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Demographic Variations in Attitude towards E-learning Among Senior Secondary School Students

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Abstract:

Purpose of the research was to study demographic variations in attitude towards E-Learning among senior secondary school students. A survey design was employed. The data collected from two senior secondary schools in Bangalore City. The sample consisted of 140 senior secondary school students. The study used Dimpal Rani's developed and standardised attitude towards e-learning to collect data. An independent sample t-test was used to analysis the gathered data. The study revealed that a significant effect of stream, class, and gender on the attitude towards E-learning of senior secondary school students.

Keywords: *E-learning, Attitude, Senior Secondary School, Attitude towards E-learning.*

Introduction

Present education is characterized by both face-to-face instruction and computer-based learning. The use of computer technology and the internet for learning has become increasingly common in recent times. In this context, the most familiar term used is e-learning. This refers to the use of electronic technologies to access educational curriculum outside of a traditional classroom. This can happen in a variety of ways, such as through the internet, intranets, or even offline digital media like CDs and DVDs (Teachers Institute, 2023). Moreover, e-learning lectures are often delivered live, enabling students to interact with teachers and clarify their doubts (Teachmint, n.d.).

At present, students at all levels of education increasingly rely on e-learning, as it provides access to learning resources from across the world. Particularly at the senior secondary school level, students show interest in joining e-learning platforms developed by various stakeholders, including both government and private providers. Government

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initiatives such as DIKSHA, SWAYAM, e-Pathshala (NCERT), and NROER play a significant role in this regard, while private platforms like BYJU'S, Unacademy, Vedantu, Toppr, Khan Academy, and Physics Wallah also contribute substantially. Secondary and senior secondary school students benefit from these platforms according to their academic requirements.

Pertaining to the benefits of e-learning, Perez-Cereijo (2006) proposes that students' attitudes towards e-learning provide a beneficial construct for predicting learning outcomes (as cited by Rani). Thus, students' attitudes towards e-learning play an important role in enhancing their academic performance. In this context, the present study was undertaken to examine the attitude of senior secondary school students towards e-learning in relation to selected demographic variables.

Review of Related Literature

Bala and Kalra, (n.d) conducted a descriptive method of research to study the attitude of senior secondary school students towards e-learning. The findings of the study revealed that there was no significance difference between the attitude of male and female senior secondary school students towards E-Learning in Sirsa city. Kumari and Singh, (2020) concocted investigation method to study the awareness and attitude towards use of e-learning resources among higher secondary students. The study found that there was no significant difference between awareness of students towards use of e-learning resource in biology based on their gender, type of school board (CBSE/ICSE) and relationship between awareness and attitude towards e-learning of biology in second secondary students. Alsahou, Abbas, and Alfayly, (2022) conducted a study on the attitude of undergraduates towards e-learning considering educational and technical challenges and requirements in Kuwaiti applied colleges. The study revealed that, students held neutral attitudes towards e-learning, while the educational and technical challenges are high concerns. Talluri, (2023) conducted a study on attitude towards e-learning among the B.Ed student teachers. The study exhibited that there is a significant difference between attitudes of B.Ed student teachers according to their gender, locality, stream and experience. Nasrin and Biswas, (2024) carried out qualitative study on Attitude of senior secondary schools towards toward e-learning. The study showed that students had low level attitude towards e-learning and its component. Ishita and Joshi, (2025) applied descriptive survey method to explore the Attitude towards e-learning in moocs: A comparative study of teacher educators and prospective teachers. The study found that, there was no significant difference between the attitudes of teacher educators and Prospective teachers' attitudes towards E-learning in MOOCs.

From the review of related literature, it was observed that both qualitative and

quantitative studies have been conducted separately on the attitude towards e-learning among secondary school, B.Ed teacher trainees and graduate students. However, limited studies have focused on senior secondary school students with respect to the variables selected in the present study. Therefore, the present study examines the attitude towards e-learning among senior secondary school students with reference to demographic variables such as stream, class, and gender.

