

# A Study on the Impact of Teachers' Online Teaching and Principals' Digital Leadership During Covid 19

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**Abstract**— *The most recent change to the educational system is the integration of digital technology, particularly in light of the COVID-19 epidemic. The Indian Ministry of Education (MOE) has taken the initiative to lead initiatives to increase students' digital technology skills and potential. The major goal of this study was to determine the characteristics of principals' digital leadership that predict the level of teachers' digital teaching, as well as the level of teachers' digital teaching practises. This study involved about 400 secondary school teachers in the Dimapur District of Nagaland. The results of this study demonstrate that teachers' digital teaching practises and principals' digital leadership are both at a high level. The two do have a moderately positive link, though. Only digital citizenship was proven to be a reliable indicator of teachers' digital instruction by multiple regression. The results demonstrate that, despite the COVID-19 pandemic crisis, the capacity to create and coordinate digital leadership programmes is significant and can aid in enhancing students' academic achievement.*

**Keywords**— *Covid-19 , Digital Leadership, Digital Technology, Online Teaching, Teachers*

## I. INTRODUCTION

The COVID-19 pandemic wreaked havoc on the educational system. The worldwide health crisis led 180 countries' schools to close, according to the World Bank (2020). Online distance learning replaced traditional face-to-face instruction as the only available mode of instruction for students. Teachers were regarded as front-line fighters alongside medical personnel because of the enormous efforts they made to support students during the pandemic. Teachers faced fresh difficulties that earlier scholars could not have foreseen (Zimmer et al, 2021).

Most governments and institutions initially forecasted that the pandemic would be under control in a few months and that all sectors would quickly return to normal. However, the majority of nations continued to report high rates, necessitating the shutdown of economies and strict controls on the virus's propagation. Governments tried to do this, among other things, by promoting social isolation. Using internet networks, the education industry was reopened after the initial school closings. For this, educators have to adapt their knowledge of digital learning

while simultaneously serving as students and instructors (Botham, 2018).

The COVID-19 epidemic has stimulated research into uncharted territory in the field of education. From primary schools to higher education institutions, nearly all classrooms now use technology. The pandemic has resulted in school closures that have impacted more than 128 million students in more than 190 nations (Buchholz et al, 2020). Teachers, who are key figures in motivating students to embrace computer literacy, have had to improve their skills in both using and teaching digital literacy. For Dimapur's school principals, who were unaccustomed with this extensive use of technology, this has resulted in a significant strain.

Teachers have been forced to delve into a subject of learning that some had deemed too complex in order to promote the transmission of academic knowledge. While this was going on, school administrators had to assume responsibility for digital literacy by making sure that instructors and students had access to and were using digital resources. In order to promote the use of technology

by subordinates, leaders in the education sector, according to (Hamzah et al, 2021), must show how to use it in their regular administrative and professional tasks.

## II. LITERATURE REVIEW

### *Covid-19*

The virus that causes severe acute respiratory syndrome coronavirus 2 is the source of the contagious sickness known as coronavirus disease 2019 (COVID-19) (SARS-CoV-2). The COVID-19 pandemic was caused by the disease, which quickly spread across the globe after the first known case was discovered in Wuhan, China, in December 2019. The coronavirus is now understood to spread through airborne droplets and virus particles that are released when an infected person breathes, talks, laughs, sings, coughs, or sneezes. Small infectious particles can persist in the air and build up indoors, especially in crowded areas with inadequate ventilation, where larger drops may fall to the ground in a matter of seconds. This is why protecting against COVID-19 requires the use of masks, good hand cleanliness, and physical separation.

