

Situation Analysis of Digital Literacy of Public-School Teachers in Punjab

Abstract: *The current study aimed at investigating the situation of digital literacy of public school teachers in Punjab. A self-prepared questionnaire was developed to examine the digital literacy of teachers in Punjab. The study focused on situation analysis of digital literacy of teachers that is helpful; to improving digital skills of teachers and analyzing the importance of digitalization and it's raising perspectives during COVID-19. The research study was carried out in 36 districts of Punjab, with 1000 teachers from the school education department participating as respondents. This was quantitative research. The results were analyzed using SPSS by independent sample t-test, ANOVA test, frequencies, percentage, means, and standard deviation. The opinion of respondents shows significant results regarding the importance of digital literacy for teachers and its rising perspectives. Through this situation analysis, the outcomes have also indicated that teachers should have good digital abilities, as the present situation of COVID-19 has changed the whole scenario of the world and digitalized education. So, it is a dire need to polish teachers' digital literacy skills in order to get effective outcomes in the realm of education.*

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Introduction

The advent of the digital era has had a great impact on the rapid growth of information & communication technology, as well as making digital literacy an important element in modern education. The capacity to utilize technology efficiently is referred to as digital literacy. Therefore, teachers are also needed to be familiar

with digital literacy skills since they no longer provide instructional materials to traditional learning platforms, which impacts students' interest and motivation in getting and enhancing their knowledge. As a result, in order to be digital media literate in today's world, educators must understand how to use technology more effectively (Prieto, 2020).

^{*} M.Phil Scholar, Department of Education, Institute of Southern Punjab, Multan/Assistant Education Officer (EE-W), Markaz Jalal Pur Pir Wala, Multan, School Education Department, Government of Punjab, Punjab, Pakistan. Email: sarahamidaeo@gmail.com

[†] Lecturer/Coordinator, Department of Special Education, (DOE), University of Education, Faisalabad Campus, Punjab, Pakistan.

[‡] SSET(HI), Department of Special Education, Government Secondary School of Special Education, Khanawal, Government of Punjab, Punjab, Pakistan.

According to the National Educational Policy, curriculum, technique, evaluation, and goals should get equal emphasis in order to enhance the teaching and learning experience. The need for teacher preparation was also highlighted. The policy's key goals are ensuring equitable access, high quality, and effective management. It was stressed that all children in Pakistan should have equal access to education and that there should be fairness in entrance, enrolment, transition, and dropout rates. As well as emphasizing teacher certification, the programmer also focused on enhancing the teaching-learning process and student performance (Ashraf, 2020).

Early on in the pandemic's spread, we resorted to digital tools to help us weather the storm. In a matter of hours, the virtual world had replaced the physical as the new standard. Most of us are engaging in more virtual activities than we could have expected a year ago, whether we are working, studying, or socializing (Sarwar & Shafiq, 2021).

Digital literacy has emerged as the new moniker for education in this age of creativity and technical growth; thus, Pakistan has a serious need to compete with the rest of the world in order to reap the full benefits. Teachers and students have no option but to increase their digital literacy in order to keep up with the rapidly changing digital world. Science and technology are preparing for the future of digitalization as a monitoring indicator of the Sustainable Development Goal 4 (SDG4), which requires nations to maintain digital literacy. However, the outside world is changing rapidly. While this is a challenge, the government is doing its part to ensure that all residents have access to digital literacy (Sarwar & Shafiq, 2021).

Everyone knows that Punjab has a sizable population. The government faces an uphill battle in trying to keep up with the rapid changes taking place in such a large and diverse country. Digital literacy is a pipe dream in a nation like ours, which has only just begun to climb the development ladder. Nearly 40% of the population lives below the poverty line, an estimated 25-30% of the population is illiterate, and more than 90% of the population is digitally illiterate (UNESCO, 2020). School Education

Department of Punjab has greatly emphasized on digitalization, and the department is also moving towards digitalization very effectively with the help of the Punjab Information Technology Board. SED has switched itself from paper work to an online system by introducing Applications and websites like School Information System, HRMS, Learning and Management System of Single National Curriculum. Moreover, E-Books are also available on the Punjab Text Book Board site (SED, 2021).

