

Influence of Persistence and Self-Regulated Learning Strategies on Engagement in Student Physical Activities

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Abstract

Students' engagement in physical activities has been declining. The influence of persistence and self-regulated learning strategies as determinants of engagement in physical activities was examined. Diagnostic research design, stratified random sampling, survey approach, and regression analysis were applied. The data from 150 junior and senior high students revealed that persistence and self-regulated learning strategies significantly influenced engagement physical activities, supporting Self-Determination Theory. Future research may explore additional variables to explain the remaining 32% variance in physical activities. School leaders may implement programs to enhance student persistence and self-regulated learning strategies in order for them to achieve a holistic well-being.

Keywords: Influence of persistence, self-regulated learning strategies, engagement student physical activities

Introduction

Poor engagement in physical activity continues to be a significant global concern that need to be addressed to improve health outcomes. The study of Kahu and Nelson (2020) found that many students show low engagement, which is linked to difficulties in learning. According to Pate et al. (2021) engagement remains critically low across many parts of the world. Recent evidence showed that a large majority of adolescents worldwide not engage in sufficient physical activity, with more than 80% failing to meet recommended activity levels, indicating low overall engagement in physical activities among students (Shao, 2023).

In the international scene, García et al. (2020) identified a low level of engagement in physical activity both during school hours and in leisure time. Additionally, Koyanagi et al. (2021) found that students' lack of engagement in physical activity within school systems. Studies in the USA also clearly demonstrated that student engagement in physical activity in U.S is critically low (Dumith et al., 2020).

In the Philippines, recent studies indicated that many Filipino students lack of engagement in physical activity (Dizon & Lingat, 2021). This trend is supported by Delos Reyes and Arce (2021) who reported that more than seventy percent of Filipino high school students lack of engagement in physical activity. Similarly, Gonzales et al. (2020) stated that the majority of Filipino students do not engage in adequate physical activity, showing lower participation rates.

There is a clear research gap in understanding the students' engagement in physical activity. This is not merely a health issue; it is an educational and developmental challenge. Schools play a critical role in promoting healthy behaviors; however, many students remain insufficiently engaged in regular physical activity. This problem remains largely unaddressed. Many students will continue to miss out on the lifelong benefits of an active lifestyle. The influence on student engagement and education highlights the urgent need to examine and address the issues affecting student engagement. Thus, this study was pursued.

Significance of the Study

This study explored how engagement in physical activity. It is anchored on Sustainable Development Goal 4, which promotes inclusive, equitable, and high-quality education and lifelong learning opportunities among students. Aligned with the vision, mission, and goals of Holy Cross of Davao College, this study highlights the institution's dedication to cultivating a faith-driven, compassionate, and high-quality educational environment.

Statement of the Problem

1. This study determined the significance of the contribution of persistence and self-regulated learning strategies as determinants of engagement in physical activities. Specifically, it pursued the following objectives:
2. To determine the levels of persistence in terms of consistency of interest, and persistence of effort; self-regulated learning strategies in terms of goal setting, self-monitoring, strategy use, self-evaluation, self-reflection; and engagement in physical activities in terms of teacher influence, attitude, and competence;
3. To determine the significance of the relationship between persistence, and self-regulated learning strategies, and the engagement in physical activities;
4. To determine the significance of the individual and combined influence of persistence and self-regulated learning strategies on engagement in physical activities of students.

Hypotheses

The following hypotheses were tested at .05 level of significance:

H₀₁: The relationships between persistence and self-regulated learning strategies to engagement in physical activities is not significant.

H₀₂: The significance influence of persistence and self-regulated learning strategies on engagement in physical activities is not significant.

Theoretical Framework

This study is anchored on Self-Determination Theory (SDT) by Deci and Ryan (2000). Fundamentally, this theory posits that individuals are more likely to sustain behaviors when their basic psychological needs are met. These needs are: autonomy (feeling in control of one's actions), competence (feeling effective and capable), and relatedness (feeling connected to others).

In the context of the study, persistence, as indicated by consistency of interests and persistence of effort (Duckworth et al., 2007), is associated with competence mentioned in the theory. On the other hand, self-regulated learning strategies, as indicated by goal setting, planning, self-monitoring, self-evaluation, and effort regulation (Keatley et al., 2019), represent autonomy asserted in the theory. Finally, engagement in physical activities, influenced by factors such as teacher support, student attitudes, and perceived competence (Smith & Jones, 2022), represents the relatedness in the theory.

