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Research Article

A Study On Attitude Towards Integrating Technology In Mathematics And Learning Strategies Of College Students

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ABSTRACT

Attitude towards Integrating Technology in Mathematics is the feelings or thoughts or mind sets of students or teachers on use of technologies, tools and resources for learning and teaching mathematics efficiently and it is relating to their competencies and skills in using technologies, motivation and self confidence. Positive attitude of students towards Integrating Technology in Mathematics is leading to effective use of technologies for mathematics learning and improving their learning interest and engagement and desirable learning outcomes. The findings explicate that significant difference is prevailed amid profile of Arts and Science College Students and their attitude towards Integrating Technology in Mathematics. The Attitude towards Integrating Technology in Mathematics is having significant, positive and substantial relation with Learning Strategies of Arts and Science College Students. Therefore, Arts and Science College Students must get and improve their knowledge on effective use of different Mathematical soft wares from experts and professionals. Arts and Science College Students should share their knowledge on Integrating Technology in Mathematics Learning among them to enhance their Attitude towards Integrating Technology in Mathematics. Arts and Science College Students must exhibit higher personal interest and educate themselves by attending seminars and trainings on Integration of Technology in Mathematics to improve their attitude towards Integrating Technology in Mathematics. Arts and Science College Students should actively involve in use of different technologies for learning Mathematics to increase their attitude of Integrating Technology in Mathematics. Arts and Science College Students must improve their attitude towards Integrating Technology in Mathematics by means of discussion with experts and training programmes. Faculty Members of Arts and Science Colleges should provide information relating to websites and technologies to their Students for enhancing their attitude towards Integrating Technology in Mathematics and in turn they will improve Learning Strategies of Arts and Science College Students.

Keywords: Arts and Science College Students, Attitude, Learning Strategies, Mathematics, Technology Integration

1. INTRODUCTION.

Technologies have transformed the education sector across the world and instructional practices are also completely changed and they are highly interactive and student oriented and desirably productive (Lin et al 2017), since they are giving different techniques tools that are utilized efficiently in teaching and learning activities and they are helping in creating pro active classroom atmosphere (Jogezai et al 2018). Technology integration is the use of different technologies for improving and supporting the learning atmospheres and it is the supporting classroom instruction through generating opportunities for students to successfully complete their academic activities with the use of information and communication technologies.
Technology integration is also referring to the effective use of technological platforms, tools and resources for improving learning and teaching activities. Instructional practices integrated with technology are improving

the quality of teaching and learning and are also enabling students to enhance their knowledge skills, motivation, creativity, critical thinking skills and processing of information effectively (Afridi and Chaudhry, 2019).
Technology integrated learning and teaching is highly flexible, convenient (Xu et al 2021) and accessible to learning opportunities as an alternative to conventional instruction methods (Akram et al 2021) and they are also increasing cognitive understanding and learning achievements of students (Liu et al 2022) and they make students to connect with their peer groups and teachers. Integration of technology is also increasing productivity of teachers and students and their critical and innovative thinking. Besides, technologies, various new teaching and learning methods are used by teachers and students for their educational purposes.
Attitude towards Integrating Technology in Mathematics is the feelings or thoughts or mind sets of students or teachers on use of technologies, tools and resources for learning and teaching mathematics efficiently (Deringol et al 2021) and it is relating to their competencies and skills in using technologies, motivation and self confidence (Guner, 2012). Students with higher degree of motivation is showing greater interest and engaging in learning and solving mathematics by using different technologies. Students with higher confidence in using computers are able to efficiently learning mathematics. Positive Attitude of students towards integrating technology in Mathematics is leading to effective use of technologies for mathematics learning and improving their learning interest and engagement and desirable learning outcomes (Mohamed and Waheed, 2011) and it is also linked with learning strategies of college students. Hence, it is important to study about the attitude of integrating technology in Mathematics and learning strategies of College Students

2. REVIEW OF RELATED STUDIES

Saraswathy (2021) showed that college mathematics students had moderate degree of attitude towards integrating technology in mathematics and it was significantly differing among their gender and locality and it had positive and significant relation with their learning strategies and styles.
Andrew et al (2018) concluded that university students had moderate degree of attitude towards technology integration in learning and it had improved their learning.
Mahajan (2016) indicated that secondary school teachers high moderate level of attitude towards the use of technology in teaching and it was not varying among their gender and teaching experience.

