A Survey on the Effectiveness of Digital Divide among School-Going Students in Salem District

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Abstract

Information and Communication Technology (ICT) is the infrastructure and components that help enable modern computing systems. This technology consists of both the internet and mobile devices, which are connected by wireless networks. It also includes all the obsolete technologies, such as landline telephones, television, and radio. These technologies are widely used all over the world. In addition, cutting-edge technologies such as Artificial Intelligence (AI) and robotics are advancements in Information and Communication Technology (ICT). This investigation aims to study the effectiveness of the digital divide used by higher secondary school students. The survey method is used to collect the data. The data was collected through a questionnaire. The study concluded that the majority of the respondents' opinions that digital divides are very useful for education.

Keywords
Digital Divide; Information and Communication Technology; School Students; Survey,

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INTRODUCTION

Information communication technology also contributes greatly to the education system. It improves the way in which educational institutes provide a better educational environment with the use of tablets, computers, data displays, interactive electronic boards, and others in the process of communicating information.
The digital divide is a term that refers to the gap between demographics and regions that have access to modern Information and Communication Technology (ICT), and those that don't have restricted access. This technology can include telephone, television, personal computers and internet connectivity.

PRESENT SCENARIO (AFTER COVID-19)

After the Covid-19 pandemic, people began to use e-resources and e-gadgets widely. Doctors and librarians served as front-line warriors during that time. Without the help of librarians, the researcher could not get the latest knowledge. During the pandemic period, classes were conducted through various online platforms to spread quality information to all students. The findings of this study reveal the extent to which digital divides are known and used among higher secondary schools in Salem District. In 2021, the digital divide will still be one of the major roadblocks to people getting COVID-19 vaccines in many rural and mountainous zones worldwide. In countries that lack the necessary infrastructure and last-mile technology to provide individual homes and small businesses with high-speed internet, the digital divide is even greater outside of school.

REVIEW OF LITERATURE

Hoyos Muñoz, J. A., & Cardona Valencia, D. (2023) explored the digital divide and its impact on education in India. Access to Information and Communication Technologies (ICTs) is a fundamental right, but there is a gap between those who have access and those who do not, leading to social exclusion. The COVID-19 pandemic has exacerbated this disparity, making digital inclusion a strategy to close technical and social gaps. Mathrani, S., Sarvesh, & Umer (2022) discussed the digital divide framework for online learning in developing countries during the COVID-19 lockdown. They found structural issues due to limited digital media access and supporting services, and female students

were more often placed lower on the access scale. Their framework can inform policymakers to plan initiatives to bridge the digital divide and establish equitable gendered learning policies.

Sivasubramanian, G., Gomathi, P., & Packiyaraj (2021) evaluated the use of mobile apps to enhance learning among research scholars at Periyar University. Surveys showed that 102 respondents filled out and returned surveys, suggesting that understudents should manage their time effectively and advance their learning process. Shyamal Choudhury and BidyutJyoti Dev Sarma (2020) discussed the digital divide and educational equity in India, highlighting the increasing use of digital devices and the Covid-19 pandemic. They provided an overview of the current status of the digital divide in India, its causes and problems, and initiatives taken by the government to bridge the gaps.

Objectives of the Study

1. To identify the level of usage of the digital divide
2. To find out the benefits of the digital divide
3. To evaluate user satisfaction by using the digital divide for educational purposes
4. To analyze the usage of social media
5. To find out the problems faced while using the digital divide

HYPOTHESES

- H_0: There is no significant difference between the use of a digital device and the location of the respondents.
- H_0: There is no significant relationship between the age of the respondents and the problems faced while using the digital device.
- H_0: There is no significant relationship between the age of the respondents and the satisfaction level with digital devices.

Data Collections

The study uses a primary data collection method, which means that the data was collected specifically for the study rather than relying on pre-existing data. A well-structured questionnaire was prepared, and 410 questionnaires were distributed to the students of government boys' higher secondary schools in Salem District. 392 filled-out questionnaires were received back from the respondents. The overall response rate was 95.6% and the study was based on a random sampling method. The study used a random sampling method, which meant that each member of the population had an equal chance of being selected to participate in the study. The study focused specifically on students of Government Boys' Higher Secondary Schools in Salem District, which means that the results may not be generalizable to other populations.

