

Effectiveness, Motivation, And Learning Outcomes of Hybrid Physical Education at WCC Aeronautical & Technological College, Inc.

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Abstract — Physical Education (PE) is integral to most curricula, often intertwined with health education to instill essential fitness skills and encourage healthy lifestyles. In the conducted research at WCC Aeronautical and Technological College Inc., Binalonan Campus, the study compared the effectiveness, motivation, and learning outcomes of hybrid Physical Education (PE) with traditional face-to-face PE. The findings indicated that students perceived both online and face-to-face PE methods differently. The study found that students perceived online PE as effective in terms of accessibility, engagement, and organization, with 52.7% finding the online approach effective for time management. Regarding teaching materials and facilities, online methods were deemed effective. However, motivation levels varied, with 45.3% showing average interest, indicating a complex spectrum of student engagement. Importantly, factors such as gender, academic strand, devices used, and internet connectivity did not significantly impact either the effectiveness of hybrid learning or students' motivation levels. These findings emphasize the diverse needs of students and provide valuable insights for improving hybrid PE programs. In terms of hybrid learning, students found it effective for accessibility, engagement, organization, time management, and teaching materials presentation. On the other hand, face-to-face PE was highly regarded for its effectiveness in areas such as face-to-face teaching materials presentation, teacher explanations, material understandability, impact on student performance, and maintenance of facilities. Student motivation levels varied in both settings, emphasizing the complexity of student engagement. Importantly, the study found that factors such as gender, academic strand, devices used, and internet connectivity did not significantly influence the effectiveness of either hybrid or face-to-face PE methods, highlighting the need for tailored approaches to meet diverse student needs in both learning modalities.

Keywords — **Hybrid Physical Education, Effectiveness, Motivation, Student Engagement, Comparative Analysis**

I. Introduction

Physical education plays a crucial role in the holistic development of students, enhancing not only their physical health but also their cognitive and social skill and has been a cornerstone of educational systems worldwide, fostering holistic development among students. However, the COVID-19 pandemic necessitated a drastic shift from traditional face-to-face instruction to online distance learning, posing challenges to the effective delivery of physical education. In the contemporary landscape of higher education, the fusion of traditional classroom approaches with innovative online methodologies has sparked significant interest and debate.

The amalgamation of traditional physical education methodologies with online platforms offers a unique opportunity to revolutionize the way students engage with physical fitness and well-being. However, the effectiveness of this hybrid model, the motivational factors influencing student participation, and the resultant learning outcomes are aspects that demand focused inquiry. This research seeks to delve into these intricacies, aiming to not only assess the program's efficacy but also unravel the motivational dynamics that drive student engagement. Furthermore, this study aspires to delineate the specific learning outcomes achieved within this innovative educational framework.

At the forefront of this pedagogical evolution is the implementation of hybrid learning models, which seamlessly integrate in-person and online components to enrich students' educational experiences, there has been a significant shift towards hybrid physical education programs, incorporating both in-person and online elements. WCC Aeronautical & Technological College, Inc., in its pursuit of comprehensive education, has recently adopted a hybrid approach to its physical education curriculum. This paradigm shift necessitates a rigorous examination to discern the program's impact on students' physical fitness, motivation, and learning outcomes. While existing literature has explored hybrid learning in broader contexts, there exists a critical research gap pertaining specifically to hybrid physical education programs at the higher education level. This study aims to bridge this gap by meticulously investigating the nuances of WCC Aeronautical & Technological College, Inc.'s hybrid physical education initiative.

The objectives of this study is to assess the program's effectiveness in enhancing physical fitness, investigating motivational factors, and evaluating learning outcomes among students participating in the hybrid physical education curriculum which sought to answer key questions about the program's impact on physical fitness levels, the motivational factors affecting student engagement, and the comparison of learning outcomes with traditional physical education programs. This research intends to provide practical recommendations for educators and policymakers by addressing the research gap in understanding hybrid physical education programs' effectiveness in higher education institutions like WCC Aeronautical & Technological College, Inc. The outcomes of this research endeavor will not only shed light on the efficacy of the hybrid model at WCC Aeronautical & Technological College, Inc. but will also provide valuable insights for educational institutions globally. By comprehensively examining the interplay of effectiveness,

motivation, and learning outcomes within the hybrid physical education context, this study is poised to inform pedagogical practices, empower educators with evidence-based strategies, and contribute substantially to the ongoing discourse surrounding innovative educational methodologies.

