

## The Evolution of Brand Identity in Digital Media: Analysing the Role of Visual Communication on design characteristics in the contemporary era.

**Dr. Ramkrishna Ghosh**

Associate Professor of Visual Arts. Mangalayatan University, Aligarh, Uttar Pradesh (India).

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### ABSTRACT

Rapid social change and the expansion and advancement of civilization are linked to the sophisticated use of technology (Daniels, 2002). Such growth is dependent on how well the education system performs. Information, communication, and technology (ICT) are crucial skills like reading, writing, and numeracy, but they are also a negative aspect of the education sector today. As a result, students who want to study well should be somewhat proficient in ICT, which is a crucial instrument for both teaching and research (Yusuf, 2005). In order to make the system seamless, error-free, and transparent, the majority of academic activities in schools today use information and communication technology technologies (Davis & Tearle, 1999; Lemke & Coughlin, 1998; Yusuf 2005). The use of ICT in elementary education has suddenly increased during covid time but the use of this technology in government schools was not satisfactory.

### *ICT use in the Teaching-Learning process*

The use of digitization in the classroom is widely accepted. It is an approach that can be used in place of more conventional teaching and learning strategies. Additionally, this lessens the distance between the traditional learning process and the students' corresponding skill development. It assists the student in acquiring the necessary abilities and information to join the "information economy" (Kozma, 2011; p. 106). According to Kozma's research, there should be a link between ICT and the school's curriculum structure, and the curriculum should be designed to support ICT-enabled learning so that students can use and learn advanced technical tools and digital resources that encourage them to think creatively and innovatively about the subject. Students, instructors, and parents found it extremely difficult to assist their children in their academic system during the epidemic (Huber & Helm, 2020). Since ICT is a medium for teaching and learning, communicating with students, and providing information as needed, it has the potential to help close the learning gap for students. At the time, the only other way to learn was through virtual teaching (Eickelmann & Gerick, 2020). According to a meta-analysis by Chauhan (2017), digital technology is a new aspect of teaching and learning that offers students several chances to study things outside of their course requirements. Thus, ICT use has emerged as a crucial instrument that for higher studies but for the elementary and secondary school systems.

### *ICT uses among Teachers*

Teachers are technologically competent if they demonstrate an E-readiness or the mentality to employ technology for achieving specific instructional goals (Parasuram, 2000; Lawson & Comber, 1999). Teachers and students can embrace technology in the classroom if they can become e-ready to share knowledge (Vrasidas & McIsaac, 2001). There are both favorable and unfavorable opinions on using technology in the classroom. For example, teachers will be more inclined to use technology if they believe that ICT training is beneficial (Galanouli, Murphy & Gardner, 2004). Teachers become more receptive to the learning process and the teaching approach becomes more creative when ICT is used, according to Baylor & Ritchie (2002).

As demonstrated by students' ability to modify language with the aid of specialized software and direct computer interaction, Cope & Ward (2002) discovered that a positive perspective of technology also arises from the recognition of its impact on students' performance. Conversely, the absence of infrastructure, knowledge, competence, and resources such as technical training support is the reason for the unfavourable image of technology use (William et al., 2000; Leaks, 2001; Samuel & Bakar, 2003; Pelgrum, 2001). For example, Pelgrum (2001) found that the most common reason for unfavourable opinions about technology is a lack of access to computers. A shortage of computers frequently results in lack of access, which irritates teachers (Samuel & Bakar, 2005).

According to Wong et al. (2006), technology used in the classroom greatly enhances in-person instruction and learning. It is frequently held that using computers helps children learn more, lessens the amount of instruction they receive, and gives teachers more time to serve pupils with specific needs. Additionally, teachers can enhance their pedagogical abilities, cultivate their capacity for analysis and interpretation, and apply these skills to the learner's page with the use of information and communication technology-based instruction.