DATA ANALYSIS AND INTERPRETATION

Table 1: Age-wise respondents

S.no	Age	Total	Percentage
1	17	265	67.6
2	18	127	32.4
	Total	**392**	**100.0**

Table 1 shows the frequency and percentage of respondents in two age groups, 17 and 18. Out of which, 67.6% were 17 years old, and 32.4% were 18 years old. This indicates that the majority of the respondents were 17 years old.

H_0 : There is no significant relationship between the Age of the respondents and the satisfaction level of digital devices.

S. No	Age	N	Mean	Std. Deviation	t-value	Sig	Relation
1	**17 years**	265	1.8189	1.4266	-8.915	0.00	Rejected
2	**18 years**	127	2.9055	.9548			

The table presents the results of a hypothesis test that examines the relationship between the age of respondents and their satisfaction level with digital devices. Based on the results, the mean satisfaction level for "17 years" respondents is 1.8189, with a standard deviation of 1.4266. The t-value is -8.915, and the significance (Sig) is 0.00, indicating that the relationship between age and satisfaction level is statistically significant. Additionally, the relationship is rejected, as the Sig value is less than the usual significance level of 0.05, suggesting that there is a significant difference in satisfaction levels between respondents who are 17 years old and those who are 18 years old. There is a statistically significant relationship between age and satisfaction level

with digital devices, with a significant difference observed between the "17 years" and "18 years" age groups.

Table 2: School-wise respondents

S.no	Place	Total	Percentage
1	Governmentboy'shigher Secondary school, Ellampillai, Salem.	203	51.78
2	Governmentboy'shigher Secondary school, Gugai, Salem.	189	48.21
Total		392	100.0

Table 2 shows the frequency and percentage of respondents who belong to two different places, Ellampillai and Gugai, from a total sample of 392 respondents. 51.78% of respondents belong to Ellampillai, while 48.21% belong to Gugai. This indicates that the majority of the respondents were from Ellampillai.

Table 3: Course-wise respondents

S.no	Course	Total	Percentage
1	Commerce	188	48.0
2	Computer Science	87	22.2
3	Biology	57	14.5
4	Vocational Cources	60	15.3
Total		**392**	**100.0**

Table 3 represents the frequency and percentage of respondents in four courses, Commerce, Computer Science, Biology, and Vocational Courses, from a total sample of 392 respondents. Out of the total sample, the majority of respondents (48.0%) were enrolled in Commerce, followed by Computer Science (22.2%), Vocational Courses (15.3%), and Biology (14.5%).

Table 4 Location-wise respondents

S.no	Location	Total	Percentage
1	Rural	204	52.0
2	Urban	188	48.0
Total		**392**	**100.0**

Table 4 shows the frequency and percentage of respondents from two different areas: rural and urban, from a total sample of 392 respondents 52.0% of the respondents were from rural areas, and 48.0% were from urban areas. This indicates that the distribution of respondents from both areas was almost equal.

H_0:There is no significant difference between the using digital devices and the location of the respondents.

Location	Using digital devices				
	Laptop				
	Yes	No	Total	Sig	Relation
Rural	105	99	204	0.00	Rejected
Urban	13	175	188		
Total	118	274	392		
	Desktop				
Rural	4	200	204	0.78	Accepted
Urban	3	185	188		
Total	7	385	392		
	Mobile				
Rural	180	24	204	0.44	Rejected
Urban	161	27	188		
Total	341	51	392		
	Tablet				
Rural	4	200	204	0. 05	Accepted
Urban	0	188	188		
Total	4	388	392		

This table shows that in the laptop and mobile categories, the null hypothesis is rejected, which means there is a significant difference between the possession of these devices and the respondents' area.Specifically, the rural groups have a significantly higher possession rate for the laptop category than the urban group. Conversely, the urban group has a significantly higher possession rate for the mobile category than the rural group. For the desktop and tablet categories, the null hypothesis is accepted, which means there is no significant difference between the possession of these devices and the respondents' area. However, it is important to note that the possession rate for desktops and tablets is generally low, with only a small percentage of respondents in both groups owning these devices.

