

The Influence of Flipped Pedagogy and Learners' Perception on Engagement of SHS Students in Physical Education

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Abstract

This study investigates the influence of flipped pedagogy and learners' perceptions on the engagement of senior high school students in physical education. Utilizing a sample of 100 SHS students from Jose Maria College Foundation Inc., Region XI in the Philippines, the research employed a descriptive correlation design to assess the relationship between the independent variables flipped pedagogy and learners' perceptions, and the dependent variable, student engagement. The overall mean score of flipped pedagogy in the engagement of SHS students in Physical Education was marked as High. The inclusion of a high-flipped pedagogy in terms of engagement in the class offers profound implications for students. The learners' perception across different indicators, including pre-learning opportunities, class activities, and learning outcomes resulted in an overall score indicating a high level. The result suggests that students actively participate in the synchronous or asynchronous class. The study highlights a strong relationship between flipped pedagogy and the learners' perception of engagement in SHS students on physical education subjects supported by John Dewey's theory of active learning. Data were collected through adapted questionnaires, demonstrating high reliability (Cronbach's alpha = 0.917). The results indicated a significant positive correlation, with an R-square value of 0.55. The findings underscore the effectiveness of flipped teaching methods in enhancing student involvement and highlight the importance of positive learner perceptions in educational outcomes.

Keywords: engagement; learning outcomes; flipped pedagogy; class activities; teaching methods

Introduction

Engagement is an important aspect to increase learning outcomes and there will be no great teaching methods without students' involvement in the learning process (Aminah, 2024). Certainly, studies reveal a trend of declining student engagement across diverse contexts with poor academic performance (Insorio, 2024). Similarly, blended learning had significantly low engagement levels in activities and multitasking (Su et al., 2024). However, findings indicated students' relatively low engagement levels impacted academics (Berhanu & Sewagegn, 2024). Meanwhile, marginalized school backgrounds persistently demonstrated low levels of engagement (Xiao & Hew, 2024).

In Dubai, a study by Lumbantoruan (2024) emphasized that Zayed University has lower levels of engagement in individual class activities. On the other hand, the traditional or face-to-face classes in Indonesian schools have been critiqued for low student engagement of students whose experiences disrupt learning focus (Aini & Ciptaningrum, 2024). Consequently, a study by Lasekan et al., (2024), states that the National Forensic Sciences University in India with the best ICT infrastructure has dramatically low student engagement and participation in terms on content and delivery. Likewise, a University in Central China has tremendously lower levels of engagement behavior in self-initiated mobile-assisted English learning (Huang et al., 2024).

Meanwhile, the issue of low engagement of students in the Philippines has been a subject of increasing concern. In Southern Philippines, Aves et al. (2024) found that city college students reported a lower engagement in online learning modality significantly affected performance. A study in Tugbok District, Davao City highlights the physical learning environment where several environmental issues declined student engagement (Auman, 2024). In addition, research conducted in Island Garden City of Samal showed that students with behavioral concerns and disengagement struggle to meet schools' standards (Fuertes et al., 2023).

The prevalence of issues related to low engagement of students in the class remains a challenge to both teachers and students which has been identified as a crucial factor in how students learn and socialize inside the classroom (Buque, 2024; Maypa et al., 2023). Despite this understanding, there is limited research on targeted interventions to address and improve levels of student engagement, particularly among diverse student populations, such as senior high school students. Thus, this study is conducted.

Statement of the Problem

The purpose of this study is to determine the influence of flipped pedagogy and learners' perception on the engagement of senior high school students in physical education of Jose Maria College Foundation Inc. Specifically, it answers the following objectives:

1. To determine the level of flipped pedagogy of senior high school students in terms of:
 - 1.1 personal readiness;
 - 1.2 technological readiness;
 - 1.3 environmental readiness; and
 - 1.4 pedagogical readiness.
2. To determine the level of learners' perception of senior high school students in terms of:
 - 2.1 pre-learning opportunities;
 - 2.2 class activities; and
 - 2.3 learning outcomes.
3. To determine the level of engagement in terms of:
 - 3.1 behavioral;
 - 3.2 emotional; and
 - 3.3 cognitive.
4. To determine the significant relationship of senior high school students between:
 - 4.1 flipped pedagogy and engagement; and
 - 4.2 learners' perception and engagement.
5. To determine the significant influence of flipped pedagogy and learners' perception to engagement of senior high school students.

