

VIRTUAL ACQUISITION OF COMPUTER-BASED TECHNOLOGY ON THE APPLICATION AND PRACTICAL TEST AMONG TVE STUDENTS IN FACE-TO-FACE TEACHING MODALITY

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ABSTRACT

This study was limited to the virtual acquisition of computer-based technology on the application and practical test among one hundred and ninety-five (195) TVE – animation in visual graphic Design students in face-to-face teaching modality at San Pedro Relocation Center National High School – Main Campus. It was used a purposive sampling technique to select the best-suited respondents. In order to analyze and interpret the data gathered, weighted mean, standard deviation, frequency, percentage, and regression analysis were utilized in this study. It is found out that in terms of the extent of acquisition of animation and visual graphic design skills of students, findings show that all the indicators as to stop motion, graphic design and cartooning are very great extent which means that using technology in teaching has the positive effect towards their performance. In addition, in terms of the level of students' evaluation on the application, findings show that all item indicators as to laboratory activities and collaborative activities very great extent. This further indicates that acquiring animation and visual graphic design skills takes a big part in how they should be applied in laboratory and collaborative activities. Moreover, in terms of students' performance on practical test is perceived as mastered which means that all the criteria needed in the activity was met by the learners.

From the findings, we can infer that at 0.05 level of significance, the null hypothesis “There is no significant effect of virtual acquisition of animation and visual graphic design skills on *student's* evaluation on it application in terms of laboratory and collaborative activities” is rejected. Therefore, it was concluded that utilizing technology in TVE – Animation and Visual Graphic Design activities such as stop-motion, graphic design, and cartooning, and letting the students collaborate with the other learners made positive effects on their achievements. In addition, we can infer that at 0.05 level of significance, the null hypothesis “There is no significant effect of virtual acquisition of animation and visual graphic design skills on *student's Performance in the Practical Test in terms of Test Scores*” is partially rejected. Therefore, it was concluded that virtual acquisition in animation and visual graphic design skills can still enhance the test scores/performance of the learners.

This study suggested that educational institutions ought to equip their classrooms with technology-based tools like laptops, tablets, and internet connectivity to enhance instruction and student engagement. This will go a long way in developing the animation and visual graphic design skills of students. Moreover, monitoring of academic performance should concentrate on the needs of each student to reduce the study load and optimize their learning potential. Teachers may stress the significance of acquiring animation and visual graphic design skills and encourage their importance among learners. Programs that enhance these skills and practical assessments can aid students in applying these skills effectively. Lastly, to avoid overemphasis on rote memorization, TVE educators and pupils should be provided with captivating resources and teaching materials that promote active participation in lessons.

Keywords:

Virtual acquisition, animation, graphic design, cartooning, computer – based technology

INTRODUCTION

Learning has become an extensive and growing phenomenon, giving a huge improvement to the use of information and communication technologies (ICT) in secondary institutions. However, in the times of transition phase both students and educators need to be more flexible in adapting new sets of skills that can help them students in the learning process.

Moreover, in today's generation, technology became the basis of the teaching and learning process. The search for information and verification, which compose the essential elements of studying, is affected by this computational dimension, which shows a gap between students who are able to practice these animation and visual graphic design with sound technological preparation, and those students who do not have and find themselves in a transition phase. These skills can help the learners to develop creativity, and communication.

As such, the involvement of teachers in curriculum design in sustaining the connection of technology-enhanced learning materials has been one of the important factors in providing technological skills to the learners. Teachers are engaged in customizing learning activities to suit situations and settings. Educators intended to help and teach the students to gain possible technological skills that could help them in learning. However, teaching is teaching if learners learn. Learning is measured by its outcome.

Whatever approach to teaching is used, the intent should focus on learning rather than teaching. Subjects do not exist in isolation, but links between them should be made. It is important that students learn how to learn, hence the teacher should be innovative. (Catapang, R.G., & Tuiza, A.V. 2022)

This study aims to determine the effect between virtual acquisition of animation and visual graphic design skills and on application and practical test among TVE students in face-to-face teaching modality.

Specifically, it sought to answer the following questions:

1. What is the extent of virtual acquisition of animation and visual graphic design skills as to application in terms of:
 - 1.1 stop – motion;
 - 1.2 graphic design; and
 - 1.3 cartooning?
2. What is the extent of students' application in terms of;
 - 2.1 laboratory activities; and
 - 2.2 collaborative activities?
3. What are the students' Practical Test in terms of test scores?
4. Does the virtual acquisition of animation and visual graphic design skills significantly on students' application?