Literature Review

The provided references delve into the realm of online learning, particularly in the context of physical education and the adaptation of pedagogical strategies to digital platforms.

Guasch et al. (2019) highlight the significance of effective questioning and feedback in online learning environments, emphasizing the potential of written feedback to enhance learning outcomes. Their findings suggest that instructors should provide constructive feedback that encourages reflection and critical thinking.

Hernando-Malipot (2020) reports on the Philippine Department of Education's efforts to limit screen time during online classes, addressing concerns about the potential negative effects of prolonged screen exposure. This policy reflects a growing awareness of the need to balance online learning with other activities that promote physical and mental well-being.

Liu et al. (2021) investigate the patterns of triggers for on-task and off-task behaviors among university students engaged in independent study, offering insights into how to optimize online learning environments. Their findings suggest that factors such as course design, task difficulty, and individual characteristics can influence student engagement and focus.

Magher (n.d.) discusses the benefits of laptops for students, highlighting their role in facilitating research, collaboration, and communication in the digital age. While acknowledging potential distractions, the author emphasizes that laptops can be powerful tools for learning when used effectively.

Mertler (2014) provides a comprehensive overview of quantitative research methods, offering a valuable resource for researchers investigating online learning and its impact. This work underscores the importance of rigorous research in understanding the effectiveness of online education.

Nadeak (2020) examines the effectiveness of distance learning using social media during the COVID-19 pandemic, highlighting the potential of these platforms to facilitate learning and communication in times of crisis. The study found that social media can be a valuable tool for distance education, but its effectiveness depends on careful planning and implementation.

Parker (2020) underscores the importance of physical education, emphasizing its role in promoting physical and mental health, even in the context of online learning. The author advocates for incorporating physical activity into online learning environments to support student well-being.

Satyawan et al. (2021) assess the effectiveness of online learning through a specific e-learning platform in the physical education study program during the COVID-19 pandemic. Their findings suggest that while online learning can be effective, it presents unique challenges, such as maintaining student engagement and ensuring adequate access to resources.

Tanis (2020) explores the seven principles of online learning, gathering feedback from faculty and alumni on their importance for teaching and learning. The study highlights the importance of clear communication, active learning techniques, prompt feedback, and respect for diverse learning styles in online environments.

Tanucan et al. (2021) investigate Filipino physical education teachers' technological pedagogical content knowledge (TPACK) in remote digital teaching, highlighting the need for professional development in this area. The findings suggest that many teachers lack the necessary TPACK to effectively teach physical education online.

Webster et al. (2021) examine the implementation and effectiveness of an online secondary methods course with virtual field experiences during the COVID-19 pandemic, showcasing innovative approaches to teacher education in a virtual environment. The study demonstrates that virtual field experiences can be a viable alternative to traditional in-person experiences, providing valuable learning opportunities for future teachers.

Collectively, these references offer a comprehensive perspective on online learning, encompassing pedagogical strategies, technological considerations, and the unique challenges and opportunities presented by the digital age. They highlight the importance of adapting traditional teaching methods to online platforms, addressing the potential negative effects of screen time, and leveraging technology to enhance student engagement and learning outcomes.

II. Methodology

The study employed the quantitative-descriptive research design to investigate the motivations, learning outcomes, and effectiveness of online physical education among senior high school students at WCC Aeronautical and Technological College, Binalonan, during the second semester of the 2020-2021 school year. The study focused on objective measurements and numerical analysis, utilizing descriptive methods to observe and interpret the natural state of online physical education.

The respondents of this research were senior high school students enrolled in Physical Education 2, totaling 150 students, chosen through convenience sampling due to the limited timeframe for data collection. This particular group was selected because of the absence of prior research concerning the motivations, learning outcomes, and effectiveness of online physical education in WCC-ATC for these respondents. To gather data, a survey questionnaire in three parts was utilized. The first section covered the respondents' profile and their learning outcomes, while

the second part assessed the effectiveness of hybrid learning during the pandemic and students' motivation in an online setting and face to face modality and the third part is about the level of motivation of students during the hybrid Physical Education. All these sections employed specific scales for measurement. Additionally, the students' first-quarter grades were collected to evaluate their learning outcomes accurately.

