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**Teachers' digital practices within the context of digitalisation: An
exploratory case study of private education in rural and urban
Punjab, India**

Priyanka Bhatia

Doctor of Philosophy
School of Education
University of Durham

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Abstract

In 2015, the current Prime Minister of India, Narendra Modi, launched the 'Digital India Campaign' to empower the Indian economy. This strategic move by the Indian government involved the development of several policy documents, including the New Education Policy (NEP) 2020, that establishes the new direction of education for Indian schools. On paper, these initiatives anticipate massive transformations to how schools, and the practices of the agents assisting these systems, are organised. In practice however, it is still unclear how these directives have affected schools' and teachers' day-to-day activities. This study specifically focuses on digital initiatives within schools, aiming to unearth exactly that.

Considering the launch of digital initiatives in education under the Digital India Campaign and NEP 2020, this research study aimed to investigate teachers' digital teaching practices in private schools situated in both rural and urban areas of Punjab, India. Bourdieu's theoretical tools, such as habitus, field, doxa, and capital, along with Foucault's conception of power through governmentality, serve as the theoretical lenses that explore teachers' dispositions and their subjective influences on teaching and learning practices within the context of these digital initiatives. This research adopted an exploratory case study methodology, employing iterative mixed methods for data collection to understand the interplay between digital initiatives in education and teachers' use of digital technologies. Two schools - one in the rural and the other in the urban region of Punjab, India – are examined to explore how the school ethos and teachers' digital practices are shaped by the implementation of digital initiatives under the Digital India Campaign. Document analysis, online questionnaires, and semi-structured interviews with teachers from both schools illustrate their experiences and understanding of using digital technologies within the framework of policy directives.

The research findings, drawing on a thematic analysis of the data indicate that these digital initiatives are grounded in a neoliberal ideology, which emphasises self-evaluation, self-improvement, and continuous professional development for teachers through digital

platforms. Research findings further suggest that teachers perceive technology mainly as a mechanism of information transfer and/or as a means of classroom control. For some teachers, this raises concerns about the possibility of technology replacing teachers in delivering knowledge. An analysis of the data using Bourdieu's and Foucault's theoretical tools suggests that implementation of the top-down digital initiatives relies heavily on the school environment, leadership style, and teachers' teaching experiences.

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List of Abbreviations

ASER Annual Status of Education Report

CBSE Central Board of Secondary Education

CIET Central Institute of Educational Technology

CMIE Centre for Monitoring Indian Economy

CPD Continuous Professional Development

DeitY Department of Electronics and Information Technology

DIC Digital India Campaign

DIKSHA Digital Infrastructure for Knowledge Sharing

FIFP Foreign Investment Facilitation Portal

MeitY Ministry of Electronics and Information Technology

NCERT National Council of Educational Research and Training

NDEAR National Digital Educational Architecture

NEAT National Educational Alliance for Technology

NEP 2020 National Education Policy 2020

NETF National Educational Technology Forum

NISHTHA National Initiative for School Heads' and Teachers' Holistic Advancement

NPSSE National Programme on School Standards and Evaluation

NUEPA National University of Educational Planning and Administration

PPP Public-Private Partnership

SSEF School Standards and Evaluation Framework

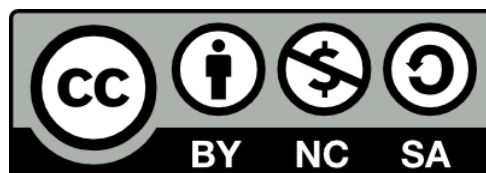
Declaration

I declare that this thesis is the result of my own work, and no part of the material contained in the thesis has previously been submitted for any other degree or qualification in this or any other institution.

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Chapter 1 Introduction

In 2015, India's current Prime Minister, Narendra Modi, launched the Digital India Campaign (DIC) under the Ministry of Electronics and Information Technology (MeitY) to bring digital technology and connectivity to various sectors and regions of India, in order to 'improve the quality of life of citizens' (Panwar, 2017, p. 412). DIC also positions itself as having a central role in the achievement of Sustainable Development Goals (SDGs) by 2030 (Giri, Pavithra, & Gnanasundari, 2024). Although historically classified as a low-income developing country by the World Bank, India is now the fifth largest country and one of the fastest growing economies in the world, expected to reach middle- to high-income status by 2047 (World Bank, 2023). Through the launch of digital initiatives, India promotes partnerships and collaborations with industries, businesses, and academic institutions (Giri et al., 2024) to boost the Indian economy. Knowledge and technology play a crucial role in driving economic growth (Castells, 2000), and DIC emphasises digital infrastructure, e-learning, and skills development to align with global educational standards and economic demands (Government of India, 2020a). In 2020, the new National Education Policy (NEP) 2020 was also launched, replacing the previous National Policy on Education 1986, to transform India's education system by 2040 (Government of India, 2020b). NEP 2020 was introduced to align with the UN's Sustainable Development Goals 2030, particularly Goal 4 on quality education (Naik et al., 2024). Saluja (2023) discovered that this new education policy increasingly relies on technology to enhance the educational process and outcomes, through optimisation and expansion of current digital platforms, as well as fostering the continuous development of digital education initiatives. Together, the new education policy and the digital initiatives launched under DIC envision India as a global knowledge powerhouse (Government of India, 2020c).

Processes of digitalisation can be understood as the digital conversion of text, images, or even processes into digital formats and media (Miller, 2020). The literature on digital technologies in education extends the concept of digitalisation beyond hardware, such as computers, laptops, smartphones, and tablets, referred to as ICT (Information and

Computing Technology) (John & Wheeler, 2015), to include the integration of interactive elements such as participation, collaboration, and creation alongside the ability for citizens to access and disseminate information (Jenkins, 2009), as enabled by the emergence of web services. However, within the Indian context, educational technology companies offer technological solutions that, more often than not, are limited to online content delivery, test preparation, and learning support (Invest India, 2024). This leads to the growth of a profitable educational technology market by offering 'solutions' to contemporary educational institutions (Williamson, 2016). Over the past five years, the educational technology sector has raised approximately \$4 billion in private and foreign investments in India alone (Zheltov, 2022), suggesting rapid growth in educational technology businesses on the Indian market. However, much of the debate on using digital technologies in Indian classrooms seems to revolve around the development of new instructional methods, with little speculation about the impact of any social changes associated with the technology (Ham & Cha, 2009), and the implications for the educational experiences of both students and teachers, who are increasingly being subjected to digital solutions (Antoninis et al., 2023).

Even though India realises the economic potential of digitalisation – made visible through the formation of policy developments that prioritise India's economic growth through means of digital technologies (like DIC) - the country still struggles with basic digital inequalities, related to access to digital infrastructure (Brooks, Donovan, & Rumble, 2005; Asrani, 2022). Digital access is understood with respect to a duality of haves and have-nots, linked to technology and internet access (Ganesh & Barber, 2009; Van Dijk, 2020), including computers, smartphones and broadband connectivity (Heeks, 2022), which are essential for individuals to participate online.

This issue is further compounded by the different types of schools in India - public, private aided, and private (unaided) schools - which disclose another layer of inequality. According to statistics provided by the Government of India (Government of India, 2022a, pp. 139-140), only 35% of public schools had access to functional computers, compared to 71% of private schools. Research by Naik et al. (2024) on factors influencing technology integration in Indian classrooms suggested that 66.2% of teachers reported inadequate digital

infrastructure in public schools, concluding that public schools face more significant challenges in accessing the latest technological advancements than private ones. This is further problematised by the rural/urban divide in India. Although the recent report by Kantar (2024) predicts that there will be over 900 million internet users in India by 2025, with the biggest growth occurring in rural India, the most frequent digital activities Indians engage with are access to social media and watching online movies, bringing into question the need for advanced digital skills in Indian society. Therefore, the digital divide is not exclusively about technological access, but also accessibility (Costa & Gilliland, 2017), skills, and the cultural know-how necessary to participate in and reap the benefits of the online world.

While there is a growing body of knowledge and studies on the digital initiatives started under DIC, (Gurumurthy, Chami, & Thomas, 2016; Athique, 2019; A. Singh, 2021; Awasthi, Ganapati, & Tai, 2024), research focusing on educational contexts is scarce. For example, a study by Awasthi et al. (2024) examines institutional leadership, governance, and banking initiatives. Similarly, Gurumurthy et al. (2016) explore DIC from a feminist perspective, specifically regarding initiatives launched to encourage women's empowerment. The study by Singh (2021) investigates DIC initiatives and their role in empowering Indian citizens. Additionally, works by Anantha and Anandhi (2020), Vijayan (2019), and Mohanta, Debasish, and Nanda (2017), highlight the positive influence of DIC initiatives across various sectors; however, they do not provide a critical examination of digital initiatives under DIC, particularly regarding their impact on the field of education. With the launch of NEP 2020, education has received renewed attention, being promoted as a key area for economic and digital development. Nonetheless, its relevance is not felt in research imperatives in the same way as those areas discussed above.

Some of the digital initiatives under DIC concerning education include e-Paathshala, Shaala Darpan, Shala Sidhdhi, Saransh, and GIS mapping. The e-Paathshala initiative encompasses e-books, audio and video resources, and other pertinent teaching materials for both students and teachers (Government of India, 2016a). Other initiatives, such as Shaala Darpan, concentrate on the quality of learning and administration in public schools (Government of India, 2016e), while Shaala Siddhi offers a standardised evaluation

framework for both private and public school improvement (Government of India, 2016d). Saransh (Government of India, 2016c) serves as another initiative for schools to review and analyse student performance and establish comparisons with other private institutions. The digital initiative in education focuses on accessing digital content and school governance strategies to be achieved through digital technologies. With digital inequalities still prevalent in Indian schools, it becomes crucial to investigate the influence of these initiatives in Indian schools.

