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Student Engagement as Influenced by Physical Activity and Student Motivation Among College Students

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Abstract: The strict implementation of Covid – 19 Health Protocol limits the human movements including physical activities. The educational system also shifts from traditional to flexible learning modality. This quantitative study aimed to determine the degree of influence of physical activity and student motivation in student engagement among college students. The regression analysis technique was utilized to determine the degree of the relationship between the two independent variables and a dependent variable. The researcher applied the cluster sampling technique in selecting the respondents. After the thorough investigation, the null hypothesis ($p<0.05$) were rejected. This study delineated that physical activity and student motivation have positively influenced student engagement. Among the three indicators in physical activity, physical education got the highest mean of 4.28 (very high), followed by a general attitude, which posted a mean of 4.23 (very high), and scientific basis, which attained a mean of 4.13 (high). Moreover, among the four indicators in student motivation, intrinsic value got the highest mean of 4.20 (very high), followed by self-regulation with a mean of 4.10 (high), cognitive strategy with a mean of 4.07 (high), and lastly, self-efficacy which got the lowest mean score of 3.68 (high). The study accentuated that physical activity and student motivation are critical to promoting student academic engagement among college students. The results will contribute to the improvement of student engagement which is deemed essential in academic success.

Keywords: MAED–*Physical Education*, Physical Activity, Student Motivation, Student Engagement, Philippines

1. Introduction

The college students and instructors have been confronted with the problems in student engagement and other related distracters like failure, disinterest, disappointment which cease them to attain their educational goal [1]. Washor, and Mojkowski [2] accentuated that disengagement is mainly prevailing and widespread in impoverished urban and rural areas, where disengagement pressures among students are more formidable and they have limited sources for battling them. Young people believe that instructors and schools don't care about who they are or what they want to become. Moreover, there is a correlation between decreased academic success, and lower results on a variety of tests which has major consequences schooling experiences of the students. Students who are disengaged are at threat of a variety of negative academic and social consequences like absenteeism, dropouts, destructive behavior, and a lack of academic connectivity. Another research conducted in South Australian classroom revealed that frequent disengagement and disruptive behavior of students create stress among the teachers [3]. In the Philippines, Bendejo, and Gempes [4] cited that student engagement in any school-related activity is very low. Many Filipino students preferred to leave the school early for they are not interested to attend to school as a result of bad school environment, and school parental participation rates are extremely low.

In the previous years, educational institutions considered student engagement as an important outcome because of its close correlation to student's well-being. Recent studies have shown clear correlations between student engagement in academic achievement and outcomes like school dropout, and mental health [5]. Mandernach [6] found that students' optimism towards schooling is influenced by their sense of

school engagement. The students tend to lose their interest in studying if they do not feel engaged at school. As a result, school engagement among the students is a significant element that has both overt and indirect effects on students' academic success in the classroom [7]. As mentioned by Wonglorsaichona, Wongwanichb, and Wiratchai [8], the school administrators and other related agencies should be mindful of the significance of the teachers' position in promoting students' school engagement. They shall raise awareness about the following measures; 1) knowledge about students' school engagement, its importance, and how will teachers help students be engaged in school; 2) scrutinizing teachers' knowledge and understanding about the establishment of student engagement so that the results can be used to strengthen and refine and improve its effectiveness, and 3) teachers should be tasked to apply different methods to build student engagement to assess the effectiveness of each method. When teachers have identified its benefits towards the students, they become mindful of their essence in promoting students' school engagement further.

The National Association for Sport and Physical Education (NASPE) has advocated for a holistic approach to academic achievement in the classroom. NASPE believes that a well-balanced curriculum with mental, emotional, and physical components should be included in individuals' education. In addition, a student who is in good physical, social, and mental health does well in school [9]. Student engagement can be measured in a variety of ways. The study conducted by Darnell and Krieg [10] using a measure of changes in heart rate between lecture and active learning process found out that as the heart rate increases, the students tend to be active in participating in-class discussions. They further revealed that heart rate increased as the students engaged in active learning and returned to its normal state during the recapitulations of topics being discussed. On the other hand, Froiland, and Worrell [11] eloquently stated that student engagement and student motivation are the two important factors that contributed to the academic performance of the students. In their study, they examine the importance of student engagement and student motivation in their academic achievement. Deci and Ryan [12] considered student motivation as both a required and an essential component of student academic engagement. Student engagement in learning is not solely an end result of instruction, but it is also a means to obtaining better academic outcome. Student motivation, their active engagement in learning, and their ability to persevere in challenging environments while learning individually and/or in the group are subjects that have dominated scholars and educators at all levels, may it be local, national, or global, for past few decades [13].

The researcher did not find studies that examine student engagement as influenced by physical activity and student motivation among college students. Most of the previous studies only include either physical activity or student motivation as its independent variable separately. There are also studies that directly focus on its effect on the academic success of the students. This study focuses on determining the level of physical activity and student motivation and identifying which domain in physical activity and student motivation influenced student engagement in school. The result of this study may be helpful in refining and promoting student academic engagement as it is deemed significant in academic success. With that, instructors and school administrators may utilize this as their basis in formulating innovative pedagogical approaches to improve student's learning experiences. Considering the limited researches that scrutinize the current trends of instruction, especially in promoting student engagement, this study might be helpful in future studies. Thus, the urgency to conduct the study.