The data collection process commenced after obtaining necessary permissions from school authorities. A Google Forms link, accompanied by a letter outlining the study's purpose and ensuring data privacy compliance, was sent to the respondents. After receiving approval and participation, the students completed the survey questionnaire. Subsequently, the collected data underwent analysis and interpretation. In analyzing the data, various statistical methods were applied. Frequency and percentage calculations were employed to describe the respondents' profile. Mean values were calculated to determine the effectiveness levels, motivation levels, and categorize student learning outcomes in online physical education and students' motivation levels using the provided scales. Furthermore, one-way ANOVA tests was conducted to establish relationships between respondents' profiles and the relationship between the extent of effectiveness of hybrid learning in Physical Education and the level of motivation.

III. Results and Discussion

This presents the data gathered through questionnaires and analysis. Data were analyzed and interpreted as per problem stipulated in the previous parts of the study.

Profile of the Respondents. A look at the table, the respondents included 49 males (32.70%) and 101 females (67.30%). When considering academic streams, 43 respondents (28.7%) were enrolled in ABM (Accountancy, Business, and Management), while the majority, 107 respondents (71.3%), pursued STEM (Science, Technology, Engineering, and Mathematics) subjects. Regarding online and other learning devices, the preferences were diverse. A small percentage, 2.0%, opted for desktop computers, and 20.0% chose laptops. Additionally, 41.3% of the respondents used smartphones, 28.7% utilized smartphones and laptops, and a minor 5.3% employed smartphones, laptops, and desktops for online learning.

Table 1. Profile of the Respondents

Profile	Frequency (f)	Percentage (%)	Percentile Rank
Sex			
Male	49	32.70	2
Female	101	67.30	1
Total	150	100	
Strand			
ABM	43	28.7	2
STEM	107	71.3	1
Total	150	100	
Device Use For Online			
Desktop	3	2.0	5.5
Laptop	30	20.0	3
Laptop, Desktop	1	.7	7
Smartphone	62	41.3	1
Smartphone, Desktop	3	2.0	5.5
Smartphone, Laptop	43	28.7	2
Smartphone, Laptop, Desktop	8	5.3	4
Total	150	100	
Proximity of House to School			
0-15km	99	66	1
15-30km	29	19.33	2
30-45km	12	8	3
45-60km	10	6.67	4
Total	150	100	

Furthermore, the table also provides information on the proximity of respondents' houses to school. The majority, 66%, lived within 0-15km from the school, indicating close proximity. A smaller portion, 19.33%, resided within 15-30km, 8% within 30-45km, and 6.67% within 45-60km from the school. This detailed data offers valuable insights into the demographic and technological preferences of the respondents, providing essential information for educational institutions and policymakers to tailor their strategies effectively and enhance the overall learning experience for students. The data provides valuable insights into the preferences and choices of the respondents, enabling a deeper understanding of their technological inclinations and academic pursuits. These findings are essential for educational institutions and policymakers aiming to enhance the online learning experience for students, tailoring their strategies to align with the prevalent preferences within this demographic. According to Magher (n.d.), laptops are more efficient for detailed note taking, faster writing and editing, and convenient for group works. Further,

smartphones came second on the list with fifty (50) out of seventy-two (72) respondents or 69.40 percent using it. Smartphones now are dominated by two operating systems: Android OS by Google and the IOS by Apple. The use of smartphones is gradually becoming a compelling learning tool to enhance teaching and learning in distance education as its usage ensures flexible course delivery, accessibility to online learning platforms and course resources, and interact

digitally. Moreover, sixteen (16) or 22.20 percent of the respondents uses desktop during the online physical education, while one (1) respondent or 1.40 percent uses iPad.

Extent of Effectiveness of Hybrid Learning in Physical Education. Table 2 presents the extent of effectiveness of hybrid learning in Physical Education as assessed by the students with an overall mean rating of 3.84 and 4.43.

Table 2. Effectiveness of Hybrid Learning in Physical Education

<i>Hybrid Learning in Physical Education</i>	<i>Online Learning</i>		<i>Hybrid Learning</i>	
			<i>WM</i>	<i>DE</i>
Implementation	3.79	E	4.47	VE
Time Management	3.82	E	4.30	VE
Management of Teaching Materials	3.90	E	4.62	VE
Task relevance and structure	3.85	E	4.36	VE
OVERALL MEAN	3.84	E	4.43	VE

<i>Scale</i>	<i>Descriptive Equivalent</i>
5	<i>Very Effective (4.50-5.00)</i>
4	<i>Effective (3.50-4.49)</i>
3	<i>Moderately Effective (2.50-3.49)</i>
2	<i>Ineffective (1.50-2.49)</i>
1	<i>Very Ineffective (1-1.49)</i>