5. Does the virtual acquisition of animation and visual graphic design skills significantly on student's practical tests?

REVIEW OF RELATED LITERATURE

Computers provide innovative and efficient means for teaching students. As a result, various forms of computer-based instruction (CBI) and multimedia instruction provide a viable mode of teaching some content. One particularly promising capability provided is the ability to integrate animation as part of instruction. Authoring application programs have made animation readily accessible to any educator who has the patience to learn how to use the application (Sturman, D. 2018).

Internet is currently used technological competence in teaching, used to connect to the global knowledge (Raposo M. et al., 2016). The teacher is a determining factor in the transmission of technological competence and must be updated constantly, the student becomes the center of the teaching-learning process, and it must receive the full support of the teacher.

According to Joseph, L.G. et al (2019) complex information given to the students is simplified by technology and provides them opportunities learning by doing. Therefore, use of VR in labs, in other word, use of virtual laboratory or simulation programs, overcomes some of the problems faced in traditional laboratory applications and make positive contributions in reaching the objectives of an educational system. It is not always possible to see the results of students' studies in a real laboratory application especially in inadequate laboratory conditions. Use of simulation programs can overcome that mistakes occur as a result of such laboratory conditions or misuse of the laboratory.

Within the general field of collaborative learning communities, there has been a growing focus on the role of computer technology in fostering these communities. Efforts in this area have come to be known as computer supported collaborative learning (CSCL) (Koschmann, T.D. (Ed). 2014).

According to Knowlton, D. (2018), the nature of animation is best described by examining its characteristics and purposes. First, animation is related to static visuals. Second, animation has a number of inherent purposes that a designer must consider. Third, there is a consideration of the physical attributes of animation. It means that the creativity and imagination are essential for this activity to create a successful stop-motion animation.

Stop motion animation should be taught in a simple and quite straightforward way; whereas learners who are older or better-educated should be taught using more demanding and complicated technology (Melinda, K. 2016).

Designers must exercise caution when using animation as a feedback mechanism. Surber, J. and Leeder J. (2018) suggested the addition of feedback with "colorful graphic displays" does not enhance motivation. In fact, attractive animation that occurs when an incorrect answer is given may actually reinforce the wrong response. Thus, focusing on positive motivation through animation is particularly important.

Wright, G. (2019) argued that cartoons could be successful in integrating cognitive processes with the psychomotor domain because of the integration of visual, auditory, and kinesthetic learning modalities.

METHODOLOGY

Descriptive method was used to determine the effect of virtual acquisition of animation and visual graphic design skills on students' application and practical test among 195 TVE students in face – to – face teaching modality in SPRCNHS – Main Campus.

It was used a purposive sampling technique to select the best-suited respondents. In order to analyze and interpret the data gathered, weighted mean, standard deviation, frequency, percentage, and regression analysis were utilized in this study. The study was focused on the following: the extent of virtual acquisition of animation and visual graphic design skills, the extent of students' evaluation of the application, the extent of students' performance, virtual field experiences of students, the level of students' learning, the extent of students' performance and the effect of the acquisition of animation and visual graphic design skills on students' evaluation on the application and performance.

RESULT AND DISCUSSION

In this data were gathered from 195 students with experience in using computer – based technology especially in different activities such as stop – motion, graphic design, and cartooning.

Table 1. The Extent of Virtual Acquisition of Animation and Visual Graphic Design in terms of

Stop - Motion

STATEMENTS	MEAN	SD	REMARKS
Capable of animated filmmaking technique in which objects are physically manipulated in small increments between individually photographed frames.	4.95	0.21	Strongly Agree
Can make objects appear to exhibit independent motion or change when the series of frames is played back	4.88	0.33	Strongly Agree
Acquire a technique whereby the camera is repeatedly stopped and started to give animated figures the impression of movement	4.68	0.47	Strongly Agree
Able to film and allow objects within the scene, such as clay figures or paper cutouts, to be adjusted for the following frame.	4.65	0.48	Strongly Agree
Able to capture one frame at time, with physical objects that are moved between frames and creates the illusion of movement.	4.46	0.50	Strongly Agree
Weighted Mean Verbal Interpretation	4.72 Very Great Extent		

Table 1 presents the extent of Virtual Acquisition of Animation and Visual Graphic Design Skills in terms of Stop - Motion. From the statements above, “Capable of animated filmmaking technique in which objects are physically manipulated in small increments between individually photographed frames” yielded the highest mean score (M=4.95, SD=0.21) and was remarked as Strongly Agree. This is followed by “Can make objects appear to exhibit independent motion or change when the series of frames is played back” with a mean score

($M=4.88$, $SD=0.33$) and was also remarked as Strongly Agree. On the other hand, the statement “Able to capture one frame at time, with physical objects that are moved between frames and creates the illusion of movement” received the lowest mean score of responses with ($M=4.46$, $SD=0.50$) yet was also remarked Strongly Agree.