Teachers have certain challenges when utilizing ICT, such as extrinsic variables including time, resources, support, training, and technological access (Ertmer, 1999). Conversely, instructors' attitudes, beliefs, practices, and resistance are associated with internal characteristics.

Apart from there are some other issues like poor infrastructure like less number of computers, internet, and software and a lack of trained staff who can help others to handle this technology and work overload (Pelgrum, 2001).

From the discussion above, it is evident that there are several challenges when it comes to using ICT in education, particularly in the classroom. Some of these include teachers' tool-use skills, resistance to change, time constraints brought on by job overload, and the need for infrastructure and training support. However, pupils benefit from a more condensed teaching-learning process because to the usage of this technology. The study tried to investigate, from the viewpoints of instructors, how well information and communication technology works as a technical process for the teaching-learning process in schools. The efficacy of the learning process across different academic fields is also assessed by the study. It examines critically the average variations in how educators view ICT across a range of knowledge.

### **Skills required for ICT use among teachers:**

The implementation and use of ICT by teachers as a teaching and learning instrument is the basis of the current topic. In order to use ICT, teachers must be familiar with computers, the internet, and cellphones. It is assumed that most instructors possess a basic understanding of computers. Budiman, 2012. As a result, educational institutions ought to keep up the bare minimum of computer and Internet infrastructure. According to Faridi (2009), the benefits of the internet include a bigger network, a connection at any time, a quicker communication and information search process, the ability to make learning systems more participatory, and the improvement of peer learning.

Conversely, Inggit (2011) talked about the minimal abilities needed by a teacher to use ICT effectively. A teacher should be able to use a computer, maintain and fix simple computer problems, understand the fundamentals of Word, Excel, and PowerPoint, manage databases, and create interactive presentations. A teacher should therefore be familiar with the fundamentals of computers and how they work. The use of ICT is a topic of much discussion and controversy, but despite the ongoing digital transformation and the reality that teachers still lack the operational expertise necessary to use ICT for teaching and learning, this is still the case. The usage of ICT by instructors is fraught with difficulties.

According to Mirzajani, Mahmud, Ayub, and Luan (2015), instructors are unable to carry out ICT-based teaching-learning because they lack the necessary infrastructure, training, time, expertise, and self-interest. Hadriana (2017) added that teachers' lack of interest in using ICT is caused by a variety of factors, including inadequate ICT infrastructure in schools, a lack of computer skills, the ICT process, and an increased burden for teachers. According to several other research, one of the most difficult aspects of implementing ICT in the educational system is the absence of operational competencies and

assistance for capacity building (Amuko, Miheso, & Ndeuthi, 2015). Nonetheless, the elements influencing the effectiveness of ICT use in the classroom are not distinct from one another. The ability of teachers to incorporate ICT into their lessons depends equally on their presence.

According to a study by Ojo & Adu (2018), teachers who lack ICT knowledge and abilities are not motivated to use it as teaching-learning resources; on the other hand, those who lack infrastructure facilities find it difficult to include ICT into their lesson plans. Thus, the success of ICT deployment in schools is closely linked to both elements, such as facilities and teacher competency (Hong, 2016). Therefore, it is evident from the discussion above that a teacher must cultivate a favourable opinion of ICT and its appropriate application.

The perceptions of instructors and students as well as the IT infrastructure that is accessible in schools play a role in how ICT is used in the classroom. In West Bengal, over 85% of schools are sponsored by the government, however only 16% of schools have computers, 15.8% have working computers, and 15.5% have internet access (Source: UDISE-2021-22). Poor infrastructure is thus indicated by these data (Karunaratne, Peiris, & Hansson, 2018). Along with inadequate IT infrastructure, the government lacks the institutional and financial resources as well as the technical personnel necessary to maintain it (Lim & Pannen, 2012).