Furthermore, NEP 2020 places teachers and teacher training at its centre, recognising that the success of technology integration into Indian classrooms is contingent on teacher preparedness. Critical research on teachers and their digital practices proposes that the roles of both teachers and learners are transformed in the context of digital technologies (Costa & Harris, 2017). This transformation stems from the opportunities the web provides learners and teachers for learning, socialising, and developing new ways of working. However, there is often a lag in understanding the critical application of digital technologies in education, particularly with respect to the interplay between educational policy, curriculum renewal, and teachers' digital experience (Costa, Bhatia, Murphy, & Pereira, 2023). Despite recent policy advancements in India promoting digitalisation, the drawing of explicit connections between curriculum design and digital cultures has been limited, with digital technologies often viewed as merely an additional learning resource rather than as an environment that fosters educational agency (Costa, Murphy, Pereira, & Taylor, 2018). These perspectives frame the application of technology from a functional viewpoint, benefiting commercial interests of educational technology companies (Patil, 2021) rather than promoting a diverse range of educational experiences through the use of digital technologies (Costa et al., 2023). This is also evident in the rise of educational technology companies on the Indian market.

Consequently, recent developments in education policy have created a research gap with respect to the impact of policies and digital initiatives on teachers and their teaching practices. This study seeks to examine how these digital policy initiatives influence teachers and their practices in Indian classrooms. Understanding how teachers perceive their role while teaching, and how the mandate to use digital technologies in their classroom impacts

their practice, is also essential to explore so that we can understand the practical reality of digital policy initiatives.

The following are the research questions this study aims to answer.

Research Questions

The gap in the literature discussed above inspired the research questions for this study. Employing a critical framework to understand how these policies shape and inform educational practices, via Bourdieu's and Foucault's theoretical tools, this research study aims to explore the influences of DIC on education by examining teaching practices on the ground, engaging with teachers, and exploring how they make sense of their role and practices within a new understanding of education as set by the Digital India Campaign and the policies and guidance derived from it. The inquiry is further complicated by India's digital provision being uneven and highly stratified, with an entrenched urban/rural divide adding complexity to understandings of digital access and use (Maiti, Castellacci, & Melchior, 2020; Singh & Singh, 2022).

Given the size of India, which has twenty-eight unique states with different values, understandings and cultures, it is a complex task to research this phenomenon across India and explore the influence of new policy initiatives on teachers' digital and educational practices. Punjab, over the years, has developed its economy through the growth of its service sector, including banking, IT, transport, tourism, and real estate businesses, alongside agrarian transformations, making it one of India's most advanced and promising states (Jodhka, 2002). Although 96% of Punjab is rural, the 2011 census¹ highlighted growth in its education sector (Census of India, 2011), which has implications for digital inclusion.

The aim of this research study is to explore how Indian schools are incorporating new digital policies in both rural and urban settings in Punjab, including the impact policy initiatives have on the ground, especially pertaining to teachers' practices. This is a field of knowledge

¹ The 2011 census is the most recent, as the next was postponed due to the pandemic.

and practice that remains under-researched. In this vein, this study is underpinned by the following research questions:

1. How does the uptake of the Digital India Campaign shape the ethos of private schools in rural and urban Punjab, India?
2. How do the Digital India Campaign initiatives shape teachers' private education teaching practices in rural and urban Punjab, India?

Research Methodology

This study aims to understand teachers' subjective accounts, to elucidate their teaching practices within the context of digitalisation in India as part of the national directive. In this vein, the research posits that knowledge is constructed by individuals through their subjective narratives (Cohen, Manion, & Morrison, 2017), thereby aligning with an interpretivist research paradigm. Case study research employing mixed methods for data collection has emerged as the most suitable methodology, accommodating diverse experiences, contexts and the uniqueness of each case (Hitchcock, Hitchcock, & Hughes, 1995; Yin, 2017). Two private schools in urban and rural areas of Punjab, India, served as my case studies herein. The study employed a sequential mixed methods approach to utilise the strengths and lessen the weaknesses of different research methods (Cohen et al., 2018).

The three methods employed for data collection were as follows: document analysis of the webpages of DIC and some sections of NEP 2020, to explore how policy initiatives understand the digital education that influences and encourages teachers' digital practices; an online questionnaire targeted at teachers and heads of school of the two schools to gather an overall understanding of the case site; and semi-structured interviews employed to explore teachers' subjective accounts of their experiences and practices of using digital technologies in classrooms. Thematic analysis was adopted for the analysis of the data, following Braun and Clarke (2021) protocols.

Structure of the thesis

This PhD thesis is structured as follows.

Part 1 Literature Review

Chapter 2 presents a review of the literature to undergird the research by understanding the opportunities digitalisation and digital technologies offer in education.

Chapter 3 provides an overview of the digital technology landscape in India. This chapter introduces developments in digital policy initiatives and the new education policy, along with discussions of the digital divide and teaching practices incorporating technology within Indian classrooms.

Part 2 Theoretical Framework

Chapter 4 focuses on the theoretical framework which the study adopts. This study uses Bourdieu's thinking tools - habitus, field, doxa and capitals - and Foucault's conceptions of power, governmentality and technologies of self to make sense of teachers' digital teaching practices in private schools in India.

Part 3 Research Methodology

Chapter 5 describes the research methodology employed. Reasons for choosing case study research underpinned by a mixed methods approach are highlighted in this chapter. Each of the instruments of data collection, document analysis, online questionnaires and semi-structured interviews, will be presented and discussed in terms of their operationalisation.

Part 4 Research Findings

Chapter 6 discusses the thematic analysis of DIC. The three themes discussed in this chapter are: 1) Vision to empower Indian citizens, 2) Education as electronic delivery of resources, and 3) Digital technology for education governance.

Chapter 7 presents the research findings of a private school in rural Punjab, India, designated as School A in this research study. This chapter provides a thick description of the case site along with the four themes derived from the thematic analysis. The four themes are: 1) Two-fold experience of using Readymade plans (LEAD); 2) DIKSHA, the digital initiative in action; 3) Pedagogy of (digital) transmission; and 4) Implications of using digital technologies.

Chapter 8 presents the research findings of a private school in urban Punjab, India, designated as School B. The chapter highlights the thick description of the case site, and the four themes derived from the thematic analysis. The three themes are: 1) The culture of teacher training, 2) Teachers internalising the value of training provided; 3) Teachers exercising agency in classrooms.

Part 5 Discussion and Conclusion

Chapter 9 is the discussion chapter of this research study. It provides insight into teachers' practices in rural and urban private schools in Punjab, India, by theorising key research findings. This chapter highlights the rooting of digital initiatives in neoliberal ideology, the factors influencing digital teaching practices in both rural and urban private schools, and the misalignment between teachers' expectations of digital initiatives and the reality of using digital technologies in the classrooms of schools A and B.

Chapter 10 focuses on answering the research questions that underpinned the research depicted in this thesis. This chapter further highlights how this study contributes to knowledge, policy, and practice, along with its limitations and suggestions for future research.

Part 1 Literature Review

Chapter 2 Digital Education Landscape

Introduction

The purpose of this chapter is to provide a review of the literature around digital technologies in education. It is divided into two sections, with the first highlighting the opportunities digital technologies offer and the push towards digitalisation from policymakers, especially in education. The second section aims to define digital technologies in education, by categorising them depending on how they are being practiced. The three strands of using digital technologies in education are 1) technologies for administrative purposes, 2) technologies for teaching and learning, and 3) technologies for educational transformation.

Opportunities offered by digitalisation

The process of digitalisation can be understood as the conversion of text, images, and even processes into digital formats or mediums (Miller, 2020). The primary motivation behind the push for digitalisation in society, and the reason policymakers worldwide are developing strategies that promote digitalisation, is the economic opportunities it presents (Kistruck, Beamish, Qureshi, & Sutter, 2013; Bilgeri, Wortmann, & Fleisch, 2017; Ferrari et al., 2022; Gomes, Lopes, & Ferreira, 2022). Furthermore, digitalisation offers significant opportunities, particularly for developing countries, through a method known as 'endogenous development' (Wright, 2000, p. 22). Endogenous development involves cultivating, utilising, and promoting homegrown technology. Control and ownership of such digital technologies enhance competitiveness in a globalised society (Parreira do Amaral & Fossum, 2021) and facilitates social and economic development (James, 2003) of the country. It is argued that broadening access to digital technologies, particularly in low-income nations, contributes to poverty alleviation, enhances educational opportunities, fosters social participation and democratic engagement, and culminates in the establishment of an inclusive global

information society (Shields, 2013). A prominent example of this approach is the launch of India's Trillion-Dollar Digital Opportunity under India's Digital India Campaign, which aims to achieve \$1 trillion in economic value through digitalisation and seeks to eliminate technology imports by 2025 (Kaka et al., 2019). This initiative aligns with another project run by the Indian government, known as Atmanirbhar Bharat Abhiyaan, which translates to 'self-reliant India', promoting the development of indigenous technologies to stimulate the Indian economy (Government of India, 2021). This programme is an example of endogenous development (Wright, 2000).

Other opportunities related to digital technologies arise from external partnerships between countries, allowing access to digital technologies or selective borrowing and adaptation from others. This enhances international trade and the exchange of goods (Wright, 2000), facilitating the successful digitalisation of businesses (Autio, Mudambi, & Yoo, 2021). Consequently, digitalisation processes are commodified, produced, exchanged, and sold (Powell & Snellman, 2004; Drucker, 2012). This has therefore resulted, in both high- and low-income countries, in the proficient application of digital technologies as a means to attract employment opportunities, which subsequently draws the interest of employers and stimulates economic growth (Brown & Lauder, 2012). Within the context of India, this is evident in the export of electronic goods worth US\$ 10.0 billion from India to the United States in the 2024 financial year, and with the USA being the third largest investor in India with cumulative inflows of US\$ 65.19 billion from 2000 to 2024 (India Brand Equity Foundation, 2025). Digital transformation also promotes sustainable development by fostering skills and competencies that are essential to the digital economy (Veckalne & Tambovceva, 2022). The sustainable goals drawn up by the United Nations, comprising of 17 global goals necessary for the development of a country, includes a digital strategy document highlighting the influence of digitalisation on all 17 sustainable development goals (United Nations, 2024).

