Workout contribution to the productivity of thesis writing

Lukas Maria Boleng*, Veramyta Maria Martha Flora Babang, Maria Andriani Barek Ladjar, Jurdan Martin Siahaan, I Nyoman Wahyu Esa Wijaya, Erwin Sarnoto Neolaka
Nusa Cendana University, Indonesia
*Corresponding Author: lukasboleng@staf.undana.ac.id

ABSTRACT

The study investigates how structured workout sessions influence the productivity of students in completing a thesis as the final assignment in the bachelor's degree. Eigh-semester students from the Physical Education study program participated, with one group engaging in a 30-minute workout over eight sessions and a control group of 15 students not participating in these sessions. Using observation and monitoring tools, the study assessed the impact of these workouts on thesis preparation. Regression analysis showed a determination coefficient (R') of 0.729, indicating that 72.9% of the productivity variance was due to the workout sessions. Additionally, a 32% increase in assignment progress was observed in the experimental group. These results demonstrate a strong correlation between regular workouts and increased productivity in completing final assignments, highlighting the benefits of incorporating physical activity into academic routines.

Keywords: physical education, productivity, workout

INTRODUCTION

Physical activity contributes positively to human physiological and psychological growth and development, both light and moderate intensity of physical activity. Sports activity, or workout, is one of the mandatory needs of a person to maintain his health (Narang, 2023). A workout is an activity to maintain their health. Workouts can also be referred to as exercises for the body that a person does to maintain and improve physical fitness (Sandayanti et al., 2021)

To maintain good focus in activities, a good level of body fitness is also needed. Focus is an indicator determining a person's effectiveness in learning activities. In physical exercises, someone with a full focus level will get maximum results compared to a low focus level. Focus and physical fitness are two interrelated factors, if you want to have a good level of focus, of course, you have to maintain good physical fitness.

A fit body contributes significantly to sustained energy levels, robust health, and emotional stability, all of which enhance learning focus and concentration. This improved focus is crucial for the efficient processing of information and directly impacts productivity, especially in completing significant tasks, like a final thesis assignment. Maintaining physical fitness, therefore, plays a key role in fostering the cognitive and emotional resources necessary for academic success.

METHOD

This study employs a quantitative research approach, specifically utilizing a True Experimental Design, The research followed the Pretest-Posttest Control Group Design, as described by Valente & MacKinnon (2017), for analyzing the effects of experimental

interventions. This design involved comparing the outcomes of an experimental group that receives a specific intervention with a control group that does not, both before and after the intervention. In this context, the study assessed the impact of workout sessions on the productivity of students in preparing their final assignments.

The population in this study were 80 students of the Physical Education and Health Study Program, at Nusa Cendana University. The sample in this study was purposively selected to meet the following criteria: a) aight-semester Students whose status is active and are currently preparing their Final Thesis Project, b) under the supervising term of their thesis and in the process of writing before thesis proposal, c) those starting the stage of compiling the thesis, maximum has already proposed a title and worked on Chapter I. Based on the criteria, there were 15 of 80 students who fulfilled all of these conditions.

The instruments used in this study are tests and measurements (Preliminary Tests and Final Workout Tests) and Monitoring Sheets. Monitoring sheets were utilized to measure how far the preparation of the final assignment has progressed during the Workout administration. Preliminary Tests and Post-tests were utilized to examine how far a workout has increased VO2 max. The test tool used is the Multistage Fitness Test (MFT).

The monitoring sheet is an indicator that can monitor the progress of the final assignment from time to time starting from before the Work Out is given to after the Work Out is given.

Data analysis started with prerequisite tests; normality test results, homogeneity test, hypothesis testing, simple regression test up to the contribution size test results assisted by the Statistical Package for the Social Sciences (SPSS) software.

FINDING AND DISCUSSION

Finding

The results of the research will be discussed in detail in several sub-chapters, starting from the description of the data, the results of tests and measurements, and the results of monitoring the progress of the final assignment.

Data description

Data on the results of the Tests and Measurements (preliminary test and final Workout test) and Monitoring Sheet (how far the preparation of the final assignment has progressed during the Workout administration) is presented in the Table 1.

