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Factors Affecting the Students' Achievement and Attitude in Learning AutoCAD

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ABSTRACT

This study determined the factors affecting the students' attitude and achievement in AutoCAD software. Specifically, the profile of respondents; the factors affecting the students' achievement in AutoCAD; the attitude of the students towards the AutoCAD software; the students' achievement when using AutoCAD; the significant difference in the factors affecting the students' achievement and the attitude in AutoCAD when grouped according to their profile variables, and the significant relationship between the student achievement and the attitude in AutoCAD were also determined. Descriptive research was found appropriate and therefore used in this study. Study shown the results that most respondents are females with no laptop, with a weekly allowance of Php201-500, and use the computer three times a day; the learning style, parents' support, and teacher factors are rated positively by the respondents, while they rated school factor negatively; the respondents' attitude toward AutoCAD is positive; the students' academic achievement when using AutoCAD software is highly satisfactory; and the factors which affect the achievement of the students. This study found the following: respondents with no laptop and enough weekly allowance have driven them to engage computer frequently; varied factors are to be considered in the acquisition of knowledge and development of skills in AutoCAD; the development of a positive attitude in AutoCAD is due to the fact that students nowadays are millennials who need to catch up with the need of the time, which is to be computer literate; and academic achievement is affected.

Keywords: Students' achievement, AutoCAD software, Learning AutoCAD, and Demonstration skills.

INTRODUCTION:

Computers have seemingly contributed huge changes in the daily lives of many people. Its contributions affected every sector in the society known to man which makes it an important tool where people can rely on. As technology advancement happens rapidly in an unknown rate of speed that is spoiling people as they progress, computers have also advanced to a more sophisticated manner that affected the society like the technological institutions of the learning. Currently, the education system undergoes very rapid changes and the transitions. In the past few years, teaching with computer aided software has been used very extensively in the teaching and the learning. Rapid developments in multimedia technology leads a big change in education nowadays transform the way to get information (Ziden *et al.,* 2012).

At present, the Drafting Technology program focuses on how to create accurate, highly technical drawings from engineering notes or sketches, as well as how to estimate the cost of necessary construction materials. Students are also provided an overview of several possible drawing specializations, such as civil draf-

ting or electronic blueprints. Since the early 1970's, governments of many industrialized nations recognizing the benefits of computer aided design and manufacturing to their economies have promoted its adoption by both private and government enterprise. A great number of industrialized nations have shelled out millions of dollars to incentivize the development and implementation of this technology within the sector, resulting in a significant increase in the demand for technical skills. It has been left up to CAD suppliers, as well as universities, colleges, technical education authorities, and the trade schools to provide the necessary education and training for this technology. The government has provided little to no help, which has a negative impact on the effectiveness of the educators. Today, architectural design tasks are supported by means of computers. The main reason for this is that designing is a problem-solving process including aesthetic, functional and structural aspects, which require a dynamic way of handling information involved in the design process. The computer has been considered an integral part in the designing process, and the discipline of architecture, revolutionizing its methods.

The researchers, as technical education teachers who were practiced drafting technology for long time have perceived that some students are less successful than others in developing the skills they need to use AutoCAD to produce acceptable models as well as the drawings and also in understanding the graphic concepts taught in the course and there should need to examine factors that might affect the achievement of students in learning computer-aided drawing and also the students attitudes towards AutoCAD that affects their learning.

