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Attitudes and Readiness of Pupil Teachers towards E-learning in NCR region of UP

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Abstract

In the current era, e-learning is a significant process that ensures teachers' and students' ability in a digital establishment. All types of education require different types of online learning platforms for students to learn. This e-learning process influences self-discipline, patience, sufficient knowledge of technical factors, ease of learning and use of software, readiness and attitudes and changes in skills related to time management systems. So, the present study focussed on the e-learning attitudes and the readiness of Pupil teachers. The descriptive survey method is adopted by the researcher to assess and compare the Attitude and Readiness of pupil teachers towards E-learning with respect to Gender and Locality. A sample of 100 pupil teachers of NCR region of western Uttar Pradesh was selected by using a simple random sampling technique. ***Attitude Towards E-Learning Scale (ATELS-RD)*** developed by ***Dimpal Rani*** and the ***Readiness Towards E-learning Scale (RTEL) Scale*** was constructed by the researcher to assess and compare the E-learning attitude and readiness of pupil teachers. The findings revealed that the pupil teachers of the NCR region of Uttar Pradesh have positive attitudes and readiness towards e-learning. It also found there is no significant difference between the attitude of male and female pupil teachers towards e-learning but there is a significant difference between the readiness level of male and female pupil teachers and female pupil teachers exhibit a higher level of readiness towards e-learning. Also, there is a significant difference between the attitude and readiness of rural and urban pupil teachers towards e-learning and the urban pupil teachers exhibit a more positive attitude and readiness towards e-learning than rural pupil teachers

Keywords: Attitude, Readiness, E-Learning

Introduction

There has been a tremendous progress and acceptance rate for digital technology in everyday human existence throughout the globe. A lot of change has taken place in the academic and learning environment. For the successful implementation of instructional technology, user acceptability is critical, which is greatly affected by the attitude and readiness of the users. Several studies have addressed how students feel about technology in the classroom, particularly computers and technologically enhanced classrooms. Higher education institutions are increasingly turning to electronic learning (also known as E-Learning) as a tool for both teaching and learning, as well as other kinds of interactions between faculty and students. Electronic media and technologies are an important part of many higher education teaching and learning methodologies, yet faculty frequently reject the use of new technology, despite students' enthusiastic embrace of it. Eventually, colleges may not be able to satisfy the requirements of changing knowledge-based societies and more diverse student populations if this challenge is not answered.

It has been observed that higher education institutions spend a significant amount of money on implementing e-learning to manage their tasks in providing knowledge to students remotely, but they are still unable to derive potential advantages from e-learning because they do not take into account factors such as the area of study and the program of study specialized by students in higher education institutions. Researchers from all across the globe have examined how society's opinions about e-learning are affected by factors such as age, educational attainment, and gender. There is a paucity of studies on students' attitudes and preparation for e-learning applications in the field of education, according to the experts. Several relevant topics remain unanswered, such as what factors contribute to an online learner's success and what factors generate obstacles or hurdles. E-learning, which has been promoted as a promising educational tool, is also having an effect on students' decision-making about how, when, and where to study. Several advantages have been established for students as a result of e-learning as an educational problem, such that it is easy for students to access instructional content regardless of time or place. When it comes to e-learning methodologies and delivery, one of the most apparent and beneficial aspects is the possibility of wider access to education for students. Universities must be fully aware of the crucial success criteria associated with the introduction of online forms of education if they are to maximize the ability of e-learning as a way of providing higher education. It's a challenge for Higher Education Institutions to face in their efforts to incorporate e-learning. In the absence of regular face-to-face instruction, distance education aims to encourage self-study or independent study among distant learners. It is crucial to address the readiness of graduate students to make the transition to e-learning for adults. The readiness of graduate students must be taken into consideration while developing strategies. Therefore, this research has been conducted to examine students' readiness and attitude towards e-learning and compare the perspectives of faculty members about students' readiness and attitude towards e-

learning based on gender, age, and technological experience and how it impacts their academic performance.