Theoretical Framework

This study is anchored on the active learning theory by John Dewey in early 20th century. This theory emphasizes the use of pedagogical approach where learner's active involvement in acquiring knowledge and skills. This theory is based on the idea that individuals learn best when actively involved in their learning rather than being passive receivers of information. It explains that engagement of the students in flipped pedagogy become more active engagement in the learning process, encouraging critical thinking, problem-solving, and experimentation. It established responsibility in acquiring knowledge at home and time to engage in interactive activities.

Conceptual Framework

The Active Learning theory emphasizes that the engagement of students increases through hands-on learning and real-world interaction aligned well with the flipped pedagogy by encouraging students to engage with content outside of class and apply it during in-class activities. In senior high school Physical Education subject, this theory enhances student engagement and understanding through active participation in physical activities. Nevertheless, Active Learning theory educators can effectively measure and improve students' involvement and practical application of knowledge in Physical Education.

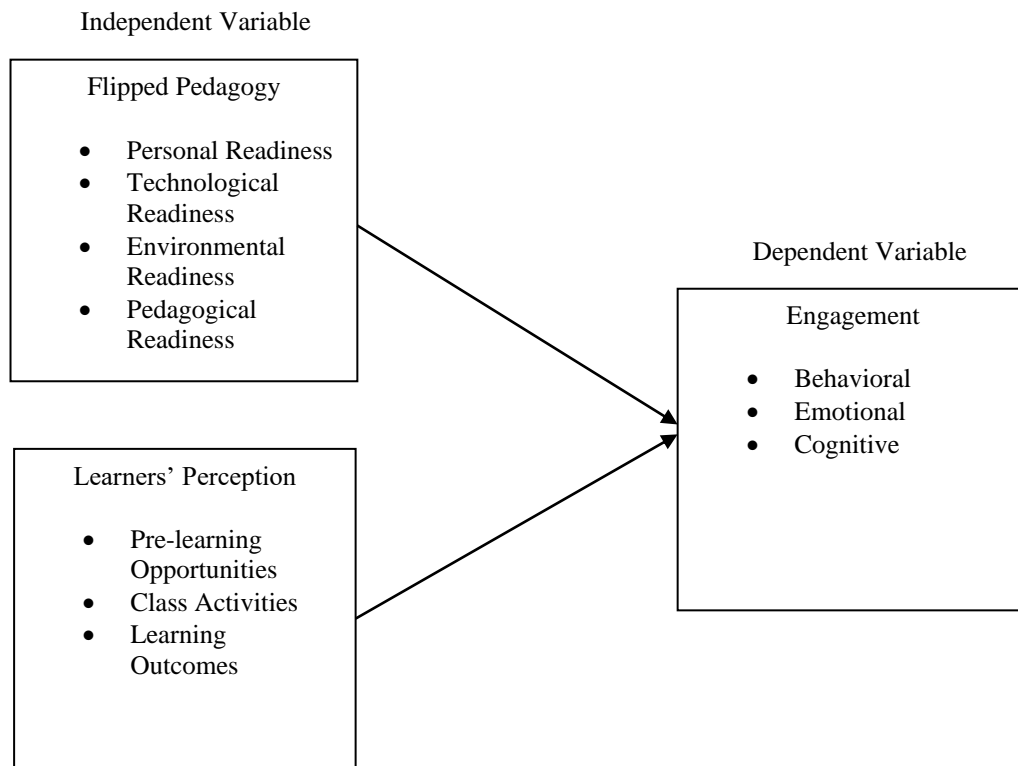


Figure 1. The Influence of Flipped Pedagogy and Learners' Perception on Engagement of SHS Students in Physical Education

Method

This study will employ quantitative research design. In the study of Creswell (2017), defined as collecting and analysing numerical data; it systematically investigates phenomena by gathering quantifiable data and performing statistical, mathematical, and computational techniques. The results are in numerical form. Consequently, the researcher utilized a descriptive correlation design among senior high school. A part from this, descriptive means to describe the level of flipped pedagogy and learners' perception on engagement of senior high school students. At the same time, correlation determines if there is a significant relationship between flipped pedagogy and learners' perception on engagement of senior high school students.

