, collaborative learning, and individualized exploration, thereby augmenting academic performance.

Despite existing literature underscoring the potential advantages of interactive teaching methodologies on academic outcomes in P.E., a research lacuna necessitates attention. This study endeavors to address this void by holistically investigating the combined influence of diverse interactive approaches, including gamification and virtual reality, on academic achievement within the realm of P.E. Through an in-depth exploration of these techniques, this research strives to illuminate their collective impact and offer valuable insights for educators, researchers, and policymakers to shape instructional design and curriculum progression.

The integration of contemporary interactive teaching methods offers significant potential for redefining the educational landscape, particularly within the realm of Physical Education (PE). This paper seeks to untangle the intricate correlation between these methods and academic performance in PE, thereby advancing instructional techniques and pedagogical approaches in this domain. The prospect of heightening engagement, immersion, and tailored learning encounters signifies a pivotal stride toward equipping students with skills relevant to the digital era. Positioned to delve into the depth of this association, the study aims to scrutinize college students' perceptions, their academic accomplishments, and the dynamic interplay between modernized teaching methods and scholastic success in the field of Physical Education.

RESULTS AND DISCUSSIONS

Table 1. Level of perception of Modernized Interactive Teaching Methods in terms of Simulation

Table with 4 columns: Statements, Weighted Mean, Standard Deviation, and Verbal Interpretation. It lists six statements about simulation methods in P.E. classes and an overall mean row.

Legend: 4.00-3.25-Strongly Agree;3.24-2.50-Agree; 2.49-1.75-Disagree;1.74-1.00-Strongly Disagree

METHODOLOGY

Employing a comprehensive approach, this study investigates the interrelation between modernized interactive teaching methods and students' academic performance. The study's central objectives encompass evaluating students' perceptions of contemporary teaching techniques, including simulation, peer teaching, cooperative learning, and problem-solving. Moreover, the study aims to appraise students' academic achievements during the second semester of the 2022-2023 academic year. To fulfill these objectives, a descriptive-correlational research design was employed.

Constrained by time considerations, the study recruited 30 college students presently enrolled in Physical Education classes at Bulacan State University as participants. A self-developed questionnaire employing a four-point Likert scale was utilized to measure students' viewpoints on modernized interactive teaching methods. This survey tool assessed students' attitudes and convictions regarding innovative instructional strategies employed in their physical education curriculum.

Simultaneously, data on academic performance during the specified time frame were amassed. These records were sourced from students' grades in their physical education courses, offering a quantifiable gauge of their scholastic accomplishments in the second semester of the 2022-2023 academic year.

Through the application of this methodology, the study endeavors to unveil plausible correlations between students' perceptions of modernized interactive teaching methods and their ensuing academic performance. Through data analysis and exploration of these associations, the study strives to provide valuable insights into the efficacy of contemporary teaching approaches in enhancing both the educational encounter and scholastic outcomes in the domain of Physical Education.



Table 1 presents the outcomes detailing the perception levels towards Modernized Interactive Teaching Methods, with a specific focus on Simulation, within the realm of Physical Education (P.E.) classes. Respondents' viewpoints were gauged using a weighted mean and standard deviation scale, accompanied by corresponding verbal interpretations. The findings reveal an overall positive reception of simulation techniques within P.E. classes. Respondents concurred that the utilization of simulation methods enhances their grasp of theoretical concepts linked to physical activities, effectively bridging the gap between theory and practice. Additionally, they expressed agreement that these approaches infuse P.E. sessions with heightened engagement and enjoyment when compared to conventional teaching methods. Notably, a significant consensus emerged on the effectiveness of simulation methods in comprehending intricate movement patterns and strategies taught in P.E., such as sports tactics or dance routines.

Furthermore, respondents voiced consensus that simulation techniques adeptly prepare them for real-world physical activities and sports scenarios beyond the classroom confines. A composite

mean score of 3.21 further underscores the respondents' favorable inclination towards simulation-based pedagogy in P.E. Evidently, simulation methods exhibit potential as a valuable pedagogical tool for augmenting theoretical comprehension and practical application within the domain of physical education.