While some countries want to retain their competitive advantage with respect to socio-economic and cultural development, others wish to increase their economic productivity through processes of digitalisation. Digitalisation has, therefore, altered the nature of industries and the workings of society in ways which influence personal, professional,

organisational and societal contexts (Legner et al., 2017). The new technologies have further removed the distinctions between global and local, and producer and consumer (Deuze, 2006). Therefore, one can argue that the push for digitalisation is also shaped by globalisation processes. Globalisation can be regarded as the widening, deepening, and speeding up of the world's interconnectedness (Held et al., 1999). The society is driven by economic growth and competing markets within a digital world (Friedman & Friedman, 2008). Sirkin, Hemerling, and Bhattacharya (2008) argued that digitalisation creates global competition, where every individual is competing with everyone else, and that this is also applicable to industries. The competitive nature of globalisation is articulated by the economic school of thought known as neoliberalism, which will be highlighted below.

Neoliberalism

Neoliberalism is a form of governance that liberalises trade markets and promotes privatisation (Osborne & Gaebler, 1993; Harvey, 2007). Neoliberalism shapes how individuals perceive, 'interpret, live in, and understand the world' (Harvey, 2009, p. 3). Ong (2007) argues that there are two underpinnings of neoliberalism, one with a capital 'N' and one a small 'n'. The one with the capital 'N' is the political, philosophical stance taken by policymakers that re-defines the enactment of policies to be quantifiable (Ball, 2013), whereas the small 'n' highlights how society (as a whole) is reconstructed and reshaped by the enactment of the policies by 'N'. With privatisation and free trade, the individualist approach overpowers the strength of collectiveness (Ball & Olmedo, 2013), which leads to individual competitiveness and anxiety. It is argued that this in turn leads to changes that are good for the individual, where competition creates efficiency and economic growth and impedes technological innovation (Tooley, 2005; Shields, 2013). Neoliberalism, thus conceptualises governance as a framework that emphasises engineered freedom, where rules are shaped by policies, whilst responsibility and accountability rest with the individual (Harvey, 2005; Canaan & Shumar, 2008; Naidoo & Williams, 2015).

Digital technologies shape and transform societal functions. Digitalisation has evolved from being merely a tool to a pervasive condition and context (Shah, 2016). This shift has further

propelled the industrial ecosystem for digital technology firms, venture capitalists, philanthropists, investors, and reform advocates to thrive within a dynamic profit-driven market through means of digitalisation (Picciano, 2013; Ball, Junemann, & Santori, 2017). Digital technologies can increase innovation and, consequently, countries' productivity (Romer, 1990; Grossman & Helpman, 1991; Cardona, Kretschmer, & Strobel, 2013). Therefore, key political and business leaders now prioritise the application of digital technologies - whether in person, online, or in mixed learning environments - as having the potential to foster a meaningful connection with digital policies and education (Selwyn & Facer, 2013).

Digital Education Policies

As previously highlighted, the primary reason for the push towards digitalisation is economic growth. Policies such as the United Nations' Digital Strategy (United Nations, 2024), OECD's Digital Transformation (OECD, 2024a), and the World Bank's Digital Transformation create imperatives that promote the potential for countries' growth through digitalisation. Countries compete with one another in the global knowledge economy, where their economic success is increasingly linked to the effectiveness of their education systems in producing globally competitive knowledge workers (Cardona et al., 2013). Consequently, both international organisations and national governments are placing a greater emphasis on education as a catalyst for economic growth (Robertson, 2005). The ideological direction for a country's population to be competent in the globalised society seems to be through digital literacy (Gabriel, Rebecca, Ysabella, Vitomir, & de Laat, 2022) - implementing processes of digitalisation while equipping citizens with appropriate digital knowledge and skills. This has led to countries prioritising the integration of digital technologies into their education system to ensure an internationally competitive workforce (Shields, 2013; Gomes et al., 2022). OECD and other intergovernmental agencies highlight how the economic growth of a country is related to education (OECD, 2021), and one of the ways for a country's population to be competent in a globalised society is for them to be digitally literate.

In 2010, OECD recommended that education systems continue to invest in technology, believing that schools and teachers would eventually adopt digital technologies and benefit from their use (OECD, 2010). To succeed in the global knowledge economy, the World Bank also promotes lifelong learning, personalised instruction, digital technologies, and the significance of 'learning to learn' (World Bank, 2003; Robertson, 2005). The Education 2030 Framework that provides guidelines for implementing SDG 4 which is quality education, highlights the importance of digital technologies in education, marking digital technologies as a catalyst for socio-economic development (Shields, 2013). According to a study by Ham and Cha (2009), a decade ago there was a notable 68.7% increase in the number of countries establishing policies on digital technologies and education, up from just 11.9% in 1981. Since that time, the focus has shifted from merely creating educational policies regarding digital technologies to successfully implementing them in the education sector (Selwyn & Facer, 2013). The pandemic accelerated investments in digital technology for education globally. The digital education market was valued at USD 22.2 billion in 2023 and is projected to grow by over 26% from 2024 to 2032 (Global Market Insights, 2024). This surge in interest has been accompanied by widely accepted rhetoric that education systems are needed to prepare citizens for lifelong learning in an information society (Ham & Cha, 2009).

Education plays a key role in achieving such purpose, with the solution relying heavily on digital literacy (OECD, 2021). This in part justifies the development of policies aiming to foster digital educational approaches. Policymakers realise the importance of the wider aims of education, and this is reconstructed to allow for economic gains through education (Lauder, Brown, Dillabough, & Halsey, 2006). Education is thus viewed as a key instrument to facilitate economic and social mobility and, only in some cases, social transformation (Batra, 2014). The ideology imparted by policymakers about a growing digital economy is thus seen as one of the key means through which nation states and their populations can become competent and competitive in a globalised society. Such intra-national agencies like OECD, World Bank, United Nations, through their soft governing, can influence policymakers in different countries, encouraging digitalisation policies to unleash economic potential, and thereby fulfilling the neoliberal ideology. This influence is evident across different sectors of society, such as healthcare, banking, climate, and agriculture (Lange & Alexiadou, 2010;

Cone & Brøgger, 2020), with education being no exception. In today's political discussions, digital technologies are often described as 'technical magic' facilitating the 'opening up of education' while promoting learners' freedom (Grimaldi & Ball, 2021). These technologies are claimed to make education more accessible, personalised, transparent, and effective. The assertion is that digital technologies in education will unleash 'the power of learning – igniting curiosity, driving innovation, and fostering the exploration of the world', thus positioning digital technologies in education as inherently political rather than neutral (Selwyn & Facer, 2014). Research by Schia (2018) on digitalisation also argues that developing countries in the global south have poor infrastructure and governance compared to developed countries, and that the digitalisation of these countries is hollow because of the lag between technology development and capacity to manage these developments. This makes such countries vulnerable in their endeavours to gain global prominence (Schia, 2018). A superficial push towards digitalisation is created, especially in developing countries, without acknowledging the on-the-ground realities of implementing digital development policies.

While digitalisation processes offer opportunities for openness, participation, collaboration, and creation for users, digital technologies have in part been pushed into schools due to such political decisions, with little acknowledgment of the associated pedagogical challenges. Changes in pedagogical practices and modifications to learning environments rest on the shoulders of schools (Kempe & Grönlund, 2019), who have not necessarily been prepared to accommodate such changes. As nations invest in educational digital technology, businesses are finding opportunities for these digital implementation (Antoninis et al., 2023). While policymakers acknowledge the broader goals of education, they prioritise the economic returns obtained from it; education is viewed as vital for the reconstruction of nation-states in today's globalised landscape (Lauder et al., 2006). An efficient educational framework should enable students to navigate rapid technological advancements and access extensive information, all while promoting critical thinking, sensemaking, creativity, and collaboration skills. For this to be achievable, governments and educational institutions must implement a digital strategy that provides direction for integrating digital systems, technologies, and pedagogical approaches, along with a foundation for evaluating performance based on evidence-based standards (Gabriel et al., 2022). Much of the debate

seems, however, to revolve around the development of new instructional methods, with little speculation as to the impact of social changes associated with the technology (Ham & Cha, 2009). With some notable exceptions, countries often appear to pay little attention to whether their investment has been relevant and had an impact on learning, whether it has been equitable and inclusive, whether it is economically efficient, or whether it has longer-term negative effects on human rights and well-being (Antoninis et al., 2023).

With countries paying little attention to the social, political, economic and cultural impacts of digital technologies in education, a misalignment between policy expectations and teacher practices in schools results (Selwyn, 2021). Policy directives with respect to education are often not comprehensive when it comes to providing support to teachers around their practices. There exists a contradiction between the diverse perspectives within academia regarding the use of digital technologies in classrooms, and the approach of politicians and policymakers towards implementing these technologies (Carr, 2005). A study backed by the World Bank's Information for Development Program pinpointed this disconnect between the theoretical expectations of digital technologies' impact on stakeholders in education, and the actual practices of teachers and students, noting that research on the effects of digital technologies on student achievement rarely produces definitive conclusions for or against use of digital resources (Trucano, 2005, p. 7). Major governmental drivers and public policies have indirectly influenced this situation (McLean & Wheaton, 2024). In short, although policymakers realise the importance of the wider aims of education, economic gains from education seem to trample pedagogy, despite education being seen as central to the reconstruction of the nation state in a globalised world (Lauder et al., 2006).

The first section of this chapter explains how economic potential through digitalisation is viewed as a crucial factor in advancing digital technologies within the classroom. A country's economic growth depends on 'knowledge of technology and levels of information flow' (Peters, 2007, p. 26). There is a movement towards digitalisation in education driven by policymakers to empower the country through digital skills, yet the implementation often falls on stakeholders, particularly teachers, who are left without clear expectations, guidance, and pedagogical support from policy directives.

