

Giselle Swann

EDG500

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Lab 11

Introduction

Student scores on the posttest of the human brain using blended learning instruction did better ($m = 84.83$) than students posttest on the digestive system using traditional classroom instruction ($m = 82.50$). Comparing the mean scores shows the benefits of implementing blended learning instruction.

The scores of the digestive system posttest using traditional classroom instruction are displayed in Figure 1. These scores show that many of the students scored 72% and 96% with a median score of 82%.

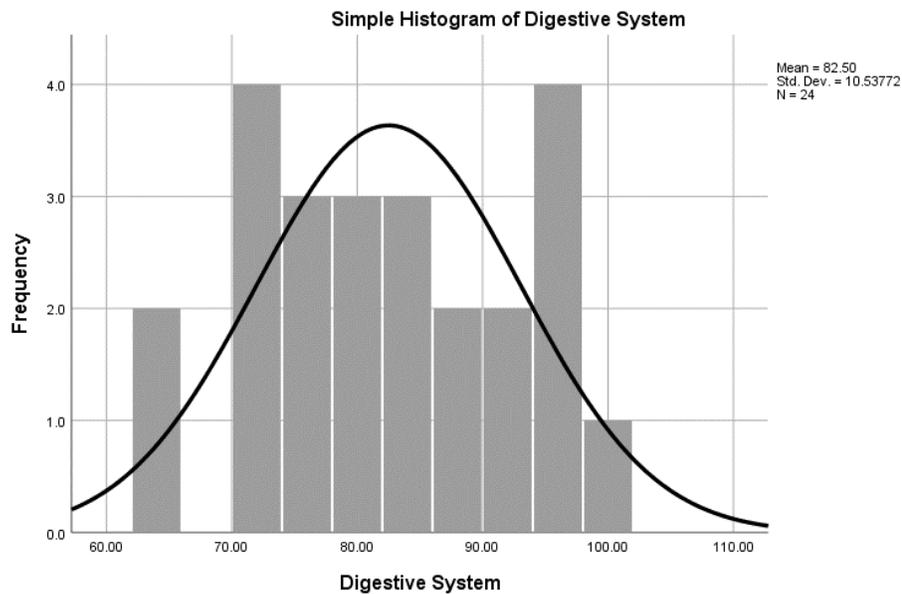


Figure 1 Histogram for frequency of the digestive system posttest score for 24 students.

The scores of the human brain posttest using blended learning instruction are displayed in Figure 2. These scores show that the majority of the students scored 84% with a median score of 84%.

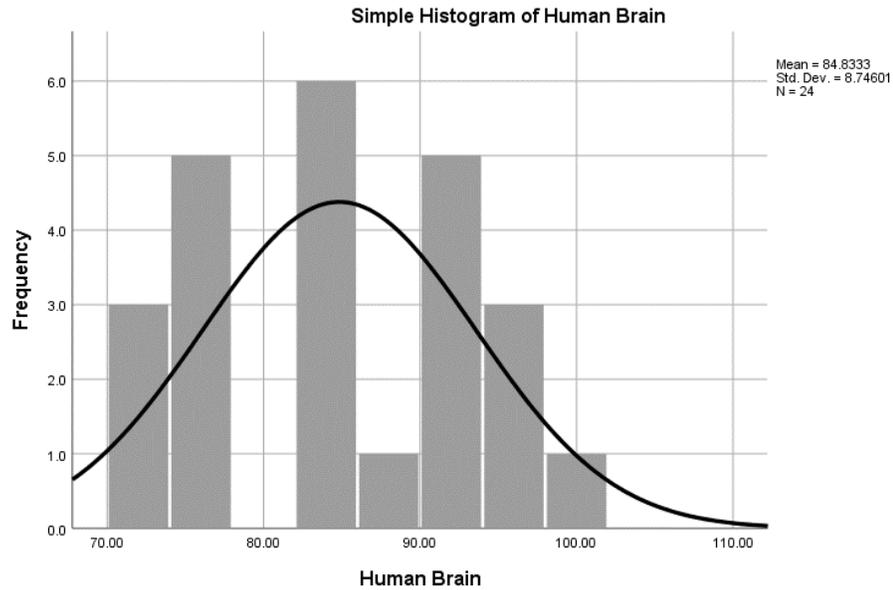


Figure 2 Histogram for frequency of the human brain posttest score for 24 students.

The scores on the human brain posttest showed that using the blended learning approach had an impact on the students' overall mean score. While comparing the graphs, it shows that the traditional classroom instruction had steady scores throughout while the human brain scores had large gaps between the scores, but with more students scoring higher on the human brain posttest. Table 1 displays the central tendency of the mean, median, mode, and standard deviation of posttest scores for the digestive system and the human brain.

Table 1

		Statistics	
		Digestive System	Human Brain
N	Valid	24	24
	Missing	0	0
Mean		82.5000	84.8333
Median		82.0000	84.0000
Mode		72.00 ^a	84.00
Std. Deviation		10.53772	8.74601

a. Multiple modes exist. The smallest value is shown

Hypothesis

There is a difference in posttest scores when the method of instruction is changed from a traditional classroom approach to a blended learning approach.

Null Hypothesis

There is no difference in posttest scores when the method of instruction is changed from a traditional classroom approach to a blended learning approach.

Results of Testing the Hypothesis

A paired samples t-test was conducted to see if test scores were impacted based on the method of teaching instruction. The mean score increased from 82.50 ($sd = 10.54$) on the digestive system posttest to 84.83 ($sd = 8.75$) on the posttest on the human brain. The difference between the two means is statistically significant ($t(23) = -2.17, p < .04$) at the .05 level as shown in Figure 4.

Paired Samples Test

	Paired Differences	t	df	Sig. (2-
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	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Lower	Upper		tailed)
				Lower	Upper				
Pair 1 Digestive System - Human Brain	-2.33333	5.26404	1.07452	-4.55614	-.11052	-2.172	23	.040	

Figure 4 Paired Sample Test showing statistical significance at the .05 level.

The results indicate that there is a difference in scores when the method of instruction was changed from a traditional classroom approach to a blended learning approach.

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Research Findings

Based on the findings the hypothesis is accepted and the null hypothesis is rejected. There is a difference in scores when the blended learning approach was used as the method of instruction.

Limitations and Recommendations

Limitations on this study include the science classroom and the school that was selected. Another limitation is that there was no pre-test on the lesson to determine whether it was the method of instruction or if it was their interest in a different topic. Further research can be done to determine if scores would increase in different subject areas as well as grade levels.

Implications for Practice

The research could suggest teachers implementing a blended learning approach in different subject areas where using a computer based program can benefit the students engagement in the subject and achieve higher scores.

Conclusion

Utilizing a blended learning approach in a classroom, according to the research, does improve the scores of students during assessments. Although there are a few limitations to the study, it does show promise in raising the assessment scores of students when implemented correctly and should be considered as an alternative to traditional learning in the classroom. As

Schaber, Wilcox, Whiteside, Marsh, & Brooks (2010) state, blended learning is not just about technology but about how it can be used to create effective learning. While the results were close it does show that using this method of instruction did help with student achievement. Further research should be conducted with a pretest and posttest approach to see if scores would increase in the same topic learned utilizing the different teaching methods, this would better determine the effectiveness of the method of instruction. Overall, the blended learning approach can be more impactful than just the student's engagement in using technology for learning.