The researchers also point out that although instructors today are proficient in ICT, they are unclear about how to use this technology into their academic curricula, which is a methodological aspect (Muslem, Yusuf, & Juliana, 2018; Prasojo et al., 2018). Thus, institutional support is a catalyst for the development of teachers' competencies and capacity to integrate ICT in the classroom (Mwawasi, 2014). As a result, teachers should receive training to improve their technical proficiency in ICT use and learn how to solve complex problems (Michael, Maithya, & Cheloti, 2016; Ojo & Adu, 2018). They should also receive effective training in ICT methodology so they can feel comfortable using ICT as a teaching-learning tool and spread their favorable perception among (Prasojo et al. 2018).

The majority of schools don't use ICT, both for infrastructure and teacher focus. Occasionally, they refuse to alter the procedure (Papanastasiou & Angeli, 2008). According to Mwila (2018) and Tezci (2009), increased ICT use is closely linked to teachers' attitude development. It implies that more use improves system adaptability and lowers technical challenges (Azmi, 2017). Despite these connections, Papanastasiou & Angeli (2008) clarified that teacher perception plays a significant role in the successful use of ICT as a learning component and influences teachers to make wise decisions regarding ICT integration in the classroom, particularly in school settings where teachers play a significant role in the educational process.

According to Tondeur and Zhu (2011), instructors' positive attitudes allow them to use a variety of teaching-learning methods that enhance the interest and enjoyment of learning. Conversely, educators who are resistant to change often steer clear of incorporating ICT-based teaching strategies into the curriculum. According to Marshall (2016), teachers' opinions on ICT vary and are frequently impacted by the belief that integrating ICT into school curricula necessitates ongoing training and becomes teachers technologically reliant. Additionally, teachers believed that modernizing ICT skills was a good way to manage courses with time constraints and lesson plans.

Cope and Ward (2002) described that proper knowledge about ICT use, adequate access to classroom settings, and philosophical explanation of technology supporting meaningful learning, positively influences the perception and use of ICT in the classroom by most of the teachers. Weber (2021) noted that better training provided to teachers by the institution enhances the successful implementation of technology in the learning process. Researchers also elucidated that schools of higher socioeconomic status can smoothly include technology in their education system since students of such schools have higher access to technology at home and therefore can fulfill curriculum-related demands more appropriately using technology.

Considering the mentioned studies previously done, it is a fact that the use of ICT is indispensable in today's teaching-methodology process. However, implementation of ICT use in the curriculum still

has a long way to go, owing to its' less acceptance among teachers. Hence it is important to understand the teachers' perspectives regarding ICT use, to smoothen the process, acceptance, and implementation.

Need of this study: Mahdum et al. (2019) stated perceptions and motivation of teachers in ICT use in the teaching learning process are the two important determinants of successful integration of learning activities. (Al-Awidi & Aldhafeeri, 2017; Qasem & Viswanathappa, 2016). It not only allow teachers to prepare and assist in classroom but also encourage students to learn autonomously outside the classroom and make teaching learning process more effective (Kristianto, 2017; Pramana, 2018). Studies also mentioned that ICT based teaching helps students to prove prompt feedback, easily access to course design and therefore enhance students' performance (Gopal et al, 2021, Kauffman, 2015).

The current study, therefore, purported to explore the teachers' perspectives regarding the use of ICT in the teaching-learning process and its effectiveness in school education. This was done using the exploratory factor analysis technique. Further, gender differences in the perspectives of the teachers were examined. Differences in perspectives on ICT use were also examined among teachers having different academic backgrounds.

### Objectives of the Study:

The present study addressed three specific issues. These are:

- i. To evaluate the factor structure of teachers' perspectives of ICT use in the teaching-learning process in school education.
- ii. To check if gender differences exist concerning the differences in perspectives on ICT use in the classroom.
- iii. To examine if teachers from different academic backgrounds have significantly different perspectives on ICT use in the classroom.