1.1. Research Objectives

This study aims to determine which domain in physical activity and student motivation significantly influence to student engagement among the college students. Furthermore, the study sought to answers the following:

1. To describe the level of physical activity among college students in terms of:
   1) general attitude;
   2) physical education; and
   3) scientific basis.
2. To describe the level of student motivation among college students in terms of:
   1) self-efficacy;
   2) intrinsic value;
   3) cognitive strategy; and
   4) self-regulation.
3. To describe the level of students' engagement in terms of:
   1) academic challenge;
   2) active learning;
   3) staff-student interaction;
   4) enriching educational experience; and
   5) supportive learning environment.
4. To determine the significant relationship between:
   1) physical activity and student engagement; and
   2) student motivation and student engagement.
5. To determine which domain in physical activity significantly influences student engagement.
6. To determine which domain in student motivation significantly influences student engagement.

1.2. Research Hypothesis

The following hypothesis were at 0.05 level of significance:

1. There is no significant relationship between physical activity and student engagement.
2. There is no significant relationship between student motivation and student engagement.
3. There is no domain in physical activity that significantly influences student engagement.
4. There is no domain in student motivation that significantly influences student engagement.

2. Methods

This chapter presents and describes the methods used in this quantitative study. It includes the research design, research locale, population and sampling, the research instrument which the construction and validation of the survey questionnaire, and also the data collection that is used in analyzing, acquiring, and interpreting data in the research.

2.1. Research Design

This study is a quantitative non-experimental research for it takes into account on data collection techniques as it utilized a descriptive survey questionnaire with regression analysis to describe the possible existing relationship between identified variables as well as determining the direction and magnitude of such relationship if there is. The regression analysis technique was used in this research since it was considered to be useful in determining the strength of the relationship between the two independent variables and a dependent variable. The quantitative method was appropriate for gathering the data for the target respondents to answer the questions reflected in the survey questionnaire. The researcher applied the cluster sampling technique in selecting the respondents from the two selected higher educational institution situated in Compostela, Davao de Oro to represent the entire population. The study emphasized the aim of the researcher which is to determine the degree of influence of physical activity and student motivation in student engagement among college students.

2.2. Population and Sample

This study applied the cluster sampling technique in selecting the respondents of the study. Out of all tertiary education institutions in Davao de Oro, only two (2) higher educational institutions were chosen to represent the entire population. The subjects of the study were the teacher education students, who were specialized in Secondary Education and Elementary Education enrolled in the year 2021-2022. The respondents can withdraw anytime if they are threatened in the conduct of the study.

The researcher used the Slovin's formula

$$(n= N/(1+Ne^2)$$

where "n" pertains to the sample size, "N" refers population size and "e" denotes the margin of error*)* to determine the number of samples.

Table 1. *The Distribution of Respondents.*

Population of Teacher Education Students	Respondents
Campus A = 508	220
Campus B = 272	160
Total = 770	380

2.3. Research Instrument

The researcher used an adapted questionnaire for the independent and dependent variables to suit the context of the study. The gathered data from the research were linked to the literature to aid the construction of the survey questionnaire which were validated by the panel of internal and external validators. The respondents were given a questionnaire that contains the respondent's the three sets of questionnaires for the independent and dependent variables.

The first set of questionnaires was dealing with the physical activity level of the college students. The survey questionnaire in the first independent variable was taken from the adapted questionnaire of Dunlavy [14]. In his study, he utilized the questionnaire from the earlier study conducted by Mowatt [15] and the members of Department of Physical Education, Sport, and Leisure Studies at Washington State University, in 1988. The aforementioned survey questionnaire contains 20 statements that were consist of the following domains; general attitude (5 items), physical education (6 items), and scientific basis (9 items) which were rated using the 7-points Likert scale.

The original survey questionnaire was modified to accommodate the school setting. To get a deeper interpretation from the respondents, the initial items were simplified or paraphrased, and were validated by the expert panel. Reliability was also be put to the test. For each item, the participants were requested to rate the physical activity level of student using the 5-points Likert scale anchored at (5) Very High, (4) High, (3) Moderate, (2) Low, and (1) Very Low.

The second set of survey questionnaire was dealing with student motivation. The survey questionnaire in the second independent variable will be taken from the third part of questionnaire in the study of Kubischta [16]. This questionnaire was originated from the previous research developed by Pintrich and De Groot in 1990. The original form of questionnaire contains 44 items which was consists of six factors; self-efficacy (9 items), intrinsic value (9 items), test anxiety (4 items), cognitive strategy use (13 items) and self-regulation (9 items). However, the students are not exposed to examination-related anxiety in this study. As Pintrich, and De Groot [17] emphasized that the test anxiety has no significant affect or impact on students' self-regulatory or cognitive methods. This finding supports the view that the element test anxiety may be removed from the questionnaire.

Hence, the original survey questionnaire was modified to contextualize the school setting. The original items were simplified or paraphrased to gain better understanding from the respondents. The items concerning test anxiety were excluded for this study. As a result, students were exposed to anxieties relevant to an assessment setting. The questionnaire was validated by the panel of experts. It also undergone the test of validity and reliability. For each item, the participants were requested to rate the physical activity level of students using the 5-points Likert scale anchored at (5) Very High, (4) High, (3) Moderate, (2) Low, and (1) Very Low.