Statement of Problem:

Demographic Variations in Attitude towards E-learning among Senior Secondary School Students. The study investigated any senior secondary school students' attitudes towards e-learning and its dimensions differed by stream (Science/Commerce), class (I Year/II Year), and gender (Boys/Girls).

Objectives of the Study

1. To determine whether senior secondary school students' attitudes towards e-learning and its dimensions differ based on their stream.
2. To determine whether senior secondary school students' attitudes towards e-learning differ based on their class.
3. To determine whether senior secondary school students' attitudes towards e-learning differ based on their gender.

Hypotheses of the Study

1. Science and commerce senior secondary school students do not differ significantly in their attitude towards E-learning and its dimensions.
2. I Year and II Year senior secondary school students do not differ significantly in their attitude towards E-learning and its dimensions.
3. Boys and Girls senior secondary school students do not differ significantly in their attitude towards E-learning and its dimensions.

Research Design

A survey design was employed in the research. The goal of the study was to determine the current state of secondary school attitudes towards e-learning and its dimensions based on democratic variance. The study investigated the differences in senior secondary school students' attitudes towards e-learning by determining the stream, class, and gender background.

Sample of the Study

The data collected from two senior secondary schools in Bangalore City. The sample consisted of 140 students. The sample is broken down by gender, class, and stream. There are 80 pupils from the science stream and 60 from the commerce stream; there are 70 students from each of the I and II year classes; there are 73 boys and 67 girls.

Tool Used in the Study

The study used Dimpal Rani's developed and standardised attitude towards e-learning to collect data. E-learning Interest (13 items), Usefulness (26 items), Ease of E-Learning (156 elements), and E-Learning Confidence (11 items) are the four dimensions of the 65-

item measure attitude. The five-point rating system is used to gauge attitudes on e-learning. i.e., Agree strongly to Strongly disagree.

Statistical Techniques Used in the Study

An independent sample t-test was used to examine the gathered data, which were also displayed graphically.

Analysis and Interpretation of Data

Hypothesis-1: Science and commerce senior secondary school students do not differ significantly in their attitude towards E-learning and its dimensions.

Table-1: Independent Sample *t*-test Results for Attitude towards E-learning and its Dimensions with respect to Stream

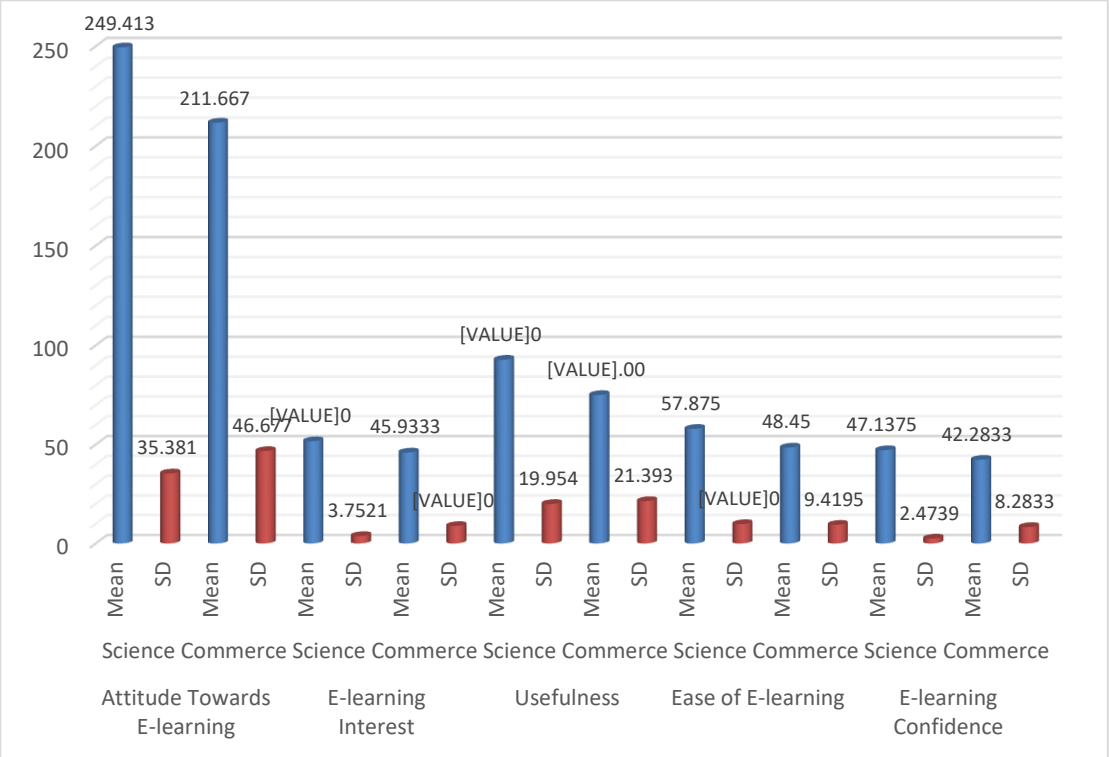
Attitude Towards E-Learning	Stream	N	Mean	SD	t-value	p-value	S/NS
Attitude towards e-learning	Science	80	249.413	35.381	5.444	.001	S (p<.05)
	Commerce	60	211.667	46.677			
E-learning Interest	Science	80	51.650	3.7521	5.208	.001	S (p<.05)
	Commerce	60	45.9333	8.820			
Usefulness	Science	80	92.750	19.954	5.049	.001	S (p<.05)
	Commerce	60	75.000	21.393			
Ease of E-learning	Science	80	57.875	9.770	5.736	.001	S (p<.05)
	Commerce	60	48.450	9.4195			
E-learning confidence	Science	80	47.1375	2.4739	4.960	.001	S (p<.05)
	Commerce	60	42.2833	8.2833			

