

Available online @ www.iaraindia.com
RESEARCH EXPLORER-A Blind Review & Refereed Quarterly International Journal

ISSN: 2250-1940 (P) 2349-1647 (O)

Impact Factor: 3.655(CIF), 2.78(IRJIF), 2.77(NAAS)

Volume XI, Issue 38

July - December 2023

Formally UGC Approved Journal (63185), © Author

Perception of Primary Level Teacher Educators about Information and Communication Technology

HASANUJJAMAN HOSSAIN MONDAL

Assistant Teacher (Education), Debagram Mahadeb High School (H.S), Salbani

Dr. ARINDAM BHATTACHARYYA

Assistant Professor (Education), Serampore Girls' College, West Bengal

Abstract

Now we are living in knowledge based global society and Information and Communication Technology (ICT) has taken a key role of the society. Today without technology education system is blind. Now ICT has become necessary part of Indian school curriculum as well as teacher education. Therefore, the teacher educators are responsible to promote, utilize and implement of ICT that trainee student of each level can move from pedagogues to techno pedagogues. Therefore, the present teacher educators are expected to function as a facilitator for acquisition of knowledge through ICT. The pervasive influence of ICT possesses a serious impact to their wisdom, vision, zeal, thinking process and creativity. Based on the present scenario, it is very essential in perspective of West Bengal, to analyze the perception of primary level teacher educators about ICT. Therefore, the researcher used standardized tool viz. ICTPS (ICT Perception Scale) to gather relevant data from primary level teacher educators. It was developed by Bhattacharyya, Maiti & Halder (2015). An online survey was conducted on D.El.Ed. Colleges under three (3) districts, Nadia, Howrah, Hooghly of West Bengal. Collected data (122 samples) was analyzed through SPSS and significance of t value and F value were tested at 0.05 level. The present study revealed that the perception about ICT of primary level teacher educators had significant difference in respect of their gender, teaching experience and nature of institutions. The Study also provides some recommendation based on the research findings.

Keywords: Perception, Primary Level, Teacher Educators, Information & Communication Technology.

Background

Information and communication technology (ICT) is a force that has changed many aspects of the way we live. It is playing a big role in many disciplines like medicine, tourism, travel, business, law, banking, engineering and architecture. The impact of ICT across the past two or three decades has been enormous. The way these fields operate today is vastly

different from the ways they operated in the past because of the rapid development of technology. However, when one looks at education, there seems to have been lack of influence and far less change than other fields have experienced. But education is one of the most important investments in building human capital in a country and makes a nation technologically innovative and a good path to economic growth.

Thus, rapid growth and improvement in ICT have led to the diffusion of technology in education. Educational systems around the world are being increasingly pressurized to apply the new ICT tools to their curriculum to provide students with the knowledge and skills that they need in the 21st century. Their uses are also underlined by many scholars as a necessity for improving quality in teaching and learning. Over the past decades, governments and education systems around the world have regarded the use of information and communications technologies as an important issue for improving the effectiveness of teaching and learning. Development in computers, communication electronics and other multimedia tools provide a wide range of sensory stimuli. The animations, simulations, software packages to teach various subjects create virtual realities and experience for the learners, which in turn, help in making learning a more direct, useful and joyful. Learners' self-engaged learning is conceived as the core of good education. According to UNESCO (2011), "ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters". National Policy of Education (1986) commented on the need of technology in education as the infrastructure and services sectors as well as the unorganized rural sectors also need a greater induction of improved technologies. NCERT, NCTE and N.A.A.C. are also emphasized on proper implementation of I.C.T. for Teacher Education Program and utilization of I.C.T. tools. MHRD (2016) commented on implementation of ICT in school Education and ICT in schools has been already applied through the Rashtriya Madhyamik Shiksha Abhiyan (RMSA). 'ICT' in School education curriculum was launched in December, 2004 and revised in 2010 to provide opportunities to secondary stage students to mainly build

their capacity on ICT skills and make them learn through computer aided learning process. In teacher education program, ICT is used as an assisting tool, e.g., while making assignments, collecting data and documentation, communicating and conducting research. NCF (2005), NCFTE (2009) emphasized on the use of modern technology. In the field of school education, the National Policy on ICT in School Education (NPICTSE, 2010) gives importance on ICT. ICT based education is now an integral part of NEP (2020). Present policy suggested that the curriculum of teacher education must include essential ICT components at each level. During the Covid-19 pandemic situation, the online teaching-learning could meet the academic needs of the maximum learners in a wider way. Maximum educational institutions switched to online mode of teaching-learning. Different online platforms (WebEx, Zoom, Google Meet etc.) and various learning management systems (LMS) have been widely used for online teaching-learning during the lockdown period. Actually, ICT has converted the old teacher centered pedagogy to new learner centred pedagogy. This paradigm shift is possible only for ICT.