### *Digital Leadership*

Research has shown that digital leadership enhances and promotes online instruction (Richardson, Bathon, Flora & Lewis, 2012). The definition of digital leadership is impacted by this evolution as well. In an effort to anticipate significant changes to future academic success, many definitions offered by researchers include building connections, persuading others, starting sustainable change through information access, and developing relationships (Herold and Fedor, 2008). Other definitions combine dynamic thinking, behaviour, and the abilities to improve school culture through the use of technology (Sheninger, 2014). In the context of this study, "digital leadership" is defined as the incorporation of digital technologies—such as mobile devices, communication apps, and online applications—into the leadership practises of school administrators in order to bring about a long-lasting improvement in the use of technology at schools. In a nutshell, digital leadership combines hardware, software, resources, and leaders. This term broadens the idea of digital leadership. Providing broad digital networks including online forums, wikis, blogs, online file sharing, and video conferencing in order to improve leadership and teaching and learning processes goes beyond simply utilising computers or mobile technologies for leadership tasks (Yusof et al, 2013).

### *Digital Technology*

Electronic instruments, apparatus, and systems that process, transmit, and store data in binary form are referred to as digital technology. Digital technology encodes data as true or false, on or off, in contrast to analogue technology, which transmits data as wavelength signals. The main form of instruction used by schools and students during the COVID-19 outbreak is digital technology. The mobility control order makes it difficult for educational institutions to continue holding in-person lessons and engaging with students in much of the world (Donthu et al, 2020). The development of the Internet and other digital networks is crucial to the continuation of instructional programmes at educational institutions. Countries with a high level of internet infrastructure and technology can adapt more effectively to operate from remote learning during the pandemic for this purpose outbreak (Wodon, 2020). The majority of the tools and gadgets we use today are powered by digital technology. Traditional examples of digital technology are laptops and cellphones. This ground-breaking technology also includes the internet. Other examples of digital technology include: Websites, e-commerce, e-books, blockchain, robotics, artificial intelligence, social media, digital watches, smartwatches, 3D printing, and cloud computing.

### *Online teaching*

Online education is the process of imparting knowledge to others online. There are several ways to communicate, including webinars, group video calls, and one-on-one video calls. You can begin teaching from anywhere (your house, a coffee shop, a co-working place), and you can accept students from different racial and geographic origins. Virtually every subject or skill can be taught online, but the most popular ones include business, science, math, and languages. Information and communication technologies (ICT) use in the classroom can be beneficial as a source of fresh instructional resources. Additionally, it enables educators to collaborate with one another and develop networks with other institutions of learning (Silva et al. 2019). As a result of changes in student learning processes, these new digital technologies utilised in education make it necessary to look for new teaching strategies and approaches (Compton 2009). Consequently, incorporating the use of ICT into the teaching programme has evolved into a key component of preparing future teachers (Bahcivan et al. 2019).

### *Teachers*

A teacher is a person who assists students in acquiring information, skills, or virtue. Teachers are sometimes known to as schoolteachers or instructors. Informally, anyone can fill the position of instructor . In certain

nations, homeschooling is a legitimate option for teaching children who are of school age as opposed to doing it in an official environment like a school or college. Some other jobs could require a lot of teaching (e.g. youth worker, pastor). In the majority of the countries, paid, experienced teachers usually conduct formal instruction of students.

### III. METHODOLOGY

The objective of this cross-sectional survey study, which is quantitative in nature, was to examine the level of principals' digital leadership practises in the integration of digital learning in schools. There are now 4450 teachers working at national secondary schools in the Dimapur District of Nagaland. As a purposive sampling, a suitable sample size of 402 people was chosen. To take part in this study, all secondary school teachers in the Dimapur District were invited. With the agreement of the school administrators, the researcher gave the questionnaire to each of the participating instructors. Google Forms was used to provide the questionnaires. The Principal Technology Leadership Assessment (PTLA), published by the International Society for Technology in Education (ISTE) in 2021, and the Teacher Technology Self-Efficacy Study (ETS-ES), which focuses on the use of digital technology by teachers, were the two instruments used for this study.

The survey is divided into three sections: part A, which covers the respondents' demographics; part B, which includes 32 items addressing the dimension of digital leadership; and part C, which includes 50 items covering the aspect of digital teaching in the classroom. A 5-point Likert scale, from Strongly Disagree to Strongly Agree, is used to grade survey responses. A high Cronbach's Alpha ( $\alpha$ ) value of 0.93 indicated that the entire instrument was reliable. Quantitative data analysis was performed using SPSS version 27. The frequency, percentage, mean score, standard deviation, and interpretation of the mean score were all used in the descriptive analysis. In the meantime, multiple regression and inferential analysis were used to determine the relationship between teachers' digital teaching and principals' digital leadership.

