



A Study on Attitude Toward Computer Aided Design and Drafting (Cadd) of Engineering Students in Kattankulathur

KEYWORDS

CADD, computer aided design and drafting, attitude, level of attitude.

Dr. N. Prema

SRM, School of Teacher Education and Research, SRM University,

Abdullahi Rabiou

SRM, School of Teacher Education and Research, SRM University,

Muhammad Salisu Idris

SRM, School of Teacher Education and Research, SRM University,

ABSTRACT

Being that Computer aided design and drafting (CADD) is the backbone of designer's way of communicating their design ideas, it is very crucial to examine the Attitude level of engineering students toward the usage of CADD application software. An instrument was developed and used in carrying out this work on engineering students of SRM University Chennai India, to find out the level of their attitude toward it. The students' attitudes were found high in nature, also no significant difference with students' mode of stay, and branches was observed. But significant difference and association were observed in students' interest and having personal computer. And also most of the students have difficulty in following online video tutorials, the research shows that there is need for video tutorials makers to make it in an episodic way so that the students would be able to comprehend what they watched and be able to practice it. Lastly it was concluded that more practical time was needed to the students to improve their competency in using the CADD application software.

INTRODUCTION

Computer-aided design and drafting (CADD) is the use of computer systems to assist in the creating, modification, analyzing, and optimizing of a design. CADD software is used to enhance the productivity of the designer, meliorate the quality of design, improve communications via documentation, and to produce a database for manufacturing. CAD output is generally in the form of electronic files for print, machining, or other manufacturing functioning.

Computer-aided design is used in many fields. Its use in designing electronic design, known as electronic design automation, or **EDA**. In mechanical system it is known as mechanical design automation (**MDA**) or **computer-aided drafting (CAD)**, which includes the procedure of creating a technical drawing with the use of computer application software.

CAD can be used to make curves and figures in two-dimensional (2D) space; or curves, surfaces, and solids in three-dimensional (3D) space.

CAD is an important industrial art extensively used in many applications, including automobile, ships building, and aerospace industries, industrial, architectural design, and so on. CADD is also widely used to produce computer animation for special effects in movies, advertising and technical manuals, often called DCC digital content creation. The modern ubiquity and power of computers means that even perfume bottles and shampoo dispensers are designed using techniques unheard of by designers of the past. Because of its enormous economic importance, CAD has been a major driving force for research in computational geometry, computer graphics (both hardware and software), and discrete differential geometry.

Attitude from Simply Psychology webpage, an attitude is "a relatively enduring organization of beliefs, feelings, and behavioral tendencies toward socially significant objects, groups, events or symbols"

Attitude strength:-The strength with which an attitude is

held is often a good forecaster of behavior. The stronger the attitude the more likely it should affect behavior. Attitude strength includes:

Importance / personal relevance this means to what extent the significant is the attitude for a person and relates to self-interest, social recognition and value. If an attitude has high self-interest for a person (i.e. it is held by a group the person is a member of or would like to be a member of, and is related to a person's values), it is going to be extremely vital.

As a result, the attitude will have a very strong influence upon a person's behavior. By contrast, an attitude will not be vital to a person if it does not associate in some way to their life.

The **knowledge** view of attitude strength covers how much a person knows about the attitude object. People are generally more knowing about topics that concern them and are likely to hold strong attitudes (positive or negative) as a consequence.

Attitudes due to direct experience are more strongly held and affect behavior more than attitudes formed indirectly (for example, through hear-say, reading or watching television).

NEED AND SIGNIFICANCE OF THE STUDY

There is need to study the attitude of the Engineering students toward using CADD software applications in order to:-

- help in discovering the area in which students are having difficulties in learning and using of Computer Aided Design and Drafting (CADD) software
- suggest ways and techniques to be use in learning Computer Aided Design and Drafting (CADD) software
- suggest ways and how the video tutorials for learning CADD should be improved
- help in providing software developers with knowledge on where users are having problems so that, they can develop user friendly interfaced software

Objectives of the study: -

H1. To find out the level of attitude toward Computer Aided Design and Drafting software (CADD) of Engineering Students in SRM university.

H2.To find out the significant difference in attitude toward Computer Aided Design and Drafting software (CADD) of Engineering Students in SRM University based on

- Mode of stay
- Having personal computer
- Branch; (Architecture, Mechanical, and Civil)

3-To ascertain if there is any association exist in attitude of students in Computer Aided Design and Drafting software (CADD) with;

- Having interest in the course of study

ANALYSIS AND INTERPRETATION OF DATA

H1. *The attitude level of engineering students towards Computer Aided Design and Drafting (CADD) is high in nature*

Table 1 showing the level of attitude

Level of attitude	Score	No. of students	Percentage
Low	0 to 40	0	0%
Average	41 to 70	34	28.33%
High	71 to 100	86	71.67%

By observing the above table (1) it is seen that 0% of the population have low level of Attitude and 28.33% falls under average lastly 71.67% having higher level of attitude towards CADD. Hence forth the above hypothesis (H1) is accepted.

H-2(a):*There is no significant difference in attitude towards Computer Aided Design and Drafting (CADD) with respect to mode of stay.*

Table 2 showing the critical ratio for attitude based on mode of stay.

variable	Mode of stay	N	Mean	S.D	't' value	Remarks at 5% level of significance
Attitude	Hostel	52	74	7.34	0.949	NS
	Residence	68	75	7.30.		