Indeed, there is a great need to nurture this technology to enhance the effectiveness of teaching-learning process. Most of the teacher Educators not properly use ICT because lack of proper knowledge, training and open-mindedness towards acceptance of changing environment of modern teacher education. Teachers' experience of using ICT and integration of ICT in teaching and learning, help to determine teacher educators' professional development and need for proper ICT application in the classroom. For this reason, knowledge of teacher about ICT should be proper and adequate. In this respect, the present researcher chooses the problem.

Literature Review:

Literature reviews on national and

international level are compiled and given below:

The study of Carter and Leeh (2001) revealed the different propensity of change in the use of ICT between two countries in age, career, education, and equipment and performance group comparison. But there was no evidence of difference in sex, subject, area, and school size, skill, and training groups between Korea and England. Goel et. al.'s (2003) study has reported stream wise, medium wise and gender wise significant differences in the mean achievement scores in the perception of B.Ed. student towards the course ICT in education. Gulbahar and Guven's (2008) study showed that although teachers were willing to use ICT resources and were aware of the existing potential, but they were facing some problems in relation to accessibility to ICT resources and lack of in-service training opportunities. The result also indicated that there was no significant relationship between teachers' awareness and their self-rated expertise level. The study of Teo (2008) showed that teachers were more specific about their attitude towards computers and intention to use computer than their perception of the usefulness of the computer and their control of the computer. Drent and Meelissen's (2008) study revealed that student oriented didactical approach, decisive attitude towards computers, clear experience of computers, and personal enterprise of the teacher educators has a direct positive influence on the innovative use of ICT by the teacher. Tella et. al.'s (2010) study showed that teachers generally have access to ICTs in their schools. But the Nigerian secondary schools are lacking technical supports and teachers are lack of expertise in using ICTs during lesson. Kutleca's (2011) study showed that the prospective preschool teacher use computers more at home and internet cafes and their levels of using computer programme were intermediate or upper. There was a significant difference

according to the different variables, but there was no significant difference according to the variables of gender. Kumari and Babu's (2012) study revealed that the level of knowledge of ICT possessed by secondary school English teachers was poor and as such, they rarely use ICT in their instruction process. Paul and Mondal (2012) observed that the ICT in enhancing quality of live of secondary level schools of Burdwan district, West Bengal. There has been significant positive influence on quality of education throw ICT by taking into consideration the various factors. Anitha's (2013) study indicates that there is a significant difference between male and female teacher educators perceptions with respect to the different aspects of the application of Computers in Teaching Learning Process (TLP). Lastly, there is a significant difference between M.Sc., M.Ed., and M.A., M.Ed., qualified teacher educators perceptions with respect to the different aspects of the application of Computers in TLP but they had shown positive response in this context. Mia and Haque's (2013) study indicate that perception of primary school teachers about the ICT is positive irrespective of sex, level of profession, type of institution, marital status and age. But the usage level of ICT is not satisfactory whether the teacher is married or single, senior or junior or headmaster, male or female and government or non-government. The study also indicated that teachers have deficiency in usage and training of ICT. Bhattacharyya and Maity's (2013) study revealed that there exists a difference in use of ICT Tools between male and female teacher educators, but such difference is not found between junior and senior teacher educators and there is a significant difference in use of ICT Tools among the teacher educators of different streams— language, social science and science. Bhattacharyya et. al. (2014) survey study revealed that there exists significant difference in ICT perception between of