Review of Literature

Automated Computer-Aided Design

AutoCAD or commonly known as Computer Aided Design is a software application for writing and design 2D and 3D. It came on stage during the month of December nineteen hundred and eighty-two (1982). The computer-aided design machine, also known as AutoCAD, has proven to be of tremendous assistance to architects and engineers who were previously struggling with the inability to cope with the drawings and plans of the project engineering work and then bring it close to the point of perfection. Since its release in 1982, AutoCAD has been sold as a desktop application for use on personal computers, and since 2010 as a mobile web and cloud-based app, marketed under the name AutoCAD 360, for use on tablets and smartphones. After being purchased by Autodesk founder John Walker a year before its initial release in December 1982, AutoCAD was developed and marketed by Autodesk, Inc. currently; Version 18 of the software is available for purchase and distribution (Oyebode *et al.,* 2015). Computer-aided design (CAD) is helping industry increase competitiveness by enabling research and design work to be transformed into finished products with higher quality and at lower cost. This is accomplished by automating the routine work of replicating objects. As such, CAD frees up time so designers can spend more time during in designing process thereby increasing productivity and profitability ratios (Francisco, 2000). AutoCAD software is computer software used in the study of Computer-Aided Engineering Drawing. AutoCAD is software, which is commonly used to produce engineering drawings. CAD software will follow the instructions given, and computer hardware to run computer software to make drawings into digital form. Thus, teaching and learning strategies must be designed to ensure appropriate student competent in producing quality design later. According to Dong & Gibson, (2014) the development of CAD technology in the construction of three-dimensional drawings, dimensional digital models and computer simulations can provide new methods to designers to look for more solutions in the design process at the initial stage. The use of arcing as a mobile application is only one example of how the incorporation of different media into the design process can broaden the designer's options. Furthermore, the CAD software provides several benefits that attract many market participants. In a nutshell, it provides advantages that can result in financial and operational savings. In the eyes of the businessman, time is money; therefore any way to cut costs or save time is welcome. Eliminating the requirement to physically test all product design saves time and money during product development. Using computer-aided design (CAD), designers can conduct virtual tests that mimic real-world conditions. In the aerospace industry, where physical tests would be prohibitively expensive and time-consuming, virtual testing has become increasingly common (Vavoula, 2015). In addition, the ability to make changes to a design quickly and easily is another way in which CAD speeds up the product

development process. The designer's output will rise in tandem with the speed at which products are developed. Animating the product in the program helps users visualize its functionality and see where improvements can be made right away. The designer can better synthesize, analyze, and document the design with the use of CAD tools. Therefore, the designer's output can be increased thanks to faster design, lower design costs, and shorter completion timeframes (Trifanova, 2015; Pal *et al*., 2022).

Student Achievement

It is not easy to define, quantify and measure student achievement. Standardized exam scores in core subjects including reading, writing, math, science, and history are widely considered to be the best indicator of academic success (Cunningham, 2012). Students are achieving when they acquire the knowledge, skills, and discipline that will prepare them to the actual world of work. Basic skills in CAD and Architectural theories and principles are critically important, especially for beginners, but are not sufficient. They are building blocks, a starting place for moving to other, higher order dimensions of achievement in learning CAD. Personal factors, relationships with adults (e.g., parents, teachers, and administrators), and the wider systems (e.g., school districts, neighbourhoods, local economy, political policies, and intercultural relations) all influence students' academic performance (Bertolini, 2012). Another research also suggests the redefining of achievement by assessing differently. Students are taught to critically set and evaluate their own learning goals and progress through the use of formative and summative exams, with the former allowing for the replacement of older samples with more recent ones (Blankstein, 2010). Scales and Kirby, (2000) emphasized that several recommenddations can be made for instructors in the field of engineering/technical graphics at the higher education level. Folkestad and Miranda, (2015) accentuated that the Computer-Aided Design (CAD) computer software is changing and being upgraded so frequently that it is difficult for practitioners, let alone educators, to remain current and proficient in their use. This leads to a situation where instructors are often learning the CAD software just prior to providing in-class demonstrations. Furthermore, each student has their own pace of learning making it difficult to teach CAD related technologies in a stand-and-deliver format, where some students excel and subsequently are waiting on the instructor, and others lag and may never grasp the intended learning objectives. Also, students' previous achievement was most strongly influenced by their family background. Students whose parents are more educated, have higher occupational status, and higher income get better grades. In addition, previous achievement was also found influenced by students' gender. Female-students reported having higher previous achievement than males. As could, perhaps, be anticipated the largest influence on students' achievement came from students' previous achievement. Measured as previously acquired self-reported grades, students' previous achievement had a positive direct effect on achievement. The second largest positive direct effect on achievement came from students' family background. Additionally, family background, which was a composite of mother and fathers' occupation, educational status, and family income, also had the largest indirect effect on the students' achievement operating through the other variables in the model. Understandably, students' family background would be expected to indirectly influence students' achievement through families promoting students to get good grades, be motivated, take more classes, and do more homework (Bruce, Jr. & Singh, 2016).

Prior work has also shown that instructors' delivery and implementation of technology causes students to earn higher exam and course grades (Green *et al.,* 2012). Despite positive findings surrounding students' use of educational technology in higher education, gaps in our collective knowledge on this subject still exist. Technology has been changing at a rapid pace, so it is important to continually measure its impact on students. Prior studies focused on many types of C&IT (e.g., computers, instructional technologies, social media) and various resulting student outcomes (e.g., cognitive development, educational involvement, academic achievement). Most studies have successfully answered how students engage with technology and what outcomes result from that engagement, but little is known about reasons why numerous activities or forms of C&IT produce such positive effects.

