

Statistics Analysis Assessment 4

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INTRODUCTION

A custom dataset was created using classroom data of a pretest and posttest on students ability to research a technology innovation and present findings to the class in the form of a two minute talk. The task was adapted from one of the AP Computer Science Principles performance tasks. Students took a pretest and which was graded by rubric. Two methods of improving the score were presented. Students could attend the learning center after school to get personalized assistance with research and writing or students would watch as set of videos curated to provide personalized assistance with research and writing.

DESCRIPTIVE STATISTICS

The means and standard deviation for the pretest and the posttest are similar. The median and mode are also near the median.

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	29	60	95	75.86	10.006
PostTest	29	60	100	80.34	10.345
Valid N (listwise)	29				

Table 1

**Statistics**

		Pretest	PostTest
N	Valid	29	29
	Missing	2	2
Mean		75.86	80.34
Median		75.00	75.00
Mode		80	75
Std. Deviation		10.006	10.345

Table 2

Relationship analysis includes examination of the difference in scores for students who used the learning center and the difference in scores for students who used curated videos. The expectation would be that students attending the learning center and students using the curated videos have scores that rise. The null hypothesis is neither the learning center or the curated videos have an impact on scores. The alternative hypothesis is that they do have an impact on scores.

CORRELATION

The correlation between the two variables is  $-.148$ . The correlation includes a 2-tailed test of significance. The likelihood of rejecting the null hypothesis (indicating that the two variables have no impact on one another) is near 44%. This would indicate that the scores are not related. Correlating curated videos results in a correlation between the two variables as  $.178$ . The correlation includes a 2-tailed test of significance. The likelihood of rejecting the null hypothesis is near 35%. This would indicate the scores are not related (Salkind, 2017).

**Correlations**

		LearningCenter	PostTest
LearningCenter	Pearson Correlation	1	-.148
	Sig. (2-tailed)		.443
	N	29	29
PostTest	Pearson Correlation	-.148	1
	Sig. (2-tailed)	.443	
	N	29	29

Table 3

**Correlations**

		PostTest	Curated Video Resources
PostTest	Pearson Correlation	1	.178
	Sig. (2-tailed)		.355
	N	29	29
Curated Video Resources	Pearson Correlation	.178	1
	Sig. (2-tailed)	.355	
	N	29	29

Table 4

**CONCLUSION**

The tests on the dataset do not support the alternative hypothesis that student support using the learning center where assistance is available and can be personalized, nor curated videos that can be created for students to self manage reflect a relationship with the application of the support. The tool is valuable to assess the degree to which expected student supports actually fulfill on their intention. This has a valued and practical implication on the classroom as interventions are often expected to have associative relationships. If there is no direct relationship that can be validated, other measure can be explored. The statistics to provide valuable information that is actionable or that informs problems, challenges or curiosity.

APPENDIX

Student	Pretest	PostTest	LearningCenter	Curated Video Resources
a	60	60	2	1
b	80	85	2	1
c	85	100	2	1
d	90	100	1	2
e	75	75	1	2
f	65	70	2	1
g	85	85	2	2
h	80	90	1	2
i	70	85	1	2
j	70	75	2	1
k	65	70	2	1
l	60	70	1	2
m	75	75	2	1
n	75	75	1	2
o	80	85	2	1
p	90	95	2	1
q	90	90	2	1
r	65	70	2	1
s	70	75	1	2
t	80	80	2	1
u	80	80	1	2
v	90	95	1	2
x	70	75	1	2
x	75	75	2	1
y	75	75	2	1
z	80	85	1	2
aa	65	70	2	1
bb	60	70	2	1
cc	95	95	2	1

Table 5

RESOURCES

- Salkind, N. J. (2017). *Statistics for People Who (Think They) Hate Statistics* (6th ed.). Thousand Oaks, CA: Sage Publications.
- Kraemer, H.C., & Blasey, C. (2016). *How many subjects? Statistical power analysis in research* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Andy Field. (2013). *Discovering Statistics Using IBM SPSS Statistics* (4th ed.). Thousand Oaks, CA. Sage Publications.