The third set of survey questionnaire embarks with student engagement among college students. The survey

questionnaire in the dependent variable was taken after the adapted questionnaire of Korobova [18] from the National Survey of Student Engagement (2008) Experts devised and thoroughly tested the NSSE survey to guarantee validity and reliability, as well as to reduce non - response bias and modal influences [27]. Moreover, the following benchmarks were established for the effective educational practices; level of academic challenge, active and collaborative learning, student-faculty interaction, supportive learning environment, and enriching educational activities.

The initial sample questionnaire was modified to contextualize the school setting. To ensure that the respondents understood the original questionnaire, it was paraphrased and the validity and durability were also tested. For each item, the participants were requested to rate the student engagement using the 5-points Likert scale anchored at (5) Very High, (4) High, (3) Moderate, (2) Low, and (1) Very Low.

It should be noted that the instruments used in this study were validated by the panel of experts.

2.4. Data Collection

Prior to the conduct of the study, the research ethics were reviewed and checked by the university Ethics Review Committee. After the approval of the panel member, the researcher undergone the following steps and procedures in gathering data for the study.

The modified research questionnaires were validated by the internal and external validators. Afterwards, the researcher sought an authorization to head of a certain higher educational institution, outside Compostela, Davao De Oro to conduct the Pilot Test. Then, the researcher handed the data to the statistician to measure the reliability of the survey items.

Similarly, the researcher sought permission from the school president and school head to distribute survey questionnaire to their students. In addition, the researcher wrote a letter of approval that was addressed to all students. The letter of approval also sought the help of the class advisers accommodate the needs of the researcher, especially on overseeing the survey forms of the respondents. The research survey was conducted via online using the Google Form as the platform. Prior to the conduct of the research survey, the researcher has a virtual meeting with the respondents via Google Meet to explain the purpose of the research tools. Next, the link of the google form was distributed. After the respondents had completed all of the survey items, the researcher retrieved the survey questionnaire. The data was tabulated, analyzed, and interpreted in utmost confidentiality. The statistician was entrusted with all of the collected data for calculation, and tabulation. Finally, the interpretation was done by the researcher right after tabulation of the data.

Moreover, the researcher conducted the Research Forum to discuss the result of the study to the public. This also allowed the evaluators, researcher, as well as the beneficiaries to scrutinize the result of the study.

2.5. Statistical Tools

The following statistical methods were used to process the responses to the questions at the 0.05 level of significance in this analysis. The responses to the questionnaire items were counted, tabulated, and translated as required. The Statistical tools that were used for the data analyses and interpretations are the following:

Mean. This was used to determine the level of student engagement, physical activity, and motivation among college students.

Pearson-r. This statistical tool was employed in determining the significance on the relationship between physical activity and student engagement; and student motivation and student engagement among college students.

Linear Regression Analysis. This statistical tool was utilized to examine if physical activity and student motivation influence the student engagement among college students.

3. Result and Discussion

This portion presents further understanding and related work to the outcome of the study as well as the conclusions being drawn and the relevant and valuable recommendations offered by the researcher based on the obtained results.

3.1. Level of Physical Activity Among College Students

It was found in this study that the level of physical activity among college students was very high. This indicates that the level of physical activity very much observed by the college students. The physical activity terms of general attitude, and physical education, is very much observed by the college students. Additionally, physical activity in terms of scientific basis is much observed by the college students.

The result subscribed to the study of Sullivan et al. [3] that revealed the importance of physical activity and supported the establishment of physical education in educational institutions to develop students' academic performance. Moreover, following the study of Conner [19], physical activity had a significant influence on both standardized test scores and time-on-task behaviors. Physical activity was also proven to improve college-aged students' study habits in large numbers. The information contained in many articles provides suggestions for educators to enhance their students' level of physical activity. The school administrators should also consider what might cost in the long run to students' academic success if they will further cut the sports programs off.

The level of physical education and general attitude were found very much observed by the college students. On the other hand, the level of scientific basis was found much observed by the college students. The data revealed that as college students, physical activity was influenced by a general attitude, and physical education was higher than the scientific basis.

The physical activity level among college students

influenced by physical education was found to be very high. This is in parallel to the result of the study of Maher [20] that physical education is deemed an essential factor in the development of students. Physical, emotional, and psychological advantages of regular physical activity are vast. Students can benefit from increased physical exercise in the classroom. [21]. Similarly, Deliens, Bourdeaudhuij, Deforche, and Clarys [22], indicated that improved communication strategies regarding on-campus sports activities, cheaper and/or more flexible sports memberships and formulae, including 'sports time' into the curricula, and distributing university bicycles around campus are all recommendations for future physical education initiatives.

Meanwhile, the physical activity level of college students influenced by general attitude also turned out to be very high. According to the study of Seelen, Mikkelsen, and Wolderslund [23], students are passionate about the implementation of Physical Education at school. Students' experiences of Physical Activity in school as a positive notion were found to be the most optimistic attitudes (64.4%), a good consequence from classroom teaching (61.9%), and a beneficial influence on students' social well-being (61.9%). A bit less than half of the respondents thought that participating in physical exercise at school helped them grow healthy (48.3%). Many students claimed that it helped them focus and that it made schooling more pleasurable. There are also some of the students who believed that incorporating physical activity in the curriculum is beneficial for their overall well-being. However, there are also who disagree with this.