The above table (2), shows the calculated value of 't' (0.949) is less than the table value (1.98) at 5% level of significance. Thus there is no significant difference in attitude of engineering and students toward CADD with respect to their mode of stay. Hence the hypothesis (H-2a) is accepted.

H-2(b):*There is no significant difference in attitude towards Computer Aided Design and Drafting (CADD) with respect to personal computer.*

Table 3 showing the critical ratio for attitude based on having personal computer.

variable	Personal computer	N	Mean	S.D	't' value	Remarks at 5% level of significance
Attitude	Yes	107	74.9	7.56	2.362	S
	No	13	74.1	4.94		

From the above table (3), shows that the calculated value of 't' (2.362) is more than the table value (1.98) at 5% level of significance. Thus there is significant difference in attitude of engineering students toward CADD with respect to

having personal computer. Hence the hypothesis (H-2b) is rejected.

H-2(c):*There is no significant difference in attitude towards Computer Aided Design and Drafting (CADD) with respect to branch based on comparison.*

Table no. 4 showing ANOVA for Attitude of the students toward CADD based on branches

sources	Sum of squares	df	Mean square	F - value	Table value	Remarks at 5% level of significance
Between	269.29	2	134.65	2.59	3.07	NS
Within	6091.89	117	52.07			

As seen in the table (4) the calculated 'F' value (2.59) is less than the table value (3.07) at 5% level of significance. Thus there is no significant difference among the Mechanical, Civil and Architecture students in attitude towards CADD. Hence the hypothesis (H-2c) is accepted.

H-3:*There is no significant association exists in attitude towards Computer Aided Design and Drafting (CADD) with student's interest in their course of study.*

Table no. 5 showing the Chi-square value for students' attitude based on student's interest

Attitude	student's interest			Chi-Square value	Remarks at 5% level of significance
	On my interest	On my parent's interest	On my peer's influence		
Low	24	9	1	15.550	S
Average	36	16	3		
High	24	6	1		
Total	84	31	5		

The above table (5), shows that the calculated chi-square value (15.550) is more than the table value (9.488) for degree of freedom 4 at 5% level of significance. Therefore, there is significant association exists in attitude of students toward CADD with respect to student's interest in chosen course. As a result of that, it is concluded that the attitude of students toward CADD is depending on student's interest. So the above hypothesis (H-3) is rejected.

DISCUSSION OF THE RESULTS

It was tentatively stated that the attitude level of engineering students toward Computer Aided Design and Drafting is high in nature, and according to the analysis carried out in the research work, shown that, out of the sample population of the students, 34 students scored average mark in the administered attitude test, while 86 of them scored high mark. So 71.67 percent of the students had high attitude level toward Computer Aided Design and Drafting CADD, this implies that the attitude level of those students is high in nature.

Another point that need to be taken into account is based on the responses showed by the used tools most of the students have difficulty in following the video tutorials in learning those CADD applications, and the reason for facing such difficulty is, when the video tutorial is so long in such a way that the students cannot comprehend what they watched at a time, this make them to become anxious in following it.

The user interface UI of some CADD applications look so complex some tools are not easy to locate and some are not easy to use, so for a students to master how to use those tools they need constant practice beyond what was

taught in their respective classes and they also need proper guidance, lack of that make the students frustrated.

Also those students that have personal computer got higher level of attitude compared with those that haven't, and significant association observed with students' interest in their course of study.

RECOMMENDATIONS

The investigator would like to recommend some of the following points with regards to students' attitude toward computer aided design and drafting.

The provision of time for students to practice CADD application software should be considered in school setting besides normal classes this will improve the level of their attitude toward using those application software.

School or college should employ the use of reward to motivate the students to learn by organizing competition each semester, this will make the students to work and spend time to learn.

Those that are making video tutorials should make it in episodic way topic by topic and step by step, this will help in simplifying the tutorial and students can follow it easily without facing difficulty which lead to anxiety or frustration.

It is also recommended that the video tutorial makers should work hand in hand with the experts (educationists) that will help them in proper planning of the content need to be taught.

Another highly important issue is, the software developers should try as much as they could to simplify the user interface of their application software, it should have nice and pleasant looking, and all the tools used in the software should have easy access, so that the application would be learner friendly.

CONCLUSIONS

This point marked the end of this study, it dealt with the introduction of study, followed by need and significance of the study, objectives of the study, data analysis and discussion of the results, then the investigator tried and brought out useful recommendations that would help in boosting the attitude of students toward CADD application software. Never the less graphical representations remain the only effective way of communication between engineers.

REFERENCE

- [1]Bozdoc Martian (2003) "The History of CAD" retrieved on October, 31, 2014, from <http://mbinfo.mbdesign.net/CAD-History.htm> | [2] SuleTasliPektas and FeyzanErkip (2006) "Attitudes of Design Students toward Computer Usage in Design" International Journal of Technology and Design Education vol. 16 p 79-95. | [3]McLeod, S. A. (2009). "Attitudes and Behavior." Retrieved on November, 2, 2014 from <http://www.simplypsychology.org/attitudes.html> | [4]R. Hanna and T. Barber (2001) "An inquiry into Computers in design attitudes before –attitudes after" See front matter Design Studies vol. 22 p 255-281. |