The above table presents the comparison of attitude towards E-learning of science and commerce senior secondary school students. With respect to the overall attitude towards E-learning, the mean score of science students (M = 249.413, SD = 35.381) is higher than that of commerce students (M = 211.667, SD = 46.677). The obtained t-value is 5.444 with a p-value of .001, which is less than the .05 level of significance. Hence, the null hypothesis is rejected, indicating a significant difference in the overall attitude towards E-learning between science and commerce students, with science students showing a higher attitude.

Regarding the E-learning Interest dimension, the mean score of science students (M = 51.650, SD = 3.7521) is higher than that of commerce students (M = 45.9333, SD = 8.820). The obtained t-value (5.208) with a p-value of .001 indicates a statistically significant difference at the .05 level, showing that science students possess higher interest in E-learning than commerce students. In the Usefulness dimension, the mean score of science students (M = 92.750, SD = 19.954) is greater than that of commerce

students (M = 75.000, SD = 21.393). The t-value (5.049) and p-value (.001) reveal a significant difference, indicating that science students perceive E-learning as more useful compared to commerce students.

With respect to the Ease of E-learning dimension, science students obtained a higher mean score (M = 57.875, SD = 9.770) than commerce students (M = 48.450, SD = 9.4195). The calculated t-value (5.736) and p-value (.001) show a significant difference, suggesting that science students find E-learning easier to use than commerce students. Finally, in the E-learning Confidence dimension, the mean score of science students (M = 47.1375, SD = 2.4739) is higher than that of commerce students (M = 42.2833, SD = 8.2833). The obtained t-value (4.960) with a p-value of .001 indicates a statistically significant difference at the .05 level, revealing that science students have higher confidence in using E-learning than commerce students. Overall, the results clearly indicate that science senior secondary school students exhibit a significantly higher attitude towards E-learning and all its dimensions compared to commerce students.



Graph-1: Independent Sample *t*-test Results for Attitude towards E-learning and its Dimensions with respect to Stream

Hypothesis-2: I Year and II Year senior secondary school students do not differ significantly in their attitude towards E-learning and its dimensions.

