

Physical exercise and socio-emotional skills as predictors of academic productivity among college students

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Abstract:

The abrupt transition from traditional face-to-face to online instruction due to the Covid-19 pandemic created challenges in the teaching-learning process. This quantitative study aimed to examine the relationship between physical exercise, socio-emotional skills, and academic productivity. The study used adapted research questionnaires to fit the context. Linear regression analysis was employed to describe the possible existing relationships between the identified variables, as well as to determine the direction and magnitude of such relationships. It was discovered that the overall levels of students' physical exercise, socio-emotional skills, and academic activity were high, indicating that these three variables were significantly observed by the college students. Among the five indicators of physical exercise, preventive health received the highest mean. In the variable of socio-emotional skills, both self-awareness and responsible decision-making had the highest means. Additionally, among all domains of academic productivity, the interaction process received the highest mean. After thorough investigation, the null hypothesis ($p < 0.05$) was rejected. The study demonstrated that physical exercise and socio-emotional skills were significant predictors of students' academic productivity. This finding highlighted the direct impact that these factors had on enhancing students' academic productivity. Physical exercise contributed to improved cognitive function, concentration, and overall mental health, which in turn supported better learning outcomes. Meanwhile, socio-emotional skills, such as emotional regulation, self-awareness, and interpersonal skills, were essential for managing stress, fostering positive relationships, and maintaining motivation. By emphasizing the importance of both physical activity and socio-emotional development, the study underscored the need for educational strategies that integrated these elements to effectively boost students' academic success.

Keywords: Physical Education, academic productivity, quantitative research, regression analysis, Philippines

Introduction

Previous studies revealed that students and teachers greatly affected by the abrupt change of teaching modality from traditional instruction to online teaching modality due to the Covid-19 pandemic. It was also discovered that teaching of practical content got a poor rating. In comparison to past years, the proportion of students who are extremely dissatisfied with their current condition has increased by one percentage point, while the number of students who are extremely satisfied has nearly halved. In 2018, 18% of students stated they were extremely dissatisfied with their outputs with the current circumstances, compared to 34 and 31 percent in 2018 and 2016, respectively (Pfister, et al., 2021).

Another study revealed that the pandemic has significantly affected students' academic success across various backgrounds. A study from Sapienza University of Rome found that 25.4% of students reported a noticeable drop in their academic performance due to the pandemic. This decline was driven by several factors, including financial difficulties and heightened psychological stress. Students facing economic challenges struggled with the costs of remote learning and limited resources, while those requiring psychological support experienced increased anxiety and stress. These results demonstrate how the pandemic intensified existing issues and created new obstacles, severely impacting students' ability to sustain their academic performance (Siena, et al., 2024).

In Japan, research revealed that students experienced substantial declines in their academic productivity as a result of school closures. Specifically, at 7 months after schools reopened, students' performance had dropped by 0.133 standard deviations, and this decline became more pronounced with a decrease of 0.249 standard deviations by 19 months. These findings illustrate the persistent and significant impact that extended periods of school closure can have on students' learning outcomes. The data indicates that the effects of school closures on academic performance extend well beyond the immediate aftermath, suggesting long-lasting disruptions in educational progress. This underscores the critical need for targeted interventions to address and remediate the academic setbacks caused by such interruptions (Asakawa, et. al., 2024).

The study conducted in Germany highlighted that issues of academic productivity were significantly impacted by procrastination and mediocrity among students enrolled in online courses. Students often struggled with time management, leading to increased procrastination and a decline in the quality of their work. Additionally, the pressure to keep up with online coursework, combined with the lack of face-to-face interaction, contributed to feelings of burnout. This combination of factors adversely affected students' academic health and led to long-term reductions in academic productivity. The study underscores the need for effective strategies to address procrastination and manage the pressures of online learning to improve students' overall academic performance and well-being. (Mirzoyan, & Mikaelyan, 2022).

In the Philippine context, remote learning has the potential to increase inequalities and create obstacles to online learning. There are thirty-two percent (32%) and twenty-two percent (22%) of 3, 670 Filipino students, have difficulty adjusting to new learning techniques and do not have dependable internet connection, respectively. For some, purchasing a learning gadget that allows them to effortlessly tune in to online classes and turn in assignments in the online system may be tough. Despite attempts to make education more accessible to all, Filipino university students who choose remote education face several challenges (Baticulon, 2020).

The productivity in education is significant on many levels. In the study of Karadag (2018) revealed that instructors and their productive actions and operations are one of the most significant things to promote during the transition process of colleges and universities into third generation educational institutions. It should be emphasized that universities must improve their missions to conduct scientific research, which is one of their purposes of establishment, in order to gain competitive advantage in the modern world, where students and instructors' mobility, innovation, technology, and information-based economic policies are all predominant. In the 21st century when innovation and skills are considered as the key driving factors, colleges and universities that are the center of search and development operations, as well as instructors who are the essential aspects of universities, could not withstand the worldwide trend for long against global tendency.

The benefits of consistent physical activity have been demonstrated to have a favorable impact on a variety of metabolic activities, including such as heart rate, platelet function and etc., as well as being linked to a reduction in chronic non-contagious disorders respiratory illnesses. However, in recent decades, increases in brain structures have been connected to improvements in cognitive abilities such as attention, memory, planning, inhibition, and so on. This final circumstance has allowed researchers to establish a link between physical activity and academic productivity (Maureira, and Diaz, 2018).