In this research endeavour, I gathered the data about the influence of flipped pedagogy and learners' perception on engagement during their vacant time while following the protocol of the institution. Consequently, respondents will be selected through a purposive and stratified random sampling technique. This technique allows researcher to look for appropriate respondents that are most likely to yield appropriate and useful information (Palinkas et al.2015).

In gathering data, I used adapted and modified survey questionnaire a Likert scale with 50 items. In analysing the data, Mean was used to characterized the level of flipped pedagogy. Pearson-r was used to assess the dispersion of the data distribution. In addition, Linear regression was used to know which factors affecting flipped pedagogy, learners' perceptions and engagement.

Results and Discussion

The subsequent tables offer an in-depth analysis of each indicator and its associated items, with their implications supported by relevant literature and studies. For each sub-indicator, the highest and lowest scoring items are evaluated, reflecting the survey respondents' feedback. These items also explore their significance, potentially offering important insights to readers and stakeholders supported with global literature and studies either reinforce or provide differing viewpoints on the results.

Table 1. Level of flipped pedagogy of senior high school students

Indicators	Mean	Description
Personal Readiness	3.76	High
Technological Readiness	4.12	High
Environmental Readiness	3.87	High
Pedagogical Readiness	3.87	High
Overall	3.91	High

Among the four indicators under flipped pedagogy of senior high school students, technological readiness emerged as the highest mean score of 4.12 and interpreted as High. This indicates that flipped pedagogy of senior high school in terms of technological readiness are with good performance. The technological indicates that students can use instant messaging software, download and viewing documents, convenient in using computer and mobile phone, and promote active learning. The result supports the findings of Abdallah and Alshaye (2024), who mentioned that technological readiness become integral part of

education it acts as a helpful aid, delivering, reinforcing, and evaluating the learning materials allows them to access learning materials, participate in discussions, and complete tasks independently outside the classroom.

Next, both environmental readiness and pedagogical readiness scored equally, with a mean of 3.87 and interpreted as High. This indicates that flipped pedagogy of senior high school in terms of environmental readiness are with good performance. The result indicates that students feel they have the necessary physical and social settings were school provide an access to internet connection, available resources, computer laboratory, and technical help to facilitate their independent learning. Muin et al., (2024) mentioned that the schools use a variety of e-learning resources including textbooks, digital materials, online sources, which is accessible anytime. Meanwhile, flipped pedagogy of senior high school in terms of pedagogical readiness are with good performance. The result suggests that students are comfortable with learning by engaging with content in synchronous and asynchronous bases like role-playing and problem-based learning. Khan et al., (2024) mentioned that pedagogical practices enhance educational development and foster pedagogic practices using interesting texts that increase students' intrinsic value and perceived learning.

Furthermore, the lowest mean score of 3.76 belong to personal readiness, classified as High. This indicates that flipped pedagogy of senior high school in terms of personal readiness is good performance. The result shows that students are willing to make time available in learning and interested in playing online quizzes as classroom activity and hands-on training is needed in attaining desirable learning outcomes. Ersoy and Ayaz-Alkaya (2024) mentioned the majority of students had a high level of personal readiness personal responsibility. Warsi and Rani (2024) cited that it enhances learning experiences, innovative methods which foster creativity, rational thinking towards learning.

The overall result for flipped pedagogy of senior high school students scored the mean score of 3.91 and interpreted as High. This indicates that flipped pedagogy of senior high school students often manifested. Students exhibit a high level of readiness across all aspects of flipped pedagogy, making it an effective approach to enhancing engagement and learning outcomes. According to Chao et al., (2015) explains that flipped learning approach has a positive effect on the transfer of learning it develop learning attitudes, motivation, and self-evaluation. However, the concept of flipped pedagogy helps to develop core competencies such as collaboration, communication, critical thinking, character or self-confidence, and creativity (Avery et al., 2018).