This is in accordance with Shujaat [24], that the students in Pakistan are enthusiastic about physical activities and they like to participate in order to improve their health. They are also aware about benefits of participating in sports and other physical activity. It was also denoted by Ding and Sugiyama [25] in promoting a positive attitude toward sports, it is vital to establish a comprehensive cultural, economic, and social effect on society. Physical activity beneficiaries are intended to have a pleasant and good attitude toward physical activity. A community is said to be well-accepted if the majority of its members have a positive attitude toward physical activity.

Accordingly, the physical activity level of college students influenced by the scientific basis was high. This is in connection to the study of Dayi, Acikqoz, Guvendi, Bayrak, Ersoy, Gur, and Ozmen [26] that many of the students were aware of the need of a well-balanced diet and adequate physical activity for optimum health, but many had yet to put theory into practice. Students who will be responsible for promoting public health in the future must improve their knowledge of healthy eating habits and increase their physical activity levels. To increase understanding of healthy living choices and establish a nutritional health culture, universities should offer conferences and research activities on nutritious meals and the importance of physical activity.

Correspondingly, Nowak [28] highlighted that the home-based physical activity is associated with a higher quality of life. When the recreational and transportation physical activity decreases, and gender differences in intensity and kind of physical exercise also arise. The kind of physical activity that students engage in should be tailored to their specific requirements, since it has an impact on both objective and subjective quality of life. These findings might have far-reaching ramifications for institutions seeking to promote an active lifestyle among their population.

Nevertheless, Vaara, Vasankari, Koski, and Kyröläinen [29] asserted that the recommended level of physical activity for young adult men is only known by a few people. As a result, increased efforts to educate males about the necessary amount of physical activity and physical health and wellness are required. Students' understanding of the advantages of physical activity may improve their desire to participate in a variety of physical activities [30].

3.2. Level of Student Motivation Among College Student

This study also revealed that the student motivation among college students is high. Among the four indicators, intrinsic value was found to be very high. All other indicators were found to be high. This indicates that the level of student motivation is much felt by the college students. It was pointed in the study of Suhag, Larik, Tagar, and Solangi [31] that students' learning and conduct are affected by motivation in a variety of ways. It was emphasized that motivation directs human behavior toward certain goals. It sets clear objectives for everyone to strive for, and as a result, it has an influence on students' decisions. Motivation increases the amount of time and effort necessary to determine if a student will approach a difficult project with fervor or with a lifeless attitude. By changing the start and end of activities and increasing the time spent on students' responsibilities, motivation will have a substantial influence on students' learning and accomplishment. Because motivation speeds up the cognitive processing process, it has an impact on how information is processed. Motivated students, as a result, are more likely to absorb and examine knowledge rather than just observe learning activities.

Student motivation in terms of intrinsic value was found to be very high among college students. The result was attested by the study of Ryan and Deci [32] that intrinsic motivation predicts greater learning, performance, creativity, optimum growth, and psychological wellbeing during the previous four decades. The brain roots of intrinsic motivation, on the other hand, have just lately been studied. Even the absence of operationally separable incentives, people's fundamental dispositions to be curious and interested, seek out challenges, exercise and increase their talents and knowledge are referred to as intrinsic motivation.

The findings of hierarchical regression analysis by Fischer, Malycha, and Schafmann [33] corroborated the commonly held belief that students' ability to be creative and imaginative is aided by internal motivation. Additionally, the findings validated the prediction that the extrinsic motivator, relational incentives, had a substantial and beneficial impact on the link between intrinsic drive and creativity/innovation performance. According to the findings, the higher the

intrinsic drive and the bigger the expectation of earning relational benefits, the more beneficial the influence on creative/innovative production. The data, however, did not support the hypothesis that transactional incentives, as a moderator, had a statistically significant impact on the relationship between intrinsic motivation and creative/innovative performance.

Consequentially, student motivation in terms of self-regulation was found to be high among college students. The result conformed to the study conducted by Wandler and Imbriale [34] that there is an increasing need for online teachers to be aware of students' self-regulation issues and to advocate suitable solutions that have been connected to positive academic success. Implementing the strategies mentioned in this article will increase student self-regulation in your online classrooms, as evidenced by past research.

In the same way, Valenzuela, Codina, Castillo, and Pestana [35] revealed that Self-regulation amongst learners necessitates both self-motivation and volition, or the ability to convert motivation into specific behavioral goals and then carry them out. Self-motivation and volitional regulation are both included in self-regulation. Differences in motivation and volition, such as trait-level persistence, have a major impact on both. Procrastination is described as a problem with volitional self-regulation in which a person defers doing what they want to accomplish while feeling motivated and anticipating negative consequences. As a result, there's a risk of dysregulated behavior, which can improve with age, and poor self-control might lead to procrastination. Procrastination, as a kind of dysregulation, inhibits the autonomy and well-being of young people by hindering their own development.

However, it was contested by Domínguez and Marcelo [36] that university students do not use it to manage their studies despite their frequent use of technology. Of all the technologies analyzed, Internet information search and instant communication tools are the most often used. As a result, self-regulation learning approaches that rely on social support are the most popular. In terms of usage and frequency, students, on the other hand, vary. Some children use self-regulation tactics when learning with technology. Also, Wandler and Imbriale [34] articulated that faculty members must be more aware of their students' self-control challenges and advocate positive interventions that promote academic success. According to the prior studies, implementing the approaches presented in this article would increase student self-regulation.