Table 1. Pre-test post-test data

No.	Name	Pre-Test	Post-Test
1	Leonardus	33.9	37.1
2	Fredik	33.6	38.2
3	Fransiskus	26.4	31.4
4	Juanrikar	32.4	33.9
5	Felix	29.5	32.9
6	Peter	32.9	41.1
7	Libertho	39.6	46.8
8	Sumarni	23.2	26.4
9	Basilica	22.8	24.0
10	Roberto	28.7	39.2
11	Deny	23.2	33.2
12	Alqianus	35.4	38.2
13	Elven	31.8	38.2
14	Hesron	40.5	42.6
15	Sirelus	30.6	39.9
	Rata-Rata	30.97	36.21

Table 2. Statistical description results

	N	Minimum	Maximum	Mean	Std. Deviation
pre-test	15	22.80	40.50	30.9667	5.49489
post test	15	24.00	46.80	36.2067	6.01147
Valid N (listwise)	15				

Based on Table 1 and Table 2, the results of the Vo2Max pre-test and post-test for each sample show that for the pre-test data, the lowest value is 22.8 and the highest value is 40.5 while for the post-test data, the lowest value is 24.0 and the highest value is 46.8. The average Vo2Max gain when the sample had not been given treatment in the form of a 30-minute workout was 30.97, and there was an increase in the average Vo2Max after treatment which impacted the average Vo2Max value of 36.21. In the description of the data, there was an increase in Vo2Max after 30 minutes of Workout for 9 meetings.

Test results and measurements

Results for Tests and Measurements through pre-test and post-test data will be presented in the following sub-chapters starting from the results of the normality test, homogeneity test, hypothesis testing, simple regression test to the test results of the magnitude of the contribution of workout to the productivity of students' final thesis writing.

Normality test results

The normality test has the objective of identifying whether or not the distribution of the pre-test and post-test data is normal. The normality test is one of the prerequisite tests in parametric statistics. 15 students as samples involved determined the normality test used for a sample of less than 50 by using the Shapiro-Wilk Test.

Decision-Making Criteria:
If the Significance value is > 0.05 then the data has a normal distribution
If the Significance value < 0.05 then the data has an abnormal distribution

Table 3. Normality test results

Group		Shapiro Wilk		
		Statistic	df	Sig.
Result	pre-test	.949	15	.511
	post-test	.963	15	.743

Based on the results of the normality test using the Shapiro-Wilk test, the sig. for pre-test data of 0.511> 0.05 and a sig. for the post-test data of 0.743> 0.05 so that the pre-test and post-test data have a normal distribution. Furthermore, the next prerequisite test was implemented, namely the homogeneity test.

Homogeneity Test Results

The homogeneity test is a prerequisite test after the normality test is declared as normal data. The homogeneity is an essential statistical procedure used to determine whether the variances among different groups are equal, or homogeneous.

Decision-Making Criteria
If the Significance value is > 0.05, the data has a homogeneous variance
If the significance value is <0.05, the data is not homogeneous

Table 4. Homogeneity test results

		Levene Statistic	df1	df2	Sig.
Data Pre- test & Post-test	Based on Mean	.112	1	28	.740
	Based on Median	.022	1	28	.882
	Based on the Median and with adjusted df	.022	1	26.414	.882
	Based on trimmed mean	0.99	1	28	.755

Based on the results of the homogeneity test using the Levene Test through the SPSS software, the value of Sig. seen from the average value of 0.740> 0.05. It reveals that the data has a homogeneous variance. Thus, the results of the prerequisite test are normal and homogeneous data so the statistical test uses a parametric statistical test with the Paired Sample T-Test.

Hypothesis testing
Hypothesis:

H0 = There is no contribution of workout to the productivity of the preparation of the final academic thesis writing of eight-semester students of the physical education study program.

Ha = There is a workout contribution to the productivity of the preparation of academic thesis writing of eight-semester students of physical education and health.

Decision-Making Criteria:
If the value of Sig. (2-tailed) > 0.05 then Ho is accepted
If the Sig. (2-tailed) < 0.05 then Ho is rejected

Table 5. Results of the paired sample t-test

		t	df	Sig. (2-tailed)
Pair 1	pre-test post-test	-6.439	14	.000

Based on the results of statistical tests using the Paired Sample T-Test, the value of Sig. (2-tailed) of 0.000 <0.05, then H_o is rejected. In other words, workout contributes to the productivity of academic thesis writing of eight-semester students of physical education study programs.

Simple linear regression test
The simple linear regression test aims to test the contribution and how much the independent variable contributes to the dependent variable, in this study to test the magnitude of the contribution of workout to the productivity of thesis writing.