Table 2. Level of learners' perception of senior high school students

Indicators	Mean	Description
Pre-learning Opportunities	3.68	High
Class Activities	3.97	High
Learning Outcomes	3.66	High
Overall	3.77	High

As shown in Table 2, the level of learners' perception reveals that among the three indicators, class activities appeared as the highest mean score of 3.97 and interpreted as High. This indicates that learners' perception in terms of class activities is always demonstrated. The result implies that class activities significantly shape and can transform the learners' perception towards learning. Active participation in class activities helps them connect theoretical knowledge to practical applications, fostering a deeper understanding, increased motivation, and feeling more competent and engaged. It was supported by

Bergmann and Sams (2019), that interactive class activities transform the classroom into a dynamic learning environment where students take ownership of their education.

The next highest indicator under learner's perception is pre-learning opportunities, with a mean of 3.68 and, interpreted as High. This indicates that the learners' perception in terms of pre-learning opportunities is always demonstrated. The results show that in learners' perception, pre-learning opportunities can influence the overall perceptions of their learning. Lai et al. (2016) emphasized how pre-learning opportunities can enhance student engagement and learning experiences. Substantiated by Miller and Reddy (2021) that pre-learning opportunities significantly influence student engagement, ultimately leading to improved learning perceptions in a learning environment and experiences.

Finally, the lowest mean score of 3.66 belongs to learning outcomes, interpreted as High. This indicates that the learners' perception in terms of learning outcomes is always demonstrated. Learning outcomes in learners' perceptions refer to how students interpret and evaluate their educational experiences. This result supports the claim of Duncan and McEachie (2018), who explained that positive student perceptions can lead to increased motivation, engagement, learning environment and experiences ultimately influence learning outcomes.

The overall results for the level of learners' perception of senior high school students' mean score is 3.77 and interpreted as High. This indicates that the level of learners' perception of senior high school students is always demonstrated. Students who possess high levels of learners' perceptions regarding their education tend to perform and be more engaged, motivated, self-efficacy, and believe in their ability to succeed. This result affirms the claim of Baker and Inventado (2014), explains that the level of learners' perception can help students and enhance their learning to create more effective learning environments. However, despite a wealth of research, while students' learning perceptions are important, an overemphasis on them can overshadow critical factors like context, relationships, and structural influences in education that go beyond perceptions alone (Renshaw & Brown, 2020).

Table 3. Level of Engagement in Senior High School Students

Indicators	Mean	Description
Behavioral	3.19	Moderate
Emotional	3.17	Moderate
Cognitive	4.52	Very High
Overall	3.62	High

On top of the lowest is cognitive, with an Excellent score of 4.52. This indicates that the engagement is always demonstrated. The result suggests that students are actively processing information, demonstrating critical thinking skills, and engaging with the learning material. Dewey and Ho (2023) emphasize inquiry-based learning can foster deep learning by encouraging students to actively engage with concepts and develop critical thinking skills and given opportunities to explore, question, and challenge their understanding, they achieve higher levels of cognitive engagement.

Next, behavioral rated as Moderate, with means of 3.19. This indicates that the engagement in terms of behavioural is moderately demonstrated. This indicates that the learners' perception in terms of learning outcomes is moderately demonstrated. This indicates that while students are generally participating in

classroom activities and demonstrating some level of interest, they may not be fully invested in the learning process. Emphasizes the importance of relatedness in fostering behavioural engagement. The moderate levels of behavioural engagement in our study might be related to a moderate of strong connections between students and teachers or among peers. The moderate levels of emotional observed in this study may indicate that students are not experiencing a sufficient sense of autonomy or competence in their learning (Reeve, 2015).

Third, is the emotional rated as Moderate with a score of 3.17. This indicates that the engagement in terms of emotional is moderately demonstrated. The moderate levels of emotional engagement related to a moderate of strong connections between students and teachers or among peers. Supported the study of Alrabai and Algazzaz (2024), emphasize that teacher emotional support aid basic psychological needs and students' satisfaction, enhance emotions and enjoyment of learners developed positive climate, teacher sensitivity, and regard for students' perspectives.