### Method

**Participants:** Participants were 138 teachers (Mean age=38.47; SD=7.43) from different category of private school in the disciplines of Science, Arts, and Commerce belonging to three different districts of West Bengal.

**Tool:** A series of 21 statements regarding the efficacy of student ICT use were posed to participants. Five response options were available for the statements: "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree."

**Procedure:** The higher secondary schools in each of the three districts granted permission for the data collecting. Teachers were contacted for data collection after clearances were secured. Teachers were given the set of statements in small groups. Following data collection, various statistical approaches were employed to clean and evaluate the data.

**Statistical Analysis:** Principal Component Analysis (PCA) was used to examine the component structure of the teachers' perception of ICT use. Cronbach's alpha was used to assess the internal consistency of the retrieved variables of teachers' perceptions of ICT use in the classroom. The mean differences in their perception with respect to their gender and educational background were also investigated using a t-test and a one-way Analysis of Variance.

### Results

**Descriptive Statistics:** Table 1 shows the mean and standard deviation of the 21 items. The mean values of all 21 statements ranged between 4.14 to 4.45, while the standard deviation value ranged between .54 to .81.

Table 1. Descriptive statistics of the 21 statements (N=138)

Components of ICT	Mean	Std. Deviation
Q1- ICT helps to present the lesson	4.14	.543
Q2- Attractive learning	4.28	.637
Q3- Comfortable learning	4.29	.675
Q4- Make lesson more interesting	4.46	.568
Q5- Adapt new style than personal process of teaching	4.38	.812
Q6- Better knowledge sharing	4.38	.664
Q7- Require more time flexibility	4.45	.640
Q8- Creative for preparing teaching content	4.30	.700
Q9- More engaged the lesson	4.34	.710
Q10- Bonding with tools	4.33	.756
Q11- Easy understand of difficult problem	4.25	.736
Q12- Evaluate progress quickly and effectively	4.16	.785
Q13- Integrating learning with other tools	4.15	.714
Q14- Link to real life practice	4.30	.666
Q15- Better of construct knowledge	4.41	.563
Q16- Development of global outlook	4.33	.608
Q17- Develop confidence	4.33	.618
Q18- Effective teaching method	4.36	.627
Q19- Teaching resources & material more effective	4.44	.616
Q20- Interrupt smooth teaching for technical challenges	4.43	.615
Q21- Limited access restrict teaching learning	4.27	.710

*Exploring factor structure:*

Six components were identified using PCA using Varimax rotation, orthogonal rotation, which explained 62.7% of the variance (Table 2). The components were named based on the elements that loaded on each of them. Teaching Effectiveness is the first component, and it connects with six items. The second component, Quality of Teaching, is correlated with five items. Teaching Support is the third component, which has two components in common. The fourth component, dubbed Innovative Teaching, likewise has two components in common. The fifth element, dubbed "Student Engagement," consists of two parts. Lastly, the sixth element, known as Technical Accessibility, corresponds with four components. Therefore, the way in which teachers perceive the ICT method can be broken down into six categories: Teaching Effectiveness (the degree to which ICT facilitates the teaching process), Quality of Teaching (the degree to which ICT ensures the quality of the content of instruction), Teaching Support (the degree to which ICT supports the teaching process), Innovative Teaching (the degree to which ICT introduces innovation into teaching pedagogy), Student Engagement (the degree to which ICT generates student engagement), and Technical Accessibility (the degree to which ICT is technically feasible to use).