To understand different practices related to digital technologies in education, the following section aims to define these technologies, through consideration of three different strands.

Digital Technologies in Education

The world today has witnessed an unprecedented surge in technological development, beginning with the development of social media that revolutionised communicative (Miller, 2020), working, and learning practices (Oliver & Trigwell, 2005). The introduction of smartphones made access to the internet ubiquitous, followed by artificial intelligence and machine learning that promises – and/or threatens - to automate knowledge work (Knox, Williamson, & Bayne, 2020). This is a world away from the first phase of the internet which focused on presenting information in a rather static way (Poster, 1995), with user functions limited to accessing large amounts of information. This was referred to as Web 1.0, which began with the onset of the internet age, including HTML and hyperlinks, allowing users to search, read, and access information through webpages (Blank & Reisdorf, 2012). With the emergence of wireless connectivity and a system that provided users with a more dynamic and interactive platform (Kárpáti, 2009) than mere online access to information, Tim O'Reilly and Dale Dougherty coined the term Web 2.0 to differentiate the next phase of the internet that enabled both users' presentation of and participation in online content (Rosen & Nelson, 2008). With the advent of Web 2.0, social media emerged, providing digital platforms for users to participate, collaborate, and create user-generated content (OECD, 2007). This meant that digital users could be more actively involved in the production and sharing of information than before (Cuff, 2014). Social media platforms created new settings and opportunities for both social congregation and the dissemination of information (Kistruck et al., 2013; Cuff, 2014), and for different sectors to try to harness the potential of such technologies. As a result, the processes of digitalisation began to occur across all sectors of society, with education being no exception.

Understanding the use of digital technologies extends beyond hardware, such as computers, laptops, smartphones, and tablets, referred to as ICT (Information and Computing

Technology) (John & Wheeler, 2008), to include integrating web elements such as participation, collaboration, and creation, along with the dissemination of information (Jenkins, 2009). Dusek (2006) refers to digital technology as hardware, rules, and systems. Therefore, the web is not limited to the conversion of text into digital formats, but also enables engagement and opportunities to participate in and create knowledge (Miller, 2020). The link with education is therefore clear. According to An and Oliver (2021), digital technologies for education encompass the integration of three conceptions and modes: visual instruction, personalised systems, and systematic evaluation methods. Furthermore, digital technologies offer spontaneous, informal, personalised, situated and also contextual learning opportunities (Traxler, 2007). In other words, digital technologies in education present opportunities for teaching and learning, but are not without challenges with respect to their integration (Selwyn, 2006).

Digital technologies are often suggested as they provide personalised learning opportunities for students (John & Wheeler, 2008; Joseph & Uzundu, 2024), foster inclusive classrooms (Kelly, 2003), facilitate online self-assessment (Haleem et al., 2022), and promote interactive learning (Shukla & Jacob, 2022). Moreover, digital technologies in education are increasingly understood as helping to ease teachers' administrative tasks (Durnali, 2019; Hepp et al., 2004), through taking attendance online, conducting online assessments, and maintaining digital student records. Digital technologies in K-12 classrooms have typically served as a supplementary tool to help teachers organise and present curriculum content, highlighting its conveyance role (Ball & Grimaldi, 2022). According to Dick and Hollebrands (2011), conveyance technologies transmit and receive information through various digital means, including presentations, communication, sharing, and assessment monitoring. This has created opportunities for educational technology companies that provide learning solutions to governments, universities, schools, and educators, asserting that their digital offerings are adaptable, flexible, scalable, and cost-effective (Ball, 2017; Selwyn et al., 2020). With the emergence of the pandemic, educational technology companies have gained a prominent role in supporting teachers' professional learning (Lewis, 2022), school management practices (Page, 2017), communication between families (Moyano Dávila et al., 2023) and in enabling visible communicative links among parents, students and teachers (Kelly, 2025).

Digital technologies therefore enable individualised learning but also challenge the traditional role of teachers as 'gatekeepers of knowledge', (Robertson, 2005, p. 162). Teachers are encouraged to use new instructional models that integrate digital technologies into pedagogical practices, through which the stimulation of various activities becomes possible in the classroom (Ham & Cha, 2009). Beyond mastering fundamental computer skills, students are encouraged to tackle more advanced and critical tasks, including finding, choosing, analysing, and producing online content (Costa & Harris, 2017). The roles of educators and students evolve with the use of technology, as students now take on the responsibility of acquiring and generating their own knowledge, aided by digital tools introduced by the teacher. This not only requires a critical understanding of the application of digital technologies in education (Costa & Gilliland, 2017) but also the positioning of digital technologies as a marker of professional status for teachers. In other words, the ideology that 'good teachers would make good use of technology' (Selwyn, Nemorin & Johnson, 2016, p. 402) is a flawed approach, one that does not account for the complexities digital technologies represent both within and outside the educational experience. This was highlighted in the research by Selwyn et al. (2016) where the teachers were recognising and using digital technologies to their advantage even outside of school by upgrading their LinkedIn profiles.

Research by Burnett (2009), Chik (2011) and Graham (2008) argue that teachers' attitudes towards digital technologies influence the use of technology in classrooms. Teachers' mindsets are also important in implementing digital practices in classrooms (Tour, 2015), shaping both their teaching experiences with it and those they aim to affect, i.e., students. While there is a tendency in edtech research to focus on teachers' attitudes technology acceptance, digital competencies (see e.g., Krumsvik, 2014; Scherer, Siddiq, and Tondeur, 2019; Falloon, 2000), less attention has been given to how teachers work with digital technology is framed as well as shaped within broader social, political and economic context of both schools and schooling practices. Understanding the challenges and experiences of those at the forefront of technology-based practices is critical for a thorough understanding of digital education as a global phenomenon (Selwyn, Nemorin & Johnson, 2016). This becomes also important in the aftermath of the pandemic and the rise of commercial entities that provide technological solutions and platformised educational landscape

irrespective of pedagogical knowledge critical to inclusive and participatory learning experiences (Kelly, 2025). Research shows that these commercialised platforms more than driving pedagogy, sell solutions for alleviation of workloads and inspection regimes in schools (Ball and Grimaldi, 2022), thus appealing to managerialism approaches.

The result, more often than not, is that these technology platforms, while advertised as well-intentioned, privilege a functional perspective of both technology and education, thus not necessarily maximising the transformative potential of digital technologies in classrooms.

There is no linear way to define and understand digital technologies for education critically without understanding how digital technologies are being practiced. In defining digital technologies used in education, three strands were identified and categorised with respect to different ways of applying these technologies in education, based on the literature. Figure 1 below broadly categorises three ways of using digital technologies in education, with an example included for each category. The three strands are: 1) technologies for administrative purposes in an educational setting, 2) technologies for teaching and learning, and 3) technologies for educational transformation, which will be discussed below.

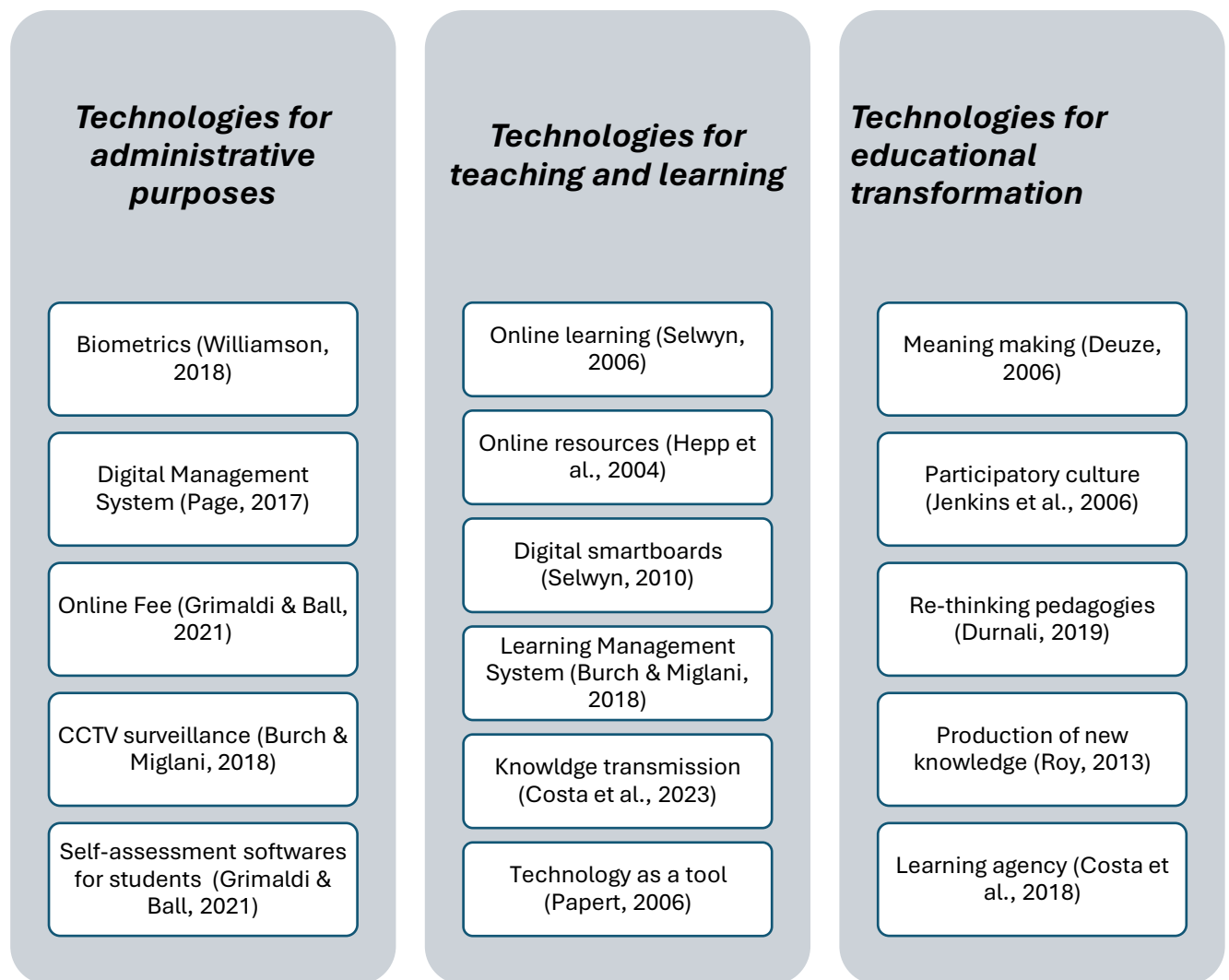


Figure 1: Digital Technologies in Education

Technologies for administrative purposes

The strongest and most pervasive argument for using digital technologies in educational settings focuses on ‘easing the burden of teachers’ (Selwyn, 1999, 2011, 2021; Soloway, et al., 2000; Selwyn & Facer, 2014; Cornelius & Shanks, 2016). This argument asserts that technology affects the daily operations of educational institutions (Player-Koro & Tallvid, 2015), especially in relation to administration. According to OECD (2024c), internet use among 16- to 74-year-olds in 2022 was around 92%, compared to only 52% in 2005.