Table 5 Income-wise respondents

S.no	Income	Total	Percentage
1	Up to 10,000-50,000	63	16.1
2	50,000-	88	22.4

	1,00,000		
3	1,00,000-1,50,000	230	58.7
4	1,50,000 and above	11	2.8
Total		**392**	**100.0**

Table 5 represents the frequency and percentage of respondents with different incomes from a total sample of 392 respondents. Out of the total sample, the majority of respondents (58.7%) reported an income of Rs.1,00,000-1,50,000, which covered 58.7 percentage.

Table 6 Type of electronic gadgets using

S.no	Opinions	Laptop	Desktop	Mobile	Tablet
1	Yes	118	7	341	4
	Percentage	30.1	1.8	87.0	1.0
2	No	274	385	51	388
	Percentage	69.9	98.2	13.0	99.0
	Total	**392**	**392**	**392**	**392**

Figure 1- Type of electronic gadgets using

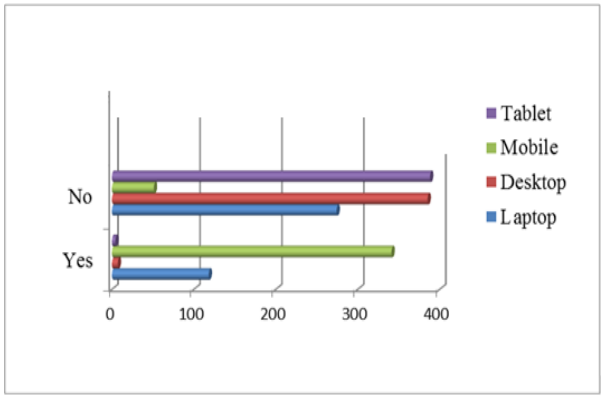


Table 6 represents the percentage of respondents who use or do not use different devices, such as laptops, desktops, mobile phones, and tablets. Out of 392 respondents,(118 respondents) use laptops, (274 respondents) do not use laptops. (7 respondents) use desktops, while (385 respondents) do not use desktops. The majority of respondents, (341 respondents), use mobile phones, while only (51 respondents) do not use mobile phones. Lastly, 1% (4 respondents) use tablets, while (388 respondents) do not use tablets. These percentages suggest that mobile phones are the most popular device among the respondents, followed by laptops, desktops, and tablets.

Table 7 Frequency of using digital devices (Per day)

S.no	Opinion	30 mins to 1 Hour	1Hour to 2Hour	2Hour to3Hour	> 3Hour
1	Yes	123	155	341	243
	Percentage	31.4	39.5	87.0	62.0
2	No	269	237	51	149
	Percentage	68.6	60.5	13.0	38.0
	Total	**392**	**392**	**392**	**392**

Table 7 represents the percentage of respondents who use devices for a certain number of hours. Out of 392 respondents, (123) use devices for 30 minutes to 1 hour, (269) do not use devices for this duration. (155) use devices for 1 to 2 hours, and (237) do not use devices for this duration. The majority of respondents, (341), use devices for 2 to 3 hours, (51) do not use devices for this duration. Lastly, (243) use devices for more than 3 hours, while (149) do not use devices for this duration. These percentages suggest that a significant number of people use devices for more than 2 hours, with the majority using devices for more than 3 hours. This indicates a high level of device usage among the respondents. It is also interesting to note that a significant number of respondents use devices for 1 to 2 hours, indicating that devices are being used for longer periods on average.

Table 8 -Purpose of using digital devices

S.no	Opinion	To update Subject	Competitive exams	Sharing Information	Current affairs
1	Yes	169	58	357	68.0
	Percentage	43.1	14.8	91.1	17.3
2	No	223	334	35	324
	Percentage	56.9	85.2	8.9	82.7
	Total	**392**	**392**	**392**	**392**