On the other hand, Alzahrani, Alharbi, and Alodwani (2019) emphasized that social and emotional skills are essential in building a productive learner especially in today' educational system. The reinforcement of the socio-emotional dimension in the educational environment aids students in achieving their learning objectives. With this, teachers must focus on helping students to develop healthy social and emotional skills. The development of students' social and emotional competency has a direct impact on their motivation to learn and consequently on their current and future academic success. Furthermore, additional social and emotional support for students is required to ensure academic productivity and high-test score results. They are more likely to be ready for school-related activities and to perform well in their academic tasks when they feel joyful, comfortable, loved, understood, and listened to than if they do not feel these qualities.

There is a need to conduct a study to understand the factors influencing academic productivity among college students, particularly in the context of increasing academic demands. There is a growing recognition that physical exercise and socio-emotional skills might play crucial roles in enhancing academic performance. Prior studies have suggested that these factors can impact cognitive function, stress management, and overall well-being, which are essential for academic success. Investigating their predictive value can provide insights into effective strategies for improving student outcomes and inform institutional policies and support programs. The context of the study is situated in the academic productivity of college students, who often face significant pressures related to their studies, personal life, and future career prospects. The increasing emphasis on holistic student development has led to a focus on non-academic factors, such as physical health and emotional well-being, as potential contributors to academic success. By exploring how physical exercise and socio-emotional skills affect academic productivity, the research aims to address gaps in understanding how these factors interact with academic performance in a higher education setting.

The researcher did not find studies that examine physical exercise and socio-emotional skills as Predictors to Academic Productivity among college students. Most of the previous studies only include either physical exercise or socio-emotional skills as its independent variable separately. Many studies have directly focus on the effects of the aforementioned factors on the academic success of the students in general, not on the level productivity. This study focuses on determining students' physical exercise and socio-emotional skills and identifying which among students' physical exercise and socio-emotional skills most significantly predicts students' academic productivity. The result of this study may be helpful in refining and promoting student academic productivity as it is believed important in academic success. Considering the limited researches that scrutinize the current trends of instruction, especially in promoting academic productivity, this study might be helpful in future studies. Thus, the urgency to conduct the study. This study may benefit the students to enhance their productivity level and will also help them improve and their learning mechanisms. It is also beneficial to the

college instructors and administrators to have the basis for taking steps on addressing the issue of academic productivity and to establish feasible interventions.

Material & Methods

Participants

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.

The Distribution of Respondents.

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

The Sample of Variables

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 engagement of students in physical exercise. The survey questionnaire in the first independent variable was taken from the adapted questionnaire of Kadariya and Aro, (2018) entitled “Barriers and facilitators to physical activity among urban residents with diabetes in Nepal”. The aforementioned survey questionnaire contains 29 statements that were consist of the following domains; life enhancement (8 items), physical performance (8 items), psychological outlook (6 items), social interaction (4 items), and preventive health (3 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 exercise 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 socio-emotional skills. The survey questionnaire in the second independent variable will be taken from the third part of questionnaire in the study of Zhou, and Ee (2012). The original form of questionnaire contains 25 items which was consists of five domains; self-awareness (5 items), social awareness (5 items), self-management (5 items), relationship management (5 items), and responsible decision making (5 items).

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 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 exercise 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 academic productivity among college students. The survey questionnaire in the dependent variable was taken after the adapted questionnaire of Pfister, Mika, Pavic, and Nguyen (2021) in their study entitled “Student productivity in the transition to online lectures”. Moreover, the following benchmarks were established for the effective educational practices; learning facilities (3 items), technology use (3 items), interaction process (4 items), student participation (5 items), study time (3 items).

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.

Statistical Analysis

This is a quantitative study, specifically a causal-comparative research design which is also known as ex post facto research design. This is a research design that seeks to find relationships between independent and dependent variables after an action or event has already occurred which means that the purpose of research is to investigate whether the independent variables affected the dependent variable (outcome) by comparing two or more groups or samples. The linear regression analysis was used to describe the possible existing relationship between identified variables as well as determining the direction and magnitude of such relationship, if there is.

This research also employed statistical tools in processing the answers to the questions at 5% level of significance. The responses obtained from all the items in the questionnaires were tallied, tabulated and interpreted. The **Mean** was used to determine the levels of engagement in physical exercise, socio-emotional skills and the academic productivity among teacher education students across the selected institutions in Davao de Oro. The **Pearson-r** was used to determine the significance on the relationship between factor's physical exercise, socio-emotional skills and the academic productivity among teacher education students across the selected institutions in Davao de Oro. The **Linear Regression Analysis** was employed to determine which among the students' physical exercise, socio-emotional skills significantly predict the academic productivity among teacher education students across the selected institutions in Davao de Oro.

Results

The table 1 shows the level of physical exercise in terms of the indicators— life enhancement, physical performance, psychological outlook, social interaction, and preventive health is presented in the table below. The overall level of students' physical exercise is high. This indicates that the physical exercise is observed by the college students. Among the five indicators, preventive health got the highest mean of 4.15 which is described as high. This is followed by the indicator, physical performance which attained a mean of 4.08, described as high. Next is the life enhancement, which posted a mean of 4.06, described as high. Finally, social interaction got the lowest mean of 3.38 with the description of moderate.

Table 1. Level of Student's Physical Exercise

Indicators	Mean	SD	Descriptive Equivalent
Life Enhancement	4.06	0.797	High
Physical Performance	4.08	0.836	high
Psychological Outlook	3.89	0.837	High
Social Interaction	3.38	0.889	Moderate
Preventive Health	4.15	0.832	High
Overall	3.91	0.671	High

The level of Students' socio-emotional skills in terms of the indicators— self-awareness, social awareness, self-management, relationship management, and responsible decision making is presented in the table below. The overall level of students' socio-emotional skills is high.