Although the number of internet users has increased over the years, questions remain about the quality of web engagement among users. The rise in reliance on digital technologies in

daily life has had an impact and shifted practices within social, economic, cultural, and political spheres (Selwyn, 2006), further suggesting dependency on digital technologies. The push towards using digital technologies, particularly in administration, is evident from the pervasiveness of digital technologies in everyday life.

The use of digital technologies for administrative purposes suggests that digitalisation processes in educational settings have taken shape to capture student performance, teacher performance, attendance, communication with parents, collection of fees and other related administrative processes (Bottino & Chiappini, 2003; R. Sharma, 2003). Digital technologies offer solutions to educational institutions with a promise to ease teachers' administrative workload and school administration for both schools and parents (Durnali, 2019). This administrative use of technologies relies heavily on technology to increase efficiency and productivity in educational institutions. Economically, this has opened up opportunities for companies and businesses that supply not only technology hardware (computers, tablets or handheld devices) but also software, like digital management systems (Page, 2017) or platforms that offer solutions for educational institutions (Grimaldi & Ball, 2021), to support administrative tasks like managing admissions, collecting fees online, or taking attendance online for both students and teachers.

Furthermore, digital technologies used for administrative purposes in educational institutions and classrooms include devices such as CCTV cameras or biometric devices (Burch & Miglani, 2018) for security and monitoring purposes. This has resulted in the economic growth of successful educational technology companies that provide 'solutions' for modern educational institutions (Williamson, 2018). However, it has also raised concerns regarding the surveillance of teachers and students, as well as the data generated, collected, and utilised by these administrative technologies (Knox et al., 2020). The user data which is generated via digital technologies allows opportunities to capitalise on the user-generated content and the users' practices as information fields (Newman, Chang, Walters, & Wills, 2016). It can be argued that digital technologies used in education settings are a site of negotiation and struggle between different actors (Selwyn & Facer, 2013), such as educational stakeholders and businesses that offer digital administrative solutions to educational institutions. This has further implications, as Ozga (2009) has claimed that

education governance is increasingly driven by data, emphasising a move from centralised regulation to personal self-assessment. Consequently, educational systems generate and utilise data that facilitates political relationships through communication and information. Digital technologies enhance systems for self-evaluation, development planning, and performance, all rooted in neoliberal ideology (Ball & Grimaldi, 2022). Today information and knowledge control power (Barney, 2004), which is now achieved through digital technologies use in administration.

Technologies for teaching and learning

The second strand of using digital technologies in education relates to teaching and learning through applying digital technologies in classrooms. One of the most common proposals for integrating digital technology in education is the various types of learning that digital technologies support (Selwyn, 2006). The belief that presence of technology will solve any learning and teaching problems has been deemed by many to be a ‘techno-romantic view’ (Romeo, 2015) when not accompanied by pedagogical research. Critical discussions surrounding the question of digitalisation are lacking, not only regarding ‘technological devices, tools, and applications themselves, but also the practices and activities that accompany them, the meanings that individuals assign to them, and the social relations and structures to which these technologies are connected’ (Selwyn, 2011, p. 2). This means that although digital technologies have yet to deliver large-scale breakthroughs in learning improvements, the literature on digital education suggests significant potential for learning (Hepp et al., 2004). This includes digital technologies that promise to provide blended learning models that combine online and face-to-face education, offering more flexibility and effective learning experiences (Bui & Nguyen, 2023). The recent COVID outbreak has prompted a shift to online teaching and learning, highlighting the potential of digital platforms in education (Moorhouse & Wong, 2022). However, this transition primarily focused on utilising technology for delivering online sessions, often neglecting the essential pedagogical knowledge. This further created an understanding of digital education through the dominance of technology platform (Patil, 2021), resulting in limiting view of technology in education and not fully realising its promise.

This is also evident in the promises of those educational companies offering ready-made plans to schools, teachers, and parents in the name of digitalisation promoting 21st-century skills. The idea of using digital technologies for teaching and learning involves utilising projectors, computers, and other cutting-edge technical equipment in the classroom, in the hope that the presence of digital technologies will engage and entertain students (Haleem et al., 2022). Digital technologies are in this vein perceived as using only technology hardware for teaching and learning (Selwyn, 2010); for instance, the establishment of smart boards in classrooms or having computer labs for students and teachers allows schools to label themselves as digital schools (Selwyn & Facer, 2013). This has implications in terms of how much agency teachers have in their teaching (Costa et al., 2018), further redefining teachers' roles as instructors or facilitators (Birch & Miglani, 2018). Digital technology in the service of education seemed to a large extent to be viewed as instrumentalist, focused on enabling practical solutions without necessarily involving pedagogical substance. This contradicts and misrecognises the way digital technology has embedded itself in daily life, affecting working, learning and social spheres of action (Costa & Li, 2023).

Digitalisation is not limited to the definition of a tool or just physical devices but has stretched to become 'a condition and context' (Shah, 2016). This 'condition and context' further projects users' understandings of the self, society and political governance (Gupta, 2019a). Digitalisation, according to Berry (2015), is a phenomenon that not only activates and empowers the sense-making of the individual but also embodies an understanding of self-agency (Dufva & Dufva, 2019). In simple terms, digitalisation holds the power to change practices that influence society and people therein. New technologies have the capacity to move beyond the 'just a tool fallacy' (Papert, 2006). However, in schools, technology is often perceived as dominating over interactive teaching methods, employed as a form of information transmission, or used for simple exercises rather than for promoting collaborative or creative activities or improving students' digital competencies (Livingstone, 2012). This functionalist perspective on education favours the commercial interests of educational technology companies and businesses over fostering a variety of educational experiences for both students and teachers. Consequently, it creates a disconnect between education and the digital society it aspires to serve (Costa et al., 2023).

Although digital technologies in teaching and learning appear to hold potential, as evidenced by their use in the continuation of education during the pandemic, their application remains limited to the mere delivery of knowledge within a functionalist mentality. This is contrary to the transformative role that policy directives expect them to play, as highlighted previously. Moreover, using digital technologies solely for transmitting knowledge creates a gap in digital skills among learners, which, as noted earlier, is a key factor in promoting digital education policies. This situation leads to a disparity between the policy and the actual practice of using digital technologies in classrooms.

Technologies for educational transformation

Digital transformation in education refers to the integration of digital technologies into all aspects of the educational process, to enhance the learning experience of students (Bui & Nguyen, 2023). Digital media is not just limited to physical infrastructure, but is embedded in society, and therefore also shapes social practices (Miller, 2011, 2020). This marks the web as a space of accessing or producing information, but also has implications with respect to possibilities for co-creating and re-inventing oneself through being part of digital culture. Digitalisation processes are not only spaces of technological convergence but also enable a participatory culture (Jenkins, 2009), where users who are part of the web not only access information but also interact with other users, participate with diverse sources of information, and through this process create more information (Miller, 2020). Participation further not only allows for the creation of users' digital personas but also shapes and influences users' practices within digital spaces, that further lead to changes socially. In simple terms, digitalisation holds the power to change practices that impact society and the people within it. This idea seems to be missing from the practices of using digital technologies in teaching and learning. Transforming education with and through digital technologies is not just about adopting new tools but also about rethinking pedagogical approaches for both students and educators in a digital age (Durnali, 2019).

Digital technologies for digital transformation are focused on creative and participative elements of using the web in classrooms. Using participative digital technologies in education speaks directly to elements of digital culture (Jenkins, 2009; Miller, 2011). This focuses on knowledge creation, participation, collaboration where students can develop digital practices conducive to educational emancipation, i.e., spaces where learners can collaborate, participate in discussions, share, and produce new knowledge (Jenkins, 2009; Roy, 2013). Research by Warschauer (2008) highlighted that when lesson planning focuses on student learning teaching with digital technology goes beyond the essays and PowerPoint presentations which are usually dominant in a typical school scenario.

A significant distinction is evident between learning *through* technology and learning *with* technology, as highlighted by Albuquerque Costa in Costa et al. (2023). Learning *with* technology has the potential to transform teaching and learning by connecting ideas and generating new knowledge through digital cultures, emphasising the interactive nature of digital technologies. In contrast, learning *through* technology typically involves traditional classroom lectures that utilise digital tools, mirroring the conventional use of technology in education.

