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The Importance and Efectiveness of Autocad Application in Drafting Students of Surigao Del Norte State University

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Abstract: *This research focuses on studying the importance and effectiveness of AutoCAD application to the drafting students of Surigao del Norte State University. We choose this topic to learn on how important AutoCAD application is, in the field of drafting. And how we going to show to all the student its effective in making their plans or designs in the easiest way to save time and to give their instructor a productive and competitive drafting student of SNSU. The result from this study show excellent increase the knowledge of the importance and effectiveness by using AutoCAD to the drafting student. These indicate the AutoCAD can help the student through computer-aided learning to improve efficiency and effectiveness of teaching and learning. This study suggests that teacher, school administrators and government to consider this AutoCAD as a learning tools in Bachelor of Science Industrial Technology major in Architectural Drafting*

Keywords: Architectural Drafting, AutoCAD Application, Effectiveness

I. INTRODUCTION

The present education system is undergoing significant transformations. Teaching utilizing computer-aided software, such as the AutoCAD application, has become increasingly popular in recent years. Rapid advances in multimedia technology have resulted in a significant shift in education today, transforming the way people obtain information more quickly. AutoCAD was derived from Interacting CAD, a program built by Autodesk founder Mike Riddle before the founding of Autodesk (formerly Marin chip Software Partners) in 1977 and published in 1979.

Students in the twenty-first century communicate and access information using a variety of digital devices, including computers, tablets, smartphones, and laptops. Using these gadgets in the teaching-learning process will probably spark students' interest in subjects like technical drawing (TD), as they are always carrying them with them. In order to suit the learning needs of the digital learners, teachers need to quickly adapt to technology changes. Since 4000 B.C., technical drawing has been around for many millennia (Kamrani & Nasr 2010). Back then, most production was done by hand by experienced individuals, therefore TD was primarily visual depictions of parts, which did not always include information like measurements and features. Until recently, TD only referred to draftsman-created drawings (when people participated directly in the manufacturing of parts and the assembly of products). Technical drawing (TD) is widely used in engineering, building, manufacturing, and architecture. Using technical documentation, architects record their plans for residential, commercial, and industrial structures. Sketching. TD is used as plans or records for building, road construction, product manufacturing, and the creation of maps for geological surveys and navigation. TD is used as a template to change the architectural and bringing technical concepts to life.

However, as Personal Computers (PCs) have become more common in manufacturing and design processing, the term "technical drawing" has come to encompass communication graphics. Its main goal is to give students the fundamental technical and technological abilities they need to pursue engineering courses in further education.

Architectural drawing and AutoCAD are a professional foundation course in the field of construction engineering. Based on icon standards for learning civil engineering and drawing. It is the basis for students' future vocational courses, and is also the basic skill for students to work in civil engineering after graduation. AutoCAD users can quickly and accurately create complex drawings, increase productivity and reduce project completion time. A land and water engineer can use AutoCAD to design a road in a fraction of the time it would take to create a

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manual plan with accurate measurements and alignments. AutoCAD users can create highly precise and accurate drawings that can be measured down to the last millimetre. An architect can use AutoCAD to accurately measure and build a structure, making sure all components fit together perfectly. Once the plans are developed, AutoCAD makes it easy to update and modify them by changing the measurements.

By using this application, users can ensure that all components are produced within the same design rules and guidelines. A product designer can use AutoCAD to develop standard designs for a product line, ensuring full compatibility of all parts. AutoCAD has the capability to accommodate several options for users to collaborate on the same project, increasing communication and speeding up the design process. This allows architects to collaborate on the design of a building, with each member contributing their own specialty. The software helps to calculate material quantities for production. An interior designer or engineer can use a scanner to measure the amount of each material needed in the manufacturing process. This feature helps you get an accurate specification of what you need, calculate how much it will cost to manufacture and ultimately manage design and production. For details such as tiles, small details and plates, you can look at them carefully and calculate not only the material to be used, but also the required amount.

II. REVIEW OF LITERATURE

History of CAD

The first drafters drew their sketches by hand and estimated distances using primitive scales. Simple wooden straightedges were employed by later draftsmen as a drawing assistance. Drafters have been drawing more accurate lines, arcs, and circles for ages by using T-squares, triangles, and compasses. Later, drafters were able to draw considerably more quickly and accurately because to the invention of the drafting machine and parallel slide systems. With today's computer systems, drafters can draw at nearly the speed of light. Computer aided drawing systems (CAD) are computer systems intended to carry out drafting tasks. Computer-aided drafting and design systems (CADD) are computer systems that can tackle more complicated design issues graphically. Drafters work with CAD or CADD tools to quickly produce incredibly accurate, and reliable. Like other early computer systems, early CAD systems from the 1960s were very complex, costly, and challenging to operate. Certain systems cost millions of dollars and filled entire rooms. Modern personal computers are quicker, more compact, less costly, easier to operate, and capable of handling increasingly complicated tasks. The creation and ongoing refinement of the integrated circuit chip (IC) allowed for these advancements and modifications. The usage of CAD systems at all stages of drafting, design, engineering, manufacturing, and building has greatly increased as a result of this progress. New developments in system size, speed, accuracy, and usability are part of the ongoing development process.