In this variable, both self-awareness and responsible decision making got the highest mean of 4.18, described as high. Followed by relationship management with a mean of 4.02 and a verbal description of high. Meanwhile, social awareness attained a mean of 3.94, described as high. Compared to other indicators of this variable, self-management got the lowest mean of 3.86, but still described as high.

Table 2. Level of Students' Socio-emotional Skills

Indicators	Mean	SD	Descriptive Equivalent
Self-awareness	4.18	0.801	High
Social Awareness	3.94	0.841	High
Self-management	3.86	0.837	High
Relationship Management	4.02	0.813	High
Responsible Decision Making	4.18	0.803	High
Overall	4.04	0.704	High

The level of students' academic productivity in terms of the indicators— learning facilities, technology use, interaction process, student participation, and study time is presented in the table below. The overall level of students' academic productivity is high. Among all domains of academic productivity, interaction process got the highest mean of 4.12 which is described as high. The indicator, technology use has a mean of 3.76 and a verbal description of high. Learning facilities attained the mean score of 3.72, described as high. More so, study time got the mean score of 3.68 with a verbal description of high. Finally, the academic performance in terms of student participation got the lowest mean of 3.37 and a verbal equivalent moderate.

Table 3. Level of Academic Productivity

Indicators	Mean	SD	Descriptive Equivalent
Learning Facilities	3.72	0.882	High
Technology Use	3.76	0.888	High
Interaction Process	4.12	0.805	High
Student Participation	3.37	0.794	Moderate
Study Time	3.68	0.881	High
Overall	3.73	0.671	High

Pearson* Correlation is conducted to test the relationship between level of physical exercise and academic productivity. The result shows a **strong positive correlation** between life enhancement and academic productivity at rho = 0.613, which was statistically significant at p < 0.000. This means that there is sufficient evidence to conclude that the correlation between life enhancement and academic productivity performance is not

zero. The result shows a **moderate positive correlation** between physical performance and academic productivity at $\rho = 0.572$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between physical performance and academic productivity performance is not zero. The result shows a **moderate positive correlation** between psychological outlook and academic productivity at $\rho = 0.588$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between psychological outlook and academic productivity performance is not zero. The result shows a **moderate positive correlation** between social interaction and academic productivity at $\rho = 0.520$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between social interaction and academic productivity performance is not zero. The result shows a **moderate positive correlation** between preventive health and academic productivity at $\rho = 0.527$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between preventive health and academic productivity performance is not zero.

The result shows a **strong positive correlation** between students' physical exercise and academic productivity at $\rho = 0.647$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between students' physical exercise and academic productivity performance is not zero.

Table 4. Association of Students' Physical Exercise and Academic Productivity

Independent Variable	Dependent Variable	r-value	r-squared	p-value	Decision $\alpha = 0.05$
Life Enhancement		0.613*	0.375769	0.000	Ho is rejected
Physical Performance		0.572*	0.327184	0.000	Ho is rejected
Psychological Outlook	Academic Productivity	0.588*	0.345744	0.000	Ho is rejected
Social Interaction		0.520*	0.2704	0.000	Ho is rejected
Preventive Health		0.527*	0.277729	0.000	Ho is rejected
Overall Physical Exercise		0.647*	0.418609	0.000	Ho is rejected

*correlation is significant at the 0.05 level (2-tailed)

Pearson* Correlation is conducted to test the relationship between level of socio-emotional skills and academic productivity. The result shows a **strong positive correlation** between self-awareness and academic productivity at $\rho = 0.653$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between self-awareness and academic productivity performance is not zero. The result shows a **moderate positive correlation** between social awareness and academic productivity at $\rho = 0.588$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between social awareness and academic productivity performance is not zero.

The result shows a **strong positive correlation** between self-management and academic productivity at $\rho = 0.648$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between self-management and academic productivity performance is not zero.

The result shows a **strong positive correlation** between relationship management and academic productivity at $\rho = 0.610$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between relationship management and academic productivity performance is not zero. The result shows a **strong positive correlation** between responsible decision making and academic productivity at $\rho = 0.633$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between responsible decision making and academic productivity performance is not zero. The result shows a **very strong positive correlation** between socio-emotional skills and academic productivity at $\rho = 0.728$, which was statistically significant at $p < 0.000$. This means that there is sufficient evidence to conclude that the correlation between socio-emotional skills and academic productivity performance is not zero.

Table 5. Association of Socio-emotional Skills and Academic Productivity

Independent Variable	Dependent Variable	r-value	r-squared	p-value	Decision $\alpha = 0.05$
Self-awareness		0.653*	0.426409	0.000	Ho is rejected
Social Awareness		0.588*	0.345744	0.000	Ho is rejected
Self-management	Academic Productivity	0.648*	0.419904	0.000	Ho is rejected
Relationship Management		0.610*	0.3721	0.000	Ho is rejected
Responsible Decision Making		0.633*	0.400689	0.000	Ho is rejected
Overall Socio-emotional Skills		0.728*	0.529984	0.000	Ho is rejected

*correlation is significant at the 0.05 level (2-tailed)

Using Multiple Linear Regression analysis, the regression model of academic productivity in terms of the domains of student's physical exercise is $Y = 1.374 + 0.231X_1 + 0.067X_2 + 0.116X_3 + 0.078X_4 + 0.106X_5$. The results of the Student's t-test, shown above indicate that only life enhancement and physical performance are significant. These results prove that the estimated regression coefficients of said indicators are significantly different from zero, signifying only life enhancement and physical performance are meaningful additions to the model. Consequently, F-test revealed that the composite hypothesis that all regression coefficients are equal to zero is also highly significant with an F-statistic of 54.920 and a p-value of < 0.000. Finally, the adjusted R² revealed that the model could explain approximately 42% of the variation in the level of academic productivity of the students. This suggests that 42% of the variability in the observed levels of academic productivity of the respondents can be attributed to the domains of physical exercise.