The extent of Virtual Acquisition of Animation and Visual Graphic Design Skills in terms of Stop Motion attained a weighted mean score of 4.72 and was Very Great Extent among the respondents. Stop motion animation should be taught in a simple and quite straightforward way; whereas learners who are older or better educated should be taught using more demanding and complicated technology

Table 2. The Extent of Virtual Acquisition of Animation and Visual Graphic Design Skills in terms of Graphic Design

STATEMENTS	Mean	SD	REmarks
Capable of creating visual content to communicate message	4.95	0.22	Strongly Agree
Applies visual and page layout techniques, and pictures to meet <i>users'</i> specific needs.	5.00	0.00	Strongly Agree
Focuses on the logic of displaying elements in interactive designs, to optimize the user experience.	4.70	0.46	Strongly Agree
Have a firm understanding of color theory and how vital the right choice of color scheme is.	4.53	0.50	Strongly Agree
Design with an eye for how elements match the tone and design for the overall effect	4.55	0.50	Strongly Agree
Weighted Mean Verbal Interpretation	4.75 Very Great Extent		

Table 2 presents the extent of Virtual Acquisition of Animation and Visual Graphic Design Skills in terms of Graphic Design. From the statements above, “Applies visual and page layout techniques, and pictures to meet *users'* specific needs” yielded the highest mean score ($M=5.00$, $SD=0.00$) and was remarked as Strongly Agree. This is followed by “Capable of creating visual content to communicate message” with a mean score ($M=4.95$, $SD=0.22$) and was also remarked as Strongly Agree. On the other hand, the statement “Have a firm understanding of color theory and how vital the right choice of color scheme is” received the lowest mean score of responses with ($M=4.53$, $SD=0.50$) yet was also remarked Strongly Agree.

The extent of Virtual Acquisition of Animation and Visual Graphic Design Skills in terms of Graphic Design attained a weighted mean score of 4.76 and was Very Great Extent among the respondents. Graphic design is a comprehensive science integrating artistry, innovation, and operability. Graphic design is not limited to print media anymore perhaps starts to be combined

with multi-dimensional design methods. The traditional dull duck-stuffing teaching method is not good for stimulating students' enthusiasm for study, creativity, and imagination, and cannot meet students' learning need accordingly

Table 3. The Extent of Virtual Acquisition of Animation and Visual Graphic Design in terms of Cartooning

STATEMENTS	Mean	SD	REmarks
Can illustrate a humorous sketch or drawing usually telling a story or caricaturing some person or action	4.93	0.25	Strongly Agree
Able to draw depicting a humorous situation, often accompanied by a caption.	4.64	0.48	Strongly Agree
Able to film made by photographing a series of cartoon drawings to give the illusion of movement	4.56	0.50	Strongly Agree
Can sketch or draw telling a story or caricaturing a person or action.	4.38	0.49	Strongly Agree
Capable of making animated cartoon.	4.02	0.14	Agree
Weighted Mean Verbal Interpretation	4.51 Very Great Extent		

Table 3 presents the extent of Virtual Acquisition of Animation and Visual Graphic Design Skills in terms of Cartooning. From the statements above, "Can illustrate a humorous sketch or drawing usually telling a story or caricaturing some person or action" yielded the highest mean score ($M=4.93$, $SD=0.25$) and was remarked as Strongly Agree. This is followed by "Able to draw depicting a humorous situation, often accompanied by a caption" with a mean score ($M=4.64$, $SD=0.48$) and was also remarked as Strongly Agree. On the other hand, the statement "Capable of making animated cartoon" received the lowest mean score of responses with ($M=4.02$, $SD=0.14$) yet was also remarked Agree.