Technologies Insertion in Teaching and Learning

In recent times, evolving technologies constantly changing terrain for preceptors. For illustration, ET can give floundering, special requirements, and non-English scholars lesser openings for success (Matsumoto, Shibata & Hattori, 2020). Seminaries must no longer simply educate computer chops; digital technology must be bedded in the process of education, similar to education itself is technologically intermediated across the class as a matter of necessity (Loyless & Shaw, 2020). There's also an adding tendency to use digital technologies for tutoring and literacy, monitoring, assessment, and recording purposes. The invention of software being used in seminaries is shifting to ideas of adaptive class grounded on substantiated literacy and nonstop assessment (Olah, 2019). The insertion of technology in education created a paradigm shift within the whole educational system. The technology shifts literacy at another level and empower the requirements of the new generations of learners (Taber, 2017). The preface of technology into seminaries, preceptors must lead the way, anyhow of authorization (Ames, 2017). Astronomically viewed, ET can be a tool to revise information processing, knowledge access, and educational delivery through tutoring & literacy (Razali,2019).

Attitudes and Readiness towards E-learning

Attitudes towards E-learning

Attitude of the learners towards online learning systems can be defined in two ways: one is as a point of view of them about a situation or event, on the other hand, as per evaluated perceptions that predispose the user to interact favorably, as described in the general definition. According to several arguments, an attitude is a neurological and psychological state of readiness, arranged through experience that exerts a direct influence upon the response of an individual to every object. The attitude is related to how an individual responds to those situations and events. Previous studies have proved that people have a positive attitude toward e-learning, especially those studies that investigated the potential advantages that can be gained through e-learning. The findings point out towards a high degree of consistency between the advantages of e-learning being derived in teaching. E-learning gives learners more agency and a stronger sense of control over their educational experience. It is far more probable that a student will be successful in an e-learning setting if they are familiar with the technology being used and have a favourable attitude toward it. In general, it has been observed that the experience of implementing e-learning plays a remarkable role in boosting and enabling education service offerings even to distant places regardless of time or location.

Readiness towards E-learning

Understanding the demands of all users in a given e-learning environment, in addition to their level of readiness is necessary for them to achieve success in the field of online education. Furthermore, the degree to which students are prepared to engage in e-learning is called their readiness which is a very essential factor that should be considered before e-learning is introduced into any

school. E-learning assists capable institutions (Hergüner et. al.2021) in training their students with a geographically diverse workforce and bringing them up to speed with the ever-changing knowledge and skill needs. This may be accomplished with better efficiency and at a lower cost than traditional training methods. It has been stated that for any institution to successfully use e-learning as a contemporary teaching approach, the experts at that institution must first determine the preparedness of the students via the use of data analysis.

"Readiness" can also be defined as physical or mental readiness for the students for the e-learning experience or action, and it refers to an institution that plans to implement e-learning in the future. On the other hand, E-readiness refers to the degree to which a given economy or community is ready to take part in the digital world. In addition to the general definition of e-readiness, the readiness of students toward e-learning is among the factors that must be considered before deciding on the deployment of e-learning in any specific institution to achieve a great deal of success.

1. Assessment of Readiness and Attitudes towards E-learning

The success of digital learning or e-learning depends on the readiness as well as understanding of the needs of all stakeholders in a particular e-learning environment. Students' e-learning readiness is a very important feature to consider when implementing electronic learning in institutions. Digital learning also helps schools and institutions to arrange their geographically separated staff for their students, making them knowledgeable and skillful and their greatest efficiency but at a lower cost. To successfully implement e-learning in institutions or schools as their modern teaching methods, institutes must assess students' readiness, both quantitatively and qualitatively. Student readiness towards e-learning is one of the most demanding factors that should be considered before implementing e-learning as a part of the institutions and this makes e-learning particularly successful for the institutions. For online learners and teachers, computers and the internet are the basic instruments for the learning and teaching process. To successfully implement e-learning, the student, teacher and administrative staff must have technological skills to venture into an e-learning environment, this requires basic computer skills, online skills and computer application knowledge. Success in digital learning requires a new form of literacy and expertise of students. In the development of the student assessment tools, several existing parameters have to be considered such as student online readiness and technical skill of self-evaluation. The global learning community is now at students' fingertips, students can learn through various technologies and tools, beyond their boundaries, therefore it also depends on student readiness to accept these digital processes.