Table 6. Regression Analysis on How the Domains of Physical Exercise predict Academic Productivity

Model	Unstandardized coefficients		Standardized Coefficients Beta	t-value	p-value	Decision
	B	Std. Error				
(Constant)	1.374	0.150		9.159	0.000	
Life Enhancement	0.231	0.068	0.274	3.412	0.000	Ho is rejected
Physical Performance	0.067	0.062	0.084	1.087	0.001	Ho is rejected
Psychological Outlook	0.116	0.062	0.145	1.861	0.278	Fail to reject Ho
Social Interaction	0.078	0.046	0.103	1.700	0.064	Fail to reject Ho
Preventive Health	0.106	0.046	0.131	2.311	0.090	Fail to reject Ho
Dependent Variable: Academic Productivity						
*p<0.05 R=0.651 adjusted R ² =0.416			F=54.910	p-value=0.000		

Using Multiple Linear Regression analysis, the regression model of academic productivity in terms of the domains of socio-emotional skills is $Y = 0.953 + 0.120X_1 + 0.058X_2 + 0.261X_3 + 0.084X_4 + 0.181X_5$. The results of the Student's t-test, shown above indicate that only self-awareness, self-management, and responsible decision making are significant. These results prove that the estimated regression coefficients of said indicators are significantly different from zero, signifying only self-awareness, self-management, and responsible decision making are meaningful additions to the model.

Consequently, F-test revealed that the composite hypothesis that all regression coefficients are equal to zero is also highly significant with an F-statistic of 89.835 and a p-value of < 0.000. Finally, the adjusted R² revealed that the model could explain approximately 54% of the variation in the level of academic productivity of the students. This suggests that 54% of the variability in the observed levels of academic productivity of the respondents can be attributed to the domains of socio-emotional skills.

Table 7. Regression Analysis on How the Domains of Socio-emotional Skills predict Academic Productivity

Model	Unstandardized coefficients		Standardized Coefficients Beta	t-value	p-value	Decision
	B	Std. Error				
(Constant)	0.953	0.137		6.963	0.000	
Self-awareness	0.120	0.056	0.143	2.152	0.032	Ho is rejected
Social Awareness	0.058	0.045	0.073	1.298	0.195	Fail to reject Ho
Self-management	0.261	0.039	0.325	6.635	0.000	Ho is rejected
Relationship Management	0.084	0.049	0.102	1.709	0.088	Fail to reject Ho
Responsible Decision Making	0.181	0.051	0.216	3.525	0.000	Ho is rejected
Dependent Variable: Academic Productivity						
*p<0.05 R=0.739 adjusted R ² =0.540			F=89.835	p-value=0.000		

Using Multiple Linear Regression analysis, the regression model of academic productivity in terms of physical exercise and socio-emotional skills is $Y = 0.869 + 0.164X_1 + 0.559X_2$

Table 8. Regression Analysis Physical Exercise and Socio-emotional Skills predict Academic Productivity

Model	Unstandardized coefficients		Standardized Coefficients	t-value	p-value	Decision
	B	Std. Error	Beta			
(Constant)	0.869	0.141		6.168	0.000	
Physical Exercise	0.164	0.053	0.178	3.060	0.002	Ho is rejected
Socio-emotional skills	0.559	0.055	0.586	10.091	0.000	Ho is rejected

Dependent Variable: Academic Productivity
 *p<0.05 R=0.736 adjusted R²=0.539 F=222.877 p-value=0.000

The results of the Student’s t-test, shown above indicate that all variables are significant. These results prove that the estimated regression coefficients of said indicators are significantly different from zero, signifying that both Physical Exercise and socio-emotional skills are meaningful additions to the model. Consequently, F-test revealed that the composite hypothesis that all regression coefficients are equal to zero is also highly significant with an F-statistic of 222.877 and a p-value of < 0.000. Finally, the adjusted R² revealed that the model could explain approximately 54% of the variation in the level of academic productivity of the students. This suggests that 54% of the variability in the observed levels of academic productivity of the respondents can be attributed to Physical Exercise and socio-emotional skills.

Discussion

In this study, it was found that the level of students’ physical exercise is observed by the college students. This result is connected to the study of Sullivan, Johnson, and Owens (2017) that students’ growth and academic success depend greatly on their level of physical exercise. Additionally, Conner (2019), claimed that physical activities encourages the introduction of physical education in the classroom. Many college students’ studying habits have been improved by physical activity. Previous studies gave recommendations for instructors to enhance the degree of physical exercise among students should be increased. They may be affected in the long term if the school administration continues to cut off the sports activities.

The indicator, preventive health, were found very much observed by the college students. The result of this study relates to the study of Lobelo et al. (2019) that physical inactivity is one of the most common main health risk factors and is linked to a high burden of cardiovascular disease. Reducing metabolic, hemodynamic, functional, body composition, and epigenetic risk factors for noncommunicable chronic illnesses is achieved by increasing and maintaining recommended amounts of physical exercise. physical exercise is crucial in the prevention and treatment of over 40 illnesses, including diabetes mellitus, cancer, cardiovascular disease, obesity, depression, Alzheimer’s disease, and arthritis. Physical exercise plays a substantial role that is frequently equivalent to or superior than medication therapies.