School Teachers have been entrusted with the task of fostering the whole development of their charges. As a result, they are constantly up to date. Many urban schools now frequently conduct classes using digital technologies. Smart classrooms have been set up with a variety of educational applications to make studying more enjoyable and less of a chore. In order to produce classes, workbooks, and even exam papers and mark sheets, instructors have updated their skills by learning how to use digital media (Sarwar & Shafiq, 2021).

- School Teachers are getting more imaginative and putting in additional effort to produce interactive lessons using video and audio samples as online education becomes the standard.
- Because of the Pandemic COVID – 19 lockdowns, this digital literacy has proven to be helpful.
- Teaching digital literacy to kids and staff during this epidemic is critical (Joseph, Khan, & Aslam, 2020).

The lethal COVID 19 has confined everyone to their homes. Except for medical, banking, necessary commodities transportation, important services, law enforcement, and part of the education sector, everything came to a standstill. A number of schools demonstrated how to make the most of their limited resources by conducting courses through different meeting applications when the economy was in disarray (Zoom, Microsoft teams, Cisco WebEx). School Teachers and kids were both digitally literate, which made this feasible. In preparation for interactive sessions, teachers spent all of their time and energy, and the students were rapt (SED, 2021).

In today's world of technology, Digital Literacy is considered the main focus for School

Teachers. Digital literacy is closely related to school improvement, educational accomplishment, and quality education. Researchers tried to analyze the situation of the digital literacy of teachers in Punjab in this study. This study analyzed the importance of digital literacy to Teachers and the effect of the digitalized training due to COVID-19 on Teachers. Furthermore, this research investigates the importance of digital literacy in learning. The followings were the objectives of the study: i) to determine the importance of digital literacy to public teachers; ii) to study the rising perspective of digital literacy due to COVID-19 in schools; iii) to analyze the digital skills of teachers.

Moreover, it has been observed that very less research had been conducted in Pakistan, especially in Punjab, to look into the situation of digital literacy of teachers of the school education department in Punjab. Moreover, the rising perspectives of digital literacy in this COVID-19 are also missing. This study is expected to fill the abovementioned research gaps.

Literature Review

Literacy can be defined as the ability to read and write in a community's common language. Whereas, digital literacy means one's capacity or awareness attitude to use digital tools in order to organize, manage, evaluate, analyze, and communicate the specific info appropriately and significantly ([Martin & Grudziecki, 2006](#)).

The capacity to locate, analyze, evaluate, generate, and convey digital information, utilizing information and communication technologies was described by UNESCO as digital literacy ([UNESCO, 2013](#)). The development of modern digital literacy has primarily influenced world education, and people are constantly training themselves and acquiring digital skills as a result of the evolution and explosive growth of ICT, which have become indispensable instruments in their daily life ([Yu et al., 2017](#)). Teachers have easy access to a broad range of literacy resources through the Internet. Educators may accomplish a wide range of activities, including doing research on the Internet, composing emails, and reading relevant information. The Internet has had a significant impact on the development and evolution of

literacy since it allows for the creation and discovery of a wide variety of forms of literacy ([Faraj et al., 2021](#)).

According to Sophie Maddern (2013), the followings are the types of digital literacy:

1. Internet: Teachers have an approach to a wide range of literacy resources through the Internet. It is possible to do research on the Internet, write emails, read relevant content pieces, and much more, which may be done by educators. Many additional forms of literacy may be seen and created on the Internet, and this has had a significant impact on the development and change of literacy.
2. Blogs: Blogs are online diaries that anybody may start and publish. Instructors and students alike may share their views, ideas, and images on blogs.
3. It is also possible to stay up to speed on current events, issues, and themes of interest using social media like Facebook, Twitter, and other social media outlets.
4. Currently published print books have been digitally repackaged for distribution as "eBooks." There are additional e-books for instructors and students published by the PITB.
5. Other smartphones, such as the Apple iPhone, iPad, and others, also allow their users to type and see text. In addition, they serve as a method of communication and a gateway to the Internet, allowing users to access a wide range of applications.
6. Laptops and Projectors: These are also a source where the users can access to the Internet and can connect to the world, and can also get information. Teachers can display things to the students through the projector.

Given the numerous changes in today's society and its daily demands based on Information and Communication Technology, it is difficult to resist incorporating digital technology and digital literacy into teaching, teacher education, and professional development. One of the primary responsibilities of current instructors is to get acquainted with digital technology techniques and applications, as well

as to regularly update their own expertise and create digital literacy (Srivasta, & Dey, 2018).