These findings align with Rahmadi et al.'s study (2021), which examined the implementation of simulation in P.E. education during the COVID-19 pandemic. The study, utilizing a quantitative methodology encompassing 180 students from levels 7 and 8, employed random participant selection and questionnaire administration. The research highlighted the challenges faced by teachers during these demanding times, with many resorting to similar teaching methods. Some educators continued instruction through distance learning, employing platforms like WhatsApp and utilizing simulation as a teaching approach. The study comprehensively assessed multiple dimensions of learning, encompassing social attitudes, cognitive processes, and physical skills. Effective communication emerged as a pivotal component for successful distance learning via simulation methods, particularly concerning assessment protocols.

Table 2. Level of perception of Modernized Interactive Teaching Methods in terms of Peer Teaching

Statements	Weighted Mean	Standard Deviation	Verbal Interpretation
Engaging in peer teaching activities during P.E. helps me grasp concepts better than traditional teacher-led methods.	3.20	0.40	Agree
Teaching my peers in P.E. enhances my confidence and understanding of the subject matter.	3.23	0.42	Agree
Explaining concepts to my classmates during P.E. enhances my own learning experience.	3.13	0.34	Agree
Peer teaching in P.E. allows me to see different perspectives and techniques, enriching my learning.	3.13	0.34	Agree
I value receiving feedback from my peers after teaching them a specific physical skill or concept.	3.17	0.37	Agree
OVERALL MEAN	3.17		Agree

Legend: 4.00-3.25-Strongly Agree;3.24-2.50-Agree; 2.49-1.75-Disagree;1.74-1.00-Strongly Disagree

Table 2 provides an overview of the perceptions surrounding Modernized Interactive Teaching Methods, with a specific focus on Peer Teaching, within the domain of Physical Education (P.E.). The survey responses reflect an overall positive perception among participants. The weighted mean scores, ranging from 3.13 to 3.23, consistently demonstrate agreement levels across all statements, as indicated by the Verbal Interpretation. Participants express that engaging in peer teaching activities during P.E. fosters a superior understanding of concepts compared to traditional teacher-led methods, underscoring the efficacy of interactive teaching approaches. Moreover, participants believe that teaching their peers enhances their confidence and comprehension of the subject matter. The act of explaining concepts to classmates is perceived as mutually beneficial, enhancing individual learning experiences while imparting valuable insights to peers. Additionally, participants

acknowledge the enriching aspect of peer teaching, enabling them to gain diverse perspectives and techniques, thus contributing to a comprehensive learning journey. Significantly, the value of feedback received from peers after instructing specific skills or concepts is recognized as a constructive facet of the process. The overall mean score of 3.17 further reinforces the collective agreement among participants regarding the merits of Modernized Interactive Teaching Methods, accentuating the positive influence of peer teaching within the P.E. context.

Notably, while peer teaching is a potent pedagogical tool, limited research has explored its efficacy among high school students instructing one another in P.E. classes. A study addressing this gap examined a unique peer teaching program where students were trained to employ specific game-based techniques for teaching. The research evaluated the impact of this training on



student learning and behavior in P.E. The results indicated that peer teachers who underwent the specialized training exhibited better performance in the game and dedicated more time to learning. They also provided increased feedback and structured learning periods. These peer teachers reported more positive attitudes toward teaching and encountered fewer barriers to learning. This study highlights that equipping students with specific teaching methodologies can enhance their behavior, teaching abilities, and performance in P.E. (Whipp et al., 2015).

In a separate study, ten high school girls served as peer teachers in a P.E. class, instructing hip-hop dance. Researchers examined the peer teachers' perceptions of this experience through

questionnaires and interviews. The outcomes revealed that peer teachers perceived dance as a significant component of the class. They appreciated the autonomy to shape the class and were pleasantly surprised by the rapid learning progress among their students, which boosted their confidence. However, they also displayed self-criticism and discomfort when making errors. Teaching peers of similar age posed challenges, and the peer teachers were surprised by their students' reception. This study underscores that while peer teaching presents challenges, it also offers positive experiences and kindles student interest in P.E. by integrating popular youth culture, as exemplified by hip-hop dance (Nurmi & Kokkonen, 2015).