teacher educators of Government financed and self-financed B.Ed. Colleges, but such difference is not found among male – female and senior – junior teacher educators. Gebremedhin and Fenta's (2015) survey study shows that teachers have strong positive perception to use ICT in teaching-learning process (TLP). There is significant relationship between teachers' perception towards ICT integration into TLP and the factors that encourage ICT usage. Majority of the teachers pointed out about the teachers' technical knowledge and shortage of resources as barriers. The study of Philomina and Amutha (2016) indicate that Indian teacher educators' awareness towards ICT differs regarding gender and subject. Payal and Kanvaria's (2018) study indicate that the barriers found to be significant in using ICT tools by teachers were: limited accessibility and network connection, limited technical support lack of effective training, limited time and lack of teaching competency. Mahdum et. al.'s (2019) study showed that the teachers had a good level of perception and motivation toward ICT integration in learning activities. But, they still faced with several issues related to facilities and technical expertise of ICT. Bhardwaj's (2020) study found that student-teachers of high ICT group and medium ICT group performed better in professional interest than student-teachers of low ICT group. A significant positive correlation exists between ICT competency and professional interest of male as well as female student-teachers. The study of Hasan (2020) showed that the online teaching emerged as a potential tool to support students' learning remotely and maximum educational institutions across India and worldwide switched to online mode of teaching-learning. Bordoloi et. al.'s (2021) study found that the extensive use of open educational resources, massive open online courses (MOOCs), social media and online meeting apps during the Covid-19 lockdown, has a big impact in the ways of educational transactions.

Through this study, a new social constructivism has been visualized to know the acceptability of online/blended learning opportunities on the part of the teachers and learners across India. Mensah and Osman's (2022) study revealed that the teachers had a positive perception that incorporating ICT into the Social Studies teaching and learning. But significant differences in the perception were found among teachers based on age, gender and teaching experience. The findings of the study also showed that ICT tools were found to be limited in the schools. In the study of Aivazidi and Michalakelis (2023), Teachers' perceptions of ICT, self-efficacy on computers and demographics are some of the factors that have been found to impact the use of ICT in the educational process. These results provided useful insights for the achievement of a successful implementation of ICT in education. Paramasivan. C (2015) Education becomes a powerful weapon to the socio-economic setup of the country which brings colorful changes in almost all the stakeholders. Providing quality and time bound education to the students is the vital role of the educational system of the country particularly in higher education which is highly knowledge based, innovation oriented and research centred.

Critical Appraisal of the Previous Literature:

In this literature review work, both national and international studies were taken. Majority of the studies have been worked on knowledge, usage, attitude, perception, motivations, awareness, competencies, professional interest and barriers of ICT at the level of school and college. Both National and International studies have reported gender wise, stream wise and location wise. Majority of the research works used survey research design of descriptive research method and a few studies used qualitative research design also. Most of the research studies used self-made Likert-type scale to collect data and these studies used medium size of

samples. Major studies have some important recommendations.

Keeping all those observations, objectives, hypotheses and research method will be formulated for the future study.

Objectives of the study:

1. To study the Perception of primary level teacher educators towards Information and Communication Technology (ICT).
2. To compare the perception of male and female primary level teacher educators about ICT.
3. To compare the perception of senior and junior primary level teacher educators about ICT.
4. To compare the Perception of primary level teacher educators about ICT, belonging to Government financed and self-financed Primary Teacher Training Colleges.
5. To compare the perception of primary level teacher educators about ICT belonging to different Groups (i.e. Language group, Social science group, Science group).

Null Hypotheses:

H₀1: There is no significant difference in the perception about ICT between male and female primary level teacher educators.

H₀2: There is no significant difference in the perception about ICT between senior and junior primary level teacher educators.

H₀3: There is no significant difference in the perception about ICT between primary level teacher educators, belonging to Government financed and self-financed primary teacher training Colleges.

H₀4: There is no significant difference in the perception about ICT among the primary level teacher educators belonging to different educational specialisation group.

Methodology

Design of the Study: In the light of critical appraisal of previous literature, it is found that perception about ICT have some relevance to the gender, teaching experience and nature of the institution. In order to get the proper reflection, the investigator used survey research design of descriptive research method in his study. Here survey research method is quite effective than other methods.

Population: Fulltime primary level teacher educators of different primary level teacher education colleges (i.e. D.El.Ed. Colleges & DIET) of West Bengal were considered as population of the study. Such information collected from the related institutional website.

Sample: Stratified random sampling technique was adopted in the study. Sample of Primary Level Teacher Educators were collected from regular mode D.El.Ed. Colleges and DIET of Howrah, Hooghly & Nadia District of West Bengal. Here, teacher educators having more than ten (>10) years of teaching experience were to be considered senior, and below it (< 10) were junior teacher educators. Fulltime primary level teacher educators were taken only for the study. Completely filled-up Google response-sheets of 122 samples (i.e. primary level teacher educators) were considered for the study. Gender wise, teaching experience wise and nature of the institution wise distribution of sample is given in the following table (1):

Categorical Variables	Gender		Teaching Experience		Nature of Institution		Educational Specialisation Group (E.S.G)			Total
	Male	Female	Junior	Senior	Govt. Funding	Private Funding	Science	Social Science	Language	
	70	52	108	14	13	109	32	53	37	122

Variables:

In this study, the investigator considered following two types of variables:

- a) **Major Variables:** Perception about ICT.
- b) **Categorical Variables:** Gender (Male & Female), Teaching Experience (Senior & Junior) and Nature of Institution (Government Funded & Private Funded).