The importance of digital literacy in today's classrooms necessitates that all teachers get continual training in this area. Teachers' jobs have also gotten tougher in today's environment of constant change and near-limitless access to knowledge. Technology-oriented, open-minded, critical, independent professionals and facilitators who help students evaluate the quality of new sources and understand how to study in a digital world are anticipated to be the teachers of today (Amin, 2016). As a result, teachers face a variety of challenges on a daily basis, including those related to their students, their specific needs, new technology and software, and their own professional development in the digital age (Sharma, 2017).

Digitally literate teachers may use a range of readily available tools and information to deliver more complete and in-depth education to their students. Lesson ideas and delivery techniques may be customized to meet the specific requirements of each student while also taking into account the wide range of backgrounds represented in the class. Students who are easily distracted may be given visual clues, while those who prefer to hear what the teacher is saying can be given audio signals. In addition, the teacher may provide information tailored to each student's needs, using technology in the process. Digitally literate teachers may, for example, explain the merits and cons of utilizing a certain technology to their pupils when school management insists on using it regardless of whether it is appropriate or not (Vidosavljevic, 2019).

Not to be overlooked is the active involvement of the Punjab School Education Department, which provides digital literacy training to School Teachers. When the School Education Department partnered with PITB in April 2017 to implement a School Information System which will run on registered tablets of schools, and headteachers were able to self-report data in real-time (SIS). Keeping track of each student's enrollment and retention is made easier by this strategy. 11.6 million Punjabi children are now enrolled in public schools. Each student's

CNIC number, phone number, date of birth, year of enrolment, and current grade are all stored in the database. CNIC numbers are cross-checked against the NADRA database to confirm validity. The PITB has also randomly chosen schools and contact parents who have previously registered in the system in order to check the quality of the data. The Department of School Education will get the information. Another example is the Human Resource Management System (HRMS) established by the PITB (Punjab Information Technology Board) and the School Education Department in which teachers' have added all their data as service records (SED, 2021).

Teachers and 4,000 supervisors have all uploaded their entire data sets as part of this project, allowing the school education department to quickly access profiles of teachers and make performance-based decisions, as well as quickly process transfers, inquiries, and dismissals with minimal hassle or time spent on the backend. Teachers' evaluations of their work, leave requests, and retirement applications may all be seen online (SED, 2021).

Quaid-e-Azam Academy for Educational Development, and Cambridge Education cooperated with the Punjab Education Sector Project (PESP-III) to develop an innovative teacher support package (ITSP). Teachers may participate in this online application-based course, which was created with a blended digital learning approach in mind (SED, 2021).

Using an app or a web-based interface, the ITSP is a program for ongoing professional development. It incorporates an LMS (Learning Management System). Assisting Education Officers (AEOs) have been trained at the Quaid-e-Azam Academy for Educational Development (QAED) to carry out the CPD (QAED). 3300 AEOs who finished their training have gone on to educate elementary school teachers in their respective districts (QAED, 2021).

Research Methodology

Research Design

The primary purpose of the research is to examine the digital literacy of public-school teachers in the School Education Department of Punjab. This study's research design is survey

research. The researchers employ a quantitative approach and a questionnaire to gather information regarding the relevance and growing views of digital literacy as a result of COVID-19, as well as a study of public school teachers' digital literacy abilities in SED.

Population

This research was connected to the situation investigation of digital literacy of public educators in Punjab, thus both male and female teachers, from rural and urban regions, upper, high, secondary, elementary, and primary schools situated in all districts of Punjab were regarded as a population.

Sample

Thousand (1000) teachers and Assistant Education Officers employed in the School Education Department in Punjab were acquired as a sample of research.

Instrumentation

Based on the characteristics impacting teachers' digital literacy, the researchers developed a self-created questionnaire. The questionnaire was divided into three pieces, the first of which dealt with the respondent's demographics. An expert validated the questionnaire.

Data Collection & Analysis

Keeping in view the COVID-19 circumstance, the data was gathered through Google Form. It was circulated to teachers through social media sources, i.e., Facebook, WhatsApp. Various statistical tools, such as mean, frequency distribution, standard deviation, ANOVA test and T-Test and so on were applied. However, the outcomes were deciphered in the tables given beneath.