Method

The study employed a diagnostic design, which focuses on identifying the causes of a specific problem or phenomenon. Instead of simply describing the situation, it explains why the issue occurs and helps in developing appropriate solutions. This approach is used when a problem is already recognized and there is a need to examine cause-and-effect relationships and contributing factors. Its key advantages include identifying root causes, supporting informed decision-making, improving efficiency, and providing a basis for targeted solutions (Khanday & Khanam, 2023; Mediratta et al., 2023; Liu et al., 2024).

The respondents of this study consisted of 150 Grade 7 to Grade 12 students who were officially enrolled for the academic year 2025–2026. They were selected using a method known as stratified random sampling. According to Makwana et al. (2023), this statistical technique involves dividing a population into subgroups or strata based on specific characteristics, followed by the random selection of samples from each stratum.

The study utilized an online survey technique in gathering the data. Specifically, it employed three adapted questionnaires: the Persistence Grit-Based Questionnaire for Physical Activity Engagement, the Self-Regulation of Learning in Physical Activity (SRL-PA) developed by Keatley et al. (2019), and the Engagement in Physical Activities Questionnaire adapted from the Motivation, Attitude, and Competence of Physical Education Students instrument by Viva and Limbo (2021).

The quality and validity of the instrument were ensured through validation by Physical Education and research experts. Subsequently, a pilot test was conducted with thirty (30) students who were not included among the actual respondents to assess the clarity and applicability of the questionnaire items. The responses obtained from the pilot test were analyzed to determine the reliability of the instrument. The combined questionnaire obtained a Cronbach's alpha coefficient of 0.846, which exceeds the acceptable threshold of 0.70, indicating that the instrument has good internal consistency and reliability. Furthermore, all parts of the questionnaire utilized a Likert-type scale with specific indicators that reflect the current conditions of the respondents.

Finally, these items were consolidated into one survey questionnaire and validated to suit the background of the respondents and the objective of the study. All of them observed a 4-point Likert scale with specific indicators on the current conditions of the respondents. Moreover, these were subjected to reliability testing, yielding a Cronbach's alpha of more than 80%, indicating reliability.

Results and Discussion

This part of the study presents the results of the descriptive, correlation, and regression analyses. The summary of findings was also presented.

Descriptive Analysis

Table 1 presents the descriptive statistics of the study variables, namely; persistence, self-regulated learning strategies, and engagement in physical activities with their respective indicators. It also includes the number of respondents, computed means, standard deviations, and the corresponding descriptive interpretations.

Table 1. Descriptive Statistics (N=150)

	SD	Mean	Descriptive Level
Persistence	0.58	3.05	High
Consistency of Interest	0.65	2.95	High
Persistence of Effort	0.63	3.15	High
Self – Regulated Learning Strategies	0.53	3.27	Very High
Goal Setting	0.70	3.24	High
Self-Monitoring	0.67	3.20	High
Strategy Use	0.62	3.20	High
Self-Evaluation	0.59	3.38	Very High
Self-Reflection	0.55	3.32	Very High
Engagement in Physical Activities	0.47	3.40	Very High
Teacher Influence	0.52	3.40	Very High
Attitude	0.53	3.35	Very High
Competence	0.52	3.45	Very High

Specifically, the table shows that the persistence variable obtained a mean score of 3.05, described as high level. This indicates that persistence of the respondents is generally strong. Two indicators obtained high mean. The standard deviation of 0.58 denotes that students are capable of sustaining effort, which supports long-term academic success. However, variability across indicators suggests the need for targeted interventions to strengthen weaker aspects of persistence. Furthermore, the results show that the self-regulated learning strategies variable obtained a mean of 3.27, described as high level. Indicating that self-regulated learning strategies of the respondents is generally very strong. Three indicators obtained high mean, indicating good but slightly less developed abilities in planning, tracking progress, and applying learning strategies, while two indicators obtained very high mean. The standard deviation of 0.53 denotes that respondents particularly strong in assessing and thinking critically about their own learning processes. Finally, the engagement in physical activities variable obtained a mean of 3.40, described as very high level. This indicates that engagement in physical activities of the respondents is generally very strong. The results show that three indicators obtained very high. The standard deviation of 0.47 denotes that the respondent's high engagement reflects positive health behaviors, which can contribute to improved physical well-being, mental health, and academic focus.