Table 2. Principal Component Analysis of the factors (N=138)

	Component					
	1	2	3	4	5	6
Q12- Evaluate progress quickly and effectively	.757					
Q13- Integrating learning with other tools	.753					
Q1-ICT helps to present the lesson	.718					
Q2- Attractive learning	.657					
Q10-Bonding with tools	.498					
Q3- Comfortable learning	.475					
Q17-Develop confidence		.750				
Q5- Adapt new style than personal process of teaching		.736				
Q11- Easy understand of difficult problem		.567				
Q14- Link to real life practice		.501				
Q6- Better knowledge sharing		.411				

Q16- Development of global outlook	.723	
Q18-Effective teaching method	.697	
Q15- Better of construct knowledge	.750	
Q19-Tecahing resources & material more effective	.657	
Q4- Make lesson more interesting	.756	
Q9- More engaged the lesson	.659	
Q20-Interrupt smooth teaching for technical challenges		.764
Q21- Limited access restrict teaching learning		.564
Q7- Require more time flexibility		.530
Q8-Creative for preparing teaching content		.460

***“Test of reliability of Teachers’ Perception of ICT use”***

As before, after doing PCA analysis, six domain identified, Thereafter, level of consistency of these six components were checked using Cronbach’s Alpha and the result (Table 3) indicates that all the components are moderately consistent and therefore reliable.

Table 3. Cronbach’s alpha for the extracted components.

<b>Name of the component</b>	<b>Items included</b>	<b>Cronbach’s Alpha</b>
<i>Teaching Effectiveness</i>	1, 2, 3, 10, 12, 13	.82
<i>Quality of Teaching</i>	5, 6, 11, 14, 17	.74
<i>Teaching Support</i>	16, 18	.53
<i>Innovative Teaching</i>	15, 19	.51
<i>Student Engagement</i>	4, 9	.53

<i>Technical Accessibility</i>	7, 8, 20, 21	.68
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***Teachers' Perception of ICT and its Difference among Gender:***

The item raw scores were transformed into factor scores after PCA extraction in order to standardize the data. Lastly, mean differences for the six aspects of teachers' perceptions of ICT were examined with respect to gender, district, and study stream.

An independent sample t-test (Table 4) was used to look at gender differences. The results showed that there was no significant difference between the genders in terms of how effective ( $p=.08$ ), how it influences teaching quality ( $p=.38$ ), how supportive ( $p=.71$ ), how innovative ( $p=.09$ ), how it promotes engagement ( $p=.06$ ), and how technically accessible ( $p=.30$ ) teachers feel about using ICT in the classroom.

Table 4. Mean differences in the domains concerning gender ( $N=138$ ).

Domains		Mean	SD	t test	df	p value
<i>“Teaching Effectiveness”</i>	Male	15.86	2.01	-1.743	137	.084
	Female	16.44	1.86			
<i>“Quality of Teaching”</i>	Male	12.73	1.75	-.884	137	.378
	Female	12.95	1.29			
<i>“Teaching Support”</i>	Male	6.15	0.83	-.370	137	.712
	Female	6.19	0.65			
<i>“Innovative Teaching”</i>	Male	6.13	0.74	-1.672	137	.097
	Female	6.32	0.63			
<i>“Student Engagement”</i>	Male	6.09	0.91	-1.870	137	.064
	Female	6.33	0.65			



<i>Technical Accessibility</i>	Male	9.98	1.08			
	Female	10.17	1.09	-1.052	137	.294

Finally, all the teachers from different streams also perceive the use of ICT to be equal concerning its' effectiveness ( $p=.71$ ), influence on the quality of teaching ( $p=.20$ ), support in the teaching process ( $p=.65$ ), innovation in the teaching process ( $p=.37$ ) and to be promoting engagement ( $p=.33$ ) and technical accessibility ( $p=.45$ ).

Table 5. Mean differences in the domains with respect to streams ( $N=138$ ).