Table 1. Description of Sample Based on Demographics

S. No	Teachers	Frequency (f)	Percentage (%)
<i>Gender</i>			
1	Male	234	23.4
2	Female	766	76.6
	Total	1000	100
<i>Age of Teachers</i>			
1	20-25 Years	39	3.9
2	26-30 Years	296	29.6
3	31-35 Years	310	31.0
4	36-40 Years	157	15.7
5	41-45 Years	74	7.4
6	46-50 Years	57	5.7
7	50-55 Years	47	4.7
8	56 & above	20	2.0
	Total	1000	100
<i>Designation</i>			
1	ESE/PST	865	86.5
2	SESE/EST	54	5.4
3	SSE/SST	29	2.9
4	AEO	52	5.2
	Total	1000	100
<i>Qualification</i>			
1	Matric	33	3.3
2	Intermediate	13	1.3
3	Bachelor	111	11.1
4	Masters	702	70.2

S. No	Teachers	Frequency (f)	Percentage (%)
5	M.Phil.	138	13.8
6	Ph.D.	3	3
	Total	1000	100
<i>Teaching Experience</i>			
1	1 to 5 Years	432	43.2
2	6 to 10 Years	259	25.9
3	11 to 15 Years	116	11.6
4	16 to 20 Years	80	8.0
5	21 to 25 Years	33	3.3
6	26 to 30 Years	43	4.3
7	Above	37	3.7
	Total	1000	100
<i>Name of Districts</i>			
1	Attock	4	0.4
2	Bahawalnagar	11	1.1
3	Bahawalpur	24	2.4
4	Bhakar	11	1.1
5	Chakwaal	59	5.9
6	Chinniot	48	4.8
7	Dera G. Khan	31	3.1
8	Faisalabad	3	0.3
9	Gujranwala	57	5.7
10	Gujrat	223	22.3
11	Hafizabad	19	1.9
12	Jan	5	0.5
13	Jehlum	3	0.3
14	Kasur	3	0.3
15	Khanewal	43	4.3
16	Khoshab	28	2.8
17	Lahore	4	0.4
18	Layyah	5	0.5
19	Lodhran	47	4.7
20	Maadi Bahuddin	8	0.8
21	Mianwali	13	1.3
22	Multan	155	15.5
23	Muzaffargarh	7	0.7
24	Narowal	3	0.3
25	Nankana-Sahib	8	0.8
26	Okara	10	1.0
27	Pakpattan	61	6.1
28	Rahim Yar Khan	10	1.0
29	Rajanpur	11	1.1
30	Rawalpindi	56	5.6
31	Sahiwal	3	0.3
32	Sargodha	6	0.6
33	Shiekhopura	5	0.5
34	Sialkot	3	0.3
35	Toba Tek Singh	5	0.5
36	Vehaari	8	0.8
	Total	1000	100.0

S. No	Teachers	Frequency (f)	Percentage (%)
<i>Teachers who have IT or Computer Diploma</i>			
1	Yes	289	28.9
2	No	711	71.1
	Total	1000	100
<i>Area of Living</i>			
1	Rural Area	649	64.9
2	Urban Area	351	35.1
	Total	1000	100

Table 1 presents a description of the consequences of demographic factors. According to the frequency analysis, both males and females were part of the population, although their participation was not equal. Overall, all of the teachers at the Punjab School Education Department had a strong reply. Since analyzing our data processing, the description of educators and officers on the basis of gender revealed an incredibly huge figure of female participants, approximately 1000, with 766 female respected teachers constituting approximately 76.6 percent of the total population and 234 male teachers constituting approximately 23.4 percent of the entire population. However, when it comes to assignment categorization, a fruitful conclusion can be achieved because nearly all of the specialists participated in expressing their views. ESEs/PSTs, SESEs/ESTs, SSEs/SSTs, and

Assistant Education Officers have given their views. A significant number of participants were seniors in age. When we characterize the respondent's deviation on their locality in Punjab, we find an unusually large number of participants from Multan and Gujarat. On the other hand, when we compare the result on the base of the qualification mostly teachers are Masters and M.Phil. Similarly, when we analyze the teaching experiences, 432 teachers have the experience of 1-5 Years, which is 43.2% of the total population, and then 259 have experience of 6-10 Years, which is 25.9% of all respondents. Furthermore, if we talk about the teachers having IT or Computer Diploma, 711 out of 1000 teachers have no IT or computer diploma. Moreover, 649 out of 1000 teachers are living in rural areas, which is 64.9% of the total population.