### IV. FINDINGS

357 of the 402 questionnaires that were distributed were returned, making the return rate 89%. Only 318 of these, however, were finished in full and used for the analysis. Female teachers made up 87 percent of the respondents. The majority of the teachers—36%—said they had been in the field for more than 20 years. They were followed by 33%, 18%, and 11% of educators with experience ranging

from 16 to 19 years, 11 to 15 years, and 5 to 10 years, respectively. Among the responses, just 2.5% had less than five years of teaching experience. It was also noticed that there were roughly equal numbers of teachers who had either attended or had not attended training sessions on using digital devices in the classroom.

Principals' digital leadership was of a high overall and in each of its constituent parts. According to Table 1, the average score for each dimension was greater than 3.88, and the standard deviation was greater than .48. Principals' Digital Leadership's total score had a .97 dependability rating and a normally distributed skewness of -.76.

Table-1. Principals' level of digital leadership.

Dimension	Mean Score	Standard Deviation	Level
Revolutionary Leadership	4.09	0.53	High
Learning Culture in the Digital Age	4.08	0.55	High
Excellence in Professional Practice	3.93	0.65	High
Continual Development	3.88	0.65	High
Virtual citizenship	4.07	0.55	High
Overall	4.01	0.48	High

Both the overall and component levels of teachers' digital teaching practises were quite high. According to Table 2, the average score for each dimension was greater than 3.87, and the standard deviation was greater than 0.36. Principals' digital leadership and teachers' digital teaching practise were found to have a statistically significant relationship. The summated score for teachers' digital teaching practise was normally distributed (skewness at .42) and the reliability was .97. Both constructions met the requirement for normality. As a result, the statistic determined by Pearson was  $r(316) = .53, p .01$ . This finding indicates that there is a strong positive association between the two constructs, which means that administrators who exhibit strong digital leadership likely to encourage their instructors to exhibit stronger digital teaching practises. For studies in this field, the effect magnitude is negligible. According to the  $r^2$ , teachers' use of digital teaching strategies can predict around 30% of the variance in principals' digital leadership.

Table-2. Level of Teachers' Use of Digital Teaching

Dimension	Mean Score	Standard Deviation	Level
Digital Age Education	4.05	0.41	High
Millennial Work Culture	3.87	0.53	High
Students Learning	3.99	0.46	High
Teacher Digital Citizenship	4.02	0.46	High
Improved Professional Status	3.98	0.48	High
Overall	3.98	0.36	High

Following the fulfilment of all presumptions, additional research was carried out using simultaneous multiple regression to determine the key predictors of teacher' online teaching practise among the many aspects of the administrators' digital leadership (revolutionary leadership dimensions, learning culture in Digital age, excellence in professional practice, continual development and virtual citizenship).  $F(5, 312) = 28.02, p .001$  demonstrated that the impact on instructors' use of digital teaching methods was statistically significant. The adjusted R2 value was 0.30, meaning that the model with five variables in the regression could account for 30% of the variance in digital teaching practise. However, further investigation revealed that only one digital leadership variable—virtual citizenship—was a meaningful predictor of teachers' use of technology in the classroom ( $\beta = 0.35, p = .000$ ), as shown in Table 3.

The principal's virtual citizenship component appears to be the best predictor of teachers' use of digital instruction, according to the findings. [Teacher Digital Teaching =  $2.285 + 0.241$  digital citizenship is the model for this concept.]

Table-3. Multiple regression coefficients.

Variables	B	SE B	$\beta$
Revolutionary Leadership	0.06	0.04	0.09
Learning Culture in the Digital Age	-0.01	0.05	-0.02
Excellence in Professional Practice	0.07	0.04	0.13
Continual Development	0.06	0.05	0.10
Virtual citizenship	0.24	0.05	0.35*
Constant	2.29	0.16	

Note: \* $p < .001$ .