The survey-questionnaire on the effectiveness of hybrid learning on Physical Education acquired a mean of 4.46, which can be interpreted as very effective while online learning is effective (WM=3.84). This means that despite the effectiveness of the school in the implementation of online classes, specifically online Physical Education, there are still areas for improvement and much preferred is the hybrid learning. The analysis of the effectiveness of Hybrid Learning in Physical Education, comparing Online Learning and Hybrid Learning, reveals compelling insights into the instructional methodologies employed. Across multiple key dimensions, including implementation, time management, management of teaching materials, and task relevance, Hybrid Learning consistently outperforms Online Learning. In particular, Hybrid Learning demonstrates remarkable strength, earning a "Very Effective" rating in all assessed areas. This robust performance underscores the significant positive impact of Hybrid Learning on the learning experience in Physical Education. These findings substantiate the notion that Hybrid Learning, with its blend of online and in-person elements, is a highly effective and efficient educational approach, offering students a comprehensive and engaging learning environment.

Results imply that the consistently superior performance of Hybrid Learning across key dimensions suggests that educational institutions and educators should consider integrating hybrid methodologies into their teaching practices. By leveraging the strengths of both online and in-person learning, educators can enhance the overall learning experience for students. The findings emphasize the importance of investing in technological infrastructure and training for educators to effectively implement Hybrid Learning models. Educators need to be proficient in utilizing online platforms and teaching tools to create engaging and interactive digital learning experiences.

Furthermore, the positive outcomes of Hybrid Learning highlight its potential to address various challenges faced by the education sector, such as increasing access to quality education, accommodating diverse learning styles, and ensuring continuity of learning during unforeseen disruptions, like the COVID-19 pandemic. Additionally, policymakers and educational leaders should consider these results when making decisions about curriculum development, resource allocation, and teacher training programs. Integrating Hybrid Learning into the educational system could lead to more adaptive, efficient, and student-centered approaches to teaching and learning. Ongoing research and evaluation of Hybrid Learning methodologies are essential to continuously improve and refine these approaches. By staying abreast of emerging trends and best practices in the field of Hybrid Learning, educators and institutions can ensure that they are providing the most effective and relevant learning experiences for their students, preparing them for the challenges of the modern, technology-driven world.

Though time management got the lowest mean, it still has a descriptive equivalent of effective and very effective in hybrid learning. This is in line with the results of the study conducted by Liu, Deng, Lin, and Gu (2021) where they found out that “on-task behaviors tended to decline as the learning duration increased, and off-task behaviors tended to increase when students interacted to personal devices”. However, use of devices for independent study may also serve as an interruption in learning for some students.

Tanis (2020) stated that “holding students to high standards of performance, academic honesty, and professional conduct was the most important factor to both faculty in their online teaching and alumni in their online learning”. She further explained, “students need an online instructor who is organized and communicative in the online classroom, and faculty need a solidly designed online classroom with engaged students who are timely in their work”. Further, Guasch (2018) proved the importance of feedback on her study and stated that “when students received epistemic and suggestive feedback, they engaged in more cognitive and metacognitive activities”.

Level of Motivation of Students during the Hybrid Physical Education

The study compared students' motivation levels in online and hybrid learning environments in physical education. During hybrid learning, students exhibited significantly higher motivation in study preparation (4.18, VE) and learning activities (3.76, E).

Table 3. *Level of Motivation of Students during the Hybrid Physical Education*

Motivation	Online Learning		Hybrid Learning	
	Mean	DE	WM	DE
Study preparation	3.80	E	4.18	E
Learning Activities	3.85	E	3.76	E
OVERALL MEAN	3.83	E	3.97	VE

<i>Scale</i>	<i>Descriptive Equivalent</i>
5	Very Effective (4.50-5.00)
4	Effective (3.50-4.49)
3	Moderately Effective (2.50-3.49)
2	Ineffective (1.50-2.49)
1	Very Ineffective (1-1.49)

The overall mean motivation score for hybrid learning was 3.97 (VE), indicating a very effective level of motivation. These results highlight the positive impact of hybrid learning on student engagement and motivation, emphasizing its potential for creating stimulating learning experiences in physical education. The results further revealed significant insights into the effectiveness of the hybrid learning approach. Specifically, when comparing motivation levels between online learning and hybrid learning, it is evident that students exhibited higher motivation across key aspects during hybrid learning sessions. In terms of study preparation, students' motivation significantly increased during hybrid learning, with a mean score of 4.18 (E), signifying a Very Effective (VE) level of motivation. This suggests that the hybrid format positively influenced students' willingness and enthusiasm to prepare for their studies, possibly due to the dynamic and interactive nature of hybrid learning environments.