Gender as Indication towards Learning AutoCAD

Research indicates that females have less experience or less confidence in their ability to use computers when learning computer-aided drawing programs. Therefore, additional computer exercises may be

needed to provide females with increased opportunities to interact with computers and software. These experiences should be designed to provide females with additional practice in creating solid models, in improving their visualization skills, and in functioning in three-dimensional computer space. More attention should be paid to identifying these students, understanding their needs, and designing instruction that is appropriate for these learners. Students are taught to critically establish & evaluate their own learning objectives and progress indicators, and new evidence of learning is permitted to replace older examples using summative examinations in which goals, models, and criteria are communicated in advance of instruction (Blankstein, 2010). Despite the challenge of making sure technology is accessible to students from different backgrounds, technology use in college is significantly related to several effective educational practices and student outcomes. Students overwhelmingly felt that technology has helped them to understand course material and demonstrate their understanding. Students also reported frequently using technology to study on their own and with peers. Students' self-reported gains, the perceived degree of campus support, the difficulty of course-work, student-faculty engagement, active and collaborative learning, deep approaches to learning, and overall satisfaction were all related to their usage of technology in the classroom (BrckaLorenz *et al.,* 2013).

Attitude as Indication towards Learning Auto-CAD

Attitude as a major factor affecting the learning processes, may be implicit hence has not attracted enough attention from all stakeholders in education and therefore, it is imperative to consider the fact that learners can mainly contribute to their learning outcomes because of their belief and perceptions about the subject matter e.g., whether they like it or not and whether they see any value in it. Attitudes are seen as more or less positive and encompass emotions, beliefs, values, and behaviour hence affect individual way of thinking, acting, and behaving which has a lot of implications to teaching and learning (Mensah *et al.,* 2013). Attitude can also be used for evaluations. When we say that attitudes are evaluations, we mean that they involve a preference for or against the attitude object, as commonly expressed in terms such as prefer, like, dislike, hate, and love. Long III, (2015) summarized that scholars have shown that an overwhelming percentage of students (90%) have sufficient and reliable access to a computer and the Internet (Kennedy *et al.,* 2008; Kvavik *et al.,* 2004). The researchers reported that African Americans and Hispanics own computers at lower rates than Whites, Asians, and Pacific Islanders (Lewis *et al.,* 2014). Also, Asian students own computers at lower rates than those from Europe (Li and Kirkup, 2014). So far, the impact of such disparities in the technology ownership on desired student outcomes (e.g., grades) has not been investigated. 37 Previous studies have shown that students generally convey positive attitudes toward the use of C&IT (Kennedy *et al.,* 2013). However, engineering/ business majors, seniors, and males have more positive attitudes toward & increased know-ledge of technology than their respective counterparts (Yau & Cheng, 2012). Prior studies have also shown that freshmen and females use some C&IT less frequently than their classmates. Similarly, differences occur across race/ethnicity. Past studies concluded that American Indian/Alaska Native students are most likely to search the Internet for research or homework, while White students use computers for the academic work less often than non-White students (Flowers & Zhang, 2003; Lloyd *et al.,* 2007).

Prior research indicates that educational technology has a positive impact on various aspects of student learning and development in college (Green *et al.,* 2012). Students who have used technology for academically purposeful activities experience higher levels of cognitive development, reading comprehension and critical thinking (Flowers *et al.,* 2000). Student participation in educationally beneficial C&IT activities also leads to perceived gains in areas such as general education, personal development, science and technology, vocational preparation, and intellectual development (Kuh and Hu, 2011; Strayhorn, 2016). Also, students exhibit higher levels of educational involvement (Lloyd *et al.,* 2017). Furthermore, academic 38 uses of social media result in greater student engagement and academic achievement (Junco *et al.,* 2010). Prior work has also shown that instructors' delivery and implementation of technology causes students to earn higher exam and course grades (Green *et al.,* 2012). Despite positive findings surrounding students' use of educational technology in tertiary education, gaps in our collective knowledge on this subject still exist.