Table-2: Independent Sample *t*-test Results for Attitude towards E-learning and its Dimensions with respect to Class

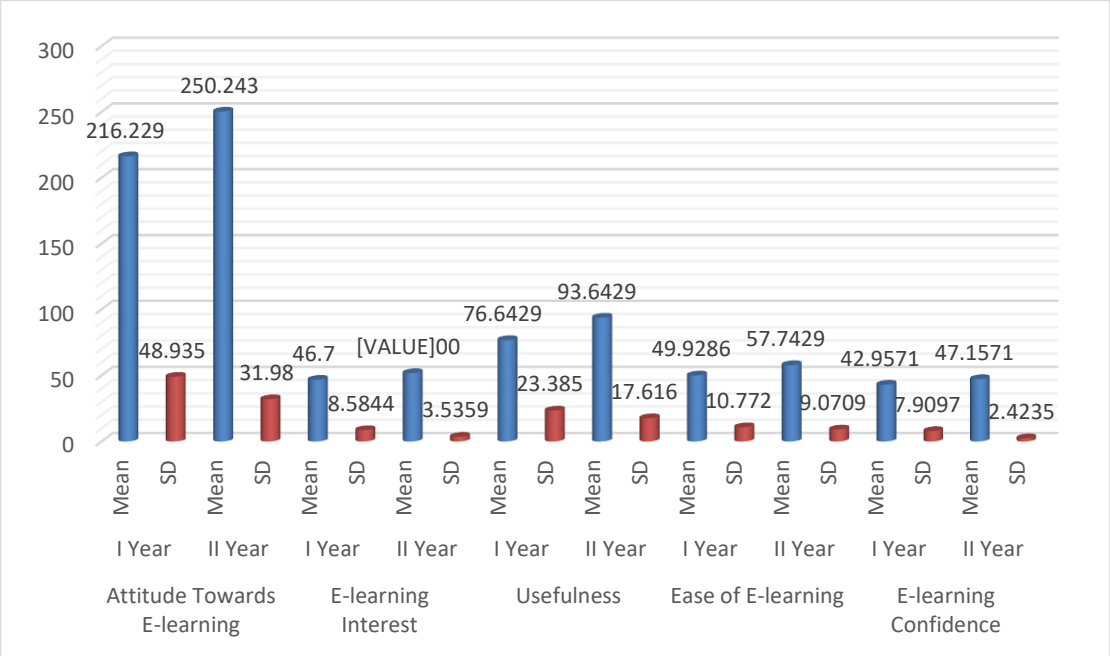
Attitude Towards E-Learning	Class	N	Mean	SD	t-value	p-value	S/NS
Attitude towards e-learning	I Year	70	216.229	48.935	4.868	.001	S (p<.05)
	II Year	70	250.243	31.980			
E-learning Interest	I Year	70	46.700	8.5844	4.506	.001	S (p<.05)
	II Year	70	51.700	3.5359			
Usefulness	I Year	70	76.6429	23.385	4.858	.001	S (p<.05)
	II Year	70	93.6429	17.616			
Ease of E-learning	I Year	70	49.9286	10.772	4.643	.001	S (p<.05)
	II Year	70	57.7429	9.0709			
E-learning confidence	I Year	70	42.9571	7.9097	4.247	.001	S (p<.05)
	II Year	70	47.1571	2.4235			

The above table presents the comparison of attitude towards E-learning of I Year and II Year senior secondary school students. With respect to the overall attitude towards E-learning, the mean score of II Year students (M = 250.243, SD = 31.980) is higher than that of I Year students (M = 216.229, SD = 48.935). The obtained *t*-value is 4.868 with a *p*-value of .001, which is less than the .05 level of significance. Hence, the null hypothesis is rejected, indicating a significant difference in the overall attitude towards E-learning between I Year and II Year students, with II Year students showing a higher attitude.

Regarding the E-learning Interest dimension, the mean score of II Year students (M = 51.700, SD = 3.5359) is higher than that of I Year students (M = 46.700, SD = 8.5844). The obtained *t*-value (4.506) with a *p*-value of .001 indicates a statistically significant difference at the .05 level, showing that II Year students possess higher interest in E-learning than I Year students. In the Usefulness dimension, the mean score of II Year students (M = 93.6429, SD = 17.616) is greater than that of I Year students (M = 76.6429, SD = 23.385). The *t*-value (4.858) and *p*-value (.001) reveal a significant difference, indicating that II

Year students perceive E-learning as more useful compared to I Year students.