In the current era, e-learning is a significant process that ensures teachers' and students' abilities in a digital establishment. Given the change in demography, change in industry expectations and new generation who seek the power of knowledge to transform their lives, they are grabbing this chance. It's very important to successfully implement instructional technology for user acceptance which may influence user attitude. As in the present learning process, digital formations are allocated with different variables, teachers and students virtually attached to these forms of teaching and learning. Various

studies show a student's attitude towards computer technology and the online learning technology environment. E-learning is one of the famous technologies adopted by higher learning institutes, the use of electronic media and tools used by the higher education teaching institute. Today universities and learning institutions are capable of providing training to learners in various ways because of technology. Most of the time, it complies with various technologies that assure digital improvement and knowledge enhancement as well. It is very often that adaptation of new technology is negatively received by the staff but students like computer-oriented study. In the long term, E-learning is the future. The pace of change and the learning process makes it very uncertain that the transfer of knowledge will be evolved which may be very important for the learners who are participating in the e-learning process to understand the role of e-learning in transferring knowledge. Therefore, sometimes despite the ability and the competence, learning institutions are not able to align digital learning with students' attitudes. E-learning also helps students self-paced and provides them the opportunity to speed up and slow down as their needs. Digital learning gives students multiple tools for self-directed learning which increase student skills too. Digital learning diminished the barriers to learning, opening new ways of learning. 24/7 accessibility makes convenient and easy scheduling and allows a greater number of participants in learning. With the help of the digital learning process, students make sure their abilities and improvement are better than traditional methods, as this process allocates exciting tools and methods of learning. It is often seen that digital learning is always better than traditional classrooms.

All types of education require different types of online learning platforms for students to learn. This e-learning process influences self-discipline, patience, sufficient knowledge of technical factors, ease of learning and use of software, readiness and attitudes and changes in skills related to time management systems. So, the present study focussed on the e-learning attitudes and the readiness of Pupil teachers as a whole need to be changed to engage and pay attention to the ability with learning projects and visual elements.

Methodological Framework

In the present investigation descriptive survey method is adopted by the researcher to assess and compare the Attitude and Readiness of pupil teachers towards e-learning with respect to gender and locality.

Population and Sample

The population of the present study belongs to all the pupil teachers of the NCR region of western Uttar Pradesh. A sample of 100 pupil teachers was selected by simple random sampling technique. The sample distribution is given in ***Table-1***

Table-1: Sample Profile

Groups		N		Percentage
Gender	Male	50	100	50%
	Female	50		50%
Locality	Rural	50	100	50%
	Urban	50		50%
Total =100				

Assessment Tools

Assessment of Attitudes Towards E-learning- In the present study, the researcher used ***Attitude Towards E-Learning Scale***

(ATELS-RD) constructed by ***Dimpal Rani*** to assess and compare the E-learning attitude of pupil teachers with respect to Gender and Locality. The scale has 65 items related to four dimensions, viz., (1.) E-Learning Interest, (2.) E-learning Confidence, (3.) Ease of E-learning and, (4.) Usefulness. The ***(ATELS-RD)*** scale is a five-point likert scale viz. Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD).

Assessment of Readiness towards E-learning

The Readiness Towards E-learning Scale (RTEL) was constructed by researcher to collect data about the readiness towards e-learning of pupil teachers. The scale is a five-point scale having 46 items related to five dimensions viz., 1. Computer Application Readiness (CAR), 2. Communication Readiness (CR), 3. Information Readiness (IR), 4. Self-Learning Readiness (SLR) and 5. Teachers' Readiness (TR)

Data Analysis

Objective 1: To study the E-learning attitude of Pupil teachers.