Technology has been changing at a rapid pace, so it is essential to continually measure its impact on students. Prior studies focused on many types of C&IT (e.g., computers, instructional technologies, social media) and various resulting student outcomes (e.g., cognitive development, educational involvement, academic achievement). Most studies have successfully answered how students engage with technology and what outcomes result from that engagement, but little is known about reasons why numerous activities or forms of C&IT produce such positive effects.

The insights of the authors reviewed in this study show semblance of the present study because these are all the discussing the factors which affect the student's achievement in the use of the AutoCAD software and the attitude in learning. They reiterated that students affected by numerous factors in the students' learning environment. The former studies have a difference with the latter in terms of its scope and limitations as well as the respondents.

METHODOLOGY:

The researchers here used both the descriptive and inferential research methods. The study's descriptive approach was adequate because it identified and explored the variables that influenced students' AutoCAD performance and outlook.

The inferential method was also used in determining the significant difference in the responses of the students on the factors that affects the students' achievement and their attitude in AutoCAD when they are grouped according to their profile stated in Problem 1 and the significance relationship between the achievement and attitude in AutoCAD.

Research Environment and Participants

This study was conducted in Surigao State College of Technology (SSCT), Surigao City. The participants of the study were the second- and third-year students enrolled in the Bachelor in Architectural Engineering Technology program. There are a total of 160 participants in the study. These students are considered in this study since during second- and third-year levels that AutoCAD is being offered in the laddered curriculum.

Research Instrument

The researcher-made survey instrument was used as a tool in gathering the needed data in the study. The survey-instrument is consisting of four (4) parts. The first part centred on preliminary information about the respondents' profile such as sex, laptop ownership, weekly allowance, and frequency of engaging in computer per day. Part 2 determined the factors affecting the students' achievement in AutoCAD as to learning style, parent's support, teacher factor, and school factor. Part 3 ascertained the attitude of the students in AutoCAD. Part 4 ascertained the academic achievement level of the respondents based on their grade from the Registrar's Office. The factors affecting the achievement and students' attitude is measured using the scale as shown in **Table 1**.

Table 1: Scale in measuring the factors affecting the students' achievement and attitude.

Scale	Parameters	Verbal Interpretation
4	3.50 – 4.00	Strongly Agree (SA)
3	2.51 – 3.49	Agree (A)
2	1.50 – 2.50	Disagree (D)
1	1.00 – 1.49	Strongly Disagree (SD)

Data Gathering Procedure and Ethical Consideration

Before the actual gathering of the necessary data, the researcher sent a letter to the Dean of the Graduate School for approval on the conduct of the said study. Upon approval, the researcher wrote a formal letter to the Dean, College of Technology seeking approval from her about the administration of the survey instrument of the study (Appendix C). When approved, the researcher personally administered the survey instrument to the BArET students who happened to be the target respondents of the study.

Data Analysis

After the retrieval of the survey instrument, the data were tallied, analysed, and interpreted. This study utilized the frequency count and percent used to determine the profile of respondents. Weighted mean and standard deviation were also used to ascertain the factors affecting the students' achievement and attitude in AutoCAD.

One-way Analysis of Variance (ANOVA) was then utilized to determine the significant difference among the ratings of the various factors affecting the students' achievement and attitude in AutoCAD. Pearson moment correlation coefficient was also used to measure the significant relationship between the achievement and attitude of the students in AutoCAD.

RESULTS AND DISCUSSION:

Profile of the respondents

Table 2 presents the profile of respondents as to sex, laptop ownership, weekly allowance, and frequency in engaging in computer per day.

Table 2: Profile of Respondents.

Profile		Count	Percentage	Mode
Sex	Male	68	42.5	Female
	Female	92	57.5	
	Total	**160**	**100**	
Laptop Ownership	Yes	53	33.13	No
	No	107	66.87	
	Total	**160**	**100**	
Weekly Allowance	200 and below	43	26.88	201-500
	201-500	72	45.00	
	501 and above	45	28.12	
	Total	**160**	**100**	
Frequency of engaging in computer per day	once	12	7.5	thrice
	twice	45	28.12	
	thrice	103	64.38	
	Total	**160**	**100**	

Sex

It can be gleaned that out of 160 respondents, 92 (57.5%) are females while 68 (45.5%) are males. This denotes that males are outnumbered by female-respondents.

Laptop Ownership

Seen in the Table that 107(66.87%) have no laptop while 53(13.33%) answered yes to denote that majority of them have a personal laptop.