Table 2. Frequency Distribution Table

S. No	Statements of Questions	Agree	Neutral	Disagree	M	S.D.
1	Digital Literacy makes the education easier than before.	901(90.1)	60(6%)	39(3.9%)	4.04	.72
2	Due to Digital Literacy, teachers can search the relevant content through the Internet.	940(94%)	31(3.1%)	29(2.9%)	4.19	.73
3	DL has minimized the communication gap between the officers, teachers and students.	833(83.3%)	101(10.1%)	66(6.6%)	3.94	.80
4	DL based Innovative Teachers Support Package is supporting the teacher to learn effective and good teaching methods.	902(90.2%)	69(6.9%)	29(2.9%)	4.06	.70
5	HRMS and SIS save the time of teachers because they can submit all things online.	939(93.9%)	30(3.0%)	31(3.1%)	4.32	.77

S. No	Statements of Questions	Agree	Neutral	Disagree	M	S.D.
6	DL helps the teachers to polish their different skills and abilities.	909(90.9%)	65(6.5%)	26(2.6%)	4.09	.68
7	DL is effective to learn the school management and administrative work.	854(85.4%)	104(10.4%)	42(4.2%)	3.96	.71
8	DL helps to focus on Student learning outcomes.	856(85.6%)	110(11%)	34(3.4%)	3.96	.67
9	Through DL the students can be motivated.	859(85.9%)	103(10.3%)	38(3.8%)	3.96	.69
10	DL is supportive in managerial issues of schools.	804(80.4%)	141(14.1%)	55(5.5%)	3.86	.74
11	After the spread of COVID-19, the teachers are moving more towards the DL than before.	869(86.9%)	85(8.5%)	46(4.6%)	3.98	.71
12	Teachers are now using the Internet more effectively.	896(89.6%)	68(6.8%)	36(3.6%)	4.06	.69
13	Teachers have been encouraged to use new technology-based methods of teaching due to lockdown situation.	893(89.3%)	73(7.3%)	34(3.4%)	4.04	.68
14	It has increased the usage of devices in classrooms.	751(75.1%)	156(15.6%)	93(9.3%)	3.75	.81
15	It is enabling teachers' access to information and opportunities that they previously would never have had before.	865(86.5%)	108(10.8%)	27(2.7%)	3.96	.63
16	Teachers can make an effective lesson plan.	917(91.7%)	51(5.1%)	32(3.2%)	4.08	.66
17	It shows positive effects than the traditional method.	860(86%)	101(10.1%)	39(3.9%)	3.98	.70
18	Teachers are able to use software like MS Teams and Zoom.	907(90.7%)	57(5.7)	36(3.6)	4.10	.70
19	Digitalize Trainings are serving to equip the teachers with conceptual and theoretical framework of teaching.	844(84.4%)	111(11.1%)	45(4.5%)	3.92	.68
20	It is improving teaching skills of School Teachers.	880(88%)	84(8.4%)	36(3.6%)	4.01	.69
21	Due to switching to digitalization, the number of teacher training programs has been increased.	872(87.2%)	94(9.4%)	34(3.4%)	3.97	.65
22	This is helping to improve academic courses.	878(87.8%)	80(8%)	42(4.2%)	3.96	.66
23	It shows positive effects than the traditional method.	855(85.5%)	106(10.6%)	39(3.9%)	3.93	.67
24	Teachers are able to use computer and laptops.	741(74.1%)	144(14.4%)	115(11.5%)	3.73	.85

S. No	Statements of Questions	Agree	Neutral	Disagree	M	S.D.
25	The usage of Applications like SIS, and ITSP is easy for Teachers.	856(85.6%)	84(8.4%)	60(6%)	3.95	.75
26	Teachers can put data on MS Excel.	714(71.4%)	155(15.5%)	131(13.1%)	3.69	.91
27	Teachers can easily use search engines (Google Chrome, Mozilla Firefox, Torch and Internet Explorer, etc.) for the learning purpose.	811(81.1%)	111(11.1%)	78(7.8%)	3.87	.80
28	Use social media (Facebook, WhatsApp, Twitter, Insta., etc.) to communicate with other people.	898(89.8%)	75(7.5%)	27(2.7%)	4.06	.65
29	Teachers can type on MS Word.	749(74.9%)	138(13.8%)	113(11.3%)	3.74	.87
30	Teachers can make presentations on MS PowerPoint.	609(60.9%)	206(20.6%)	185(18.5%)	3.49	.97