Decision-making criteria
If the sig. < 0.05, then workout has contributed to the productivity of the preparation of academic thesis writing of eight-semester students of physical education and health.
If the sig. > 0.05, then work out has no contribution to the productivity of academic thesis writing of eight-semester students of physical education and health.

Table 6. Regression test results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	112	1	308.070	39.934	.000[b]
	Residual	.022	13	8.819		
	Total	.022	14			

Based on the results of the simple regression test shown in Table 6., the Sig value obtained equals 0.000 < 0.05. It can be concluded that workout has contributed to the productivity of final assignment preparation.

Table 7. Regression test results

Model	R	R Squares	Adjusted R Square	Std. Error of the Estimate
1	.854ᵃ	.729	.708	2.96963

Based on the regression test, the coefficient of determination (R Square) is 0.729, which means that the contribution of the independent variable (workout for 30 minutes) to the dependent variable (Vo2Max) is 72.9%.

Results of monitoring the progress of final project preparation

The results of monitoring the progress of the preparation of the final assignment during nine (9) treatment meetings (work out for 30 minutes) will be discussed one by one through graphics in the following sub-chapters:

Graph of monitoring the progress of final project psreparation

Graphs of monitoring the progress of the final assignment will be presented per sample to clarify and make it easier to identify each progress per meeting.

Fig. 1 Leonardus Doni Sili Progress Chart

Fig. 2 Fredik Kelake Progress Chart

Fig. 3 Fransiskus Jepion Progress Chart

Fig. 4 Juanrikar Adu Progress Chart

Fig. 5 Libertho Babys Progress Chart

Fig.6 Sumarni Progress Chart

Fig.7 Felix Abdullah Progress Chart

Fig. 8 Peter Umbu Sagabara Progress Chart

Fig. 9 Basilica Progress Chart

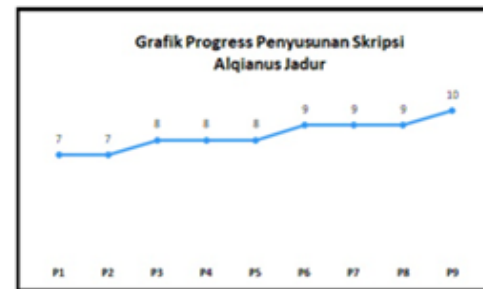Fig. 10 Roberto Carlos Progress Chart

Fig. 11 Deny Damat Progress Chart

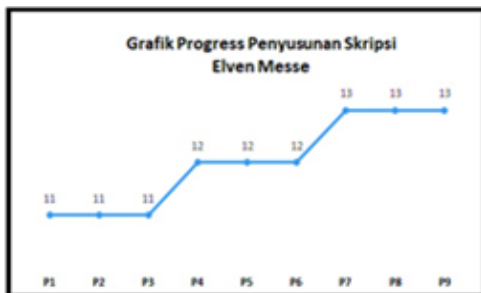Fig. 12 Alqiuanus Jadur Progress Chart

Fig. 13 Elven Mase Progress Chart

Fig 14. Hesron Julio Progress Chart
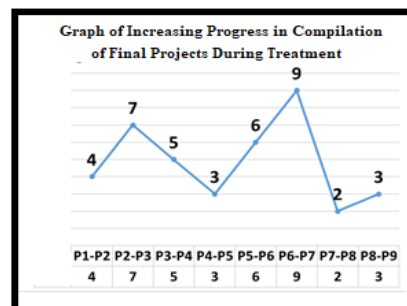

Gambar 4.15. Grafik Kemajuan Sirelus Bnani

Fig. 16 Graph of Final Project Preparation Progress

During the treatment through workouts for 30 minutes with a total of 9 meetings, it was found that there was an increase in the productivity of thesis writing at each meeting. As shown in Figure 4.15, the most frequent increase occurred in the 4th to the 6th meeting. 7th with a total of 9 samples who experienced progress in the preparation of the final thesit, and at least it occurred in meetings 7 to 8 only 2 samples experienced progress in the preparation of the final assignment.
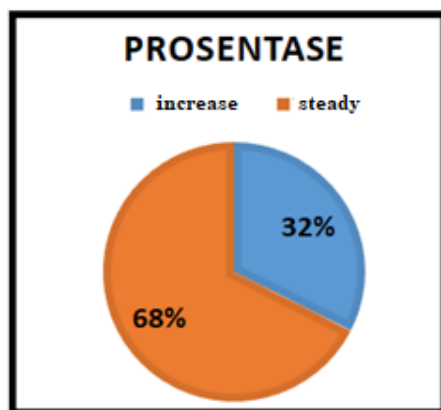

Fig. 17 The percentage increase that occurred during the treatment

Based on Figure 17, during the 9 meetings of workouts with a duration of 30 minutes, there was an increase in students' productivity in preparing the final thesis writing by 32%.