The level of student motivation as influenced by cognitive strategy has been found to be high among college students. It is in congruence to the result of the study of Özkubat and Özmen [37] that problem-solving is a metacognitive process in which students assess and regulate their thinking. It may explain why metacognitive methods predicted math problem-solving success across the board. The issue solver should be aware of the process's ultimate aim, as well as the strategies that should be employed to attain it and their efficacy. As a result, the learner must control and monitor his or her cognitive activity during the problem-solving process. Similarly, implementing cognitive practices, metacognitive techniques, and resource management strategies has a major influence on students' academic performance [38].

Besides, students utilize cognitive strategies to improve their learning results. Repetition, organizing new language, summarizing meaning, anticipating meaning from context, and using images to recall are just a few examples [39]. As mentioned by Galindo [40], teachers and students should work hand on hand to create a positive environment in the teaching and learning process. It is important to note that teachers must design lessons, assignments, and projects that are engaging for pupils. To promote the growth of their intellectual capacities, students' cognitive tactics should incorporate thought-provoking acts during homework chores, as well as participation and involvement in the classroom. Because students are compelled to participate in the learning process, student engagement becomes a critical component of the learning process.

Lastly, the student motivation in terms of self-efficacy was found high among the college students. As pointed by Hanum and Binti [41], self-efficacy is an important factor in propelling someone to the next level. People who are ineffective will find it difficult to deal with life's obstacles. Instructors, parents, and others can readily affect them with words of support and inspiration. They should be helped in every way possible, whether it is via energy, effort, time, or money. Students are a valuable national resource who contribute to the country's long-term stability. Their motivation and belief in their capacity to excel in school should not be squandered. They must be encouraged to strive for academic success at all times and phases. Self-efficacy influences how students feel, think, motivate themselves, and behave. Self-efficacy refers to a student's belief in their capacity to perform a task [42].

As studied by Olave [43], students' belief in their capacity to overcome obstacles affects their college grades. While low self-efficacy was not limited to first-generation students, it was impacted by a number of sociodemographic factors. It was claimed that including chances for effective action into lower-level introductory college courses will boost first-generation college students' self-efficacy and grades, closing achievement gaps.

3.3. Level of Student Engagement Among College Student

It was revealed in this study that the student engagement among college students is high. All the indicators for this variable also reflected a description of high. This implied that the student engagement is much observed among college students.

It was also mentioned in the study of McFarland, Stark, and Cui [44] that student involvement leads to better academic achievement, but disengagement leads to school suspensions and greater dropout rates. According to the study, schools are presumed to provide learning opportunities that help students integrate into society, but they are "suffering from a broad range of educational distracters, such

as dissatisfaction, disinterest, and frustration," which is "expanding the success disparity" [1]. In order to accomplish appropriate change, it is critical to interact with the stakeholders who are most affected; in this case, a great deal may be learnt from their lived experiences that can be utilized to form future policy [45].

Among all domains of Student engagement, enriching educational experience got the highest mean which is described as high, which connotes that it is much observed among college students. As studied by Mythily and Raja [46], curriculum enrichment means adding value to the educational process by putting life into it. Universities provide enrichment programs to broaden students' education outside their core line of study. The finest session comprised personal research, group projects, practical work, creative expression, conversation, and brainstorming. This method is widely used by students, and there is evidence that it improves their performance. There is a significant commitment in the further education industry to offering opportunities for students to improve their educational experiences. Enrichment programs that are successful boost kids' motivation, achievement, and retention in school and college.

The indicator academic challenge is high. This is in consonance to the study of Lodge, Lockyer, Kennedy, Arguel, and Pachman [47] that in the learning process, challenges and uncertainty are essential, especially as students develop more sophisticated understandings of complex topics. Puzzlement may aid learning in a variety of ways, including work on desirable difficulties, impasse-driven learning, constructive failure, and pure discovery-based learning. Academic challenges tend to benefit college students more if they are addressed with additional institutional support, perhaps decreasing degree completion deadlines [48].

However, Kokemuller [49] argued that students typically must study harder and stay more focused in order to assimilate course material and do well on projects and tests. The curriculum becomes more intellectually challenging as students' progress through their college degrees. A number of college students are concerned about their lack of drive. Your motivation to complete a class or school may be inadequate if you don't have clear goals and understand why you want to do so.

More so, student engagement in terms of active learning is also high, which indicates that it is much observed among college students. This result was subscribed by the study of Nayir [50] that the students must be engaged and enthusiastic in the classroom. To do this, they must be very motivated. To put it another way, highly motivated students make an effort to participate in class. Many minority and impoverished students are actively seeking opportunities to approach trustworthy adults, demonstrating that "school community participation increases young people's sense of belonging and optimism about learning." Minority and impoverished students want to drop out for a variety of reasons, including a dislike of education, a lack of a voice, and unfair treatment. More study is needed to help students better comprehend their own perspectives so that these sentiments will not become entrenched [51].

The student engagement in terms of Supportive Learning Environment is high, which means that it is much observed by the college students. This is in concordance with the study of Devito [52] that collaboration, and active involvement in learning activities, a friendly classroom environment was required to promote communication. It should be partnered with interactions between instructors and students that were encouraging and emotionally supportive rather than neutral or negatively demanding. Students' desire to participate in learning activities and their view of the value of learning were shown to be affected differently by each of the five clusters of characteristics.

It was mentioned by Nguyen, Cannataa, and Miller [53] mentioned that higher behavioral engagement did not always predict increased involvement when students engaged with other students and the instructor, but it did predict increased participation when students interacted with other students and the teacher. Distinguishing between disengagement, active engagement, and passive engagement in terms of behavioral involvement has important scientific and philosophical consequences in education.