Table 3. Comparison of Opinion of Respondents on the Base of Gender (Independent Sample t-test)

Gender	N	M	S.D.	df	t	Sig.
Male	234	119.17	16.808	998	-4.56	.002
Female	766	123.96	13.088			

* $P < .05$ Level of Significance

Table 3 shows the observed data for males (N=234, M=119.17, S.D.=16.808) and females (N=766, M=123.96, S.D.=13.088) with t-statistics (t (998) =-4.56, $P < 0.05 = .002$), indicating a significant difference in the views of male and

female respondents on the analysis of DL of public-school teachers in Punjab. Furthermore, it shows that the mean difference between male and female respondents is -4.79, which is significant.

Table 4. Comparison of Opinion of Respondents on the Base of IT or Computer Diploma of Teachers (Independent Sample t-test)

IT Diploma	N	M	S.D.	df	t	Sig.
Yes	289	122.76	16.62	998	-.111	.001
No	711	122.87	13.07			

* $P < .05$ Level of Significance

Table 4 shows observed data for respondents with an IT diploma (N=289, M=122.76, S.D.=16.62) and respondents without an IT diploma (N=711, M=122.87, S.D.=13.07) with t-statistics (t (998) =-.111, $P < 0.05 = .001$), indicating a significant

difference in respondents' opinions about analysis of DL of public-school teachers in Punjab. Furthermore, it shows that the difference in means for respondents is -.110, which is significant.

Table 5. Comparison of Opinion of Respondents on the Base Rural and Urban Areas of teachers (Independent Sample t-test)

Area	N	M	S.D.	df	t	Sig.
Rural Area	649	122.28	14.73	998	-1.68	.236

Area	N	M	S.D.	df	t	Sig.
Urban Area	351	123.87	13.06			

*P > .05 Level of Significance

Table 5 shows the observed data for rural area (N=649, M=122.28, S.D.=14.73) and urban area (N=351, M=123.87, S.D.=13.06) with t-statistics (t (998) = -1.168, P > 0.05 = .236), indicating that there is no significant difference in respondents'

opinions about situation analysis of DL of public-school teachers in Punjab. Furthermore, it shows that the difference in means for responders is -1.58, which is not statistically significant.

Table 6. Comparison of Opinion of Respondents on the Base of Age (One-Way ANOVA)

Age of Teachers	Sum of Squares	df	Mean Square	f	Sig.
Between Groups	2865.38	7	409.341		
Within Groups	198136.96	992	199.735	2.049	.046
Total	201002.351	999			

*P < .05 Level of Significance

Table 6 shows that the observed data for between groups (Sum of sq.=2865.38, df=7, Mean sq.=409.341) and within groups (Sum of sq.=198136.96, df=992, Mean sq.=199.735) with

one way ANOVA (f (999) = 2.049, P < 0.05 = 0.046) leads to the conclusion that there is a significant difference in teachers' views about digital literacy of public-school teachers.

Table 7. Comparison of Opinion of Respondents on the Base of Districts (One-Way ANOVA)

Designation	Sum of Squares	df	Mean Square	f	Sig.
Between Groups	4913.383	3	1637.794		
Within Groups	196088.968	996	196.876	8.31	<.001
Total	201002.351	999			

*P < .05 Level of Significance

Table 7 shows that the observed report for between groups (Sum of sq.=4913.383, df=3, Mean sq.=1637.794) and within groups (Sum of sq.=196088.968, df=992, Mean sq.=196.876) with one way ANOVA (f (999) = 8.31, P < 0.05 = .001)

leads to the conclusion that there is a significant difference in the views of teachers from between groups and within groups regarding digital literacy.

Table 8. Comparison of Opinion of Respondents on the Base of Designation (One-Way ANOVA)

Qualification	Sum of Squares	df	Mean Square	f	Sig.
Between Groups	1975.226	5	395.045		
Within Groups	199027.125	994	200.228	1.973	.080
Total	201002.351	999			

*P > .05 Level of Significance

Table 8 shows that the observed report for between groups (Sum of sq.=1975.226, df=5, Mean sq.=395.045) and within groups (Sum of sq.=199027.125, df=994, Mean sq.=200.228) with

one way ANOVA (f (999) = 1.97, P > 0.05 = .080) leads to the conclusion that there is no significant difference in teachers' views regarding digital literacy of public-school teachers.