With respect to the Ease of E-learning dimension, II Year students obtained a higher mean score (M = 57.7429, SD = 9.0709) than I Year students (M = 49.9286, SD = 10.772). The calculated *t*-value (4.643) and *p*-value (.001) show a significant difference, suggesting that II Year students find E-learning easier to use than I Year students. 0Finally, in the E-learning Confidence dimension, the mean score of II Year students (M = 47.1571, SD = 2.4235) is higher than that of I Year students (M = 42.9571, SD = 7.9097). The obtained *t*-value (4.247) with a *p*-value of .001 indicates a statistically significant difference at the .05 level, revealing that II Year students have higher confidence in using E-learning than I Year students. Overall, the results clearly indicate that II Year senior secondary school students exhibit a significantly higher attitude towards E-learning and all its dimensions compared to I Year students.



Graph-2: Independent Sample *t*-test Results for Attitude towards E-learning and its Dimensions with respect to Class

Hypothesis-3: Boys and Girls senior secondary school students do not differ significantly in their attitude towards E-learning and its dimensions.

Table-3: Independent Sample *t*-test Results for Attitude towards E-learning and its Dimensions with respect to Gender

Attitude Towards E-Learning	Gender	N	Mean	SD	t-value	p-value	S/NS
Attitude towards e-learning	Boys	73	222.343	44.890	3.110	.002	S (p<.05)
	Girls	67	245.105	41.395			
E-learning Interest	Boys	73	47.9589	7.5947	2.219	.028	S (p<.05)
	Girls	67	50.5522	6.0735			
Usefulness	Boys	73	79.1644	21.918	3.434	.001	S (p<.05)
	Girls	67	91.6567	21.040			
Ease of E-learning	Boys	73	51.2329	10.150	3.105	.002	S (p<.05)
	Girls	67	56.6716	10.568			
E-learning confidence	Boys	73	43.9863	6.7792	2.162	.032	S (p<.05)
	Girls	67	46.2239	5.3024			

The above table presents the comparison of attitude towards E-learning of boys and girls senior secondary school students. With respect to the overall attitude towards E-learning, the mean score of girls (M = 245.105, SD = 41.395) is higher than that of boys (M = 222.343, SD = 44.890). The obtained *t*-value is 3.110 with a *p*-value of .002, which is less than the .05 level of significance. Hence, the null hypothesis is rejected, indicating a significant difference in the overall attitude towards E-learning between boys and girls, with girls showing a higher attitude.

Regarding the E-learning Interest dimension, the mean score of girls (M = 50.5522, SD = 6.0735) is higher than that of boys (M = 47.9589, SD = 7.5947). The obtained *t*-value (2.219) with a *p*-value of .028 indicates a statistically significant difference at the .05 level, showing that girls possess higher interest in E-learning than boys.