The findings revealed that persistence was rated at a high level, while self-regulated learning strategies and engagement in physical activities were perceived by students at a very high level, reflecting strong learning behaviors and excellent overall well-being. Comparatively, self-regulated learning strategies and engagement in physical activities showed higher ratings than persistence, suggesting that students demonstrate stronger performance in these areas.

Correlation Analysis

Table 2 is the correlation table. It specifically contains the variables namely, Persistence and Self-regulated learning strategies. It also contains the criterion variable which is the Engagement in physical activities of students. Lastly, it contains the r -value, the p -value, the decision on hypotheses.

Table 2. Relationship Between Variables (N=150)

Variables	Engagement in Physical Activities			
	r-value	p-value	Decision on H_0	Interpretation
Persistence	0.73	<.001	Reject	Moderate Significant High,
Self-regulated learning strategies	0.82	<.001	Reject	High, Significant

Level of Significance: 0.05

Decision Rule: Reject H_0 if $p < 0.05$

Specifically, the table shows that the correlation between persistence and engagement in physical activities variables yielded a p -value of 0.001, which is less than the 0.05 level of significance; hence, the null hypothesis was rejected. This indicates a statistically significant correlation. With an r -value of 0.73 such correlation is described as moderately high. This implies that for every unit changed in persistence, there is no corresponding unit change in student engagement. Furthermore, the table shows that the correlation between self-regulated learning strategies and engagement in physical activities variables yielded a p -value of 0.001, which is lower than the 0.05 level of significance; hence, the null hypothesis was rejected. This finding indicates that the relationship between self-regulated learning strategies and engagement in physical activities variable is significant. With an r -value of 0.82, the correlation of the two variables is described as high. This implies that for every unit changed in self-regulated learning strategies, there is no corresponding unit change student's engagement.

The findings revealed that both persistence and self-regulated learning strategies have significant relationships with engagement in physical activities. Specifically, persistence showed a moderately high positive correlation with engagement in physical activities, while self-regulated learning strategies demonstrated a high positive correlation. Both variables, confirming that the relationships are statistically significant associated with greater engagement in physical activities among students.

Regression Results

Table 3 presents the regression results and includes the variables, namely; persistence, and self-regulated learning strategies. It also contains the criterion variable, which is engagement in physical activities. It also displays the β coefficients, t-values, p-values, the decisions on the hypotheses, and the corresponding interpretations.

Table 3: Regression Table (N=150)

Engagement in Physical Activities							
Variables	Unstandardized Coefficients		Standardized Coefficients			Decision on H_0	Interpretation
	B	Std. Error	Beta	T	Sig.		
(Constant)	0.98	0.13	—	7.04	<.001	—	—
Persistence	-0.01	0.08	-0.01	-0.11	0.909	Failed to Reject	Not Significant
Self – Regulated Learning Strategies	0.74	0.09	0.83	8.14	<.001	Reject	Positive Significant Influence

$R = 0.82$ | $R^2 = 0.68$ | $F = 155$ | $p = <.001$

Level of Significance: 0.05

Decision Rule: Reject H_0 if $p < 0.05$

Table 3 specifically shows that persistence variable on engagement in physical activities obtained a standardized beta coefficient of -0.01. It indicates that the persistence on engagement on the criterion is very weak. With the corresponding 0.909, which is greater than 0.05 of confidence, the study failed to reject the null hypothesis. It signifies the influence of persistence on engagement is statistically not significant. Indicating that persistence has negative 1% influence on student engagement in physical activities variables.

Likewise, self-regulated learning strategies variable on engagement in physical activities obtained a standardized beta coefficient of 0.74. It indicates that the self-regulated learning strategies on engagement on the criterion is very strong. With the corresponding 0.001, which is less than 0.05 of confidence, the null hypothesis was rejected. It signifies the influence of self-regulated learning strategies on engagement is statistically significant. This indicates that self-regulated learning strategies has 74% influence on student engagement in physical activities variables.

Finally, the combined degree of influence persistence and self-regulated learning strategies variables on engagement. It was found that their combined degree is statistically significant as indicated by the f-statistic of 155 and a p-value of .001, which is below the 0.05 alpha level. This suggests that while both factors independently contribute to student engagement, their joint impact forms a powerful explanatory model when other factors are kept constant. It shows that the two predictive variables obtained an $R^2 = 0.68$, which denotes that together they explained 68% of the variance in the student engagement in physical activities variables.