The overall engagement score of 3.62, categorized as High. This indicates that the engagement of SHS students is demonstrated. The result indicates a generally positive learning environment for senior high school students. This suggests that students are, on average, actively participating in their education. Reeve and Deci (2022) highlight the role of autonomy, competence, and relatedness in fostering high levels of student engagement. The overall engagement score observed in our study suggests that the flipped pedagogy model may be effectively promoting these needs. This aligns with the key principles of self-determination theory, which emphasizes the importance of meeting these basic psychological needs to promote motivation and engagement.

Table 4. Significant Relationship of Flipped Pedagogy, Learners' Perception, and Engagement

Indicators	r	p-value	Remarks
Flipped Pedagogy	.70	.00	Significant
Learners' Perception	.68	.00	Significant

The data shows that the flipped pedagogy has a positive, strong relationship to engagement with an R-value of .70. It also reflects a p-value of .00, which is less than alpha set at .05 (two-tailed), supporting relationship between flipped pedagogy and engagement. It means that as the level of flipped pedagogy increases, the level of engagement among senior high school students in Region XI also significantly increases. On the other hand, an independent variable, learners' perception, reveals a significant positive and strong relationship with engagement of students ($r=.68, p<.05$). It means that the level of learners' perception increases, the level of engagement of senior high school students in Region XI also significantly increases.

Table 5. Significant of the Influence of flipped Pedagogy, Learners' Perception towards Engagement

Individual Influence of Predictors	Standardized Coefficient	t	p-value	Remarks
Flipped Pedagogy	.45	4.29	.00	Significant
Learners' Perception	.34	3.25	.00	Significant

R = .74; R² = .55; F-value = 59.8; p-value = <0.00

In table 5, it shows the result of linear regression analysis, which is set at a level of $\alpha=0.05$ (two-tailed). The result indicates that the standardized beta coefficient of flipped pedagogy is .45, with t-statistics of 4.29 and $p = .00$, which is greater than the .05 level of significance. It indicates that, flipped pedagogy is a

significant predictor of engagement in senior high school students in Region XI. This means that in every unit increase in the flipped pedagogy, there is a .45 increase in the level of engagement of senior high school students in Region XI.

Consequently, the standardized beta coefficient of learners' perception is .34, which a t-statistic of 3.25 and $p = .00$, which is less than .05 level of significance. This result indicates that learners' perception is significant predictor of engagement. It means that for every unit increase in the status of learners' perception, there is a .34 increase in the level of engagement of senior high school students in Region XI. Furthermore, the F-ratio in Table 5 shows if the overall regression model is a good fit for the data in this study. The models made of the effect of flipped pedagogy and learners' perception as predictors of engagement of students in the class. The result reveal that flipped pedagogy and learners' perception significantly predict the engagement of senior high school students in Region XI, based on the result of $F = 59.8$, $p < .05$. Therefore, the regression model is a good fit for the empirical data in the study. In addition, the R-square value depicts the percentage of variance in senior high school students' engagement that flipped pedagogy and learners' perception towards physical education subject. According to the result, the R-square value is .55, which means that the predictors, flipped pedagogy and learners' perception can explain 55% of the variation on how senior high school students engage in physical education subject. The remaining 45% is attributable and unexplained variance or other factor that is not included in the study.

Conclusion

The findings of this study affirm that flipped pedagogy significantly enhances student engagement in physical education among senior high school students. The substantial R-square value indicates that the teaching approach, combined with favourable learners' perceptions, plays a crucial role in fostering active participation and engagement in the learning process. The educators should consider integrating flipped classroom strategies to improve engagement levels, particularly in subjects like physical education, where active participation is essential to student involvement and adaptability in learning environments. Furthermore, based on the conclusion, this study accepts the assertion of theory of active learning by John Dewey. Consequently, it emphasizes the importance of students' involvement and practical application of knowledge and students learn best when they are directly involved in their learning experiences.