Weekly Allowance

Gleaned in the Table is the weekly allowance of the respondents in which 72(45%) of them have a weekly allowance of 201-500; 45(28.12%) have the weekly allowance of 500 and above, and 43(26.88%) have the allowance of 200 and below. The result indicates that most of them are receiving weekly allowance of 201-500.

Frequency of Engaging in Computer/Day

Shown in the Table that 103(64.38%) engaged in computer thrice/day; 45(28.12%) twice a day, and 12 (7.5%) once a day. Most of the respondents engaged thrice in computer a day.

Factors Affecting the Students' Achievement in AutoCAD

Table 3 presents the factors affecting the students' achievement in AutoCAD as to learning style, parent's support, teacher factor, and school factor.

Table 3: Factors affecting the students' achievement in AutoCAD.

	Learning Style. As a student,	Mean	QD
1	I love to manipulate computer.	3.49	Agree
2	I spend time to learn computer.	3.47	Agree
3	I enjoy working with my peers.	3.15	Agree
4	I like to learn on my own.	3.46	Agree
5	I rely on my teacher.	2.76	Agree
Average Mean		**3.27**	**Agree**
	Parents' Support. My parents		
1	Encourage me to study more in AutoCAD.	3.26	Agree
2	Provide me financially relative to my needs in AutoCAD.	2.83	Agree
3	Morally support my studies.	3.35	Agree
4	Monitor my studies.	2.95	Agree
5	Acknowledge my achievements.	2.85	Agree
Average Mean		**3.05**	**Agree**

	Teacher Factor. My teacher in AutoCAD provides		
1	Demonstrates the necessary knowledge.	2.25	Disagree
2	Helps me when I am having a hard time in AutoCAD.	2.56	Agree
3	Clearly gives proper instruction.	2.81	Agree
4	Teaches in an organized way.	2.82	Agree
5	Monitors our performance in the class	3.22	Agree
Average Mean		**2.73**	**Agree**
	School Factor. The school provides		
1	Adequate computer facilities to the students.	2.47	Disagree
2	CAD-related trainings for teachers.	2.46	Disagree
3	A conducive computer laboratory.	2.46	Disagree
4	CAD-related seminars to students.	2.38	Disagree
5	Updated AutoCAD Software.	2.44	Disagree
Average Mean		**2.44**	**Disagree**

Learning Styles

The Table shows the average mean of 3.27, described as Agree indicating the one factor that improves their achievement is their learning style. This indicates that the manner how the students learn may affect to raise their success and may help them achieved the desired goals. This contention is supported with item 1 "I love to manipulate computer" obtained the highest mean of 3.49; described as Agree. Items 2 and 3 "I spend time to learn computer" (M=3.47; Agree); "I like to learn on my own" (M=3.46; Agree) ranked second and third. This goes to say that interest and intrinsic motivation play a crucial role in the learning process of the students. This meta-analysis study assessed the impact of learning styles on students' accomplishments, and its findings corroborated those of Ay (2017). In total, 443 studies were gathered for the literature review, but only 60 were used for the meta-analysis. A total of 26,391 participants from 60 studies were used to draw conclusions. The random effect model found that different learning styles significantly raise academic performance.

Parents' Support

Similar Table emphasized that parents' support plays a vital role in the students' achievement as evidenced in the average mean of 3.05, described as Agree. This indicates that when families, schools, and communities' partner together towards supporting schooling of their children, they create a conducive environment for learning, strengthen parenting and communication skills, improve their children's academic achievement and the society develops improved social values and good citizenry. Specifically, item 3 "My parents morally support my studies" ranked first with the mean of 3.35, described as Agree. Item 1 "My parents encourage me to study more in AutoCAD" ranked second with the mean of 3.26, described as Agree. As can be noticed, all the items reflect that parents are indeed involved in the studies of their children as it gives the qualitative description of Agree. Chohan, (2018) investigated the effect of parental encouragement on students' performance in school. Researchers found that when parents involved in their children's schooling, it had a favourable effect on the children's grades and self-esteem.