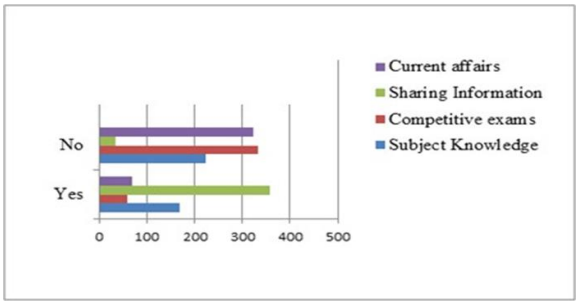


Figure 2- Purpose of using digital devices

Table 8 represents the percentage of respondents who use devices for different purposes. Out of 392 respondents, 169 use devices for gaining subject knowledge, while 223 do not (58 respondents) use devices for competitive exams, while 334 respondents do not use devices for this purpose. The majority (357 respondents) use devices for sharing information, while only 35 respondents do not use devices for this purpose. (68 respondents) use devices for current affairs, while 324 respondents do not use devices for this purpose.

Table 9 -Online classes using digital devices

S.no	Opinion	Total	Percentage
1	Yes	285	72.7
2	No	107	27.3
Total		**392**	**100.0**

Table 9 represents the frequency and percentage of respondents who attend online classes using digital devices. Out of 392 respondents, 285 attend online classes using digital devices, while 107 do not. These percentages suggest that a majority of respondents use digital devices to attend online classes. This indicates a high level of reliance on technology for education and learning. With the increasing availability of online education and remote learning, the use of digital devices for attending online classes will likely continue to increase in the future.

Table 10 Saving Information in digital devices

S.no	Save information on digital devices	Total	Percentage
1	Yes	392	100
2	No	0	0
	Total	**392**	**100**

Table 10 represents the frequency and percentage of respondents who save information on digital devices. Out of 392 respondents, most of the respondents save information on digital devices. This percentage suggests that all the respondents use digital devices to save information. This is not surprising given the increasing use of digital devices for various purposes, such as work, education, and personal use. With the increasing amount of digital information being generated, the use of digital devices for saving and storing information will continue to be essential in the future.

Table 11 Using an online dictionary on digital devices

S.no	Opinion	Total	Percentage
1	Yes	261	66.6
2	No	131	33.4
Total		**392**	**100.0**

Table 11 represents the frequency and percentage of respondents who use online dictionaries. Out of 392 respondents, (261 respondents) use online dictionaries, while (131 respondents) do not use online dictionaries. These percentages suggest that the majority of respondents use online dictionaries. With the increasing use of digital devices and the internet, the use of online dictionaries is likely to continue to increase in the future.

Table 12 Interacting with social media

S.no	Opinion	Total	Percentage
1	Yes	361	92.1
2	No	31	7.9
Total		**392**	**100.0**

Table 12 represents the frequency and percentage of respondents who interact with social media. Out of 392 respondents, 361 interact with social media, while only (31 respondents do not interact with social media.

Table 13 Frequency of using educational websites through digital devices

S.no	Website	Byjus	Khan Academy	NIOS	NCERT
1	Yes	392	0	0	19
	Percentage	100	0	0	4.8
2	No	0	392	392	373
	Percentage	0	100	100	95.2
	Total	**392**	**392**	**392**	**392**

Table 13 represents the frequency and percentage of respondents who use certain educational websites. Out of 392 respondents, 392 used Byju's website. On the other hand, none of the respondents used the Khan Academy or NIOS websites. Meanwhile, only 19 respondents use the NCERT website, while 373 respondents do not. These percentages suggest that Byju's website is the most popular educational website among the respondents. This may be due to the availability of high-quality educational content and personalized learning experiences offered by Byjus. On the other hand, the lack of use of Khan

Academy and NIOS may be due to their lesser-known status among the respondents. The low usage of NCERT may be due to its limited availability and popularity in certain regions.

Table 14 Problems faced while using digital devices

S. no	Problems	Time-Consuming	Lack of Speed	Sleep reduction	Lack of Concentration
1	Yes	286	188	185	274
	Percentage	73	48	47.2	69.9
2	No	106	204	207	118
	Percentage	27	52	52.8	30.1
	Total	**392**	**392**	**392**	**392**

Table 14 represents the frequency and percentage of problems faced by people when using digital devices. Out of 392 respondents, the majority reported that time-consuming (286 respondents) and lack of concentration (274 respondents) are the problems they face when using digital devices. Meanwhile, 188 respondents reported a lack of speed as a problem, and 185 respondents reported sleep reduction as a problem. These percentages suggest that the use of digital devices can have both positive and negative effects on people's lives.