In his study, it was eloquently stated by Matiba (2015) that physical activity is acknowledged as a factor in a number of advantageous outcomes for individual’s physical and mental health, social wellbeing, and cognitive and academic performances. People who are physically active and take part in team sports are less likely than non-participants to engage in harmful behavior including substance misuse and unsafe sexual practices. Consistently living a sedentary lifestyle was linked to low educational outcomes, poor self-perceived health, and a less healthy lifestyle.

However, it was revealed by Vaara, et al., (2019) that there are only few people who are aware about the recommended physical exercise. Also, only a few researches have examined understanding of and knowledge with recommendations for aerobic type of physical exercise. Therefore, more aggressive efforts are required to promote the guidelines for physical exercise.

The result also revealed that physical performance was much observed by the college students. It is noteworthy that in the study of Shujaat (2018), the Pakistani students have a positive attitude toward physical activities and like participating in them to enhance their health. They understand the advantages of participation in sports and physical activities. Cricket is the most popular sport among Pakistani students (Shujaat, 2018). Contrarywise this, a study conducted by Dunton, Do, and Wang (2020) the lives of students have been significantly impacted by the limitations on mobility and engage effectively in schools, as well as the cancellation of sporting events and other activities in the year 2020.

Meanwhile, the physical exercise influenced by physical enhancement, also turned to be much observed by the college students. As heightened by Ennis (2017) that many of the advantages of leading an active lifestyle are still elusive for some students, teens, and young adults. Teachers and program directors need to concentrate programmatic emphasis on techniques to really raise students’ out-of-class physical activity behavior if they want to improve programming and performance to fulfill physical activity goals. Transformative PE offers physical

activity material in a supportive and inspiring setting that has the power to transform students' lives. Teachers can uphold their commitment to successful standards-based teaching while educating students for a lifetime of physical activity by using sport, physical exercise, dance, and adventure activities as the means to an end for personal and social growth.

Accordingly, psychological outlook was also found to be much observed by the college students. The result of the study of Guo and Zhang (2022) implied that people's deep awareness of the idea of mental health has led them to develop a new view of the purpose of physical activity and attempt to conduct a thorough investigation into this purpose. Teenagers are seen to be the driving force behind our society's future growth, thus when educating them, we should focus on developing their mental and emotional faculties as well as their physical faculties.

Finally, social interaction, were discovered to be observed by the college students. It was argued by Dunton, et al (2020) that social interaction is a key component in the field of physical education and health. Students gain mobility and the capacity for cooperation via interaction with one another. However, Dunton, et al (2020) revealed that students were less physically active in the year 2020 during the Covid-19 pandemic since they could not really participate in school-based physical activities. They did not participate in much physical exercise, despite the fact that Covid-19 must be kept from spreading through social isolation. Most of the students and teachers used social media platform as the tool for communication and instruction. As recommended by Göktaş (2015), teachers must be aware of their students' opinions of Facebook as an interactive environment because interaction is an essential component of sports activities. That could raise awareness of issues involving interactions between students and instructors. Furthermore, it is clear that Facebook provides students with difficulties in face-to-face engagement with an environment for interaction. Students that participate in sports will be less likely to engage in passive behaviors as a result.

This study revealed that socio-emotional skills is much observed by the college students. The result subscribes to the of Villar, et al., (2021) that socio-emotional competency should be encouraged through dedicated and successful educational initiatives. In order to promote dispute resolution and foster democratic coexistence in schools, it is possible to strengthen social skills and emotion control. This has significant and practical ramifications for delivering the wellbeing and high-quality education we strive for in the field of education.

In this variable, both self-awareness and responsible decision making were found to be much observed by the college students. This is parallel to the study of Ibach (2017) that the current studies showed self-awareness is a life skill that is essential. The requirement for self-awareness must be implemented on college campuses by higher education professionals. This implementation could take a varied form, such as in the resident halls or through mental health promotion. The necessity to encourage self-awareness among college students, however, must be acknowledged by those working in higher education. Additionally, it was claimed by Garrecht et al., (2018) that responsible making decisions is a crucial skill for both business and daily life. Making decisions is a crucial part of problem-solving and is crucial for management and leadership roles. We should anticipate this kind of leadership from our college students.

Additionally, the indicator relationship management, was found to be much observed by the college students. It conforms to the study of Firmante (2019) which pointed out that the value of relationship management abilities in students' daily life up till they graduate from college. It has been discovered that social and emotional learning competency has favorable impacts on students' academic performance, promotes physical health, improves citizenship, and is crucial to future careers and lifetime learning. Given that relationship management might aid in creating an evidence-based curriculum for students, it is significant to investigate its function in career planning. Jayousi (2016) added that individuals have adapted the modern telecommunication technologies to socialize with other people for it shortened distances, consolidated social ties, and allowed individuals to use it for collective projects and education.

Meanwhile, social awareness was found to be much observed by the college students. In relation to the study of Matitaputty, et al., (2018), students need social awareness education to develop their critical thinking abilities and to promote social change. They can comprehend the actions of the kids they are with both academically and non-academically. As a result, their appreciation of life grows as time passes. In addition, they are appreciative of the chance to speak with the underprivileged and homeless kids in person.