There is no denying that the web has become a meaningful resource for information seeking as well as creation of content, both individually and collectively, formally and informally. In so being, it inevitably challenges the dynamics of the classroom, in that it presents a new level of complexity to both activities and institutions needing to cater to the requirements and expectations of a society becoming progressively more reliant on technological solutions (Costa & Harris, 2017). Jenkins and Deuze (2006) argue that technological convergence is ‘both a top-down corporate-driven process and a bottom-up consumer-driven process’ (2006, p. 6). Explicit connections between curriculum design and digital cultures have been scarce in the literature, given that more often than not the web has been regarded as an additional learning resource rather than an environment where individuals can develop learning agency (Costa et al., 2018). The gap between technological advancements (the functions technology provides), curriculum design (the organisation of teaching and learning), and pedagogy (philosophical approaches to education) presents them as distinct

elements in digital education, which limits opportunities for digital transformation therein (Costa et al., 2023).

The above three strands and how they are practiced offer a starting point for critically engaging with digital education. Digital technologies in education are understood from the ‘purposeful action and negotiated meanings developed’ (Oliver & Trigwell, 2005), among teachers, students and educational institutions in making sense of digital education. Bentri and Hidayati (2022) have also highlighted the need for curricula that support digital pedagogical competencies in developing the creative capabilities of instructors to achieve digital transformation as expected by the policies favouring digitalisation. The potential of digital technologies in education can only be achieved if educational policies are linked with appropriate digital practices and educational pedagogies (Selwyn, 2016), and if opportunities are offered to integrate digital tools into teaching practices effectively (Hepp et al., 2004; Durnali, 2019) in the way learning *through* technology happens, rather than focusing on learning *with* technology.

Conclusion

The purpose of this chapter was to review the literature within the context of digitalisation and to discuss current educational practices involving digital technologies. The push towards digitalisation is driven by the economic opportunities it offers, which results in the establishment of digital policies in education. The aim is to unleash economic power through digital literacies via education. However, the rhetoric of digital policies in education does not align with the digital practices in education. The three strands that cover the use of digital technologies in education are: 1) technologies for administrative purposes in an educational setting, 2) technologies for teaching and learning, and 3) technologies for educational transformation.

Technologies for administrative purposes rely on the notion of alleviating the burden on teachers by digitising processes. Technologies for teaching and learning focus on a functionalist approach to using digital technologies in the classroom, emphasising

knowledge transmission. Technologies for educational transformation centre on the elements of digitalisation and the opportunities for participation, collaboration, creation, and the production of new knowledge, related to pedagogies aimed at educational empowerment. The third strand appears to be anticipated by policymakers as empowering citizens through education, which seems to be lacking with respect to educational practices. Learning through digital technologies, which depends on these technologies as a medium for accessing knowledge, represents how dominant digital practices operate in contrast to learning through technologies, which prioritises educational empowerment. The discourse on digital technologies for transforming education is still not predominant in discussions of the practical application of digital technologies within education.

The next chapter focuses on digital technologies in education and the launch of digital policy initiatives in the context of India.

Chapter 3 The Digital Education Landscape in India

Introduction

This chapter provides an overview of the digital education landscape in India and is divided into four sections. The first section provides an overview of digital education in the Indian context, which includes the rise of educational technology start-ups in the Indian market, suggesting a push towards digitalisation in India. Recent digital policy developments aimed at economic growth of the country, and changes within the context of digitalisation in education are highlighted in the second section of this chapter. The third focuses on the digital divide. Digital inequality in India is prevalent due to various factors, including lack of access to digital infrastructure, because of there being diverse types of schools in India, the rural/urban divide, and a lack of appropriate digital skills and usage of digital technologies in education. Each of these factors that contribute towards digital inequalities in India will be discussed in this section. The fourth part of this chapter focuses on teachers, their perceptions, experiences and practices of teaching using digital technologies in Indian classrooms, and expectations resulting from education policies related to digitalisation.

Education Technology in the Indian Context

India is one of the fastest growing countries with respect to digitalisation, with the second largest number of mobile phones subscriptions and 483 million internet subscribers in 2018 (Diwanji, 2020). This increased to over 1.2 billion internet users across the country in 2023 (Basuroy, 2024). Nevertheless, this should not be understood as India being digitally

inclusive. According to a study by Oxfam India (2022), analysing a household survey run by the Centre for Monitoring Indian Economy from January 2018 to December 2021, only 31 percent of the rural population use the internet compared to 67 percent of the urban population. Comparing the data to 2015, when only 37% of the population was connected online, there is an increase in internet subscribers across India (Basuroy, 2024). Yet, in comparison with countries like the UK, where 97.8% of people between the ages 16 to 74 years have access to an internet connection, or Canada with 97.9% (OECD, 2024b), India is still lagging behind in terms of accessing digital infrastructure like smartphones or internet service.

Although India is lagging behind developed countries in terms of access to digital infrastructure, the potential of digitalisation for the economy has been realised. There is opportunity for growth in this regard, as is also evident in the rise of in educational technology business startups. These startup companies offer technology solutions not just to public and private schools, but they also target technology solutions to parents and students (Miglani & Burch, 2018). The following section will discuss startups in the sector of educational technology in India.

Education Technology Startups in India

The uptake of educational technology in India involves multiple players and actors who participate, shape and contribute (Miglani & Burch, 2018) to the economy of India through the digital technology solutions offered to educational institutions, parents, students and teachers. Over the past five years, the educational technology sector has raised approximately \$4 billion in private and foreign investments in India alone (Zheltov, 2022). Some of the solutions that educational technology companies offer focus on skills development, test preparation, and learning support (Invest India, 2024).

India has the market for economic potential in educational technology startups for two reasons. Firstly, their free trade and neoliberal policies support private/public partnerships and the privatisation of education. Through the Indian government's openness to new

businesses and digital initiatives, the education space was valued at \$5.13 billion in 2023 (Global data, 2024), which was predicted to double by 2025, reaching 37 million paid educational technology users (Zheltov, 2022). Secondly, there are policies that support foreign investments in the private education sector. According to recent amendments to the Indian Foreign Investment policy (Government of India, 2024b), 100% foreign investment is allowed, using a digital portal called the Foreign Investment Facilitation Portal (FIFP), enabling ease of investment by foreign tech companies in India. For instance, the National Educational Alliance for Technology (NEAT) promotes public-private partnership (PPP) between educational technology companies and the government. With foreign investments and PPP, the Indian market demonstrates a push towards educational technology companies that further promotes the economy of the country (Government of India, 2024b). Privatisation and policy that supports easy foreign investment in Indian markets together create encouragement towards the growth of the Indian economy via digitalisation.

One example of an educational technology company in India is Byju's, which is valued at \$15 billion. Byju's is a leading Indian educational technology company which was founded in 2011 (Byjus, 2024). The company offers a comprehensive, interactive, and personalised learning experience for students across various age groups (Sruthi & Mukherjee, 2020). The key focus of the company rests on providing learning support to students through the means of providing study material for students studying in high school along with the coaching for competitive exams to compete for higher studies. Apart from being expensive (Gupta & Warkhedkar, 2022), it can be argued that Byju's promotes self-learning through the use of digital technologies. Furthermore, educational companies like Byju's also redefine the teacher's role, which is limited to providing content to students in the form of videos, self-assessment, and self-paced online learning. The teacher's role may even be replaced by technological applications (Miglani & Burch, 2018). There are many educational startups in India, similar to Byju's, that focuses on providing online lesson delivery, personalised form of assessments for students for school curriculum and competitive exams, test preparation, one-to-one online tutoring, and many more options to support students' learning, such as

Unacademy², Toppr³, and Vedantu⁴. While these educational technology startups target students and parents, there are also startups specifically aimed at schools and teachers. Some, like Xseed⁵, Next Education⁶, Educomp Solutions⁷, and LEAD School System⁸, target schools and teachers to offer support in the form of lesson delivery through digital technologies. One of the case sites (school A) for this research study, during the data collection phase, was subscribed to LEAD School System for teachers' lesson plans, which meant that teachers were teaching in classrooms using the lesson plans provided by the LEAD educational technology company. The findings from school A will be discussed in Chapter 7.

The shift to online learning, especially during the pandemic, worked to promote educational technology companies in India (Gupta & Warkhedkar, 2022). The global commitment to educational needs as highlighted by Patil (2021) are usually met through collaboration with private sector. This is evident from the Education 2030 Framework (UNESCO, 2015) that states 'private sector, philanthropic organisations and foundations' (p.59) play an important role in contributing to education. Research by Villalobos, Parcerisa, Castillo & Olguin (2024) in Chilean schools highlights how educational technology companies affect schools' culture, including influence on educational policies, given the digital technologies commercialised and adopted by institutions are usually projected as solutions to various school problems, including management of workloads and professional development of teachers, student attendance, records of student progress, in curriculum delivery, to name a few. Furthermore,

² Unacademy is India's digital learning platform that provides online learning opportunities for entrance examinations. See: <https://unacademy.com/>

³ Toppr is a digital technology application that supports school learning from 5th to 12th grade. It is a subsidiary of Byju's. See: <https://www.toppr.com/ask/>

⁴ Vedantu is a digital technology company that offers digital learning support from 1st to 12th grade, along with competitive examinations for after high school. The company also offers online one-to-one tuition for students. See: <https://www.vedantu.com/>

⁵ Xseed is a research-based academic program for schools that targets schools with an overall package of a learning management system, and training packages for teachers, students and parents. See <https://xseededucation.com/>

⁶ Next Education is an educational technology company in India that focuses on providing academic and administrative support to Indian schools. See <https://www.nexteducation.in/>

⁷ Educomp Solutions is an educational technology company that offers digital learning solutions to K-12 schools across India. See <https://www.educomp.com/>

⁸ LEAD is an Indian educational technology company that offers curriculum support and digital learning solutions to schools in India. School A in this research study during the time of data collection was subscribed to LEAD as their digital curriculum provider. See <https://leadschool.in/>

this dependency on the private sector for educational technology solutions was accelerated during the pandemic because technology became the only possible and most effective medium to continue schooling activities during periods of physical isolation (Patil, 2021), with the private sector able to respond more promptly to this need than any public venture seemed to be able. This further justifies how the private sector plays a determining role not only in contributing towards an understanding of the place of digital technologies in education but also shaping digital educational policies (Williamson, 2017).