The extent of Virtual Acquisition of Animation and Visual Graphic Design Skills as to Cartooning attained a weighted mean score of 4.51 and was Very Great Extent among the respondents. A further characteristic is that young learners enjoy fantasy and imagination. Games and cartoons suit well in fostering young learners' imagination and fantasy. The rationale behind choosing cartoons as teaching materials rather than pictures or stories is that they contain colorful characters and catchy visual presentations accompanied by enjoyable sounds and music Teachers are interested in using animations while teaching all kinds of subjects

Table 4. The Extent of Students' Evaluation on the Application in terms of Laboratory Activities

STATEMENTS	Mean	SD	REmarks
Make appropriate outcome in every activity in a given period of time.	5.00	0.00	Strongly Agree
Establish protocol for continuing collaborative teamwork.	4.61	0.49	Strongly Agree
Cultivate analyzation skills in doing laboratory activities.	4.35	0.48	Strongly Agree
Keep doing trial and error until finding the solution for every laboratory activity	4.34	0.47	Strongly Agree
Use online simulation and/or virtual laboratory for the additional information.	4.53	0.50	Strongly Agree
Weighted Mean	4.57		
Verbal Interpretation	Very Great Extent		

Table 4 presents the extent of Students' Evaluation on the Application in terms of Laboratory Activities. From the statements above, "Make appropriate outcome in every activity in a given period of time" yielded the highest mean score ($M=5.00$, $SD=0.00$) and was remarked as Strongly Agree. This is followed by "Establish protocol for continuing collaborative teamwork" with a mean score ($M=4.61$, $SD=0.49$) and was also remarked as Strongly Agree. On the other hand, the statement "Keep doing trial and error until finding the solution for every laboratory activity" received the lowest mean score of responses with ($M=4.34$, $SD=0.47$) yet was also remarked Strongly Agree.

The extent of Students' Evaluation on the Application in terms of Laboratory Activities attained a weighted mean score of 4.57 and was Very Great Extent among the respondents. One of the most promising computer applications in science instruction is the use of simulations for teaching material, which cannot be taught by conventional laboratory experimentation

Table 5. The Extent of Students' Evaluation on the Application in terms of Collaborative Activities

STATEMENTS	Mean	SD	Remarks
Brainstorm ideas with other students.	5.00	0.00	Strongly Agree
Get and give feedback for each situation.	4.76	0.43	Strongly Agree
Allow other to state their opinions and ideas regarding the topic.	4.16	0.37	Agree
Practice effective communication skills and positive relationship with other learners.	4.35	0.48	Strongly Agree
Participate for each activity and programs.	4.53	0.50	Strongly Agree

Weighted Mean	4.56
Verbal Interpretation	Very Great Extent

Table 5 presents the extent of Students' Evaluation on the Application in terms of Collaborative Activities

From the statements above, "Brainstorm ideas with other students" yielded the highest mean score ($M=5.00$, $SD=0.00$) and was remarked as Strongly Agree. This is followed by "Get and give feedback for each situation" with a mean score ($M=4.76$, $SD=0.43$) and was also remarked as Strongly Agree. On the other hand, the statement "Allow other to state their opinions and ideas regarding the topic" received the lowest mean score of responses with ($M=4.16$, $SD=0.37$) yet was also remarked Agree.

The extent of Students' Evaluation on the Application in terms of Collaborative Activities attained a weighted mean score of 4.56 and a standard deviation of 0.80 and was Very Great Extent among the respondents. The effects of teachers' attempts to implement collaborative learning in classrooms on students' knowledge building, strategic learning, and perceptions of the classroom environment. Students in classes where more fully established reported more knowledge building goals and activities, more question asking, and higher perception of collaboration with fellow students. Students' reports of knowledge building, strategic learning, and perceptions of the classroom were also associated with their classroom achievement

Table 6. Extent of Students' Performance in Practical Test in terms of Test Scores

Score	Frequency	Percentage	Descriptive Equivalent
17 – 20	195	100%	Outstanding
13 – 16	0	0	Very Satisfactory
9 – 12	0	0	Satisfactory
5 – 8	0	0	Fairly Satisfactory
Below 4	0	0	Did Not Meet Expectations
Total	90	100	
Weighted Mean			95.65
Verbal Interpretation			Mastered

Table 6 reveals the extent of students' performance in practical test in terms of test scores. It was shown that 195 or 100% of the respondents attained scores ranging from "17 to 20" which had a descriptive equivalent of "Outstanding". The mean score, 95.65 with verbal interpretation of "Mastered" indicates that the respondents performed excellently in their practical test undertakings. With a (Weighted Mean = 95.65, $SD = 6.68$) it shows that the extent of animation and visual graphic design skills of grade 10 students at San Pedro Relocation Center National High School – Main Campus with regard to practical tests in terms of test scores has a descriptive equivalent of outstanding and verbally interpreted as Mastered. This has

created the need for updating of teachers and students in developing these skills to improve school academic performance. It implies that research was needed on the benefits of animation and visual graphic design skills applied in the teaching and learning of higher-level students.