Teaching using AutoCAD

Architectural drawing and CAD are a very practical course. In teaching, teachers can introduce the true architectural design projects of the enterprise. Taking real projects as a carrier, creating a real working situation, and cultivating students' corresponding ability with real positions. Teachers can lead students to measure on -site, and use AutoCAD software to draw a complete set of construction drawings, including the four facade maps of the building, the building's facade, and the building section. In the process of teaching, teachers should explain in detail each diagram in the order of drawing, which must not only emphasize the standardization of the map, but also explain the design details, such as the material structure, color, size, etc. Teachers should integrate the content in other courses in the course, so that students can not only master the practical ability of the software, but also solve practical problems encountered in future work. With the continuous development of Internet technology, the teaching concepts and teaching models of higher education have also changed, which has formed a hybrid teaching mode combining online and offline combination. The original definition of hybrid teaching is: the combination of online teaching and facial teaching. But with the development of hybrid teaching, it is no longer a combination of face -to -face teaching and online teaching. The advantage of hybrid teaching is that it can play the leading role of teachers' guidance, inspiration, and supervision in the teaching process, but also give full play to the initiative, enthusiasm and creativity of students as the subject in learning.

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Students' Interest

Since there are lots of advantages in the use of AutoCAD, it is likely that using it to teach TD will enhance students' interest and engagement in learning. Students' interest holds much power in a subject. According to (Scheifele 2011), interest is a content-specific-motivational characteristic made out of inherent feeling- related and esteem- related values. This means that when a teaching relates to what students are keen on doing; the intensity of interest of the students deepens as they keenly invest time considering, dialoguing and creating ideas in useful ways which imply that students' interest works well with instructional planning based on readiness and learning profiles. In agreement to this, (McCarthy 2014) posited that matching learning profiles with students' interest such as watching videos, and the use of computer aided instructions, allow learners to process understanding of concepts through different modalities. Udoekoriko (cited in Oyenuga 2010) posited that a very close relationship exists between a student's interest and academic performance. This means student's academic performance is tied to interest in the subject. Students' interest in a subject such as TD can go a long way in motivating them to learn. This motivation on the other hand, enables students to get fully engaged in the lesson being taught.

Statement of the Problem

A great degree of creativity and vision are needed for technical drawing. To perform effectively in technical drawing, students must develop or already possess the creative skills. As a result, methods for enhancing the current situation must be discovered in order to enhance technical drawing instruction in technical colleges. Technical colleges that teach technical drawing by hand have several drawbacks, including time-consuming, measurement errors, waste of drawing supplies, and stress of drawing on the board, tracing it, then printing it out. Due to these difficulties, technical drawing has become extremely uninteresting for both professors and students, which has resulted in pupils failing both internal and external exams in the subject. As a result, an evaluation of the acceptance and satisfaction of teachers and students with the usage of CAD packages in comparison to traditional teaching methods becomes imperative. The evaluation will provide momentum for better technical drawing techniques to keep up with demand in the building sector.

III. METHODS

Research Design

Qualitative Design is a data collection of qualitative descriptive research aimed at determining the character of the events being investigated. As a result, data collection entails a small number of organized, open-ended, individual, or focus group interviews, ranging from minimal to moderate. It's a method that comes in handy when researchers want to know who was involved in an event, what was involved, and where it happened. Researchers might proudly refer to their study as qualitative descriptive. Because some of the data is being searched on the internet, which has credible sources, and some of the data is based on the researcher's knowledge or experience, primary and secondary sources are used.

Research Procedure

For this study, a questionnaire was used to gain a thorough grasp of the topic. A questionnaire is a method of gathering primary data that is structured. It usually consists of a series of written questions to which responders must respond. For this technique, we choose respondents at random to offer replies for the data report. Because of the epidemic, we performed the survey by distributing questionnaires online, and they then sent them back to us over messenger so that we could begin counting all of their responses in the relevant column that was being created.

Population and Sample of Respondents

The distribution of our questionnaire is by selecting 30 students in the drafting area of SNSU. It was selected 38 males and 22 females to answer the survey questionnaire in order to gather data used for this study.

Research Environment

This study will be conducted in Surigao Norte State University. The only State University in Surigao City / Surigao Del Norte, It is situated along Narciso and Magallanes streets. Most of the students enrolled in this college come from the

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municipalities and provinces of Surigao del Norte and Surigao del Sur, Dinagat Islands, Agusan del Norte and Agusan Sur, and the distant municipalities and provinces of Southern Leyte.

IV. RESULTS AND DISCUSSIONS

The table 1 present the sex of the respondent there are 63 % or 38 males' respondent and 22 or 36.7 % female respondents. This are the selected respondents to answer our question to our survey.

Survey results

Based on the pre-made instrument, respondents are distributed on this to answer based on the following variables.