Table 3. Level of perception on Modernized Interactive Teaching Methods in terms of Cooperative Learning

Statements	Weighted Mean	Standard Deviation	Verbal Interpretation
Working in groups during P.E. classes lets me learn from my classmates' diverse experiences and approaches.	3.20	0.40	Agree
Cooperative learning in P.E. fosters a sense of teamwork and camaraderie among students.	3.27	0.44	Strongly Agree
Collaborative activities in P.E. enhance my social skills and ability to work effectively with others.	3.17	0.37	Agree
Group-based activities in P.E. help me explore new strategies and tactics I might have not thought of independently.	3.07	0.25	Agree
Cooperative learning experiences in P.E. create a more enjoyable and interactive learning environment.	3.10	0.30	Agree
OVERALL MEAN	3.16		Agree

Legend: 4.00-3.25-Strongly Agree;3.24-2.50-Agree; 2.49-1.75-Disagree;1.74-1.00-Strongly Disagree

Table 3 elucidates the perspectives surrounding Modernized Interactive Teaching Methods, with a specific emphasis on Cooperative Learning, within the context of Physical Education (P.E.). The findings unveil a prevailing positive outlook among participants. The weighted mean scores, ranging from 3.07 to 3.27, aptly indicate agreement levels that underscore the advantages of cooperative learning. Participants acknowledge the merits of collaborative group work in P.E. classes, recognizing it as an avenue to glean insights from diverse peer experiences and methodologies. Notably, the high weighted mean score for the statement on fostering teamwork and camaraderie underlines the strong association between cooperative learning in P.E. and the promotion of a collective spirit.

Furthermore, participants express the belief that collaborative activities augment their social skills and aptitude for harmonious teamwork, reflecting the cooperative ethos of the learning environment. Their recognition that group-based activities facilitate the exploration of novel strategies and tactics underscores the perceived practical benefits of cooperative learning. Additionally, participants perceive cooperative learning experiences in P.E. as contributing to a more enjoyable and interactive learning atmosphere, accentuating the constructive

impact on overall engagement. The overall mean score of 3.16 substantiates participants' shared endorsement of the favorable attributes of Modernized Interactive Teaching Methods, reaffirming the perceived advantages of cooperative learning in the realm of P.E.

One study proposes an innovative approach to cooperative learning in P.E., involving two distinct grouping methods: one where students with varying skills collaborate and another where students have the autonomy to choose their groups. The research evaluated the effectiveness of these methods on basketball skill acquisition and motivation. By comparing skill-based groupings with student-selected groups, the study utilized tests and surveys to assess outcomes. The findings demonstrated significant improvement in overall skills, dribbling, and passing in both groups, with comparable motivational gains. Notably, shooting proficiency exhibited no substantial improvement. This study emphasizes the importance of teacher-student rapport and allowing students to select their groups, suggesting that effective cooperative learning requires teacher intervention when needed and group selection methods aligned with pedagogical objectives (Yang et al., 2021).



Another study scrutinized the impact of P.E. group projects on student learning and social skills. Engaging 94 high school students in crafting a video exercise within small groups, the researchers assessed participants' perceptions of the learning experience, participation, and project outcomes. The majority of

students reported enhanced social skills and strengthened group cohesion. Diverse viewpoints emerged based on age and gender, suggesting that collaborative projects in P.E. foster learning and growth through teamwork (Luptakova & Antala, 2017).

Table 4. Level of perception on Modernized Interactive Teaching Methods in terms of Problem-Solving

Statements	Weighted Mean	Standard Deviation	Verbal Interpretation
Engaging in problem-solving tasks during P.E. enhances my ability to think critically and make informed decisions.	3.13	0.34	Agree
Solving challenges in P.E. encourages me to apply theoretical knowledge to real-life situations.	3.03	0.18	Agree
Problem-solving activities in P.E. help me develop resilience and adaptability in the face of physical challenges.	3.03	0.18	Agree
Tackling complex scenarios in P.E. enhances my understanding of strategy and planning in physical activities.	3.07	0.25	Agree
Engaging in problem-solving tasks during P.E. makes me more confident in overcoming obstacles in various sports and physical endeavors.	3.10	0.30	Agree
OVERALL MEAN	3.07		Agree