Teacher Factor

The average mean of 2.73, described as Agree denotes that teacher factor has also effect in their achievement. This means that the teachers being the facilitators of learning have affected the achievement of their students. Specific items such as "My teacher monitors our performance in the class" ranked first with the mean of 3.22; described as Agree. However, item 1 "My teacher demonstrates the necessary knowledge" got the lowest mean of 2.25, described as Disagree. This entails that the teacher given the subject where AutoCAD is integrated does not fully display the necessary knowledge on the subjects especially in AutoCAD. As a result, competent educators have emerged as the single most consequential influence on student success. Improvements in education and student success share a common factor: the classroom educator. Therefore, it is crucial that schools be able to recognize good educators during the recruiting process, and that schools be able to strategically select effective educators in an effort to boost student achievement Collins, (2018).

School Factor

The Table emphasizes that school factor is rated by the respondents to have low impact with the achievements of the students as evidenced in the

average mean of 2.44, described as Disagree. This implies that the school does not fully provide the teachers and students with what they need for the means of meaningful learning in AutoCAD. All of the things classified as "disagree" under the "school factor" suggest that the school does not completely provide attention, particularly with regards to the training for students and teachers regarding Auto-CAD. This argument corroborates with the item 1 under the teacher factor where the respondents expressed that the teacher does not demonstrate the necessary knowledge in AutoCAD. An effective school is related to social, academic, emotional, moral, and aesthetic development, satisfaction of teachers, effective use of sources, and accomplish-ment of goals and environmental harmony (Şişman, 2016). To this end, schools provide students with access to information across a wide range of disci-plines and the opportunity to adopt new ways of behaving. Effective schools are student-centred, teachers are always given support through in-service training programs, they foster creative problem solving, they ensure the participation of family and society, and they are supplied with opportunities that will help teachers perform their duties competently.

Attitude of the students towards AutoCAD

It can be seen in the **Table 4** that the average mean of 2.83, described as Agree emphasize that the pre-vailing attitude of the respondents is important in their quest for further learning in AutoCAD. Specifically, item 7 "I am happy whenever I learn new things related to AutoCAD" obtained the highest mean of 3.09; described as Agree. Item 6 "I am eager to learn more commands in AutoCAD" ranked second with the mean of 3.09; described as Agree. This means that when learning is mixed with eagerness and happiness create meaningful learning for students.

Table 4: Attitude of the students towards AutoCAD.

	Statements	Mean	QD
1	I am interested in AutoCAD.	2.48	Disagree
2	I am confident in using AutoCAD.	2.47	Disagree
3	I seek guidance from my teacher during AutoCAD class.	2.76	Agree
4	I always ask my teacher whenever I have clarifications in AutoCAD.	2.88	Agree
5	I am persistent to learn AutoCAD.	2.65	Agree
6	I am eager to learn more commands in AutoCAD.	3.09	Agree
7	I am happy whenever I learn new things related to AutoCAD.	3.12	Agree
8	I watch online tutorials about AutoCAD.	2.89	Agree
9	I enjoy manipulating the computer.	2.92	Agree
10	I feel so inspired attending classes in AutoCAD software.	3.08	Agree
Average Mean		**2.83**	**Agree**

Academic Achievement of students when using AutoCAD Software

The table shows the academic achievements of the students with a mean of 1.78. Based on the Student Handbook of Surigao State College of Technology, this mean got a description of highly satisfactory. This indicates that the students with positive attitude as reflected in **Table 4** in their subject with AutoCAD software provides them the motivation and enthusiasm to learn and acquire the necessary know-ledge and skills as expected outcome of the subject.

Table 5: Academic Achievement of students when using AutoCAD Software.

	Mean	Std. Dev	Description
Academic Grades	1.78	1.342	Highly Satisfactory

Significant Difference on the Factors Affecting the Students' Achievement in the AutoCAD when Grouped According to their Profile Variables

Table 6 presents the significant difference on the factors that affects the students' achievement and their attitude in AutoCAD

Table 6: Difference on the factors affecting the students' achievement in AutoCAD when grouped according to their profile variables.

Profile	Factors	F-value	p-value	Interpretation
Sex	learning style	1.455	0.230	Not significant
	parent's support	0.172	0.679	Not significant
	teacher factor	1.952	0.164	Not significant

	school factor	0.579	0.448	Not significant
Laptop Ownership	learning style	11.146	0.000	significant
	parent's support	9.792	0.000	Not significant
	teacher factor	13.133	0.000	significant
	school factor	9.006	0.021	significant
Weekly Allowance	learning style	1.287	0.279	significant
	parent's support	1.572	0.211	significant
	teacher factor	1.067	0.346	significant
	school factor	1.378	0.255	Not significant
Frequency of engaging in computer per day	learning style	8.144	0.000	significant
	parent's support	9.356	0.000	significant
	teacher factor	7.147	0.001	significant
	school factor	9.336	0.000	significant