Table 7. Significant Effect of Virtual Acquisition of Animation and Visual Graphic Design Skills on Student's Evaluation on its Application

Virtual Acquisition	Student's Evaluation	t-stat	p-value	Analysis
Stop - Motion	Laboratory Activities	2.80	0.006	Significant
Graphic Design		3.58	0.000	Significant
Cartooning		10.88	0.000	Significant
Stop Motion	Collaborative Activities	3.17	0.002	Significant
Graphic Design		2.23	0.027	Significant
Cartooning		12.51	0.000	Significant

Table 7 presents the effect of virtual acquisition of animation and visual graphic design skills on student's evaluation on its application in terms of laboratory and collaborative activities.

Virtual acquisition of animation and visual graphic design skills significantly affects student's evaluation on its application in terms of laboratory activities, stop motion ($t=2.80$, $p=0.006$), graphic design ($t=3.58$, $p=0.000$), and cartooning ($t=10.88$, $p=0.000$), obtained p-values which were all lower than (0.05) level of significance which supports the analysis.

From the findings above, we can infer that at 0.05 level of significance, the null hypothesis "There is no significant effect of virtual acquisition of animation and visual graphic design skills on student's evaluation on its application in terms of laboratory and collaborative activities" is rejected. Thus, the alternative should be accepted which incites that there is a significant effect between them. This further indicates that acquiring animation and visual graphic design skills takes a big part on how it should be applied both in laboratory and collaborative activities.

Table 8. Significant Effect of Virtual Acquisition of Animation and Visual Graphic Design Skills on Student's Performance in the Practical Test in terms of Test Scores

Virtual Acquisition	Student's Performance	t-stat	p-value	Analysis
Stop Motion	Test Scores	0.76	0.445	Not Significant
Graphic Design		10.85	0.000	Significant
Cartooning		-6.00	0.000	Significant

Table 8 presents the effect of virtual acquisition of animation and visual graphic design skills on student's Performance in the Practical Test in terms of Test Scores

Virtual acquisition of animation and visual graphic design skills significantly affects student's Performance in the Practical Test in terms of Test Scores, graphic design ($t=10.85$, $p=0.000$), and cartooning ($t=6.00$, $p=0.000$), obtained p-values which were all lower than (0.05) level of significance which supports the analysis. However, the stop motion of the animation and visual graphic design skills had no effect on students' performance on test scores ($t=0.76$, $p=0.445$).

From the findings above, we can infer that at 0.05 level of significance, the null hypothesis “There is no significant effect of virtual acquisition of animation and visual graphic design skills on student’s Performance in the Practical Test in terms of Test Scores” is partially rejected. Thus, the alternative should be partially accepted which incites that there is a significant effect between them. It implies that the virtual acquisition of animation and visual graphic design in various activities such as stop – motion, graphic design, and cartooning can still be aid for the advancement of the learners.

Fonseca, D., et al., (2014) indicated that through the use of technology, students were able to achieve a greater level of direct engagement with the proposed content, which in turn improved overall increase in test scores and academic achievement. They indicated that technology was highly correlated with student motivation, and also found a significant correlation between technology use and academic achievement.

CONCLUSION

From the findings above, we can infer that at 0.05 level of significance, the null hypothesis “There is no significant effect of virtual acquisition of animation and visual graphic design skills on student’s evaluation on it application in terms of laboratory and collaborative activities” is rejected. Therefore, it was concluded that utilizing technology in TVE – Animation and Visual Graphic Design activities such stop–motion, graphic design, and cartooning, and letting the students collaborate with the other learners made positive effects on their achievements.

In addition, we can infer that at 0.05 level of significance, the null hypothesis “There is no significant effect of virtual acquisition of animation and visual graphic design skills on student’s Performance in the Practical Test in terms of Test Scores” is partially rejected. Therefore, it was concluded that virtual acquisition in animation and visual graphic design skills can still enhance the test scores/performance of the learners.

RECOMMENDATIONS

1. It is highly suggested that schools may have technology-based classrooms for modifications and improvement for the instruction use so that students will be able to develop engagement and clearly understand the concepts of animation and visual graphic design skills.
2. It is recommended that the performance monitoring may focus on the students’ needs and enable them to learn.
3. Furthermore, teachers may also emphasize the value of learning and acquisition of animation and visual graphic design skills and promote its importance for the learners. Enhancement program and/or extended activities may help them to fully practice the application and skills.
4. It is highly recommended to provide engaging resources and instructional materials wherein their can exhibit their animation and visual graphic design skills.
5. Lastly, they may find the meaning of acquiring animation and visual graphic design skills out of context if they can experience more hands-on activities.

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