Tools:

The investigator used a standardized tool viz. ICT Perception Scale (*ICTPS*) to gather relevant data from the respondents (i.e. Primary Level Teacher Educators). *ICTPS* is a five-point Likert type scale and consisted of thirty-two (32) test items. It was properly standardised, having high content validity (*0.825*) and reliability (*0.846*). The scale was developed by *Bhattacharyya, Maiti & Halder (2015)*.

Procedure of Data Collection, Presentation and Analysis of Data

Data Collection: Data was collected from the subject (i.e. Primary Level Teacher Educators) personally through emails. Necessary prior permission was obtained from the subject for online data collection. It was assured to them by phone or WhatsApp that the response regarding personal information and other information would be kept secret and be used for research purpose only. The teacher educators were given written short instruction by email regarding the filling of their responses. The research tools as a form of Google-sheet were forwarded to them through email and they required approximately one week for completing and return back.

Data Presentation: Completely filled-up responses by teacher educators were taken into consideration as sample. Collected data were tabulated and organized for analysis and interpretation.

Analysis of Data: Quantitative analysis was used in the study. Both descriptive and inferential statistical analyses were done here. Descriptive statistics like Mean, S.D. was calculated for all the groups and for all the scores. After that, inferential

statistical analyses like t-test, ANOVA were done to find out the mean differences. The Significance of t values was tested at 0.05 level of significance. The whole organized data were analyzed through SPSS.

Results and Discussion

Results of the Study: Result of descriptive statistics and the result of hypotheses testing are given below:

Categorical Variable	Group	N	Mean	S.D.	Std. Error
Gender	Female	52	116.59	9.58	1.33
	Male	70	121.57	11.86	1.42
Teaching Experience	Junior	108	120.28	11.43	1.10
	Senior	14	113.07	6.07	1.62
Nature of Institution	Govt.-financed	13	114.23	5.81	1.61
	Private -financed	109	120.07	11.51	1.10
Educational Specialisation	Science	32	118.81	11.60	2.05
	Social Science	53	118.92	11.66	1.60
	Language	37	120.75	10.24	1.68

In Case of Objective 2:

At first, for the Objective 2, to compare the perception of male and female primary level teacher educators about ICT, Null Hypothesis 1 is tested here by employing ‘t’ test and the result is presented in table.

Variable	Group	t-value	df.	P. Value	Result
Gender	Female	2.482	120	.014	H ₀ 1 Rejected
	Male				

It is found from the table 3 that in case of male and female primary level teacher educators, the calculate $t_{(120)}$ value is 2.482 and ‘P’ value is .014 ($p < .05$). Hence, ‘t’ is significant at 0.05 levels. So, Null Hypothesis 1 is rejected and it can be safely said that male primary level teacher educators are significantly different from female primary level teacher educators in respect to their perception about ICT.

In Case of Objective 3:

According to the Objective 3, to compare the perception of senior and junior primary level teacher educators about ICT, Null Hypothesis 2 is tested here by employing ‘t’ test and the result is presented in table.

Variable	Group	t-value	df.	P. Value	Result	Groups			Accepted
						Within			
Teaching Experience	Junior	2.310	120	.023	H ₀₂ Rejected	15029.384	119	126.297	
	Senior					Total	15120.205	121	

It is found from the table 4 that in case of Junior and senior primary level teacher educators, the calculate $t_{(120)}$ value is 2.310 and ‘P’ value is .023 ($p < .05$). Hence, ‘t’ is significant at 0.05 levels. So, Null Hypothesis 2 is rejected and it can be safely said that senior primary level teacher educators are significantly different from junior primary level teacher educators in respect to their perception about ICT.

In Case of Objective 4:

According to the Objective 4, to compare the perception of teacher educators about ICT, belonging to Government financed and self-financed Primary Teacher Training Colleges, Null Hypothesis 3 is tested here by employing ‘t’ test and the result is presented in table.