To interpret the data, descriptive statistics are used by the investigator. The sample of pupil teachers was categorized into various levels of e-learning. As per norms, for interpretation of the level of E-learning mentioned in the ATELS, the pupil teachers were categorized into five categories, viz. High, Above Average, Average, Below Average, Low level of attitude towards e-learning. The distribution of pupil teachers about the level of e-learning attitude is shown in ***Table 2*** and ***Fig.1***

Table -2*- Classification of Pupil teachers' level of attitude towards E-learning*

Level of E-Learning	**No. of Pupil Teachers**	**Percentage of pupil teachers**
High	9	9%
Above Average	8	8%
Average	42	42%
Below Average	30	30%
Low	11	11%
N=100		

Fig. 1 Distribution of level of E-learning attitude of pupil teachers

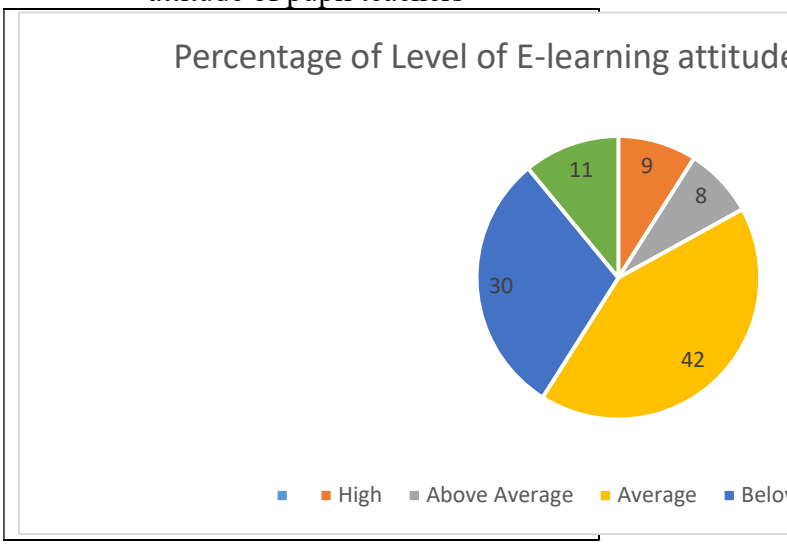


Table 2 and *Fig. 1* represents that only 9% responses indicated a high level of e-learning attitude, 8% responses indicated Above Average level of attitude and 42% responses indicated an Average level of e-learning attitude whereas 30% indicated towards below average level of e-learning and only 11% responses fall under low level of e-learning attitude

Objective 2: To compare the E-learning Attitude of Pupil Teachers with respect to Gender.

Hypothesis 1: There is no significant difference between the E-learning Attitude of Male and Female Pupil Teachers.

To study and compare the mean difference of the e-learning attitude of male and female pupil teachers, the investigator computed Mean, SD and 't' value based on the scores of responses

Table -3 Mean, SD and t-value of E-learning Attitudes of male and female pupil teachers

Gender	No. of students	Mean	SD	df	't' value	Remarks
Male	50	222.22	26.72	98	1.23	Insignificant
Female	50	229.34	30.98			

The above *table 3* presents that the calculated t-value 1.23 is less for df-98 at 0.05 level of significance. As the calculated t-value 1.23 at 0.05 level is not significant, the null hypothesis is accepted. Hence the e-learning attitude of male and female pupil teachers do not differ significantly and also inferred that both males and females are curious about electronic learning. The above findings may be supportive to the findings of ***Gupta, M., & Sharma, M (2018)*** revealed no significant difference between the attitude of senior secondary schools towards e-learning on gender, residential backward, stream basis and also ***Thakkar, S., & Joshi, H (2017***) showed a highly positive attitude of diploma Engineering students towards E-learning in their study. It's not affected by gender, locality or social category of students. This might be due to the reason that their family provides the basic electronic gadgets and positive environments to use these gadgets. Furthermore, they get equal guidance and support from teachers towards digital learning.

Hence, it may also be inferred that the female pupil teachers exhibit slightly more positive e-learning attitude than male pupil teachers as the average scores of male and female pupil teachers are 222.2 and 229.3 respectively. Similar findings by ***Sebnmen (2015)*** also indicated that the average score of females' e-learning attitude is higher than those of males but the difference between the mean scores was found insignificant.

Objective 3: To compare the E-learning Attitude of Pupil Teachers with respect to locality.

Hypothesis 2: There is no significant difference between the E-learning Attitude of Rural and Urban pupil teachers.