Recommendation

Based on the conclusion that for every unit in flipped pedagogy and its domains, there is an effect and influence in engagement of students and base on the assertion that engagement is obtained through students' involvement and practical application of knowledge, it is recommended that educators implement flipped pedagogy in their teaching practices to enhance student engagement. On the other hand, a training programs should be developed to equip teachers with the necessary skills and resources to effectively utilize flipped classroom techniques. Schools should provide adequate technological support and creating engaging learning activities. Additionally, further research is encouraged to explore the long-term effects of flipped pedagogy on student engagement and learning outcomes in physical education and educational context.

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Appendix A. Survey Questionnaire

Research Title: The Influence of Flipped Pedagogy and Learners' Perception on Engagement of SHS Students in Physical Education

FLIPPED PEDAGOGY					
A. PERSONAL READINESS	5	4	3	2	1
1. I am willing to engage in flipped learning.					
2. I am willing to make the time available for flipped learning.					
3. I am interested in achieving my learning outcome through flipped learning.					
4. I need hands-on training for engaging in a flipped classroom.					
5. I am interested in playing online quizzes as a classroom activity.					
B. TECHNOLOGICAL READINESS					
1. I can use document viewing software (i.e., Adobe Reader)					
2. I can use instant messaging software (i.e., Viber, WhatsApp, Skype, Facebook and Twitter) to communicate with people.					
3. I can download files from the internet.					
4. I can operate online media players to watch or listen to multimedia materials (i.e., VLC Media Player)					
5. I can search for the information that I need from online resources.					
6. It is convenient for me to use a computer and or mobile phone in my learning.					
7. I am familiar with learning from video lectures (e.g. in YouTube)					
C. ENVIRONMENTAL READINESS					
1. I have access to the internet connection in the school (E.g. WiFi)					
2. My school provides the necessary resources for flipped learning.					
3. My school promotes technology enhance learning practices among students.					
4. Technical help is available for e-learners in the school.					
5. Computer labs in my institutions are the most important assets for using flipped learning.					
D. PEDAGOGICAL READINESS					
1. I prefer a student-teacher interaction at an individual basis to clarify doubts.					
2. It would be convenient if an online platform could be used to interact with teachers and classmates.					
3. I prefer a student-centered classroom learning process (such as role-play, problem-based learning, debates and quizzes) rather than learning from a traditional lecture.					
LEARNERS' PERCEPTION					
A. PRE-LEARNING OPPORTUNITIES	5	4	3	2	1
1. I am satisfied with the quality of online pre-learning materials.					
2. I find it easier to review learning opportunities on my own.					
3. I like opportunities to engage in individualized learning.					
4. I am confident in my ability for self-directed learning.					

5. I want a flexibility learning time for educational development.					
B. CLASS ACTIVITIES					
1. I don't feel comfortable when asking questions during class.					
2. I find it effective in-class discussions of the lessons.					
3. I actively participate in class activities.					
C. LEARNING OUTCOMES					
1. I fully understand the content presented in lectures.					
2. I find adequate sleep enhances retention of learning.					
3. I want to enhance my critical thinking skills to solve problems.					
4. I set specific goals to improve my learning efficiency.					
5. I notice that poor quality or irrelevant learning materials impact my learning effectiveness.					
6. I believe that my personal interests and passions play a significant role in my motivation to learn.					
7. I feel that interactive activities make learning more fun and engaging.					

ENGAGEMENT					
A. BEHAVIORAL	5	4	3	2	1
1. I come to class unprepared (homework unfinished, forget to bring books or other materials, etc.)					
2. I complete homework on time					
3. I often skip classes without permission					
4. I actively take part in group discussions					
5. I work hard to do well in school					
B. EMOTIONAL					
1. I feel part of my school					
2. I care about the school I go to					
3. I am happy to be at my school					
4. I don't find school fun and exciting					
5. I enjoy the classes I am taking					
C. COGNITIVE					
1. I want to learn as much as I can at school					
2. I think it is important to make good grades					
3. I think the thing I learn at school are useful					
4. I think a lot about how to do well in school					
5. School is very important for later success					