3. OBJECTIVES OF THE STUDY

1. To study the difference amid attitude towards integrating technology in Mathematics and gender, age and discipline of Arts and Science College Students.
2. To examine the difference amid Attitude towards Integrating Technology in Mathematics and medium of instruction, type of college and locality of college of Arts and Science College Students.
3. To analyze the relation amid Attitude towards Integrating Technology in Mathematics and Learning Strategies of Arts and Science College Students.

4. HYPOTHESES OF THE STUDY

1. There is no significant difference amid Attitude towards Integrating Technology in Mathematics and gender, age and discipline of Arts and Science College Students.
2. There is no significant difference amid Attitude towards Integrating Technology in Mathematics and medium of instruction, type of college and locality of college of Arts and Science College Students.
3. There is no significant relation amid Attitude towards Integrating Technology in Mathematics and Learning Strategies of Arts and Science College Students.

5. RESEARCH METHODOLOGY

Krishnagiri District in Tamil Nadu stateis chosen for carrying out the current study. Arts and Science College Students are selected by employing random sampling method and data are gathered from 930 Arts and Science College Students by using structured questionnaire. Attitude towards Integrating Technology in Mathematics Scale (ATITMS) and Learning Strategies Scale (LSS) designed and validated by the Investigator (**R.Rajini**) and Research Supervisor (**Dr. V. Sharmila**) in the year 2023 are used in the study. Percentages, t and ANOVA tests and correlation analysis are used to study objectives and test hypothesis.

6. RESULTS

6.1. PROFILE OF ARTS AND SCIENCE COLLEGE STUDENTS

The profile of Arts and Science College Students is shown in Table-1.

Table-1. Profile of Arts and Science College Students

Profile	Frequency(n=930)	%
Gender		
Male	536	57.63
Female	394	42.37
Age		
18 – 19 Years	332	35.70
20 – 21 Years	417	44.84
22 – 23 Years	181	19.46
Discipline		
Mathematics	513	55.16
Physics	201	21.61
Chemistry	216	23.23
Medium of Instruction		
Tamil	329	35.38
English	601	64.62
Type of College		
Government	420	45.16
Self-Finance	510	54.84
Locality of College		
Urban	564	60.65
Rural	366	39.35

The results show that 57.63% of Arts and Science College Students are males, whilst, 42.37% of them are females, 44.84% of them are in 20 – 21 years of age, whilst, 19.46% of them are in 22 – 23 years of age and 55.16% of them are belonging to Mathematics, whilst, 21.61% of them are belonging to Physics disciplines.
The results also indicate that 64.62% of them are in English medium, whilst, 35.38% of them are in Tamil medium, 54.84% of them are studying in self finance, whilst, 45.16% of them are studying in Government college and 60.65% of them are studying in colleges located in urban area, whist, 39.35% of them are studying in colleges located in rural area.

6.2. PROFILE OF ARTS AND SCIENCE COLLEGE STUDENTS ANDATTITUDE TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS

The difference amid profile of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematic is shown as below.

6.2.1. Gender and Attitude towards Integrating Technology in Mathematics

The difference amid gender of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics is shown in Table-2.

Table-2. Gender and Attitude towards Integrating Technology in Mathematics

Gender	N	Mean	SD	t-value	Level of Significance
Male	536	168.48	16.70	12.931	0.01
Female	394	154.08	16.91		

Male Arts and Science College Students (Mean=168.48) are having higher degree of Attitude towards Integrating Technology in Mathematics than Female (Mean=154.08). The t-value of 12.931 demonstrates that significant difference is found amid gender of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics in 1% level.

6.2.2. Age and Attitude towards Integrating Technology in Mathematics

The difference amid age of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics is shown in Table-3.

Table - 3. Age and Attitude towards Integrating Technology in Mathematics

Age	N	Mean	SD	F-value	Level of Significance
18 – 19 Years	332	162.24	17.87	10.606	0.01
20 – 21 Years	417	164.70	18.62		
22 – 23 Years	181	157.30	16.99		

Arts and Science College Students in 20 – 21 Years of Age (Mean=164.70) are having higher degree of Attitude towards Integrating Technology in Mathematics than 18 – 19 Years (Mean=162.24) and 22 – 23 Years (Mean=157.30) of Ages. The F-value of 10.606 demonstrates that significant difference is found amid age of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics in 1% level.

6.2.3. Discipline and Attitude towards Integrating Technology in Mathematics

The difference amid discipline of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics is shown in Table-4.