As recommended by Wirussawa, Tesaputa, and Duangpaeng [54], the establishment of a supportive environment at school should be well-planned and organized, with clear-cut plan ahead of time. It is worth noting that school administrators and teachers should be aware that the learners' capacity to learn is influenced by their surroundings. The learners' potential growth is suitable with their physical and relative environment. In terms of learning environment management, the government should give enough financial support for environmental implementation, since some schools have budgetary limits that hinder them from effectively managing the plentiful and well-protected school environment. The accomplishment evaluation on the systematic application should allow members of school committees, as well as parents and guardians, to participate.

It was also discovered by Wandler, and Imbriale, [34] that faculty members need to be more conscious of their students' self-regulation issues and push for constructive interventions that will help them succeed academically. Students' self-regulation and self-efficacy would improve if the techniques provided in this article were implemented. In schools, students and teachers should have stronger voice, and adults and administrators should be prepared to listen to, learn from, and lead with their voices [55].

Lastly, student engagement in terms of staff-student interaction is also described as high, which means that it is much observed by the college students. This is parallel to the study conducted by De Villiers and Werner [56] that for both student behavior and institutional environments, there is a strong positive correlation between the variable student-staff interaction and students' average final year grades. According to this study, strong connections between students and faculty, which are formed by both sides, as well as lecturers

who are courteous and accessible when students have concerns about academic challenges, are key factors in increasing academic success rates. The student behavior component, student-staff interaction, and the institutional condition factor academic attention all showed significant changes when the sample group was divided into "more" or "less" engaged cohorts.

Teacher-student interaction is one of the most significant aspects of classroom climate and discipline, and it is connected to teacher attribution as well as student academic engagement and achievement. Interactions between teachers and students may provide students with new learning chances and experiences while also stimulating their interest in learning. As a result, it is critical to consider how the teacher-student classroom interaction influences students' engagement. Teachers employ a number of classroom engagement strategies in the classroom. Students' behavioral, social, emotional, and cognitive engagement have all improved when positive relationships are encouraged by the teacher [57].

In addition to that, instructors who are monitoring students' real-time reactions to teaching will adjust their delivery of lessons and avoid making judgments based on personal assumptions about what was engaging. A skilled and effective teacher is more likely to judge an appropriate student's lack of engagement as something they can improve by providing appropriate kinds of support. Every student deserves a teacher who is willing to learn about his or her background and circumstances, recognize the dominant cultural norms that children are expected to follow, and collegially collaborate [58].

3.4. Significant Relationship Between Physical Activity and Student Engagement Among College Students

The result of the study showed that there was a significant relationship between physical activity and student engagement among college students. The computed R-value indicates a strong positive relationship between the variables. The positive R-value indicates a direct correlation between the two variables, which further indicates that as the physical activity level goes high, the student engagement that the college students observe also goes high. Conversely, as the physical activity level goes down, the student engagement among the college students also goes down.

The result is in accordance with the study of Owen, Parker, Zanden, and McMillan [59] that stressed a positive relationship between physical activity and student engagement. Single bouts of moderate to vigorous-intensity activity, as well as regular moderate to vigorous-intensity activity, were found to be effective in increasing school engagement in this study. It's improbable that all students took advantage of the opportunity to partake in physical activity when groups of students were offered the option. Academic performance scores, particularly standardized test results, are under increasing pressure, and some educators believe that time spent in the academic classroom is more beneficial to academic achievement than time spent encouraging physical activity. Giving opportunities for physical activity may increase student engagement.

Correspondingly, the study of Sumaira, Kiyani, Wang, Sánchez, and Qurban [60] revealed that increasing physical activity level is an important component in improving students' academic performance. As a result, it is essential to figure out how much physical activity affects student academic performance and what are the factors that could lessen this correlation. Self-esteem and sadness were found to be major mediators of physical activity and academic achievement. Physical activity had a significant overall impact on academic achievement, however not as much as the total indirect effect through mediators.

It was also stated in the study of Ariza, Serrano, Manzano, and López [61] that Physical activity has been promoted as a way to improve students' cognitive activity by providing intervention programs that involve motor exercise and aerobics, both of which are helpful to the brain. Since a result, the importance of physical activity should be addressed while establishing a curriculum for an educational institution, as it aims to improve students' academic performance by lowering sadness, stress, and anxiety, as well as increasing self-esteem.

3.5. Significant Relationship Between Student Motivation and Student Engagement Among College Students

The result of the study showed that there was a significant relationship between student motivation and student engagement among college students. The computed R-value indicated a strong positive relationship between the variables. The positive R-value indicates a direct correlation between the two variables, which further indicates that as the student motivation goes high, the student engagement also goes high. Conversely, as student motivation goes down, student engagement among college students also goes down.

This result is conformed to the study of Nayir, [50] that motivation is connected to class engagement, technical college students are more influenced by motivational factors, and motivation declines as grade level increases. It's feasible that harnessing intrinsic motivation will aid vocational school students' success in this way. The findings of this study imply that throughout the learning and teaching process, instructors and school officials should employ more stimulating strategies.