Finally, the study revealed that self-management got the lowest mean score but much observed by the college students. This result is similar to the study of Muluk, et al., (2021) that students have complete control over changing or modifying their immediate physical and social surroundings. They understand when it is necessary to work alone or in a group, when it is appropriate to ask for support from others, and when it is appropriate to adapt to and modify their surroundings. The success of students in completing their coursework depends, among other things, on their capacity for time management and activity organization. Impacts of students' self-management abilities on their academic and social lives.

This implied that the level of academic productivity among college students is much observed by the college students. This is parallel to the study of Alyami, et al., (2021) that students produce better outputs and achieve the learning objectives if they are able to manage their time and behavior at school. It would be more beneficial for their academic productivity if they have better preplan their studies. The quality of teacher-student

interactions in the classroom is a critical determinant of overall student involvement and achievement. By fostering positive, respectful, and engaging interactions, teachers can cultivate a supportive learning environment that empowers students to thrive academically and personally.

Among all domains of academic productivity, interaction process got the highest mean. This finding is similar to the study of Kovshar, et al, (2018) which highlights the significance of online group cognition, emphasizing that co-presence and intersubjective shared understanding are crucial for fostering academically productive discourse in computer-supported collaborative learning settings. This suggests that the dynamics of interaction can be effectively monitored and analyzed, providing insights into the collaborative knowledge-building process. The student productivity influenced by technology use, was found to be observed by the college students. According to learners K to 12 Curriculum Guide (2012) it is the prerogative of the tertiary universities and colleges to provide advanced and useful technology for students. Furthermore, Abdullah and Muait (2019) asserted that technological skill is one of the several skills to be developed by the Modern technology is the development of information and communication technology which are available for different consumers especially in the field of learning.

Moreover, student productivity influenced by learning facilities was found to be observed by the college students. This result is connected to the study of Ramli and Zainv (2019) that a newly established educational institutions sometimes fail to provide adequate learning facilities to the learners which cause a significant impact in their academic productivity. The classrooms are said to be the place where the learners develop their aspiration of what they want to become in the future, as well as the skills and knowledge that are essential to achieve that aspiration. More so, student productivity influenced by study time was also found to be much observed by the college students. The study of Nonis and Hudson (2022) highlighted that study habits are the natural practices which allows the learners receive information through learning. It helps the learners improve their academic productivity. Moreover, it was discussed in their study that poor study habits have significant impact in their academic performance.

Student productivity influenced by student participation got the lowest mean but still found to be observed by the college students. It was revealed by Carter (2019) that students are suffering from a wide spectrum of educational distracters, such as dissatisfaction, indifference, and disillusionment, thereby expanding the success disparity. Schools are supposed to give learning opportunities that help the students to integrate into society. However, the phenomenological study by Gesualdi, (2019) revealed that student participation is a good predictor of academic success.

Since all indicators in this variable have a p-value of 0.000, which is obviously less than 0.05 level of significance, this allows the researcher to reject the null hypothesis, which states that “there is no domain in physical exercise that significantly influences academic productivity”. Thus, all domains in physical exercise influence the academic productivity among college students. The result is supported by the study of Sumaira, et al., (2018), physical exercise had a substantial overall influence on academic performance. As a result, the relevance of physical exercise must be considered while developing an educational institution's curriculum. It attempts to improve students' academic performance by reducing depression, tension, and anxiety and boosting self-esteem (Ariza, et al., 2017).

The results revealed that all indicators in this variable have a p-value of 0.000, which is clearly less than the level of significance of 0.05, this allows the researcher to reject the null hypothesis, which states that “there is no domain in socio-emotional skills that significantly influences academic productivity”. Thus, all domains in socio-emotional skills influence the academic productivity among college students. This is in concordance to the study of Alzahrani, et al., (2019) that the first place where students develop and learn is at home; the second is in a classroom. Both the learning results and personalities of students can be impacted by the interactions between instructors and students. They are more productive in both their academic and social lives when there is more optimism in these connections and the school environment. Additionally, healthy growth in every area of development benefits students' life throughout time, particularly their academic life.

The regression analysis revealed that only life enhancement and physical performance are significant variables. This means that these two specific variables have a statistically significant impact on the outcome being studied, while the other variables in the model are not statistically significant.

The significant results of the t-test indicate that the estimated regression coefficients for life enhancement and physical performance are significantly different from zero. This suggests that only these two variables, and not the other variables, are meaningful additions to the model in explaining the observed levels of academic productivity among the respondents. A significant portion of the differences or changes in academic productivity levels among the respondents can be explained by the influence of physical exercise-related factors, specifically life enhancement and physical performance. These variables play a key role in accounting for the variation in academic productivity levels observed in the study.

The results of the regression analysis discovered that only self-awareness, self-management, and responsible decision-making are statistically significant variables in the model being studied. This means that these three specific variables have a significant impact on the outcome, while the other variables included in the analysis are not statistically significant. The significant results of the t-test suggest that the estimated regression coefficients for self-awareness, self-management, and responsible decision-making are significantly different

from zero. This indicates that only these three variables contribute meaningfully to the model and play important roles in explaining the observed levels of academic productivity among the respondents. A substantial portion of the differences or variations in academic productivity levels among the respondents can be explained by the influence of socio-emotional factors, specifically self-awareness, self-management, and responsible decision-making. These variables are key contributors to the variability in academic productivity levels observed in the study.