Legend: 4.00-3.25-Strongly Agree;3.24-2.50-Agree; 2.49-1.75-Disagree;1.74-1.00-Strongly Disagree

Table 4 provides a comprehensive overview of the perceptions surrounding Modernized Interactive Teaching Methods, focusing on problem-solving within the domain of Physical Education (P.E.). The respondents generally concur with the positive impacts of these methods. Engagement in problem-solving tasks during P.E. is seen as enhancing critical thinking and informed decision-making (weighted mean 3.13), while addressing challenges is associated with the practical application of theoretical knowledge (weighted mean 3.03). Problem-solving activities are noted to cultivate adaptability and resilience (weighted mean 3.03), and grappling with intricate scenarios is believed to refine understanding of strategy and planning (weighted mean 3.07). Furthermore, participants perceive these activities as bolstering confidence in surmounting obstacles across diverse sports and physical pursuits (weighted mean 3.10). The overall mean of 3.07 reaffirms the general consensus with these assertions, underscoring the favorable perception of the efficacy of modernized interactive teaching methods in fostering problem-solving skills and holistic development within the scope of P.E. The consistently low standard deviations across the statements underscore a degree of uniformity in respondents' perspectives, highlighting the coherence of their viewpoints.

Educators continually seek effective teaching methodologies to establish conducive learning environments. This study juxtaposes the impact of problem-solving and conventional approaches on motivation and learning within physical education. The research encompassed 53 first-year Tunisian secondary education students, randomly divided into experimental and control groups.

The experimental group received problem-solving instruction, while the control group underwent conventional teaching. Over five weeks, both groups engaged in a 10-hour experiment. By assessing situational motivation through questionnaires administered at initial and final sessions (T0 and T2), the study evidenced substantial increments in intrinsic motivation and identified regulation within the experimental group ($p < 0.001$). Additionally, the experimental group exhibited heightened motor engagement and reduced waiting time, indicative of heightened involvement ($p < 0.001$). The study concludes that problem-solving instruction augments motor skills, performance, and motivation within physical education (Ezeddine et al., 2023).

Concurring with earlier research, Tasgin (2011) explored gender-based distinctions in problem-solving abilities among university students using the Problem Solving Inventory (PSI). The study discerned noteworthy gender variations, with female students demonstrating superior problem-solving skills compared to their male counterparts. Ozdayi's (2019) inquiry extended to physical education, scrutinizing the problem-solving skills of 304 Balikesir University School of Physical Education and Sports students. Age-related findings indicated heightened problem-solving skills in the 30+ age group. Moreover, students within the sports management department displayed elevated problem-solving perceptions, while no significant differences emerged based on other variables. This research underscores the multifaceted nature of problem-solving skills within the context of physical education.



Table 5. Level of Academic performance in Physical Education during the 2nd semester A.Y. (2022-2023)

General Weighted Average	Equivalent Grade	Frequency	Percentage
1.00	97-100	3	10.00%
1.25	94-96	8	26.67%
1.50	91-93	7	23.33%
1.75	88-90	7	23.33%
2.00	85-87	5	16.67%
TOTAL		30	100.00%

Table 5 delineates the academic performance in Physical Education during the second semester of the 2022-2023 academic year. The table presents a breakdown of students' achievements based on their General Weighted Average (GWA) equivalent grade ranges, accompanied by the frequency and corresponding percentages of students within each range. Notably, a substantial proportion of students achieved high grades, with 26.67% falling within the 1.25 equivalent grade range (94-96). The data also reveals a well-balanced distribution across the various GWA ranges, indicating a diverse spectrum of performance levels within the student cohort. In contrast, the lowest equivalent grade range, 2.00 (85-87), encompasses 16.67% of the students, representing a smaller subset in this performance category.