Questions	Yes	No
1)Do know what is AutoCAD Application?	60	0
2) Do you have background using AutoCAD Application?	3	57
3) Are you familiar for all the basic commands of AutoCAD Application?	58	2
4) As a drafting student, are you willing to learn this kind of application?	60	0
5) Do you think all drafting student should learn this application?	60	0
6) Do AutoCAD application has a big role to every drafting student?	60	0
7)Do AutoCAD application have the advancement, rather than the manual framework	58	2
8)Do you want us to provide instructions about AutoCAD Application?	60	0
9)Do you need someone to demo it at the front of your class?	60	0
10)Do AutoCAD Application has the effectiveness if you learn the importance of it?	60	0

Based on the results of the survey, 60 respondents said yes to question 1. Indicating that the questions we ask are geared at architectural students. Question 2 has three affirmative responses and fifty-seven negative responses. In other words, the SNSU Drafting students have no prior experience with the AutoCAD application. Question 3 had 58 affirmative responses and two negative responses, indicating that some students are unfamiliar with the Auto Cad application. Question 4 had 60 affirmative responses and 0 negative responses. Based on this survey, it is critical for drafting students to learn AutoCAD. Question 5 had 60 affirmative responses and 0 negative responses. The data gathered indicates, drafting students must learn how to use AutoCAD. In response to question 6, 60 respondents agreed that AutoCAD plays a big role in developing student's ability in making project pertaining to technical drawing, while no negative responses. AutoCAD, according to Northern responders, is a part of the Drafters' work. Question 7 has 58 affirmative responses and two negative responses. Question 8 had 60 affirmative responses and 0 negative responses. The responders expressed an interest in learning the AutoCAD application. Question 9 had 60 affirmative responses and 0 negative responses. To run the AutoCAD application, the respondents agree that they must first learn the Auto cad command. Question 10 received 60 affirmative responses and 0 negative responses. According to the results of the survey, drafting students are eager to learn how to use the AutoCAD application.

This table represent the percentage of students who desire to study the importance of the AutoCAD application and its efficacy in their studies is shown in this graph. These indicates that integration of such application (AutoCAD) can highly result to excellent outcome. UNESCO (2009), pointed out that education system all over the world are under increasing pressure to use CAD for the students the skill to teach students the knowledge and skill in the 21st century. Therefore, it becomes necessary for student acceptance and satisfaction with the use of CAD package as compared to conventional method for teaching technical drawing be carried out. The result will give impetus for improved method of technical drawing to meet up with demand in the construction industry.

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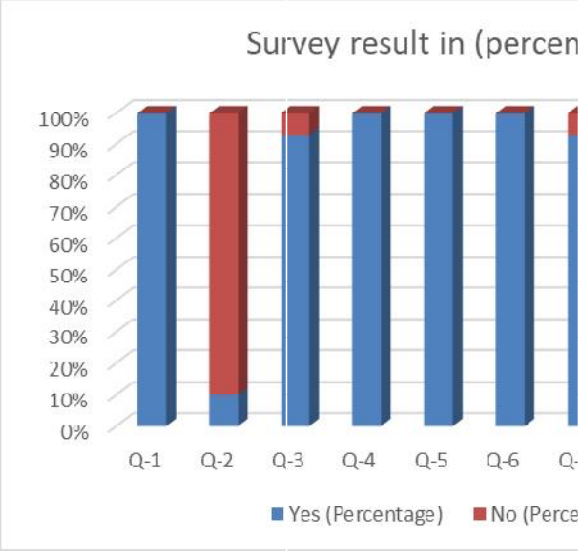

V. SUMMARY AND CONCLUSION

Summary

The goal of this study was to demonstrate the value of the AutoCAD application and how it may help to draft students to improve their performance. It was a descriptive research study that looked at how vital it is to demonstrate the AutoCAD program to drafting students to provide them with background information that will help them compete in any industrial organization that has this kind of skill need.

Base on the researcher's assessment of literature and studies it was found out that AutoCAD application is a program designed to make the work of draftsmen and engineering students easier and more efficient. The result shows 89.6 percent of the respondents said YES, and 10.4 percent replied NO, and the researcher created a graph to demonstrate the results and the proportion of the answers collected for the selected drafting students.

Findings

The findings of the study revealed below:

- The drafting student understand how important the AutoCAD application in their studies.
- They need to have a tutorial to give them enough knowledge about this application
- Some of the student doesn't have any material available to install this software.

Conclusions

The group had a favourable impact on the study by improving the performance of the drafting students. Based on the data collected, the importance and effectiveness of using this program proved to be beneficial. As a result, the extended usage of this software is recommended to all drafting students to teach them how to use it and to encourage them to study.

Recommendations

On the findings of the study, the following recommendation has been formulated. The students should
study this application because this important to their field as a draftsman's in the future. By doing their responsibilities like attending their class in AutoCAD for them to acquire knowledge form it to enhance their skill and to become more productive in their future jobs. It is found out that a lot of students in drafting is interested to learn AutoCAD application and all instructor will strategize the subject to make their teaching more interesting by giving their student example and tutorials for AutoCAD software application.

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