H_0 : There is no significant relationship between the Age of the respondents and the problems facing while using the digital devices.

S.No	Problems	Age	N	Mean	Std. Deviation	t-value	Sig	Relation
1	**Time-consuming**	17	265	.0868	.28206	-12.376	.00	Rejected
		18	127	.6535	.47773			
2	**Lackofspeed**	17	265	.4981	.50094	-1.279	.20	Rejected
		18	127	.5669	.49746			
3	**Sleep reduction**	17	265	.3019	.45995	-24.708	.00	Rejected
		18	127	.0000	.00000			
4	**Lackof concentration**	17	265	.0679	.25209	-18.167	.00	Rejected
		18	127	.7874	.41077			

The null hypothesis (H0) is that there is no significant relationship between the age of the respondents and the problems they face while using digital devices.

This table shows that for all four problems considered, the null hypothesis is rejected, indicating that there is a significant relationship between the age of the respondents and the problems they face while using digital devices. Specifically, for time-consumption, sleep reduction, and lack of concentration problems, the mean score for respondents aged 18 is significantly higher than those aged 17. This suggests that respondents aged 18 face these problems more frequently or to a greater extent than those aged 17. However, because of the lack of speed problems, the mean score for respondents aged 18 is not significantly different from those aged 17. This indicates that the age of the respondents does not play a significant role in the occurrence or severity of this problem.

Table 15 Satisfaction level of using a digital devices

S .no	Satisfaction level of using a digital device	Opinions	Percentage
1	Highly satisfied	180	45.9
2	Satisfied	94	24.0
3	Dissatisfied	29	7.4
4	No opinion	49	12.5
5	Highly dissatisfied	40	10.2
Total		**392**	**100.0**

The data shows that 45.9% of the respondents reported being "highly satisfied" with their digital devices, while 24.0% reported being "satisfied." Only 7.4% of the respondents had "no opinion" about their satisfaction level. On the other hand, 12.5% of the respondents reported being "dissatisfied," and 10.2% reported being "highly dissatisfied" with their digital device.

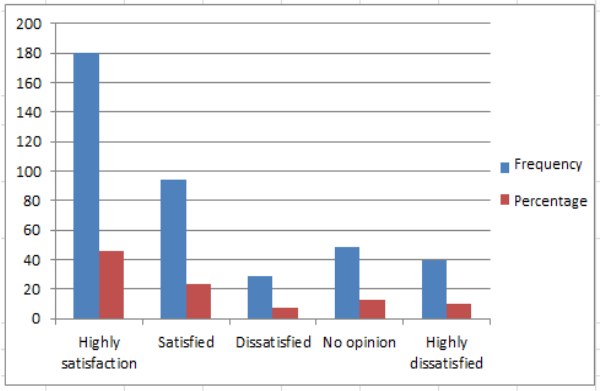


Figure 3 Satisfaction level of using a digital device

Table 16 Overall levels of online learning

S. No	Benefits/ Opinions	Strongly agree	Agree	Either agree/nor	Disagree	Strongly disagree	Total
1.	Different learning experience	294 (75%)	61(16%)	22 (6%)	15 (4%)	0	392
2.	Convenience in learning	301(77%)	65 (17%)	26 (7%)	0	0	392
3.	Ease to link	224 (57%)	115(29%)	53 (14%)	0	0	392
4.	Self-directed learning	214 (55%)	81(21%)	19 (5%)	26 (7%)	52 (13%)	392
5.	Improves digital literacy	183(47%)	124(32%)	85(22%)	0	0	392
6.	Social connectivity	304(78%)	63(16%)	25(6%)	0	0	392

Different learning experiences: 75% of the respondents strongly agree that they have had a different learning experience through the platform, while 16% agree, 6% are neutral, and 4% disagree or strongly disagree. Convenience in learning: 77% of the respondents strongly agree that the platform is convenient for learning, while 17% agree and 6% are neutral. Ease to link: 57% of the respondents strongly agree that it is easy to link with the platform, while 29% agree and 14% are neutral. Self-directed learning: 55% of the respondents strongly agree that the platform supports self-directed learning, while 21% agree, 5% are neutral, 7% disagree, and 13% strongly disagree. Improves digital literacy: 47% of the respondents strongly agree that the platform improves digital literacy, while 32% agree and 22% are neutral. Social connectivity: 78% of the respondents strongly agree that the platform promotes social connectivity, while 16% agree and 6% are neutral.