## V. DISCUSSION

In terms of managing and running their schools, the principals in the Dimapur district have implemented the traits of digital leadership, including Revolutionary Leadership, Learning Culture in the Digital Age, Excellence in Professional Practice, Continuous Development, and Virtual Citizenship. According to Norakmar et al. (2019), principals have indicated a readiness to assume the role of digital leaders in schools, which is consistent with the findings of this study. The study's findings demonstrate that teachers are in agreement that principals participate in the creation of strategic plans, particularly when it comes to the use of ICT and digital technology in the classroom. Teachers, on the other hand, are less likely to agree that principals should emphasise the use of ICT and digital technology in the classroom when disseminating information relevant to the development of strategic planning. According to a study by Tibagwa, Onen, and Oonyu (2016), principals must collaborate with school stakeholders to develop the school's vision and mission through effective and improved strategic planning. They must also implement the consistent use of technology by teachers, staff, students, schools, and parents in academic monitoring, management, and administration.

Teachers agreed that principals support the integration of digital and ICT into the curriculum. According to a study by Cano and Garca (2013), managing school operations by utilising ICT in teacher supervision can aid in overcoming traditional administrative shortcomings and time restraints, promote learning outside of the classroom, and keep up with the advancements in ICT and digital technology that continue to rule the educational landscape. Particularly during the COVID-19 pandemic, digital leadership is viewed as a form of management and administration that can support the most recent demands for digital transformation by ensuring total quality management and inspiring, coordinating, and evaluating the efforts of all stakeholders in improving teaching and learning (Damayanti & Mirfani, 2021).

Teachers in the Dimapur district have advanced their use of digital teaching methods. This may lend credence to the claim that educators are starting to see the advantages of technology-based learning. According to Dooley, Lewis Ellison, Welch, Allen, and Bauer, teachers unanimously agreed that they actively include students in continual assessment of their learning processes and cognitive patterns (2016). Students' motivation can be increased by the use of digital technology, which will improve their performance. According to the results of numerous research, digital teaching and learning significantly improve student motivation and academic performance. It is therefore advised to take full use of these benefits by



creating useful teaching strategies (Hasin & Nasir, 2021; Khalid & Quick, 2016; Lin, Chen, & Liu, 2017; Nasir, Mansor, & Rahman, 2018). This is consistent with research by Nasir (2020), who discovered a substantial positive association between social presence and online learner satisfaction.

Thus, whether online or offline learning, digital education can foster an active learning environment among students. The majority of teachers surveyed said that they utilise digital tools to communicate and work together with students, coworkers, and parents. These conclusions are reinforced by a study by Sung, Chang, and Liu (2016), which discovered that the use of digital devices can enhance the effectiveness of student learning and the integration of instruction. Teachers' use of technology in the classroom is influenced by the digital leadership of principals. Nevertheless, there is definitely potential for development, particularly in the areas of school management and administration. The use of hybrid methods by principals, such as digital teaching, meetings, collaboration groups, the use of social media for administrative purposes, online learning, and professional development, has been proven to support teacher communication and the execution of teacher standards.

Teachers' confidence in incorporating digital teaching and learning can be increased by principals who promote professional growth procedures among teachers. The functions of the digital learning space have not yet met the basic requirements. This shows that the principal needs to remedy the holes in management and administration that still need to be filled. The study's findings also show that digital learning opportunities and digital learning communities are two signs of teachers' professional practise being at the highest level (Zhong, 2017). To guarantee that teachers may gain the practical skills to further their professional development, principals need to offer chances for professional development.

Therefore, to assist teachers in implementing digital teaching strategies, principals need to design professional development programmes. This will raise teachers' motivation and confidence to continue using digital teaching techniques, which will improve the efficiency of student learning. The results of this study can be utilised as a reference by the Ministry of Education, Nagaland Board of School Education, and other organisations to design suitable leadership programmes that would inspire and motivate school administrators to strengthen their digital leadership skills. In keeping with the National Education Policy's objectives to use ICT in education to develop informed and highly trained citizens, education can in this way produce a generation with digital capabilities.

Additionally, the MOE is dedicated to enhancing educational performance and student achievement through.

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