Variable	Group	t-value	df.	P. Value	Result
Nature of Institution	Government - financed	1.798	120	.075	H ₀₃ Accepted
	Self - financed				

It is found from the Table 5 that in case of Government - financed and Self - financed primary level teacher educators, the calculate $t_{(120)}$ value is 1.798 and ‘P’ value is .075 ($p > .05$). Hence, ‘t’ is not significant at 0.05 levels. So, Null Hypothesis 3 is accepted and it can be safely said that Government - financed primary teacher educators are not significantly different from Self - financed teacher educators in respect to their perception about ICT.

In Case of Objective 5:

Now, according to the Objective 5, to compare the perception of teacher educators about ICT, belonging to Different Educational Specialization Groups (i.e. Language Group, Social Science group, Science Group), Null

ICT Perceptio	Sum of Squares	df.	Mean Square	F	P. Value	Result
Between	90.821	2	45.410	.360	.699	H ₀₄

Hypothesis 4 is tested here by employing one way ANOVA and the result is presented in table.

It is found from the Table No 6 that in case of one way ANOVA the calculate df of F (2,119) value is .360 and ‘p’ value is .699 ($p > .05$). Hence, ‘F’ is not significant at 0.05 levels. So, Null Hypothesis 4 is accepted and it can be safely said that there is no significant difference in the perception about ICT among the primary level teacher educators belonging to different educational specialization group (Language, Social Science and Science).

Discussion on the Research Findings:

- ❖ It can be observed from table 3 that male primary level teacher educators are significantly different from female primary level teacher educators in respect to their ICT perception. Similarly, Goel.et.al (2003), Philmina & Amutha (2016) and Mensah and Osman (2022) found the significant gender differences in their studies. But Kutleca (2011) did not found any gender disparities in the study.
- ❖ It is found from the table 4 that senior primary level teacher educators are significantly different from junior primary level teacher educators in respect to their ICT perception. Similarly, such difference is found in the study of Mensah and Osman (2022) and it is not found in the study of Bhattacharyya et.al (2014).
- ❖ It is also found from the table 5 that Government - financed primary level teacher educators are not significantly different from self - financed primary level teacher educators in respect to their ICT perception. But such

difference is found in the study of Bhattacharyya et.al (2014).

- ❖ It can be observed from table that there is no significant difference in the perception about ICT among the primary level teacher educators belonging to different educational specialization group (E.S.G). Similarly, Carter and Leeh (2011) did not found any such evidence in their study. But Philomina & Amutha (2016) found that Indian teacher educators' awareness towards ICT differs regarding their subject.

Conclusion on Result and Discussion:

The present study reveals that there is significant difference in the perception of ICT among the primary level teacher educators in relation to their gender and teaching experience. Thus, the teacher educators' perception about ICT is not found at the same level. So, there is great need to increase the awareness and training on ICT. Because, it is expected now that they can meet the up-coming challenges due to ICT intervention and incorporation in the post-Covid teaching-learning world. The present study also reveals that, there is no significant difference among the primary level teacher educators of different educational specialization groups i.e. language, social science and science groups. It is good sign for teacher education program in West Bengal. It is noticeable and we expect that in future concern about ICT will be very sound and more progressive.

Educational Implication of the Study:

Based on the above research findings, educational implications of the study are given below:

- a) ICT assisted infrastructure development is urgent requirement for D.El.Ed. Colleges of west Bengal.
- b) West Bengal Board of Primary Education (W.B.B.P.E.) should enrich the D.El.Ed. Curriculum with a view to consolidating the usage of ICT based

blended teaching-learning system as per N.E.P. (2020) and UGC Guideline.

- c) Educational stakeholders should be given more importance in teacher educators' ICT awareness, skill, knowledge, attitude, perception and competencies in the post-Covid situation.
- d) It should be given importance in regular ICT orientation programme through blended mode seminar, workshop, and training and proper use of ICT in the field of teacher education.
- e) There is a need to improve the interest, attitude, awareness and motivation towards ICT by teacher educators for their professional development.

Limitations of the study:

Present study has following limitations:

- 1) The large number of sample is not taken here for data collection purpose.
- 2) The researcher has faced problem during online data collection due to unwillingness of data providers.
- 3) If the researcher considered more categorical variables in the study, the result would have been more informative.
- 4) Besides in the prospective of educational specialization, language, social science and science the more group like art and craft, music, physical education will be include then the result will be more beneficial.