Table 17 Health issues while using digital devices

S. no	Opinions	Eye Strain	Head ache	Depr ession	Poor sleep	Obesity	Lack of Attention	Back ache	Neck and Shoulder strain	Any	Other
1	Yes	112	216	80	242	182	272	136	192	37	
	Percentage	28.6	55.1	20.4	61.7	46.4	69.4	34.7	49	9.4	
2	No	280	176	312	150	210	120	256	200	355	
	Percentage	71.4	44.9	79.6	38.3	53.6	30.6	65.3	51	90.6	
Total		**392**	**392**	**392**	**392**	**392**	**392**	**392**	**392**	**392**	

Table 17 shows the percentage and number of respondents who reported experiencing different symptoms related to the use of digital devices. Out of 392 respondents, 112 reported experiencing eye strain, while 55.1% (216 respondents) reported experiencing headaches (182 respondents) reported experiencing obesity-related issues, while 272 respondents reported experiencing a lack of attention. Other symptoms reported in the table include depression (20.4%), poor sleep patterns (61.7%), backaches (34.7%), and neck and shoulder strain (49.0%). A small portion of people (9.4%) reported experiencing other symptoms. These results indicate that the prolonged use of digital devices can lead to various physical and mental health problems, with headaches and a lack of attention being the most commonly reported symptoms.

Findings and Conclusion

In 20–25 years, the world will be transformed into a digital world due to the use of digital resources and gadgets. To know the usage level of the digital divide and what level of skills are required to deal with it, especially for school students, because they will change the world in the above time. For this purpose, the study was conducted among government boys in higher secondary schools. The study concludes that the use of technology in education has become increasingly prevalent, particularly in the wake of the COVID-19 pandemic. Technology has the potential to enhance student engagement, facilitate personalised learning, and provide access to educational resources and opportunities that might otherwise be unavailable. However, its effectiveness ultimately depends on how it is used, with appropriate training and support essential for teachers and students. Additionally, the use of technology should not be seen as a replacement for traditional teaching methods but rather as a complementary tool that can help achieve better learning outcomes. So the study concluded that the digital divides greatly affect the students' community for his study.

References

1) Hoyos Muñoz, J. A., & Cardona Valencia, D. (2023). Trends and challenges of the digital divide and digital inclusion. *Journal of Information Science*, 01655515221148366.
2) Mathrani, A., Sarvesh, T., &Umer, R. (2022). Digital divide framework: online learning in developing countries during the COVID-19 lockdown. *Globalization, Societies and Education*, 20(5), 625-640.
3) Kundu, P. and Ambast, S. (2022) 'Digitalisation of Secondary School Education in Delhi During the COVID-19 Pandemic: How Does Gender Factor in?',*Occasional Paper* 75, Southern Voice.
4) Sivasubramanian, G., Gomathi, P., & Packiyaraj, M. (2021). Use of Mobile Apps to Enhance Learning Among the Research Scholars of Periyar University-A Study. *Pearl: A Journal of Library and Information Science*, 15(4), 230-236.
5) Shyamal Choudhury and BidyutJyoti Dev Sarma, (2020) *Digital Divide and Educational Equity in India*: A Study of the Impact of Digital Divide on Higher Secondary Students in Assam https://www.researchgate.net/publication/334707872DigitalDivide.
6) Naciri, A., Baba, M. A., Achbani, A., &Kharbach, A. (2020). Mobile learning in Higher education: Unavoidable alternative during COVID-19. *Aquademia*, 4(1), ep20016.https://doi.org/10.29333/aquademia/8227.
7) Ragnedda, M., &Muschert, G. W. (2013). *The digital divide. Florence*, KY: Routledge.
8) Li, Y., & Ranieri, M. (2013). Educational and social correlates of the digital divide for rural and urban children: A study on primary school students in a provincial city of China. *Computers & Education*, 60(1), 197-209.