To study and compare the mean difference in the e-learning attitude of rural and urban pupil teachers, the investigator computed Mean, SD and t-score based on the scores of responses

Table 4- Mean, SD and t-value of E-learning Attitudes of Rural and Urban Pupil teachers

Gender	No. of students	Mean	SD	df	't' value	Remarks
Rural	50	218.72	25.57	98	2.5	Significant

Urb an	50	232 .84	30. 73			

The above *table 4* shows that the calculated t-value of 2.5 is more for df-98 at a 0.05 level of significance. As the calculated t-value 2.5 at 0.05 level is significant, the null hypothesis is not accepted. Hence the e-learning attitudes of rural and urban pupil teachers differ significantly and also inferred that the urban pupil teachers reveal more positive e-learning attitudes than rural pupil teachers as the average scores of rural and urban pupil teachers are 218.7 and 232.8 respectively. **Pathak, A., Makwana, K., & Sharma, P. (2019)** support the above findings and conclude that urban and suburban students have more positive attitudes and perceptions towards e-learning. Another finding by **Doley, P. (2020)** also proved that urban B.Ed. trainees have a more positive attitude towards e-learning than the rural trainees. This might be due to the reasons that urban pupil teachers could be more techno-savvy and get all the required digital facilities.

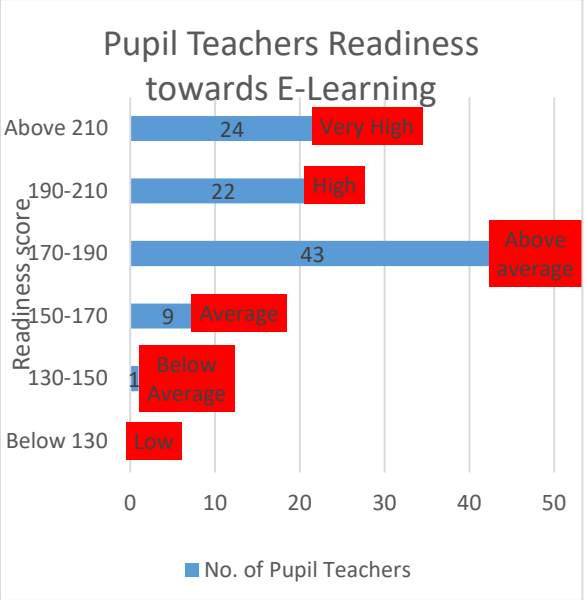
Objective 4: To study the E-learning Readiness of pupil teachers at different levels.

The sample of pupil teachers was categorized into various levels of e-learning readiness. Based on the norms for interpretation of the level of E-learning mentioned in the RTEL Scale, the pupil teachers were categorized into five groups, viz. Very High, High, Above Average, Average, Below Average, Low level of readiness towards e-learning. The classification of pupil teachers in relation to the level of e-learning readiness is shown in *Table 5* and *Fig.-2*

Table 5- Classification of Pupil teachers' level of Readiness towards E-learning

Readiness score	**No. of Pupil Teachers**	**Level of Readiness**
Below 130	1	Low
130-150	1	Below Average
150-170	9	Average
170-190	43	Above Average
190-210	22	High
Above 210	24	Very High
TOTAL	100	

Fig. 2: Bar Diagram based upon Frequency Distributions of Pupil Teachers Readiness in relation to the Level of E-Learning



The above presentation shows that Pupil teachers have different e-learning levels of readiness. Data reveals that 24% responses indicated a very high level of readiness, 22% responses indicated a high level of readiness towards e-learning, 43 % responses indicated above average level of readiness, 9% indicated an average level of e-learning readiness while only 2 % of indicated low level of readiness towards e-learning. It indicates that the pupil teachers of NCR region of Uttar Pradesh have a positive readiness towards e-learning. The above findings may be supported by the findings of **(Ozturk, D. S., Ozturk, F., & Rasit, O. Z. E. N. 2018)** who found that the readiness level of prospective teachers was above moderate. This might be due to the reason that the pupil teachers who belong to the NCR region of Uttar Pradesh are good at technical skills.

Objective 5: To compare the E-learning Readiness of Pupil teachers with respect to gender.

Hypothesis 3: There is no significant difference between the E-learning Readiness of Male and Female pupil teachers.