The Table shows the significant difference between the factors which affects the students' achievement and their attitude in AutoCAD when they are grouped according to their profile. It is observed that the sex and the weekly allowances did not affect to the perception of students on factors affecting their achievement, for where the p-value obtained in the following profile are greater than 0.05 level of the significance. On the other hand, the laptop ownership, and the frequency of engaging in computer per day shows a significant difference for where their p-values are less than that of the 0.05 level of the significance. This means that the students who own laptop have more time in engaging in computer. Thus, their perception in the different factors were affected, this means that the factor that contributes to their achievement depends on how frequently they interact with computers.

Significant Relationship between the Students' Achievement and Attitude in AutoCAD

Table 7 shows the relationship between the student achievement and the attitude in AutoCAD where the obtained R-value of 0.634 suggested a strong relationship between the two and shows that the t-value of 8.644 is greater than the t-critical of 1.976. This means that the attitude of the students towards the use of AutoCAD Software affects the students' achievement. Thus, their interest and attitude in learning improved their academic achievement. The study of Sarwar, (2016) emphasized that attitude is one of the main factors which affects academic achievement of the learners. Academic achievement is the function of attitude of the students. Attitude serves as the index of how a students feel, think about studying. If these things are experienced by them, chances are, the students perform and do what they feel and think.

Table 7: Relationship between the students' achievement and attitude in AutoCAD.

Academic Achievement to Attitude	**R-value**	**t-crit.@ 0.05**	**t-value**	**Decision**
	0.634	1.976	8.644	Rejected

Summary

This study aimed to determine the factors that affects the students' attitude and achievement in AutoCAD software. Specifically, the profile of respondents according to sex, laptop ownership, per week allowance, and frequency of engaging in computer per day was determined. Moreover, the factors affecting the students' achievement in AutoCAD as to learning style, parent's support, teacher factor, and school factor; the attitude of students towards the AutoCAD software; the students' achievement when using AutoCAD; the significant difference on the factors that affects the students' achievement and their attitude in AutoCAD when they are grouped according to their profile variables, and the significant relationship between the student achievement and also the attitude in AutoCAD were also determined. Descriptive research was found appropriate and therefore used in this study. Collected data were sourced out from 160 respondents. Data gathered were analyzed with the use of frequency count and percent; weighted mean, analysis of variance (ANOVA), and Pearson moment correlation coefficient.

Findings

The findings of the study are disclosed as follows.

1) Most of the respondents are females with no laptop; a weekly allowance of Php201-500 and engaged in computer thrice a day.
2) The learning style, parents' support, and teacher factors are rated positively by the respondents while they rated negatively to school factor.

3) The attitude of the respondents towards Auto-CAD is favorable or positive.
4) The students' academic achievement when using AutoCAD software id highly satisfactory.
5) The study found out that the factors affecting the students' achievement are the frequency engaging the computer and the availability of computer especially if they own one, and having this shows a positive attitude in learning Auto-CAD.
6) The positive attitude displayed by the respondents has also affected their academic achievement.

CONCLUSION AND RECOMMENDATIONS:

This study has established the conclusions which are the respondents with no laptop and enough weekly allowance have driven them to engage computer frequently. Varied factors are to be considered in the possession of knowledge and development of skills in AutoCAD. Development of positive attitude in AutoCAD is due to fact that students nowadays are millennial that they need to catch up with need of the time which is to be literate in the computer. The academic achievement of the students could be attributed to their positive attitude and exposure to computers every day. Frequent exposure and the curiosity of the students to learn in computer has developed them in maximizing their full potentials in the class. Positive attitude demonstrated by the students has significantly helped them performed better in their subject with AutoCAD software application. Considering the findings, and conclusions of the study, this only entailed the numerical aspect of the topic. It is encouraging the other researchers to conduct a qualitative or a mixed method aspect of this problem to deepen the understanding regarding on the issues of students' achievement and the attitude towards learning AutoCAD mostly in these modern times where computer software is well-competent and established, it is where other studies will be able to find out whether students do also have other factors upon learning in 21st century era.

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CONFLICTS OF INTEREST:

The authors confirm that this study has no potential conflict in either the financial or personal stakes in the outcome of this study or in publishing this research article.

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