Within the Indian context, research by Hazarika, Boruah, and Puzari (2022) on educational technology companies like Byju's and Vedantu pre- and post-pandemic has suggested increased dependency on such software companies after the pandemic. Although the literature suggests the rise of educational technology companies in India (see Gupta & Warkhedkar, 2022; Hazarika, Boruah, and Puzari, 2022), this does not indicate the quality of the education that these platforms offer. The increased influence of the educational technology market also presents a risk with respect to teachers and their changing role, as they offer access to digital content, but the teachers are not the producers/creators of this content (Burch & Miglani, 2018), which results in limited curricular imaginaries (Costa et al., 2023). A report by UNICEF (2022) also highlighted the misalignment between quality of digital learning and the quality of learning offered by online platforms through educational technology companies. The rise of educational technology companies further suggests that digital education is not neutral but is viewed from cultural, political, policy and economic aspects that are together rewriting the future of education (Ball, 2017). More often than not, these educational technology companies rely on the narrative that the technological solutions they provide and applications they offer are necessary for students to succeed in the real world (Miglani & Burch, 2018). This leads to further questions as to the role played by education policy and policy directives within the context of education. To what extent do education policies promote educational technology companies and their imperatives in providing solutions? With the rising number of educational technology companies in India and the market size, which is predicted to rise in the coming years, it is essential to question the role of schools and teachers in the future. How will education policies in India identify the role of schools and teachers in classrooms, especially with respect to educational

technologies? In other words, how do education policies perceive and promote digitalisation in schools and the role of teachers in classrooms?

To understand policy developments within the context of digitalisation in India, the next section focuses on recent policy developments that support digitalisation in India and the resulting digital practices in Indian classrooms. Understanding of digital education policies is important to position the role of teachers in the Indian context within the educational technology solutions mindset of the educational technologies companies in India.

Policy Developments towards Digitalisation

India's interest in digital technologies in relation to education stems from further back. The National Policy on Education 1986 (modified in 1992) stressed the need to employ educational technology to improve the quality of education (Roy, 2017). This draft of the National Policy on Information and Communication Technology in School Education by the Department of School Education and Numeracy (2012) defined information and communication technology (ICT) as not only hardware or software applications, but also interactive digital content, learning management systems, and management information systems (Roy, 2017). ICT@ Schools was the scheme launched in 2004 by the National Council of Educational Research and Training (NCERT), where ICT was made a mandatory subject for high school students in India under the Central Board of Secondary Education (CBSE) (Government of India, 2016b). The reason for making ICT compulsory was to inculcate computer skills in students. The significant role of ICT in school education was also highlighted in the National Curriculum Framework of 2005, which is a key document framing India's education policy, and especially the curriculum in Indian schools. In 2015, India launched the Digital India Campaign (DIC) whose sole purpose was to 'empower society and the knowledge economy' of India, put simply, to reap the benefits of digitalisation across various sectors of society. This policy further defined ICT literacy in terms of levels of competence; basic and advanced. This led to the development of the digital curriculum as a subject for students as well as for teachers, further formalised as the Curriculum for ICT in Education by the Central Institute of Educational Technology (CIET) in 2017 (CIET, 2019).

Initially, digital education in India was approached as an ICT subject and therefore not necessarily viewed as contributing to the development of important, lifelong learning literacies (Singh, 2018). However, a recent development in education policy, the National Education Policy (NEP) 2020, replacing The National Policy on Education 1986, which was launched during the pandemic, positions technology as an interdisciplinary subject, alongside the compulsory subject of ICT (Government of India, 2020b). The curriculum was revised to provide opportunities, especially to secondary stage students, for building their digital skills (D. Singh & Singh, 2022), thereby aligning with India's competitive economic goals through processes of digitalisation.

The following section highlights the DIC and NEP 2020, which form the basis for this research study in understanding the influence of digital policies on digital teaching practices.

Digital India Campaign

In 2015, DIC was launched by the current Prime Minister of India, Mr Narendra Modi, under the Ministry of Electronics and Information Technology (MeitY), to 'empower society and [the] knowledge economy' (Government of India, 2020a). The drive for DIC was to connect various sectors and regions of India to 'improve the quality of life of citizens' (Panwar, 2017, p. 412) through processes of digitalisation. Under DIC, many programmes, or initiatives (as the website refers to them), were launched across different sectors to propel India towards becoming a digital knowledge economy. Different digital initiatives under the broad categories of broadband highways, universal access to mobile connectivity, public internet access, e-governance, e-Kranti, information for all, electronics manufacturing, IT (Information Technology) jobs, and early harvest programmes (Government of India, 2020a) were launched. Put simply, DIC did not necessarily focus specifically on education alone but also launched digital programmes within the fields of agriculture, health, banking, business, and government processes, to name a few (Government of India, 2020a). The campaign further launched 'India's Trillion-Dollar Digital Opportunity' with a vision of attaining \$1 trillion of economic value for the digital economy and zero technology imports by 2025

(Kaka et al., 2019). The launch of these digital initiatives under DIC aligns with the earlier discussion on the processes of digitalisation in a global society, with a key focus on its economic aspects. One of the impacts of DIC is evident, in that since its launch India has emerged as the second largest mobile phone manufacturer in the world (Financial Express, 2019).

The key focus areas of DIC are infrastructure, electronic delivery and services, and digital literacy to Indian citizens (Government of India, 2020a). A recent report by Kantar (2024) predicts that the biggest growth of internet users is expected to occur in rural India. Although the digital programmes highlight the successful implementation of DIC in terms of digital access, these digital activities are limited to accessing social media or watching online movies (Kantar, 2024), which begs the question of the quality of engagement with digital technologies, especially in rural India. Therefore, it could be argued that access to digital infrastructure will not result in empowering Indian citizens. Moreover, a study by Oxfam India (2022) argued that the DIC has benefitted the privileged rather than the underprivileged. This is evident through the continued lack of digital infrastructure, with disadvantaged groups unable to access the digital programmes launched under DIC (Oxfam, 2022).

One of the key digital initiatives under DIC was a unified digital identity called Aadhaar Card for Indian citizens (Government of India, 2022b). The unified digital identity is now mandated for every individual in India and recognised by all government sectors in Indian society. This is further linked with other forms of identification such as passports and home addresses, and can be used as proof to open a bank account. Connectivity between Aadhaar and various government and private companies makes some of marginal groups in society vulnerable to private companies extracting revenue from them (Athique, 2019). Many researchers have argued that how Aadhaar card is an expansion of surveillance through means of digitalisation (Gurumurthy et al., 2016; Thomas, 2019). However, the key aspect which is evident from the launch of DIC is the push towards unleashing economic growth opportunities by the Indian government. This is further enacted through collaboration between different stakeholders, including different ministries, such as the Ministry of Education, Ministry of Electronics and Information Technology (MeitY), and local and

national governments, to fulfil the single agenda of the DIC, alongside public-private partnerships. Although centralisation allows for uniformity and consistency, it also limits innovation (Brennan & Willis, 2008), further promoting neoliberal ideology.

Research studies have been undertaken to understand the influence of DIC in governance (Awasthi et al., 2024), the financial sector, the unified digital identity in terms of security and infrastructure, and digital initiatives using gendered and queer lenses (Dasgupta, 2018), from a feminist point of view (Gurumurthy et al., 2016), and relating to how the DIC promotes superficial empowerment among Indian citizens (A. Singh, 2021). However, there seems to be a particular gap in the literature with respect to education. Digital initiatives launched under the DIC included e-Paathshala, a programme developed by National Council of Educational Research and Training (NCERT) that includes e-books, audio and video resources, and other relevant teaching materials for students as well as teachers (Government of India, 2016a). Other initiatives include Shaala Darpan (Government of India, 2016e), which focuses on learning quality and administration for public schools in India, and Shaala Siddhi providing a standardised and evaluative framework for schools to review and improve themselves through means of digitalisation (Government of India, 2016d). Another digital programme called Saransh (Government of India, 2016c) enables parents to review and analyse student performance and to compare with other schools. All of these digital initiatives are managed by different departments under the Ministry of Education. With the launch of different initiatives in Indian education, there seems to be a research gap in terms of understanding the implications of new policy directives and the push towards digital technologies in education for teaching practices, which this study aims to investigate.

Although DIC first launched in 2015, since then there have been changes in the Indian education system. One of the key changes that occurred during the pandemic was the launch of the new National Education Policy (NEP) 2020, replacing the National Policy on Education 1986. NEP 2020 highlights how education is viewed as supporting DIC's vision of global growth for India. The following sections highlight the key changes within NEP 2020 and how this new policy directive positions teachers amidst the changing education landscape due to digitalisation.