To study and compare the mean difference of the e-learning readiness of male pupil teachers and female pupil teachers, the investigator computed Mean, SD and 't' scores based on the scores of responses

Table 6- Mean, SD and t-value of E-learning Readiness of Males and Females Pupil teachers

Gender	No. of students	Mean	SD	df	't' value	Remarks
Male	50	186.3	20.96	98	3.05	Significant
Female	50	198.9	20.17			

The above *table 6* presents that the calculated t-value 3.05 is more is more for df-98 at a 0.05 level of significance. As the calculated t-value 3.05 at 0.05 level is significant, the null hypothesis is not accepted. Hence the e-learning readiness level of male and female pupil teachers differs significantly and also inferred that the female pupil teachers reveal a higher level of e-learning readiness than male pupil teachers as the average scores of male and female pupil teachers are 186.3 and 198.9 respectively. Reaching similar findings in their research **(Rafique, G. M., Mahmood, K., Warraich, N. F., & Rehman, S. U. (2021)** revealed significant differences of

opinion between female and male students but were higher in the males than in the females

Objective 6: To compare the E-learning Readiness of Pupil teachers with respect to Locality.

Hypothesis 4: There is no significant difference between the E-learning Readiness of Rural and Urban pupil teachers.

To study and compare the mean difference of the e-learning readiness of Rural and Urban pupil teachers, the investigator computed Mean, SD and t score based on the scores of responses

Table 7- Mean, SD and t-value of E-learning Readiness of Rural and Urban Pupil teachers

Gender	No. of students	Mean	SD	df	't' value	Remarks
Rural	50	181.9	17.4	98	5.73	Significant
Urban	50	203.3	19.8			

The above *table 7* presents that the calculated t-value 5.73 is more for df-98 at a 0.05 level of significance. As the calculated t-value 5.73 at 0.05 level is significant, the null hypothesis is not accepted. Hence the e-learning readiness levels of rural and urban pupil teachers differ significantly and also inferred that the urban pupil teachers reveal a higher level of readiness towards e-learning than rural pupil teachers as the mean scores of rural and urban pupil teachers are 181.9 and 203.3 respectively.

Discussion and Conclusion

After the investigation of data and results of the current study, it can be mentioned that

The pupil teachers of the NCR region of UP have a positive attitude towards e-learning as 17% indicated above average level and 42% have an average level of positive e-learning attitude whereas 30% indicated towards below average level of e-learning and only 11% responses fall under low level of e-learning attitude.

The E-learning attitude of the pupil teachers of the NCR region of UP was not significantly affected by gender. Also, the female pupil teachers exhibit slightly more positive e-learning attitude than male pupil teachers as the mean or average scores of male and female pupil teachers are 222.2 and 229.3 resp. This might be due to the reason that their family provides the basic electronic gadgets and positive environments to use these gadgets. Furthermore, they get equal guidance and support from teachers towards digital learning.

Attitudes of the pupil teachers of the NCR region of UP towards E-learning were significantly affected by locality and also the urban pupil teachers exhibited more positive e-learning attitudes than rural pupil teachers as the mean scores of rural and urban pupil teachers are 218.7 and 232.8 respectively. This might be due to the reasons that urban pupil teachers could be more techno-savvy and get all the required digital facilities.

Most of the pupil teachers of the NCR region of UP have positive readiness towards e-learning as approximately 90% indicated above average level of readiness and are ready for e-learning. This might be due to the reason that the pupil teachers who belong to

the NCR region of Uttar Pradesh are good at technical skills.

There is a significant difference between The e-learning readiness levels of male and female prospective teachers differ significantly and also the female pupil teachers exhibit a higher level of readiness towards e-learning than male pupil teachers as the average scores of male and female pupil teachers are 186.3 and 198.9 respectively.
The e-learning readiness levels of rural and urban prospective teachers differ significantly and also the urban pupil teachers exhibit a higher level of readiness towards e-learning than rural pupil teachers as the mean scores of rural and urban pupil teachers are 181.9 and 203.3 respectively.

The stylish way to improve the education level and ameliorate knowledge in a country is to prepare its citizens digitally knowledgeable as early as possible so that they can use the available digital gadgets and technologies (Gahlot, A., & Gahlot, S. 2020).