It was highlighted by Suhag et al. [31], that motivation is seen as a crucial aspect of the learning process, and it is essential in encouraging students to pursue academic goals. Motivation is characterized as a circumstance that nourishes, propels, and sustains behavior. This is made up of objectives and activities that inspire movement and action. To execute over a lengthy period of time, action needs effort and commitment. Motivation is the consequence of a complex interplay of beliefs, perceptions, values, knowledge, and actions. It's critical to comprehend motivation's role in the classroom because it may lead to a variety of actions.

The study of Wu [57] revealed that positive academic motivation is critical for college students to attain greater

academic engagement and accomplishment, which has substantial effect for them. Academic motivation has a large positive influence on academic engagement and academic performance (i.e., GPA) across four years of college, whereas academic engagement has a minor impact on college students' academic achievement. Additionally, there were no partial mediation effects of academic motivation between individual and institutional variables and academic engagement and accomplishment. Academic motivation, on the other hand, has been found to modulate the link between academic motivation and achievement.

3.6. Regression Analysis on How the Domain of Physical Activity Influences Student Engagement Among College Students

This regression analysis on the influence of the domains of physical activity on student engagement among college students revealed that general attitude, physical education, and scientific basis have a significant influence on student engagement among college students. Among all domains in physical activity, the scientific basis has the strongest influence on student engagement as compared to physical education and general attitude.

The study conducted by Fischer [62] emphasized that physical and "cognitive" training are frequently integrated in enriched classroom environment, resulting in good neurological results including neurogenesis and neurotrophin release. In order to maximize the full benefits of exercise, it's probable that a integration of physical activity and cognitive engagement in the classroom will be required. Furthermore, aerobic exercise is hypothesized to improve brain function by promoting neurogenesis and angiogenesis in memory and learning areas, as well as improving cognition through physiological changes such as enhanced oxygen saturation and glucose delivery [63].

It was also highlighted by Winther and Byrne [64] that people's lack of physical activity, as well as the rise in sedentary behavior and infant obesity, are all cause of the problem. Since the curriculum is mostly conducted online, students are introduced to the internet at a young age. The majority of them find new teaching and learning techniques to be both challenging and exciting. However, by week four, student involvement in wellness instruction had dropped from 95 percent to 65 percent. Many educational institutions observed the same patterns regardless of year level, subject, or topic [65].

A meta-analysis study by Owen, Parker, Zanden, and McMillan [59] looked at the association between different types of physical exercise and school engagement (e.g., during recess or lunch vs. active breaks vs. physically active classrooms) and found comparable results (behavior at home and at school, and emotions, e.g., lesson enjoyment). Physical exercise has a strong favorable influence on school involvement. When compared to recess, lunchtime physical activity, and physically active lectures, active breaks seemed to be the most effective kind of intervention for boosting school engagement.

The findings of Watson, Timperio, Brown, Best, and Hesketh [66] imply that physical activity has been found to increase academic performance in the classroom. However, it is challenging to draw clear conclusions due to the great degree of variation in the intervention components and academic-related outcomes studied. Future research should take the length of the intervention into account when using academic-related outcome measures, and evaluate intervention fidelity and effects on overall physical activity levels using an objective measure of physical activity.

There are various authors who supported the results of this study. Accordingly, the physical activity was supported by the Self-determination Theory of Ryan and Deci [67]. This theory emphasized that many scholars used this theory to investigate exercise behavior. People are basically alive, curious, passionate, and motivated to achieve. Recent studies found that some individuals exercise consistently because they like it, while others exercise for both extrinsic and intrinsic reasons, such as weight loss, increased activity, and so on. Individuals who like exercising are more likely to stick to a training routine than those seeking both intrinsic and extrinsic rewards. One of the aims of health experts is to encourage people who don't meet the current physical activity guidelines to adopt a more active lifestyle.

3.7. Regression Analysis on How the Domain of Student Motivation Influences Student Engagement Among College Students

The regression analysis on the influence of the domains of student motivation on student engagement among college students revealed that self-efficacy, cognitive strategy, and self-regulation have a significant influence on student engagement among college students. It is also noticeable that this variable posted the most influence to student engagement. The result is in concordance to the study of Simamora [68] that students benefit from online learning because they have more opportunities to connect with rich learning resources regardless of their location or time. They also have a lot of opportunities to participate in digital learning initiatives. Gustiani [69] added that students' desire to gain new skills and try out different learning strategies drove their academic motivation for online learning.

Among all domains in student motivation, self-efficacy has the strongest influence on student engagement compared to cognitive strategy and self-regulation. On the other hand, only intrinsic value is the domain in student motivation that does not influence student engagement. As eloquently stated by Hanum and Binti [41] that Self-efficacy is an important factor in pushing someone to the higher level. People who are ineffective will find it difficult to deal with life's obstacles. Instructors, parents, and others can readily affect them with words of support and inspiration. They should be helped in every way possible, whether it is via energy, effort, time, or money. Students are a valuable national resource who contribute to the country's long-term stability. Their motivation and belief in their capacity to excel in school should not be squandered. They must be encouraged to strive

for academic success at all times and phases.

Also, the study of Syarif [42] found out that self-efficacy influences how students feel, think, motivate themselves, and behave. Self-efficacy refers to a student's belief in their capacity to perform a task. Self-efficacy increases students' belief in their abilities to attain their goals. As a result, self-efficacy is the key to a student's personality success in any learning context. Self-efficacy assists students in arranging and navigating difficult situations. Students that have a high level of self-efficacy in studying, for example, are more likely to succeed. Students have the ability to retain a strong commitment to finishing their tasks. In a number of ways, students' self-efficacy can make them feel better. Students can lower their anxiety when finishing a task if they have self-efficacy.