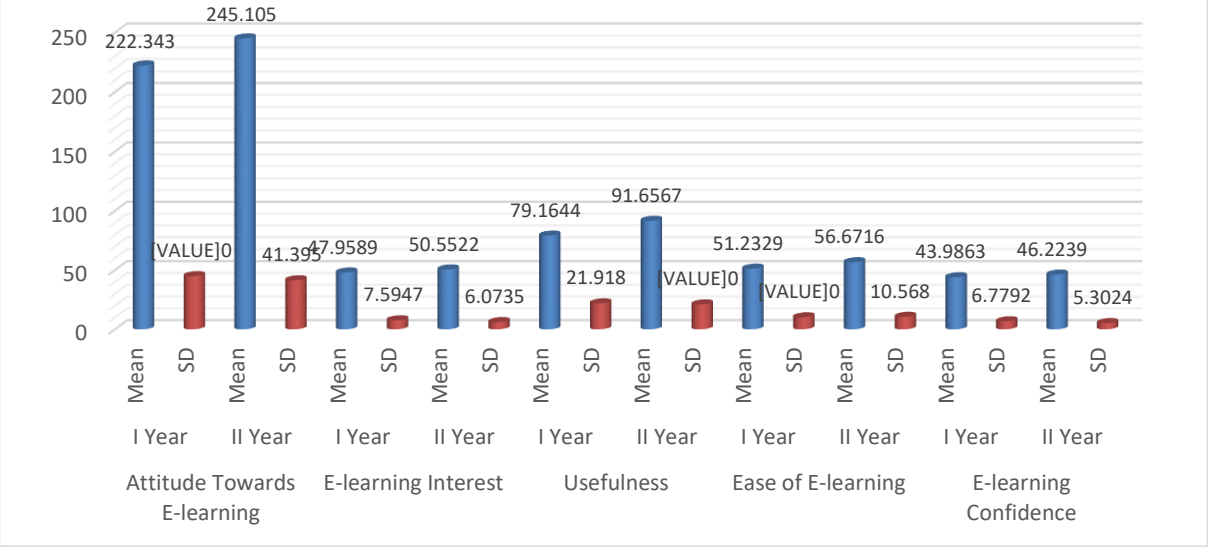
In the Usefulness dimension, the mean score of girls (M = 91.6567, SD = 21.040) is greater than that of boys (M = 79.1644, SD = 21.918). The *t*-value (3.434) and *p*-value (.001) reveal a significant difference, indicating that girls perceive E-learning as more useful compared to boys.

With respect to the Ease of E-learning dimension, girls obtained a higher mean score (M = 56.6716, SD = 10.568) than boys (M = 51.2329, SD = 10.150). The calculated *t*-value (3.105) and *p*-value (.002) show a significant difference,

suggesting that girls find E-learning easier to use than boys.

Finally, in the E-learning Confidence dimension, the mean score of girls (M = 46.2239, SD = 5.3024) is higher than that of boys (M = 43.9863, SD = 6.7792). The obtained *t*-value (2.162) with a *p*-value of .032 indicates a statistically significant difference at the .05 level, revealing that girls have higher confidence in using E-learning than boys.

Overall, the results clearly indicate that girls senior secondary school students exhibit a significantly higher attitude towards E-learning and all its dimensions compared to boys.



Graph-3: Independent Sample *t*-test Results for Attitude towards E-learning and its Dimensions with respect to Gender

Major Finding of the study

A significant difference exists in the overall attitude towards E-learning between science and commerce senior secondary school students (t = 5.444, p < .05), showing that science students possess a higher E-learning attitude than commerce students. Further, significant differences are found in E-learning Interest (t = 5.208, p < .05), Usefulness (t = 5.049, p < .05), Ease of E-learning (t = 5.736, p < .05), and E-learning Confidence (t = 4.960, p < .05), in favour of science students. Similarly, a significant difference exists in the overall attitude towards E-learning between I Year and II Year senior secondary school students (t = 4.868, p < .05), showing that II Year students possess a higher E-learning attitude than I Year students. Further, significant differences are found in E-learning Interest (t = 4.506, p < .05), Usefulness (t = 4.858, p < .05), Ease of E-learning (t = 4.643, p < .05), and E-

learning Confidence ($t = 4.247$, $p < .05$), in favour of II Year students. Likewise, a significant difference exists in the overall attitude towards E-learning between boys and girls senior secondary school students ($t = 3.110$, $p < .05$), showing that girls possess a higher E-learning attitude than boys. Further, significant differences are found in E-learning Interest ($t = 2.219$, $p < .05$), Usefulness ($t = 3.434$, $p < .05$), Ease of E-learning ($t = 3.105$, $p < .05$), and E-learning Confidence ($t = 2.162$, $p < .05$), in favour of girls.

Conclusion and Discussion:

The findings of the independent sample *t*-test indicated that science and commerce, I Year and II Year, and boys and girls senior secondary school students differ significantly in their attitude towards E-learning and its dimensions. The comparison of mean scores revealed that science students possessed a higher attitude towards E-learning and its dimensions compared to commerce students, II Year students possessed a higher attitude compared to I Year students, and girls possessed a higher attitude towards E-learning and its dimensions compared to boys. Thus, the study observed a significant effect of stream, class, and gender on the attitude towards E-learning of senior secondary school students.

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