Educational Implications

Findings based on the current study, the following recommendations are suggested: -

- As female pupil teachers exhibit higher e-learning levels of attitude and readiness, male pupil teachers should be motivated and encouraged to use e-learning materials.
- The central and state governments should provide e-learning equipment and facilities to pupil teachers belonging to rural areas.
- E-learning programs should be organized by Teacher Education Institutions and pupil teachers should be encouraged to attain better e-learning experiences.
- The policymakers should provide guidelines to teacher education institutions that partial content of teacher education programs (B.Ed.) should be provided through e-learning platforms.

Suggestions for Further Investigations

The below suggestions given due consideration for furthering-

- The current investigation is limited to the NCR region of Uttar Pradesh of CCS University only and suggested to be conducted on pupil teachers of other universities also.
- Gender and Locality were taken as independent variables in the current study. Further researchers may investigate other variables such as stream, type of schools, socioeconomic status, etc.
- The present investigation was done over a sample of pupil teachers, future studies can be investigated on graduate and post-graduate students.
- The attitude and readiness of parents and teachers can also be investigated by future investigators.

References

- Gahlot, A., & Gahlot, S. (2020). Changing the state of literacy in the Digital Age in India. *EPiC Series in Education Science*, *3*, 98-107.

- Chi, T. P., Tu, T. N., & Minh, T. P. (2020). Assessment of information technology use competence for teachers: Identifying and applying the information technology competence framework in online teaching. *Journal of Technical Education and Training*, *12*(1).
- Matsumoto, S., Shibata, K., & Hattori, A. (2020). Mobile technology of learning and communication for students with disabilities. In Handbook of research on software for gifted and talented school activities in k-12 classrooms (pp. 265-281). Hershey, PA: IGI Global. https://doi.org/10.4018/978-1-7998-1400-9.ch012
- Olah, D. A. (2019). Technology tools for integration in the classroom. In Faculty roles and changing expectations in the new age (pp. 101-114). Hershey, PA: IGI Global. https://doi.org/10.4018/978-1-5225-7438-5.ch007
- Loyless, S. D., & Shaw, E. C. (2020). Beyond retreat and rebellion: Building teacher capacity for optimized student engagement and agency. In Leveraging technology to improve school safety and student wellbeing (pp. 227-243). Hershey, PA: IGI Global. https://doi.org/10.4018/978-1-7998-1766-6.ch013
- Taber, K. S. (2017). The role of new educational technology in teaching and learning: A constructivist http://journal.julypress.com/index.php/jed Vol. 4, No. 2; August, 2020 89 perspectives on digital learning. In A. Marcus-Quinn, & T. Hourigan (Eds.), Handbook on digital learning for K-12 schools (pp. 397-412). Singapore: Springer. https://doi.org/10.1007/978-3-319-33808-8_24
- Razali, H. A. M. (2019). Pedagogy 21st Century from perspective information and communication technology (ICT): The application in learning. International Journal of Science and Applied Science: Conference Series, 3(1), 56-62. https://doi.org/10.20961/ijsascs.v3i1.32480
- Ames, C. W. (2017). Teacher perceptions of factors influencing technology integration in k-12 schools. Master's thesis, Utah State University, Logan, UT.
- Atman Uslu, N., & Usluel, Y. K. (2019). Predicting technology integration based on a conceptual framework for ICT use in education. Technology, Pedagogy and Education, 28(5), 517-531. https://doi.org/10.1080/1475939X.2019.1668293
- Singh, V., & Riza, T. (2022). A Study On Attitude of Students Towards E-Learning. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, *13*(2), 632-640.
- Gupta, M., & Sharma, M (2018). A study on attitude of senior secondary school students towards e-learning in relation to their gender, residential

backward and nature, International Journal of Engineering, Science and Mathematics, 7 (1), 418-432.

- Thakkar, S., & Joshi, H (2017). Students attitude towards e-learning, International Journal of Advance Engineering and Research Development, 4 (11), 209-213.
- Pathak, A., Makwana, K., & Sharma, P. (2019). A study on student's perception and attitude towards e-learning. *Journal of the Gujarat Research Society*, *21*(16), 274-282.
- Doley, P. (2020). A study on B. Ed Trainee's attitude towards e-learning. *J Res Humanit Soc Sci*, *12*(8), 25-9.