The supplemental theory that underpinned this variable is the Motivation theory. Motivation is a driving factor in human behavior that encourages people to take goal-oriented actions on a regular basis. It has to do with a person's desire to participate in or be engaged in an activity, and it also explains why people continue to follow certain paths while avoiding others [70]. In his study, Reeve [71], provided a framework that is compatible with student motivation research. The concept is based on self-determination theory, which investigates how people's driving forces, innate development qualities, needs, and sociocultural pressures interact as they try to progress and achieve autonomous self-regulation. Furthermore, the purpose of his framework is to connect motivating expressions to triggering events and motivational theories.

4. Conclusion

Referring back to the result of the research objective, the researcher has come up with the conclusion that physical activity in terms of general attitude, physical education, and scientific basis have an influence on student engagement. Furthermore, student motivation in terms of self-efficacy, cognitive strategy, and self-regulation also influence student engagement. The findings revealed that physical activity in terms of general attitude and physical education is very much observed by college students. The physical activity level, which is in terms of scientific basis, is much observed by the college students.

On the other hand, the findings revealed that the level of student motivation in terms of intrinsic value is very much felt by college students, although it was discovered to have no significant influence to student engagement. More so, student motivation caused by self-efficacy, cognitive strategy, and self-regulation is much felt by college students. Overall, the results revealed that there is a significant relationship between all domains in physical activity and three out of four indicators of student engagement have a significant relationship to student engagement.

Ultimately, the result of the study is supported by the theory on Student Involvement Theory of Astin [72]. This theory proposed that student participation, personal growth, and college academic performance are all linked. He underlined that student development refers to the quantity and quality of physical and psychological energy that students gain from their college academic experiences. The Student Involvement Theory states that the more involved a student is in school, the more learning and personal growth he or she will experience. The student developmental outcomes are influenced by the behavior of students as an individual. It is not exclusively reliant on the substance of the curriculum or the methods of instruction. The basis of student involvement was those premises.

5. Recommendation

After the profound consideration of the possible implications of the findings and conclusion of the study, the researcher came up with several recommendations on how students can improve their academic engagement.

First, maintain a very high level of physical activity among the college students by inspiring and empowering them to keep active and educating them about the importance of physical activity to their health and well-being, and academic achievement. Mainly, since the scientific basis got the lowest mean, the school may conduct Physical Activity Enhancement Program which will highlight the benefits of physical exercise and risks of sedentary behavior. This program will also aim to scrutinize the issues in physical activity and health for these have significant impact on college students. This program requires the instructors to incorporate physical activities to their instructional plan to help students to stay active throughout the instruction. If teachers are reluctant to incorporate physical exercise in their lessons, they may simply have students get up frequently throughout class to stretch or "get the wiggles out" for it helps them to enhance concentration. Additionally, the school may organize a school-based association which will closely monitor the physical activity level of college students. The said organization may initiate physical activities like school-based sports and recreational activities, which may fascinate students to be active while enjoying the schooling. If some students have lack of desire or time to partake in sports events, they may have modified sporting events to accommodate them. Through this, the physical activity among the college students will be reinforced.

Furthermore, to escalate the level of student motivation to very high, the school may conduct a Capacity-Building Program through Goal-Setting Strategies and Frameworks to help the students monitor their achievement and be able to build and sustain their self-efficacy, self-regulation, cognitive strategies and their internal drive. Particularly, since self-efficacy got the lowest mean, goal setting is critical to the college students for it will aid them in detecting roadblocks and thinking barriers, as well as redefining or changing them with more positive interventions. It will also allow them to have different outlooks on themselves, which raises the chances of reaching self-satisfaction. The goal-setting will also allow the students to reflect on their prior

accomplishments and failures and identify areas where they need to improve.

Next, to increase the level of student engagement to very high, the school may establish "Together at School" Intervention Program that aims to strengthen the student consultation program by establishing institutionalized guidelines in monitoring the student academic engagement and performance and fast-track their learning blocks and concerns. Mainly, staff-student interaction got the lowest mean, and the school may re-evaluate its implementation of student consultation program. Teachers may also initiate a deep connection towards their students through providing mastery experience and persuasive communication. The program may incorporate short term interventions like "Learning Marathon" to fast-track students' level of learning and their difficulties which will prepare them before the examination. Through this, students will be able to build trust and confidence towards their teachers that allows them be more engaged in classroom instructions. Having positive academic staff-student interactions engage the students in the learning process and reinforce their desire to study.

Lastly, the researcher recommended in inculcating how critical academic engagement is in ensuring the attainment of educational success. Many instructors have limited opportunities to learn innovative teaching methodologies. As such, the school may also offer seminars and workshops about the new trends in pedagogy to help the instructors be aware of how they will help the students cope with the academic challenges. It should also be noted that the degree of student engagement is more likely to increase in the future if the institutions empower the instructors with more effective strategies. By this, the students will have the chance to learn and practice the abilities they will need to succeed in the future. The result of this study may be helpful in refining and promoting student academic engagement as it is deemed significant in academic success. Increased academic engagement will lead to decreasing of truancy, behavioral and disciplinary problems. Ergo, instructors and school administrators may utilize this as their basis in formulating innovative pedagogical approaches to improve student's learning experiences. Future researchers may also use this study as their key component for educational intervention researches.

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