Table-4. Discipline and Attitude towards Integrating Technology in Mathematics

Discipline	N	Mean	SD	F-value	Level of Significance
Mathematics	513	165.69	18.24	25.001	0.01
Physics	201	155.41	17.42		
Chemistry	216	161.00	16.98		

Arts and Science College Students studying in Mathematics Discipline (Mean=165.69) are having higher degree of Attitude towards Integrating Technology in Mathematics than Chemistry (Mean=161.00) and Physics (Mean=155.41) Disciplines. The F-value of 25.001 demonstrates that significant difference is found amid discipline of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics in 1% level.

6.2.4. Medium of Instruction and Attitude towards Integrating Technology in Mathematics

The difference amid medium of instruction of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics is shown in Table-5.

Table-5. Medium of Instruction and Attitude towards Integrating Technology in Mathematics

Medium of Instruction	N	Mean	SD	t-value	Level of Significance
Tamil	329	164.26	19.09	2.331	0.05
English	601	161.35	17.67		

Arts and Science College Students studying in Tamil Medium (Mean=164.26) are having higher degree of Attitude towards Integrating Technology in Mathematics than English Medium (Mean=161.35). The t-value of 2.331 demonstrates that significant difference is found amid medium of instruction of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics in 5% level.

6.2.5. Type of College and Attitude towards Integrating Technology in Mathematics

The difference amid type of college of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics is shown in Table-6.

Table-6. Type of College and Attitude towards Integrating Technology in Mathematics

Type of College	N	Mean	SD	t-value	Level of Significance
Government	420	164.51	17.94	3.246	0.01
Self-Finance	510	160.63	18.30		

Arts and Science College Students studying in Government Colleges (Mean=164.51) are having higher degree of Attitude towards Integrating Technology in Mathematics than Self-Finance Colleges (Mean=160.63). The t-value of 3.246 demonstrates that significant difference is found amid type of college of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics in 1% level.

6.2.6. Locality of College and Attitude towards Integrating Technology in Mathematics

The difference amid locality of college of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics is shown in Table-7.

Table-7. Locality of College and Attitude towards Integrating Technology in Mathematics

Locality of College	N	Mean	SD	t-value	Level of Significance
Urban	564	166.61	17.56	9.161	0.01
Rural	366	155.87	17.33		

Arts and Science College Students studying in Urban Colleges (Mean=166.61) are having higher degree of Attitude towards Integrating Technology in Mathematics than Rural Colleges (Mean=155.87). The t-value of 9.161 demonstrates that significant difference is found amid locality of college of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics in 1% level.

6.3. RELATION AMID ATTITUDE TOWARDS INTEGRATING TECHNOLOGY IN MATHEMATICS AND LEARNING STRATEGIES ARTS AND SCIENCE COLLEGE STUDENTS

The relation amid Attitude towards Integrating Technology in Mathematics and Learning Strategies of Arts and Science College Students was studied by employing correlation analysis and the result is shown in Table-8.

Table-8. Attitude towards Integrating Technology in Mathematics and Learning Strategies of Arts and Science College Students

Particulars	Correlation Coefficient
Attitude towards Integrating Technology in Mathematics and Learning Strategies of Arts and Science College Students	0.447**

** Significance in 1% level

The coefficient of correlation amid Attitude towards Integrating Technology in Mathematics and Learning Strategies of Arts and Science College Students is 0.447 and it explains that they have significant, positive and substantial relation among them.

7. CONCLUSION

The outcomes of this study reveal that significant difference is prevailed amid profile of Arts and Science College Students and their Attitude towards Integrating Technology in Mathematics. The Attitude towards Integrating Technology in Mathematicsis having significant, positive and substantial relation with Learning Strategies of Arts and Science College Students. Therefore, Arts and Science College Students must get and improve their knowledge on effective use of different Mathematical soft wares from experts and professionals. Arts and Science College Students should share their knowledge on Integrating Technology in Mathematics Learning among them to enhance their Attitude towards Integrating Technology in Mathematics. Arts and Science College Students must exhibit higher personal interest and educate themselves by attending seminars and trainings on Integration of Technology in Mathematics to improve their Attitude towards Integrating Technology in Mathematics. Arts and Science College Students should actively involve in use of different technologies for learning Mathematics to increase their Attitude towards Integrating Technology in Mathematics. Arts and Science College Students must improve their Attitude towards Integrating Technology in Mathematics by means of discussion with experts and training programmes. Faculty Members of Arts and Science Colleges should provide information relating to websites and technologies to their Students for enhancing their Attitude towards Integrating Technology in Mathematics and in turn they will improve Learning Strategies of Arts and Science College Students.

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