Domains		Mean	SD	F Value	df	p value
<i>Teaching Effectiveness</i>	<b>Science</b>	16.33	1.78	.35	2, 136	.71
	<b>Commerce</b>	16.35	2.19			
	<b>Arts</b>	16.05	2.06			
<i>Quality of Teaching</i>	<b>Science</b>	13.04	0.97	1.62	2, 136	.20
	<b>Commerce</b>	13.15	0.93			
	<b>Arts</b>	12.61	1.95			
<i>Teaching Support</i>	<b>Science</b>	6.23	0.62	.43	2, 136	.65
	<b>Commerce</b>	6.21	0.86			
	<b>Arts</b>	6.11	0.80			
<i>Innovative Teaching</i>	<b>Science</b>	6.29	0.58	.98	2, 136	.38
	<b>Commerce</b>	6.41	0.56			
	<b>Arts</b>	6.16	0.79			

<i>Student Engagement</i>	<b>Science</b>	6.33	0.68	1.11	2, 136	.33
	<b>Commerce</b>	6.23	0.84			
	<b>Arts</b>	6.13	0.85			
<i>Technical Accessibility</i>	<b>Science</b>	10.13	1.06	.80	2, 136	.45
	<b>Commerce</b>	10.42	0.66			
	<b>Arts</b>	10.00	1.18			

## Discussion

The current study found few important rea of effective use of ICT in the teaching and learning process in school education. From the analysis, it was noted that six important areas of teaching learning which are corelated with the perception of teachers of ICT use, namely, *teaching effectiveness*, *quality of teaching*, *teaching support*, *innovative teaching*, *student engagement*, and *technical accessibility*. That is to say, educators think that if ICT is used effectively in the classroom, it will help to develop and design quality instruction, support the teaching process, introduce innovative pedagogy, raise student engagement levels, and be technically feasible.

In teaching effectiveness, ICT helps the teacher to integrate the teaching instructions with the learning needs of the student using technology. It helps develop confidence, cooperation, and collaboration among the teachers by facilitating the process of designing the curriculum using advanced materials. Several previously done studies lend support to this fact (Hong et al. 2021, Mundy et al. 2021, Gorder, 2018, Marshall, 2016). Regarding the quality of teaching related to ICT use, it seems that there exists a negative perception of the same. Several studies have pointed out that although a lot of initiatives are adopted by institutions to enhance ICT-based learning, the acceptance level among teachers is not satisfactory (Hassan & Sajid, 2013., Wiranto, 2014). Donnelly et al, (2021) noted that teachers feel the use of ICT is an inappropriate pedagogy for giving instructions to students in the classroom. Moreover, the lack of autonomy among teachers in ICT-enabled teaching-learning systems has discouraged them from actively engaging themselves in the learning process of ICT integration and instruction (Seo 2013). This is also connected to the instructor's perception of the lack of accessibility to ICT use. Therefore, to overcome the difficulties of ICT-based instruction, it is necessary to empower the teachers regarding the process.

Apart from this, the present pointed out that ICT use in teaching not only prepares and assists students in classroom discussion but also encourages them to develop out-of-the-box ideas spontaneously which in turn, motivates the students to achieve their learning goals and promotes holistic development of the students. That is, the use of ICT is an instrument for promoting innovative teaching and generating student engagement in class. The current finding supported by a similar study by Miarso & Hadi (2007) mentioned that “utilization of ICT in the learning process is one of the factors that support the realization of a good quality learning process to achieve educational goals. Therefore, teachers need to have technical and pedagogical knowledge to integrate ICT into their classroom”. Further studies (Sengupta & Blessinger, 2022; Ilomäki & Lakkala, 2018) also pointed out that ICT incorporates different pedagogies in the same curriculum, hence fostering innovation in the teaching-learning process. Contrary to several previously done studies stating low support for ICT use among teachers,

our study results indicate that teachers support the use of ICT in the class system. Similar studies by Sharma (2017), Siciliano (2016), Frank et al., (2014), highlighted the association between the effective implementation of ICT concerning teacher support.