References

1. Aivazidi , M . and Michalakelis , C . (2023) . *Information and Communication Technologies in Primary Education: Teachers' Perceptions in Greece , Informatics . 10(3):57*
2. Anitha , M . (2013) . *A study on the perceptions of Teacher Educators towards the application of Computer in Teaching Learning Process , (Unpublished Doctoral Dissertation) Andhra University, Andhra Pradesh , India .*
3. Bhardwaj , Babita . (2020) . *Study of ICT Competency and Professional Interest of Student-Teachers . IISRR- International Journal of Research , 6 (III) .*

4. *Bhattacharyya , A . & Maiti , N. C. (2013). A Comparative Study on Usage of ICT Tools by Teacher Educators in West Bengal , Sikshanchintan , 7, 155-163 .*
5. *Bhattacharyya , A . , Maiti , N. C. & Halder Md. K . (2014) . The teacher Perception about Information and Communication Technology in West Bengal , Sikshanchintan , 8 , 167-175 .*
6. *Bhattacharyya , A . , Maiti , N. C. & Halder , Md . K . (2015) . Construction of five point Likert Type scale to Measure the Perception of Teacher Educators about ICT, International Journal of Educational Research , 1 (4), 59-77.*
7. *Bordoloi, R . , Das , P. & Das , K . (2021). Perception towards online/blended learning at the time of Covid-19 pandemic: an academic analytics in the Indian context , Asian Association of Open Universities Journal , 16 (1) , 41-60 . DOI 10.1108/AAOUJ-09-2020-0079*
9. *Carter , D. S. G. & Leeh , D. J. K. (2001) . Validating Behaviourial Change: Teachers Perception and Use of ICT in England and Korea , A Project Report School of Education , University of Exeter.*
10. *Drent , M . and Meelissen , M . (2008) . User acceptance of information technology: Theories and models , Annual Review of Information Science and Technology, 31, 3-32 .*
11. *Gebremedhin , M . A . & Fenta , A . A . (2015) . Assessing Teachers' Perception on Integrating ICT in Teaching-Learning Process: The Case of Adwa College , Journal of Education and Practice , 6 (4) .*
12. *Goel , D . R . , Das , A . & Shelat , P. (2003) . ICT in Education: A Challenging Experience , A project report UGC SAP . Vadodara : CASE , the M.S. University of Baroda .*
13. *Gulbahar , Y. and Guven , I . (2006) . A Survey on ICT Usage and the Perceptions of Social Studies Teachers in Turkey. International Forum of Educational Technology & Society , 11 (3), 37-51.*
14. *Hasan , N . (2020) . Online teaching-learning during covid-19 pandemic: students' perspective . The Online Journal of Distance Education and e-Learning , 8 (4) , 202-213 .*
15. *Kumari, A. & Babu, A. (2012). Assessment of Teacher' Knowledge and Use of ICT in Teaching English , Indian Journal of Education (DEVALOKE) , 50-65.*
16. *Kutluca , T . (2011) . A study on computer usage and attitudes toward computers of prospective preschool teacher. International Journal on New Trends in Education and Their Implication , 2.*
17. *Mahdum , Hadriana , & Safriyanti , M . (2019) . Exploring teacher perceptions and motivations to ICT use in learning activities in Indonesia . Journal of Information Technology Education: Research , 18, 293 - 317.*
18. *Mensah , E. G. and Osman , S . (2022) . Senior High Schools Teachers' Perception of Integrating ICT into Social Studies Lessons in the New Juaben Municipality . Social Education Research , 3 (1).*
19. *MHRD, (2010) . National Policy on ICT in School Education, Draft, Last revision: 23 March, 2012.*
20. *MHRD , (2016) . Overview of ICT in school Education . New Delhi: MHRD .*
21. *MHRD , (2020) . National Education Policy 2020 . New Delhi : MHRD .*
22. *Mia , A . & Haque , Z . (2013) . Perception and usage level of ICT of the primary schoolteachers in Bangladesh , Bangladesh journal of MIS , 6 (1) .*
23. *Paramasivan. C (2015), Conventional Methods of Training to Teacher and Its Impact In Higher Education, Advanced Scientific Research &Development (IJASRD), Volume 02, Issue 04 (Oct – Dec '2015) | PP 01 – 09*
24. *Paul , P. K . & Mondal , N . K . (2012) . Integration of ICT in school Education an analysis study in Burdwan district in west Bengal, India, Journal of Radix International Educational and Research.*
25. *Payal and Kanvaria , Vinod Kumar . (2018). Learning With ICT: Use & Barriers From Teachers' Perceptions , International Journal of Recent Scientific Research. 9 (1), 23545-23548.*