The findings revealed that persistence and self-regulated learning strategies jointly exert a significant influence on students' engagement in physical activities. Comparatively, the findings implied that persistence alone may help students remain committed to participating in physical activities, while self-regulated learning strategies enable them to manage their goals, monitor their progress, and sustain motivation. When combined, these variables complement one another, resulting in a more meaningful and substantial influence on engagement.

Summary of Findings

Based on statistical results, it was specifically found that:

1. Persistence and self-regulated learning strategies are significantly correlated with physical activities
2. Self-regulated learning strategies, not persistence, significantly influence physical activities.

DISCUSSIONS

This chapter presents the discussions of the results of the study. Specifically, includes the reviews of previous findings that are either supported or denied by the results of this study.

Persistence correlates with engagement in physical activities

The finding of this study stating that persistence significantly correlates with student engagement corroborates the report of Bavishi et al. (2022), indicating that higher levels of persistence are associated with greater engagement in physical activities among students. Likewise, the current finding approves Dishman et al. (2024), who explained that persistence from motivation-related factors, significantly influence student participation and continued engagement in physical activity. However, this current finding opposes a study of Lubans et al. (2024), reporting that no significant student activity influenced, by persistence may not guarantee improved in physical activity.

Self-regulated learning strategies correlates with engagement in physical activities

The finding of this study stating that self-regulated learning strategies show a statistically high significant positive correlation with engagement in physical activities supports the findings of DiBenedetto (2020), emphasizing that self-regulated learning strategies demonstrate higher levels of engagement due to their ability to plan, monitor, and evaluate their actions. Similarly, Zimmerman (2020) explained that self-regulated learning strategies directly predicts higher levels of engagement including physical. However, this present finding contradicts D'Cruz et al. (2024), who reported inconsistent findings on the relationship between self-regulation and physical activity, that the association may vary depending on context and developmental factors.

Persistence influences on engagement in physical activities

The result of the regression analysis indicates that persistence does not significantly influence engagement in physical activities, suggesting that persistence alone is not a strong predictor of student active participation. The present result affirms the study of Greene et al. (2024), demonstrating that persistence without the support of other factors, such as self-regulated learning strategies, may not be sufficient to enhance student engagement. Similarly, the current finding supports Guan et al. (2023), who noted that persistence and effort alone may not translate into meaningful engagement when self-regulatory processes are weak or absent, which helps explain the non-significant relationship observed in this study. This finding contrasts with Panadero (2020), who emphasized that sustained effort and persistence are important factors in promoting active engagement.

Self-regulated learning strategies influences on engagement in physical activities

The finding reveals that self-regulated learning strategies have a positive and significant influence on student engagement in physical activities students, as indicated by the regression coefficient, which shows a statistically significant effect. This finding aligns with the studies of Lee et al. (2023), emphasizing that learners who actively engage in planning, monitoring, and evaluating their behaviors tend to exhibit higher levels of motivation and engagement. However, the present result contradicts with Zimmerman (2020), who disagreed that self-regulated learners demonstrate do not significantly manage their learning processes and sustain motivation over time.

Persistence, self-regulated learning strategies, when combined, influence student engagement

The combined influence of persistence and self-regulated learning strategies on engagement in physical activities is significant. This present finding agrees with Suguis & Belleza (2022), who claimed that persistence significantly influence student engagement in physical activities, whereas self-regulated learning strategies have a significant positive effect. In addition, the current study supports Wunsch et al. (2021), who applied self-regulated strategies demonstrate higher motivation in promoting engagement. However, this current finding contradicts a study of Schunk (2024), emphasizing that self-regulated learning alone may not significantly enhances student motivation and engagement.

Conclusion

Based on the findings, it is concluded that persistence and self-learning strategies collectively has (68%) strength to influence physical activities. Such influence is significant. This result supports the Self-Determination Theory, which posits that individuals are more likely to sustain behaviors when their basic psychological needs.

Recommendation

Based on conclusion, it is recommended that further study be undertaken utilizing other variables not covered in this study to determine potential factors that may explain the remaining 32% influence on student engagement in physical activities. Qualitative research may be pursued in order to identify emerging themes that may be utilized as potential variables. Furthermore, the school leaders may implement programs to enhance student persistence and self-regulated learning strategies in order for them to achieve a holistic well-being.