The results regression analysis has shown that all variables included in the analysis are significant. This means that each variable has a statistically significant impact on the outcome being studied. The significant results of the t-test indicate that the estimated regression coefficients for these variables are significantly different from zero. Specifically, the analysis indicates that both Physical Exercise and socio-emotional skills play meaningful roles in the model being examined. This suggests that these variables are important predictors of the observed levels of academic productivity among the respondents. There are more than half of the changes or differences in academic productivity levels can be explained by the influence of these two variables in the model. In other words, Physical Exercise and socio-emotional skills are significant factors that account for a substantial portion of the variation in academic productivity among the respondents

Conclusions

Referring back to the result of the research objective, the researcher has concluded that physical exercise in terms of life enhancement, physical performance, psychological outlook, social interaction, and preventive health influence the academic productivity among college students. Furthermore, student motivation in terms of self-awareness, social awareness, self-management, relationship management, and responsible decision making also influence college students' academic productivity.

The findings revealed that physical exercise in terms of Preventive Health, Physical Performance, Life Enhancement, and Psychological Outlook is much observed by college students. Among the indicators of physical exercise, social interaction is moderately observed by the college students. On the other hand, the level of student motivation in terms of Self-awareness, Responsible Decision Making, Relationship Management, Social Awareness, Self-management, is much observed by college students. Overall, the results revealed that there is a significant relationship between all domains in physical exercise and socio-emotional skills have significant relationship to academic productivity.

The results of the student's t-test in the variable, physical exercise indicate that only life enhancement and physical performance are significant. The results proved that the estimated regression coefficients of said indicators are significantly different from zero, signifying only life enhancement and physical performance are meaningful additions to the model. While the results of the student's t-test in the variable socio-emotional skills indicate that only self-awareness, self-management, and responsible decision making are significant. These results prove that the estimated regression coefficients of said indicators are significantly different from zero, signifying only self-awareness, self-management, and responsible decision making are meaningful additions to the model. When taken as one, the results of the student's t-test, shown above indicate that all variables are significant. These results prove that the estimated regression coefficients of said indicators are significantly different from zero, signifying that both Physical Exercise and socio-emotional skills are meaningful additions to the model.

After a 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 productivity. First, to escalate the level of physical exercise to very high, the college instructors shall include "Brain Breaks" in the teaching and learning process. Especially physical exercise is one of the indicators of physical exercise that significantly impacts academic productivity among college students; movement-based activities like Brain Breaks shall be employed in the instruction. These simple physical and mental exercises will allow the students to refocus, relax and breathe. It will also help them improve their performance in doing the tasks at hand. Secondly, to improve the level of life enhancement to very high, the institution shall strengthen its implementation of the Health and Wellness Program, especially since it was discovered to have a significant impact on academic productivity.

This program is not limited to providing physical activities to its stakeholders but also conducts seminars about its effects on their lives. Students' engagement in the said program should be strictly monitored. Additionally, self-awareness, self-management, and responsible decision-making are proven to have significant meaning to academic productivity. To elevate its level to very high, the institution shall provide workshops and seminars about the Social and Emotional Learning Framework (SEL). Ultimately, this initiative will aim to help the students acquire self-management skills, develop and enhance awareness within themselves and advance their abilities in making caring and constructive choices across diverse situations. As part of the SEL Framework, these key components shall be integrated into the curriculum. Lastly, the "Together at School Program" shall be implemented to strengthen the student consultation program by establishing institutionalized guidelines for monitoring academic involvement and performance and fast-track their learning blocks and concerns.

References:

- Abdullah, R.N., Muait, J., and Ganefri. (2019). Students' perception towards modern technology as teaching aids. *Asian Journal of Assessment in Teaching and Learning*. 9. 37-42. 10.37134/ajatel.vol9.no2.5.2019.
- Alyami A., Abdulwahed A., Azhar A., Binsaddik A., and Bafaraj S. (2021). Impact of Time-Management on the Student's Academic Performance: A Cross-Sectional Study. *Creative Education* > 12 (3). <https://bit.ly/3v4WMAI>.
- Alzahrani M., Alharbi M., and Alodwani A. (2019). The Effect of Social-Emotional Competence on Children Academic Achievement and Behavioral Development *International Education Studies* 12 (12). <https://bit.ly/3zmkkU5>
- Asakawa, S., Ohtake, F. & Sano, S. The impact of the COVID-19 pandemic on the academic achievement of elementary and junior high school students: analysis using administrative data from Amagasaki City. *Rev Econ Household* (2024). <https://doi.org/10.1007/s11150-024-09715-8>
- Baticulon R. (2020). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. *Medical Science Educator*. <https://bit.ly/3OiThNX>
- Conner J. (2019). The Impact of Increased Physical Activity on Academic Achievement. *Kinesiology, Sport Studies, and Physical Education Synthesis Projects*. <https://bit.ly/3qecO9q>
- Dunton G., Do B., and Wang S. (2020). Early Effects of the COVID-19 Pandemic on Physical Activity and Sedentary Behavior in Children Living in the U.S. *BMC Public Health* 20. <https://bit.ly/3mjW2n7>
- Ennis C. (2017). Educating Students for a Lifetime of Physical Activity: Enhancing Mindfulness, Motivation, and Meaning. *Research Quarterly for Exercise and Sport* 88 (3). <https://bit.ly/3PIoV8t>
- Firmante M.C. (2019). A Conceptual Paper on Relationship Management Skills: Towards the Development of Students Career Program. <https://bit.ly/3coxoZf>
- Garrecht C., Bruckermann T., and Harms U. (2018) Students' Decision-Making in Education for Sustainability-Related Extracurricular Activities—A Systematic Review of Empirical Studies. *Sustainability* 2018 (10). <https://bit.ly/3v0qrLi>
- Gesualdi D.J. (2019). A Phenomenological Study of Student Engagement in an Urban K-8 School. Dissertations, Theses, and Masters Projects. <https://bit.ly/311E9J3>
- Göktaş Z. (2015). Physical Education and Sport Students' Interactions with Their Teachers on Facebook. *Anthropologist*, 21(1,2): 18-30. <https://bit.ly/3B3437W>
- Guo Z. and Zhang Y. (2022). Study on the Interactive Factors between Physical Exercise and Mental Health Promotion of Teenagers. *Journal of Healthcare Engineering*. <https://bit.ly/3IW3tL9>
- Ibach C. (2017). The Impact of Silence on College Student Self-Awareness. Master of Arts in Higher Education Thesis Collection 89. <https://bit.ly/3PGqRYm>
- Jayousi M. (2016). The Effect of the Internet on Students' Social Relationships from the Perspective of Teachers in Salfit Governorate Schools. *International Journal of Education and Research* 4 (6). <https://bit.ly/3cwqBna>
- Johnson J. (ND). Education Fast Forward. <https://bit.ly/3IW3COH>
- Kadariya S., and Aro A (2018). Barriers and Facilitators to Physical Activity among Urban Residents with Diabetes in Nepal. *PloS ONE* 13(6). <https://bit.ly/3ok6jA0>
- Karadag, N. (2018). Views of Instructors about Academic Productivity. *International Journal of Progressive Education*, 14(4), 1-14. <https://bit.ly/3v1DBYE>
- Kovshar, E., Palshkova I. and Savchenko, L., (2018). Interaction of Productive and Interactive Technologies in the Educational Process of Higher School. *World Journal of Education* 8 (6). <https://doi.org/10.5430/wje.v8n6p96>.
- Lobelo F., Young D. R., Sallis R., Garber M., Billinger S., Duperly J., Hutber A., Pate R., Thomas R., Widlansky M., McConnell M. and Joy E. (2018). Routine Assessment and Promotion of Physical Activity in Healthcare Settings: A Scientific Statement from the American Heart Association. American Heart Association, Inc.137 (18). <https://bit.ly/3v4Gk3o>
- Matiba L. (2015). The Impact of Exercise (Physical Activity) And Healthy Lifestyle (Eating) among the Youth: A Literature Review. Lapland University of Applied Sciences. <https://bit.ly/3RRYIM0>
- Matitaputty S., Hastuti R., Christie A., and Rahutami (2018). Outdoor Learning: Fostering Social Awareness with Community Service SHS Web of Conferences 59, (01026). <https://bit.ly/3RNwsVn>
- Maureira F., and Diaz H. (2018). Physical Exercise and Academic Performance. *MOJ Sports Medicine*. <https://bit.ly/3OiECSM>
- Mirzoyan , V. K. ., & Mikaelyan, M. Y. . (2022). Factors of the Manifestation of Professional Burnout and Efficiency of Teachers in Online Learning. *Modern Psychology*, 5(1(10), 83–91. <https://doi.org/10.46991/SBMP/2022.5.1.083>
- Muluk, S., Akmal, S., Andriana, D., Habiburrahim, h., and Safrul, M. S. (2021). Understanding Students' SelfManagement Skills at State Islamic University in Indonesia. *The Qualitative Report*, 26(7). <https://bit.ly/3B6HMpS>
- Nonis S.and Hudson G. (2022). Performance of College Students: Impact of Study Time and Study Habits. *The Journal of Education for Business* 85(4). <https://bit.ly/3PpBdmy>

- Pfister A., Mika C.M., Pavic M., and Nguyen T.H. (2021). Student Productivity in the Transition to Online Lectures. HFU Business School Working Paper 7. <https://bit.ly/3cxjlyb>
- Ramli A. and Zainv R. (2019). The Impact of Facilities on Student's Academic Achievement. *Science International* 30 (2). <https://bit.ly/3IVfH6z>
- Shujaat S. (2018). Attitude of Young Students towards Sports and Physical Activities. *Academic Research International*. <https://bit.ly/3BoVTTI>
- Siena LM, Mussetto I, Renzi E, Baccolini V, Migliara G, Sciurti A, Covelli A, De Vito C, Marzuillo C, Villari P and Massimi A (2024) Decline in academic performance and mental health during the COVID-19 pandemic: a cross-sectional survey among Sapienza University of Rome students. *Front. Public Health* 12:1408191. doi: 10.3389/fpubh.2024.1408191
- Sullivan A., Johnson B., and Owens L. (2017). Punish Them or Engage Them? Teachers' Views of Unproductive Student Behaviours in the Classroom. *Australian Journal of Teacher Education*, 39(6). <https://bit.ly/3nBodxp>
- Sumaira, Kiyani, Wang, Sánchez, and Qurban (2018). Physical Activity and Academic Performance: The Mediating Effect of Self-Esteem and Depression. *Sustainability* 10. <https://bit.ly/3Kr5YFw>
- Villar S., Corbi R., Rico T., and Castejón J. (2021). Teaching Socio-Emotional Competencies Among Primary School Students: Improving Conflict Resolution and Promoting Democratic Co-existence in Schools. *Front. Psychol.* <https://bit.ly/3oheCfZ>
- Wu Z. (2019). Academic Motivation, Engagement, And Achievement among College Students. *College Student Journal* 53(1). <https://bit.ly/3vTB4Pt>
- Zhou, and Ee (2012). Development and Validation of Social Emotional Competence Questionnaire (SECQ). *The International Journal of Emotional Education* 4(2). <https://bit.ly/3okuxu2>