Aligned with this context, the study's core objective was to deeply investigate the nuanced effectiveness of distinct teaching methods on students' academic achievements. A specific subset of 109 undergraduate students from the College's Department of Economic and Business Sciences constituted the focal point of this inquiry. The study utilized the inferential statistics course, extracting students' assessment test scores from an internal class test administered by the instructor. The efficacy of the three teaching methods was scrutinized using the General Linear Model-based univariate ANOVA technique. The computed F(2, 106) statistic ($= 10.125$; $p < 0.05$) and subsequent Tukey HSD posthoc findings underscore significant disparities in the effectiveness of these teaching methods. Remarkably, the mean scores reveal a hierarchical effectiveness arrangement, with the

teacher-student interactive method emerging as the most potent, followed by the student-centered method. Conversely, the teacher-centered approach emerged as the least impactful teaching strategy, aligning with insights drawn from Munyaradzi's 2013 research (Munyaradzi, 2013).

Furthermore, this study gauged the extent and relevance of emerging physical education teaching strategies and their interaction with students' academic accomplishments in P.E. The research design embraced a descriptive-correlational approach, involving a bespoke questionnaire crafted by the researcher. This instrument was administered to selected Physical Education teachers within the CPSU System. Notably, an equivalent quota of five students responded to identical questionnaires, enabling the assessment of perceived teaching strategy efficacy. Outcomes from this investigation unveiled several noteworthy characteristics of the participants. Predominantly, respondents were below 30 years old, with a discernible gender distribution tilted toward females. A notable segment engaged as part-time teachers, and most possessed teaching experience of ten years or less. Academic qualifications were also explored, with a majority having units in their master's degree or having completed their postgraduate studies. The implementation of identified teaching strategies was prominently pronounced among P.E. teachers, except for self-instructional strategies. Interestingly, students echoed these observations, perceiving all strategies as significantly effective (Sangco, 2022).

Table 6. Relationship between the Modernized Interactive Teaching Methods and Academic Performance in Physical Education

Means Compared		r-value	Interpretation	p-value	Decision
Simulation	General Weighted Average	0.254	Weak	.176	Not Significant
Peer Teaching		0.095		.621	
Cooperative Learning		0.074		.702	
Problem Solving		0.241		.199	

Note: Significance Level 0.05

Table 6 showcases the results of the investigation concerning the correlation between Modernized Interactive Teaching Methods and Academic Performance in Physical Education. The table provides a comparison of means, R-values, their respective interpretations, p-values, and corresponding conclusions. Among

the explored teaching methods, simulation displayed a relatively stronger positive correlation with General Weighted Average ($r = 0.254$), though this correlation falls within the weak range. The associated p-value for this correlation was 0.176, which does not meet the criterion for statistical significance. Peer teaching



demonstrated a minimal correlation ($r = 0.095$) with an insignificantly high p-value of 0.621. Cooperative learning and problem-solving techniques exhibited even lower correlations ($r = 0.074$ and $r = 0.241$, respectively) with p-values of 0.702 and 0.199, indicating non-significance. These findings collectively suggest that while simulation showed a modest positive association with academic performance, the overall connections between these modernized interactive teaching methods and students' academic achievements in physical education did not attain statistical significance.

CONCLUSIONS

The outcomes outlined in Tables 1 to 4 underscore the favorable perceptions and prospective advantages of Modernized Interactive Teaching Methods within the realm of Physical Education (P.E.) classes. Students express consensus and enthusiasm regarding the effectiveness of these methods across various modalities, including simulation, peer teaching, cooperative learning, and problem-solving. These methodologies correlate with elevated comprehension of theoretical concepts, bridging the gap between theory and application, heightened engagement, enhanced grasp of intricate movement patterns, preparation for real-world scenarios, augmented social competencies, collaborative spirit, critical thinking, and adaptability.