Discussion

Sampling were students of the physical education study program who carried out the final assignment by taking into account several things, including ensuring that the students who were sampled were students who routinely carry out guidance with supervisors and that these students have sufficient sleep and health patterns, eat regularly and always carry out regular workout activities according to the agenda, while the guidance for the final assignment is the guidance that has been scheduled. Thus, students do regular workouts and guidance activities. Based on the data presented in graphical form, there has been an increase in progress in the preparation of the final academic thesis during the treatment through the 30-minute Workout activity with a total of 9 meetings. The results obtained stated that there was progress in the process of compiling the final assignment at each meeting, as shown in Figure 4.16 above; productivity and the most increase occurred at the 6th to 7th meeting guidance with a total of 9 samples that experienced progress in the preparation of the final academic thesis, and at least it happened at meeting 7 to meeting 8 only 2 samples progressed in the preparation of the thesis, this can prove that workouts also have a contribution to the preparation of the thesis writing of the Physical Education Study Program Student.

This statement is also supported by the results of research by Mendrofa et al. (2022); one of the contributing factors to learning barriers is a lack of skills in thinking processes. Bangun (2016) also stated that the utilization of science and technology and educational concepts should include physical activity to contribute to quality of life. Ramadhan (2021) highlighted adjusting the rhythm and form of exercise to suit each other's needs. It is the same as semester eight students who are compiling their thesis writing experience to advance their quality of life by integrating physical exercises into their cognitive learning. By academically involving workouts in their final thesis process, their quality of life is expected to increase in line with the progress of the final assignment they have made (Hariyadi et al. 2017).

CONCLUSION

Based on the regression test, the coefficient of determination (R Square) is 0.729, meaning that the contribution of the independent variable (workout for 30 minutes) to the dependent

variable (Vo2Max) is 72.9%. Based on the results of monitoring, during the 9 meetings giving workouts with a duration of 30 minutes, there was an increase in the preparation of the final assignment for the students, by 32%.

ACKNOWLEDGMENTS

REFERENCES

Bangun, S. Y. (2016). Peran pendidikan jasmani dan olahraga pada lembaga pendidikan di Indonesia. *Publikasi Pendidikan, 6*(3). https://doi.org/10.26858/publikan.v6i3.2270

Hariyadi, S., Anto, A. H. F., & Sari, W. A. (2017). Identifikasi faktor-faktor yang mempengaruhi penyelesaian skripsi pada mahasiswa S1 Psikologi di kota Semarang. *Jurnal Penelitian Pendidikan, 34*(2), 155–160

Mendrofa. W. M., & Laia. G. P. (2022). Analisis hambatan belajar mahasiswa pada mata kuliah Biostatistik. *Sehatmas: Jurnal Ilmiah Kesehatan Masyarakat, 1*(3), 373–384. https://doi.org/10.55123/sehatmas.v1i3.672

Narang, U. (2023). Incentives to work out: Evidence from field experiments. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4315484

Ramadhan, R. I. (2021). Workout sebagai aktivitas olahraga mahasiswa menjaga kebugaran jasmani di tengah pandemi Covid 19. *Jurnal Kesehatan Olahraga, 9*(4), 193–200

Sandayanti, V., Sani, N., Farich, A., & Oktaviani, S. (2021). Hubungan olahraga dan motivasi belajar dengan konsentrasi belajar pada mahasiswa Fakultas Kedokteran Umum Universitas Malahayati. *Jurnal Medika Malahayati, 5*(2), 109–116. https://doi.org/10.33024/jmm.v5i2.4120

Valente. M. J., & MacKinnon. D. P. (2017). Comparing models of change to estimate the mediated effect in the pretest–posttest control group design. *Structural Equation Modeling, 24*(3), 428–450. https://doi.org/10.1080/107055K11.2016.1274657