Table 9. Comparison of Opinion of Respondents on the Base of Qualification of Respondents (One-Way ANOVA)

Districts	Sum of Squares	df	Mean Square	f	Sig.
Between Groups	11385.695	35	325.306		
Within Groups	189616.656	964	196.698	1.654	.01
Total	201002.351	999			

* $P < .05$ Level of Significance

Table 9 shows that the observed report for between groups (Sum of sq.=11385.695, df=35, Mean sq.=325.306) and within groups (Sum of sq.=189616.656, df=964, Mean sq.=196.698) with

one way ANOVA ($f(999) = 1.65, P < 0.05 = .01$) leads to the conclusion that there is a significant difference in teachers' views regarding digital literacy of public-school teachers.

Table 10. Comparison of Opinion of Respondents on the Base of Job Experience of Respondents (One-Way ANOVA)

Experiences	Sum of Squares	df	Mean Square	f	Sig.
Between Groups	1314.608	6	219.101		
Within Groups	199687.743	993	201.095	1.090	.367
Total	201002.351	999			

* $P > .05$ Level of Significance

Table 10 shows that the observed report for between groups (Sum of sq.=1314.608, df=6, Mean sq.=219.101) and within groups (Sum of sq.=199687.743, df=993, Mean sq.=201.095) with one way ANOVA ($f(999) = 1.09, P > 0.05 = .367$) leads to the conclusion that there is no significant difference in teachers' views regarding digital literacy of public-school teachers.

disagreed, indicating that this is not a big value to consider. Moreover, a significant difference has been observed between the opinions of male teachers and female teachers. Similarly, there are also significant differences found between the opinions of teachers on the basis of IT diploma, age of respondents, districts, designations and qualifications.

Findings & Conclusions

The primary reason for this research was to analyze the condition of digital literacy of Teachers of SED, Punjab as a result; a survey was performed using a five-point Likert scale. In this study to see the idea of primary, elementary, and secondary school teachers, were included to pay their significant views for the situation analysis of digital literacy. 80% of assessments were recorded that digital literacy is a very important phenomenon in SED, which can bring positive impacts. About 80% of respondents agreed that after the spreading of COVID-19 the rising perspectives of digital literacy are positive and bringing a new change in the department. 79% of respondents are in favor that teachers have good digital skills and they can use applications and software properly for the purpose of teaching and bringing positive outcomes. Only a few people

Discussion

The fundamental purpose or inspiration behind this study was to analyze the digital literacy of teachers of the School Education Department in Punjab. What is the importance of digital literacy to the teachers of SED, how the digital literacy is bringing change in SED and what are the digital literacy skills of teachers and what are the rising perspectives of the digital literacy especially after the breakout of COVID-19 as perceived by the teachers of school education department? The discussion of the research showed that as per the reactions of teachers the, digital literacy is important for teachers because it is making the teaching more effective. Likewise, the research supports the findings of [Vidosavljevic \(2019\)](#), who found that teachers should develop their own knowledge skills and digital literacy also in the present modern world of education. Moreover,

while analyzing the digital skills of teachers, it has been observed that male teachers have more digital competencies than the female teachers. It is because in Pakistan, males are more encouraged to learn digital skills than females. This finding is also supported by [Grande-de-Prado et al. \(2020\)](#). Similarly, it has been found that most of the teachers i.e. 71.1% didn't have any IT/Computer diploma. This finding coincided with the work of [Cantu-Ballesteros et al. \(2017\)](#).

Recommendations

- Future study suggestions include the importance of digital literacy to private school teachers in order to have a larger sample size for future research.
- Effects of digitalization on teachers of Punjab should also be investigated.
- Furthermore, the impacts of digitalize training and usage of digital skills in classrooms by teachers after COVID-19 is also recommended for the future research.
- It is also suggested that teachers should be given a proper training or workshop regarding the digital skills. So, they could use all programs and software related to education easily and significantly.
- Also needs to ensure the implementation of digital knowledge in all levels of education. Whereas, the acquisition of digital skills should also be appreciated for females in our country in order to make them competent in digital literacy.

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