When evaluating motivation related to learning activities, the results showed that students maintained a high level of motivation during both online and hybrid learning sessions, with a mean score of 3.76 (E) for hybrid learning. Although this score falls within the Effective (E) range, it indicates a consistent level of motivation for engaging in learning activities, emphasizing the adaptability of students in navigating various learning formats.

These findings hold essential implications for educators and institutions. Hybrid learning appears not only to maintain but also elevate students' motivation levels, suggesting that a blend of online and in-person activities can foster a highly engaging and motivating learning environment. Educators can leverage these insights to design curriculum and activities that capitalize on the motivational benefits offered by the hybrid approach, ultimately enhancing the overall learning experience for students in physical education programs. Acquah (2017) found out that individuals have the need for achievement and that suitable opportunities should be created for them to satisfy it. In this case, students should be given opportunities to have a sense of achievement, more so during online learning.

Significant Relationship between the Assessment of the Effectiveness of the Hybrid Learning in Physical Education and their profile

Table 4. *Relationship between the Profile of the Respondents and the Level of Effectiveness of Online Learning in Physical Education*

Variable	Significance
Sex	.904
Strand	.343
Devices used for online learning	.564
Internet connectivity	.784

It can be gleaned on the table the significance values after testing the relationship between the profile of the respondents and the level of effectiveness of the online learning in Physical Education. Sex and level of effectiveness acquired a significance value of .904 and this is higher

than the margin of error set which is 0.05. This means that there is no significant relationship between sex and the level of effectiveness.

On the other hand, strand and level of effectiveness attained the significance value of .343 and this is also higher than the set margin of error. There is no significant relationship between strand and the level of effectiveness. Moreover, devices used for online learning and level of effectiveness acquired the significance value of .564. This also means that there is no significant relationship between the devices used and the level of effectiveness. Lastly, the significance value for the relationship between the internet connectivity of the respondents and the level of effectiveness of online learning in Physical Education is .784 and this means that there is no significant relationship between the two variables. The significance values for the relationship between the profile variables and the level of effectiveness all appeared higher than the set margin of error, which is 0.05. The null hypotheses are then accepted. There is no significant relationship between the profile of the respondents and the level of effectiveness.

Table 5. *Relationship between the Profile of the Respondents and the Level of Motivation of Students during the Online Learning in Physical Education*

Variable	Significance
Sex	.505
Strand	.398
Devices used for online learning	.281
Internet connectivity	.248

Table 5 shows the significance values after testing the relationship between the profile of the respondents and the level of motivation of the students during the online learning in Physical Education. Sex and level of motivation acquired a significance value of .505. This value is higher than the margin of error set which is 0.05. This means that there is no significant relationship between sex and the level of motivation. On the other hand, strand and level of motivation attained the significance value of .398 and this is also higher than the set margin of error. There is no significant relationship between strand and the level of motivation. In addition, devices used for online learning and level of motivation acquired the significance value of .281 and this also means that there is no significant relationship between the devices used and the level of effectiveness. Further, the significance value for the relationship between the internet connectivity of the respondents and the level of motivation is .248 and this means that there is no significant relationship between the two variables.

It appears that the significance values for the relationship between the profile variables and the level of motivation of students during the hybrid learning in Physical Education all appeared higher than the set margin of error, which is 0.05. The null hypotheses are then accepted. There is no significant relationship between the profile of the respondents and the level of motivation.

IV. Conclusion

The findings reveal that among the respondents, comprising 49 males (32.70%) and 101 females (67.30%), the majority were pursuing STEM subjects (71.3%). Smartphones were the most widely used learning devices (41.3%), followed by laptops (20.0%). The study emphasizes the effectiveness of hybrid learning, which scored 4.46, compared to online learning (3.84). Hybrid learning outperforms online learning in various aspects, demonstrating its potential for enhancing student engagement and motivation in physical education. The study recommends integrating hybrid learning into educational practices, emphasizing educator training, policy considerations, continuous research, and providing adequate student support for an optimal learning experience. A more detailed exploration of the learning activities, their effectiveness, and their alignment with learning outcomes is essential for a comprehensive understanding of hybrid Physical Education. Further research focusing on the specific learning activities, their implementation strategies, and their impact on student engagement and performance would provide a nuanced perspective, enabling educators to refine their teaching methods and enhance the overall learning experience for students in the hybrid Physical Education setting.

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