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Appendix A. Research Instrument

Survey Questionnaire for the research study entitled: “The Influence Persistence and Self-Regulated Learning Strategies as Predictors of Engagement in Physical Activities among Public Junior and Senior High School Students”

(adapted, and modified survey questionnaire Grit-based questionnaire adapted for Physical Activity Engagement, by Angela Duckworth (2007). Self-Regulation of Learning in Physical Activity (SRL-PA) by Keatley et al. (2019). Engagement in physical activities questionnaire from Motivation, Attitude, and Competence of Physical Education Students (Viva & Limbo, 2021)

Name (Optional): _____ School: _____

General Instruction: Please check the corresponding numbers of each item in accordance with your personal observation. Use the scale below to objectively assess. Please be honest with your responses.

I. INSTRUMENTAL SUPPORT

4- Very Strong

3- Strong

2- Weak

1- Very Weak

Part I. Persistence

No.		4	3	2	1
	CONSISTENCY OF INTEREST				
1	New types of exercise sometimes distract me from the physical activities I previously committed to				
2	My interest in physical activity changes from year to year				
3	I often set a fitness goal but later shift to a different one				
4	I have difficulty staying focused on the same exercise routine for several months				
5	I sometimes become very interested in a physical activity but later lose that interest				
6	I frequently switch to new forms of physical activity				
	PERSISTENCE OF EFFORT				
7	I overcome setbacks (e.g., fatigue, busy schedule, minor injuries) to continue being physically active				
8	I am a hard worker when it comes to improving my physical fitness				
9	I finish the exercise programs or training plans that I start				
10	I remain diligent in maintaining my physical activity routine				
11	I have achieved a physical activity or fitness goal that required long-term effort				
12	I am a persistent participant in physical activity				

Part II. Self-Regulated Learning Strategies

No.		4	3	2	1
	GOAL SETTING				
1	I set specific goals for what I want to achieve in my physical activity sessions				
2	Before I start exercising, I plan what I want to accomplish				
3	I regularly review my physical activity goals to stay motivated				
4	I set challenging but achievable goals related to my physical activity				
5	I break my overall physical activity goals into smaller, manageable steps				
	SELF-MONITORING				
6	I keep track of how well I am doing during my workouts				
7	I pay attention to how my body feels during physical activity				

8	I monitor my progress toward my physical activity goals				
9	I adjust my effort based on how well I am performing.				
10	I regularly check whether I am following my exercise plan				
STRATEGY USE					
11	I use different techniques to improve my physical skills				
12	I try new approaches when I find my workouts are not effective				
13	I plan specific methods to overcome challenges during physical activity				
14	I employ strategies to maintain focus during exercise				
SELF-EVALUATION					
15	After exercising, I think about how well I performed.				
16	I assess whether I achieved the goals I set for my workout.				
17	I reflect on what I did well during physical activity.				
18	I consider what I need to improve for next time.				
SELF-REFLECTION					
19	I think about why I find certain physical activities challenging.				
20	I reflect on how my motivation affects my physical activity.				
21	I consider how my emotions influence my exercise behavior.				
22	I think about the reasons behind my successes and setbacks in physical activity.				

Part III. Engagement in Physical Activities

No.		4	3	2	1
TEACHER INFLUENCE					
1	My PE teacher encourages me to participate actively in class.				
2	I feel motivated when my teacher gives positive feedback.				
3	My teacher creates a fun and inclusive environment during physical activities.				
4	I feel supported by my teacher when I try new physical tasks.				
5	My teacher explains the importance of physical activity clearly.				
6	I am more engaged when my teacher participates in activities with us.				
7	My teacher helps me set personal goals in physical education.				
ATTITUDE					
8	I enjoy participating in physical education classes.				
9	I believe physical activity is important for my health.				
10	I feel excited when it's time for PE.				
11	I have a positive attitude toward learning new physical skills.				
12	I feel proud of myself after completing physical activities.				
13	I look forward to physical education sessions.				
14	I think physical education is a valuable part of my school experience.				
COMPETENCE					
15	I feel confident in my ability to perform physical activities.				
16	I understand the rules and techniques of the sports we play.				
17	I believe I am improving in physical education.				
18	I can complete most physical tasks successfully.				
19	I feel skilled compared to my classmates in PE.				
20	I am able to apply what I learn in PE to real-life situations.				