The present findings also revealed no significant gender differences in the perception of ICT use in the classroom. A popular belief in our society is that males have more expertise in using technology. Consequently, it is expected that male teachers will nurture significantly more positive perceptions about ICT use in the classroom than female teachers. Hence, our present findings provide a different perspective of the gender differences in perception of ICT use in the classroom and gender-wise noted similar views on ICT use in class. This may be because these days, knowing computer use is almost a mandate for being a teacher. This practice is accentuated due to the increased use of smartphones. Moreover, the introduction to online classes during the Covid-19 pandemic was primed by all teachers in their classroom activities. Hence, irrespective of their gender, all teachers bear similar views towards the use of ICT in the classroom.

A similar trend was observed for teachers from different academic backgrounds, i.e., science, arts, and commerce. Our results revealed that the perception of ICT use among teachers from different academic backgrounds was not positively associated. This can also be a consequence of the mandatory exposure to the use of technology for conducting online classes during the pandemic. Around the globe, all teachers irrespective of their academic backgrounds and academic levels, were bound to conduct online classes with the use of technology.

### ***Implications of the Study***

Several practical insights can be done through the present study. First, to our knowledge, the present study has some unique thoughts which is exploring the use of ICT use in classroom teaching by teachers. Previous studies reported general perceptions of teachers about ICT use (Muslem et al, 2018., Prasajo et al, 2018., Michael, et al, 2016., Ojo & Adu, 2018., Azmi, 2017). However, the majority of studies looked at the relationship between technology use, teachers' attitudes towards it, and other personality traits as well as the frequency of ICT use. On the contrary, the study tried to access the perception of the teacher on information and communication technology use in the classroom in the school education system. Current findings provide the components which indicate an underlying perception of teachers of ICT use in the classroom. Understanding of six components will help researchers to comprehend the nature of teachers' perception of technology use. This will have further implications for education policies designed to incorporate technology. Second, the present study revealed that all teachers unanimously have similar views about ICT use, irrespective of their gender and academic background. This finding also has implications in designing education policies and for developing different technology-based curricular tools. Finally, the questionnaire developed and used for the present study included and identified a wide range of factors underlying teachers' perception of ICT use. Hence, the questionnaire can be a very useful tool for assessing teachers' perceptions of ICT use in other educational research settings.

### ***Limitations and Future Research***

Like all other scientific research, the present study also has certain limitations. First, the current study could include a limited number of teachers from three districts of West Bengal due to constraints on resources. A more representative sample of the country would have given more in-depth perspectives about teachers' perceptions of ICT use. Future research should attempt to include a more representative sample across different parts of the country. Second, the mother tongue of all the participants included was Bengali, while the medium of instruction followed in their respective classrooms was mostly English. This might have affected their perception of ICT use since the language, instead of the technology, might be a barrier for them in the use of ICT. Future research should consider this disparity in language and the medium of instruction while interpreting the study results. Third, in the current study, PCA was done to explore the factor structure of the teachers' perception of ICT use, with a sample size of only 138. The sample adequately fulfilled the requirements for conducting PCA. However, a

larger sample would have yielded a different perspective since a larger sample is more desirable for multivariate analysis. Future research might attempt to address this problem with a larger sample size.

## Conclusion

Information and communication technology is going to be a mandatory substitute in the learning process for a student-centric curriculum for higher as well as basic education soon. However, even now, the use of ICT in India and especially in West Bengal is not considerable. It is not because of only teachers' negative perception but also due to the lack of infrastructure, training, and development from the Government's side. To date, more than 60 percent of institutes are run under the government administration. But we are not far from adopting a complete autonomous teaching-learning system, as the New Education Policy talks about a blended education system where 40 percent of the learning needs to be completed by using technology. There is a lot of development in the curriculum which is more connected with value addition of learning and holistic development of the students. Considering these perspectives, understanding how teachers in West Bengal perceived the usage of ICT was the objective of the current study. The finding reveals that there are six important domains of teachers' perception of ICT use, like teaching effectiveness, teaching support, students' engagement, technical accessibility, etc. The study findings have implications for the policymakers of government schools as well as private schools that are yet to adopt ICT in their teaching-learning process.

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