Simulation-based teaching techniques emerge as potent tools for amplifying theoretical comprehension and practical application. This concurs with Rahmadi et al.'s (2021) research, which highlights the potency of simulation methods in instructing P.E., especially in exigent conditions like the COVID-19 pandemic. Peer teaching surfaces as a valuable modality that bolsters learning outcomes, self-assurance, understanding, and interpersonal skills. This aligns with Whipp et al. (2015) and Nurmi & Kokkonen's (2015) studies, accentuating peer teaching's capacity to kindle engagement and fascination in P.E., exemplified through endeavors like hip-hop dance. Cooperative learning gains recognition for fostering teamwork, comradeship, and diverse learning odysseys. Yang et al.'s (2021) work accentuates well-structured cooperative learning's potency in propelling skill acquisition and motivation. Problem-solving endeavors correlate with advanced critical thinking, the application of theoretical knowledge, resilience, and strategic acumen. Ezeddine et al.'s (2023) study corroborates the affirmative influence of problem-solving pedagogy on motor skills, performance, and motivation in P.E.

Furthermore, Table 5's depiction of academic performance data in the 2022-2023 academic year's second semester discloses an array of achievements among students. The distribution of equivalent grades underscores a heterogeneous performance panorama, with a noteworthy fraction achieving commendable scores.

Concerning the nexus between Modernized Interactive Teaching Methods and Academic Performance (Table 6), simulation

manifests a relatively modest positive correlation with academic accomplishment. Conversely, peer teaching, cooperative learning, and problem-solving exhibit even feeble correlations, all lacking statistical significance. The collective findings highlight the potential benefits of embedding Modernized Interactive Teaching Methods into Physical Education. These methods catalyze theoretical comprehension, practical application, engagement, teamwork, critical thinking, and problem-solving. While specific methods denote correlations with academic performance, these connections do not attain statistical significance, suggesting that other factors might underpin students' academic feats in P.E. Nevertheless, the overarching optimistic appraisals of these teaching methods imply their potential to enrich the pedagogical landscape and learning encounter in Physical Education settings.

Implications to Educational Practice of Physical Education

The research findings presented in this study hold several important implications for both educational practitioners and researchers in the field of Physical Education (P.E.). Firstly, the positive perceptions and potential benefits of Modernized Interactive Teaching Methods, as highlighted in Tables 1 to 4, emphasize the importance of integrating these methods into P.E. curricula. Educators can leverage simulation, peer teaching, cooperative learning, and problem-solving strategies to enhance students' engagement, comprehension, critical thinking, social skills, and practical application of theoretical knowledge. These findings suggest that adopting a variety of interactive techniques can contribute to a more enriched and effective learning experience for students.

Secondly, the diverse academic performance demonstrated by students, as shown in Table 5, underscores the need for personalized approaches to instruction. Recognizing the wide range of achievements among students, educators should consider implementing differentiated teaching strategies that cater to individual learning needs. By tailoring instruction to accommodate varying performance levels, teachers can help students maximize their potential and improve overall academic outcomes in P.E.

Additionally, the insights presented in Table 6 regarding the correlation between Modernized Interactive Teaching Methods and Academic Performance indicate that while some methods demonstrated weak correlations with academic achievement, these relationships were not statistically significant. This suggests that academic performance in P.E. is influenced by a multitude of factors beyond teaching methods alone. Researchers should delve deeper into these factors, such as individual student characteristics, instructional design, assessment methods, and external influences, to gain a more comprehensive understanding of how academic performance is shaped.

Furthermore, the study's focus on students' perceptions and their alignment with the potential benefits of interactive teaching methods could encourage educational institutions to prioritize



student-centered approaches. Incorporating students' preferences and opinions in pedagogical decision-making can contribute to a more learner-centric educational environment, enhancing motivation and engagement.

Lastly, the research highlights the need for continuous exploration and innovation in P.E. teaching methodologies. While certain methods demonstrated stronger correlations with academic performance, the lack of statistical significance suggests that there is room for further refinement and adaptation of these approaches. Educators and researchers should collaborate to develop and test new strategies that not only align with students' preferences but also effectively enhance their academic achievements in P.E.

In conclusion, this study underscores the potential of Modernized Interactive Teaching Methods to positively impact students' perceptions, engagement, and learning outcomes in Physical Education. The findings prompt educators and researchers to embrace a holistic approach to instructional design, considering diverse teaching strategies and individual student needs, while also encouraging ongoing exploration and adaptation of innovative teaching techniques.

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