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Use of Animations to Improve Learning of Physics Education

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Abstract: **This research work examines effects of animations on learning of physics education. The effects of animations on the learning of students was tested through a lecture designed and delivered to randomly selected students (N=60) on topic "Uniform circular motion" by adopting the animation methodology (Sample-1) and a lecture on the same topic delivered to students through traditional methodology N=60 (sample-2) and then similar test from the topic was taken from students of (sample-1) who were taught Physics through animation methodology and (sample-2) students who were taught Physics through traditional methodology. Then results of those samples were analyzed through independent sample t- test. The mean value of test results of student of (sample-1) that were taught through animation is 8.8167and students of (sample-2) who were taught without animation is 5.9667. These mean values show the positive effect of animation on learning of physics.**

Keywords: **Physics, Animation, Learning, Education.**

I. INTRODUCTION

Several scientists performed research work on Multimedia-based animated educational systems [1-14] shows that animations support learning of students with respect to age. However, not good for matures. However, good teaching materials should be effective and suited to a student's cognitive level [15]. Most of previous studies indicated that animation improves a learner's ability to remember facts and information processing [15, 16]. Use of Animations in teaching generate and sustain attention, cheer in the thinking of students, and assist for conceptual understanding. Used of animations contributes to promote the better physics education.

II. METHOD

The Research Methodology is having two steps. In step-I, a lecture was designed and delivered randomly selected students form government schools of Karachi Pakistan (N=60) on topic "Uniform circular motion" by adopting the animation methodology to student of (sample-1) and same lecture on same topic is delivered to other students through traditional methodology (N=60) to students of (sample-2). In step II, a test from the topic taken from the (Sample-1) students who were taught through animation methodology and (sample-2) who were taught through traditional methodology and then results of these samples were analyzed through t-test to observe the effect of animation methodology on learning of students.

III. DATA ANALYSIS AND DISCUSSION

The effect of animation on the learning of students was tested as by delivering a lecture on topic "Uniform circular motion" by adopting the animation methodology and delivered to the randomly selected students (Sample-1, N=60) and the same topic lecture deliver through traditional methodology (Sample-2, N=60) and then similar test from this topic is taken from the students and results of these test were analyzed through independent t- test.

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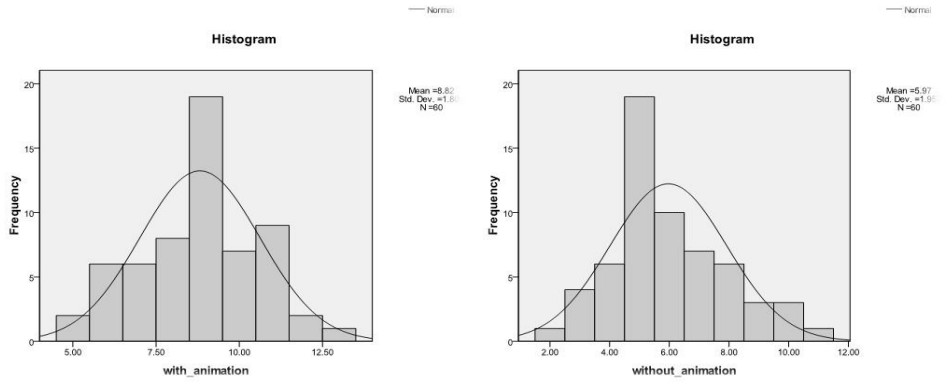

Figure 1 Histograms show normal distribution curves therefore, t-test can be applied on the data

Table I. Frequency distribution						
	Cases					
STUDENTS	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
with animation	60	100.0%	0	.0%	60	100.0%
without animation	60	100.0%	0	.0%	60	100.0%

Table II. T test above shows that the mean values of test result of students who were taught through animation (Sample-1) is 8.8167and those who taught without animation (Sample-2) then score is 5.9667. These mean values show that those who taught through animation scored higher than those who taught through traditional method hence prove the positive effect of animation on learning of physics.

Table II. T-Test of student test result					
	Student	N	Mean	Std. Deviation	Std. Error Mean
Test results	with animation	60	***8.8167***	1.80856	.23348
	Without Animation	60	***5.9667***	1.95688	.25263

Table III. above independent sample test show that sig (2-tail) is 0.000 which shows that the data of both samples is highly significantly different from each other and hence proves that animation has positive effect on learning.

Table III. Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
test results	Equal variances assumed	.399	.529	-8.285	118	***.000***	-2.85000	.34400	-3.53122	-2.16878
	Equal variances not assumed			-8.285	117.274	***.000***	-2.85000	.34400	-3.53126	-2.16874

Hypothesis-H 1:

"Those who learn physics with animation understand more than those who learn it without animation."

In order to test this hypothesis the Table#3 shows the results of independent sample t-test. This test is applied to compare the results of sample-1 with sample-2. Sample-1 contains those students who learn physics with animation and sample-2 contain those students who learn physics without animation. The t-test shows that these two samples are significantly different from each other at significance level of 0.00 hence null hypothesis is rejected and research hypothesis which states that "Those who learn physics with animation understand more than those who learn it without animation " has been accepted.

IV. CONCLUSION

The impact of technology on society is definite. It has become increasingly clearer that new and more advanced methods of teaching are the need of today's world. The results of this research study have shown the positive effect of animation on students learning. There are many positive aspect of animation methodology compared to traditional methodology. Interactive animation significantly improves learning.

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