National Education Policy 2020

The National Education Policy 2020 was launched on July 29, 2020, by the Government of India with the aim of transforming India's education system by 2040 (Government of India, 2020c). NEP 2020 was launched during the pandemic by the Ministry of Human Resource and Development (MHRD) (now the Ministry of Education), to replace the previous National Policy on Education 1986. NEP 2020 is a 'light but tight' system of regulation and monitoring of school and higher education (Batra, 2020). One of the key changes made by NEP 2020 was the structure of schooling, moving from the traditional foundational, middle and high school model to a new curricular and pedagogical structure (5+3+3+4). Figure 2 below highlights the new academic structure compared to that which existed previously

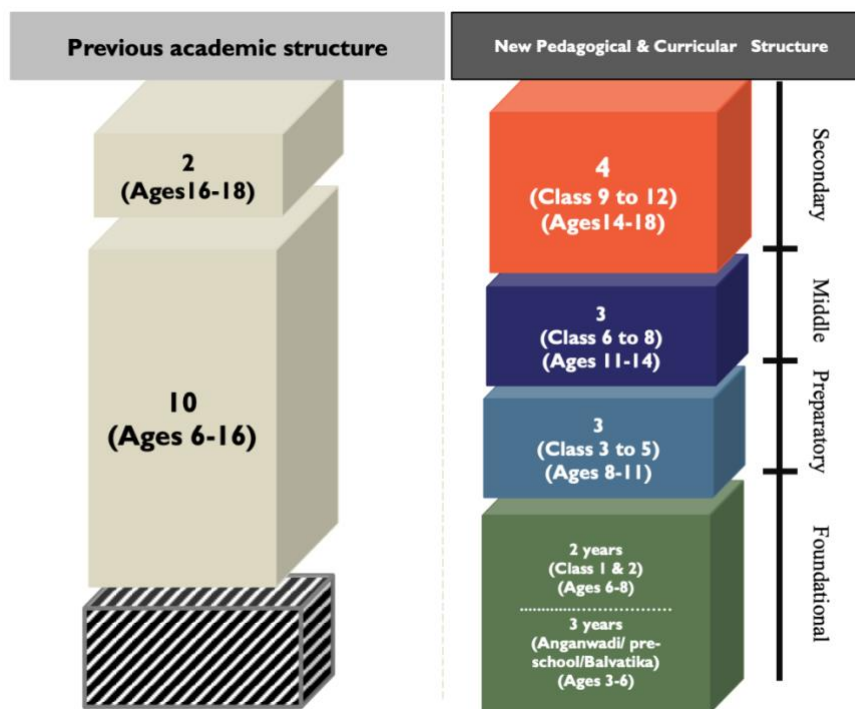


Figure 2: New Curricular and Pedagogical Structure (5+3+3+4) (Government of India, 2020c)

NEP 2020 aims to revamp the Indian education system to align with the UN's Sustainable Development Goals 2030, particularly emphasising Goal 4, quality education (Naik et al., 2024). It also highlights the integration of teaching, learning, and educational planning

through digital technologies. For this, the creation of an autonomous body, the National Educational Technology Forum (NETF), was launched, to focus on using technology to enhance learning, assessment, planning, and administration in schools, thus ensuring the appropriate integration of technology at all levels of education (Government of India, 2020c). Competency-based assessment has been introduced in CBSE schools for grades 3, 5, and 8 as per NEP 2020, concentrating on assessing core concepts, application-based questions, and higher-order thinking skills. The Department of School Education and Literacy, under the Ministry of Education, has launched the National Digital Educational Architecture (NDEAR) under NEP 2020. NDEAR serves as a digital architectural framework designed to support the goals envisioned by NEP 2020 (Ministry of Education, 2023). The vision of NDEAR is to create a unifying national digital infrastructure to energise and catalyse the education ecosystem (Bajpai, Biberman, & Sharma, 2019). Digital Infrastructure for Knowledge Sharing (DIKSHA) was launched to provide educational resources to teachers, students, and parents across the country (Ministry of Education, 2017). It was launched in September 2015 as a collaboration between the Ministry of Human Resource and Development (MHRD), the National Council for Teacher Education (NCTE), and the EkStep Foundation, as a state-level open and customisable digital education platform intended to host a comprehensive set of educational resources (Bajpai, Biberman, & Sharma, 2019). DIKSHA is an example of public/private partnership (PPP). The DIKSHA platform from 2020 is considered to be the unified platform for the educational content, to leverage technology in education and contribute to the implementation of NEP 2020. DIKSHA provides access to a large number of curricula linked to e-content, through several use cases and solutions, such as QR coded textbooks for all subjects and grades and digital courses for teachers. According to the DIKSHA website, to date DIKSHA has over 3600 textbooks and more than 144 hundred thousand pieces of e-content and more than 300 courses (Ministry of Education, 2017).

Research by Naik et al. (2024) on education use among teachers in Indian classrooms has highlighted that DIKSHA was the third most popular resource among teachers, following YouTube and Google search, with respect to using digital technologies in classrooms. Teachers preferred to use DIKSHA for two reasons, which were the authenticity of the content offered in the platform and the easy accessibility of the DIKSHA portal (Naik et al., 2024). Furthermore, online training has been expanded through the DIKSHA portals. NEP

2020 advocates for a comprehensive digital overhaul in the education sector by placing teachers at the centre and recognises the importance of prioritising their involvement in integrating technology into classrooms (Naik et al., 2024). The launch of new digital programmes as part of both NEP 2020 and DIC suggests a push towards digitalisation in Indian schools. Henceforth, the need to understand the influence of such directives on teachers and their practices is essential to uncovering the policy-practice gap.

School ethos and NEP 2020

The Central Board for Secondary Education is one of the most prominent national education boards in India, and is part of Ministry of Education. CBSE is a national-level board of education in India and is managed by the Government of India, and NEP 2020 is applicable to all schools affiliated to CBSE. To be a CBSE school specific criteria must be met with regard to infrastructure, faculty qualifications, and adherence to CBSE's educational guidelines. With CBSE's strict byelaws and policies undertaken by each school, a consistent curriculum is maintained across all CBSE schools (Government of India, 2023b). CBSE provides the necessary area, number of classrooms, and number of teachers per classroom as a minimum requirement for any private schools wanting to be affiliated with CBSE (Tilak & Sudarshan, 2001).

School ethos is referred to as a 'school's character' (Woods, 2014), which provides 'the unique pervasive atmosphere or mood of the organisation' (Allder, 1993, p. 69). The school's ethos describes the culture of the school and the dynamics among different stakeholders in the school. NEP 2020 promotes a school ethos centred on technology adoption, collaborative learning, and holistic and multidisciplinary education, to achieve inclusive education (Government of India, 2020b). A school's ethos also links to who holds power in an organisation (Woods, 2014), further influencing the school's culture, accepted behaviours and underlying practices (Eisner, 1994). It can be argued that the ethos of the school determines school practices that further develop and shape teachers' practices. These intrinsic expectations projected onto teachers, students and parents can be referred to as the hidden curriculum (Synder, 1970). Within the context of Indian schools, schools affiliated

with CBSE adopted NEP 2020 with an expectation to promote digital technologies, as indicated by the policy. This influences not only the school's ethos but also the teachers and their digital teaching practices.

In this vein, to make sense of digital practices within the policy directives, it is essential to unpack school ethos and how schools understand the application of technology within the context of education policy (NEP 2020 in this context). This further guides teachers' digital teaching practices, wherein we can unpack the policy/practice interplay. Within the context of this research study, to investigate digital teaching practices in Indian classrooms, the uptake of digital initiatives in Indian schools is essential to investigate.

Teacher's role as promoted by NEP 2020

The teacher's role in Indian classrooms is not limited to completing the curriculum, with the oldest and most powerful image of contemporary teachers in India being the guru/acharya. The guru/acharya is seen as someone who uplifts students, spiritually as well as academically (Kale, 1970). Put simply, the role of a teacher in the Indian classroom is to provide knowledge as well as to build the character of students. This role is challenged by teachers in India holding low status in schools and exercising little control over the curriculum, while, at the same time, being expected to provide moral, parental and adult authority to their students (Kumar, 2005). Traditional teacher education programmes in India were designed to prepare teachers to plan lessons using standard formats, deliver them, organise school assemblies, and perform other routine activities (Batra, 2005) in schools. This is further highlighted through studies of pre-service training programmes for teachers in India. In the curriculum of student teachers (pre-service teachers), the importance of disciplining students (Batra, 2014) also stems from colonial and folk conceptions about children (Batra, 2011) and their relationship with adults in Indian society (Batra, 2005). According to research by Batra (2005) on student teacher education, teachers are expected to be respectful adults by not answering back to their superiors. This leads to a culture of patronage towards the young through power, and a belief that education is the effective transformation of behaviour.

When teachers emphasise disciplining students, this refers to the teaching of obedience, piety, respect, good habits and manners, hygiene and self-presentation, as well as a strong work ethic and a commitment to studying (Sriprakash, 2012), all of which are also highlighted in student teachers' curricula in teacher education institutions (Batra, 2005, 2011, 2014). There are still several teachers who believe disciplining students through corporal punishment is necessary (Sarangapani, 2003). Some Indian teachers believe that it is their responsibility to develop moral character and citizenship values (Sarangapani, 2003) among students, which is embedded during their years studying to be a teacher (Batra, 2019). NEP 2020 has a significant influence on teachers' autonomy and agency in classrooms (Mukhopadhyay & Ali, 2021), positioning them as central to transforming education. This is evident in the policy's focus on teachers' empowerment in the form of continuous professional development courses (Government of India, 2020d). NEP 2020 recognises that the success of technology integration into Indian classrooms is contingent on teachers' preparedness (N. Kaur & Kaur, 2024) and development. Despite recent policy advancements in India literature on the connection between curriculum design and digital cultures (Costa et al., 2018) has been limited. How digital initiatives position teachers and their practices when using digital technologies, how teachers are empowered through NEP 2020 within the context of digital initiatives, and how teachers' digital practices are shaped and influenced by the new policy directives are questions that are essential to understanding the critical application of digital technologies in Indian classrooms. This study aims to understand teachers and their teaching practices within the context of new digital policies. However, one of the biggest and yet the most basic forms of digital inequalities is still prevalent in India. This, along with other forms of digital divide, will be discussed in the next section.

Digital Inequalities in India

This section highlights the challenges of implementing digital technologies in the Indian education context. The first form of digital divide relates to access to digital infrastructure, including access to digital devices and internet connectivity. Within the Indian context, digital infrastructure is further problematised due to socio-economic and geographical

conditions. Three aspects of digital inequalities can be highlighted: 1) lack of access to digital infrastructure (Brooks et al., 2005; Van Dijk, 2020; Asrani, 2021), which is further problematised within the context of there being different types of schools in India, location of school, like rural or urban areas, and social inequalities, 2) lack of access to digital skills (Deursen & Van Dijk, 2015; Costa & Gilliland, 2017), and 3) lack of access to digital cultural knowledge and understanding (Deursen & van Dijk, 2014; s, Deursen & Van Dijk, 2017; Costa & Li, 2023). The three types of digital divide in India are highlighted in figure 3 below.

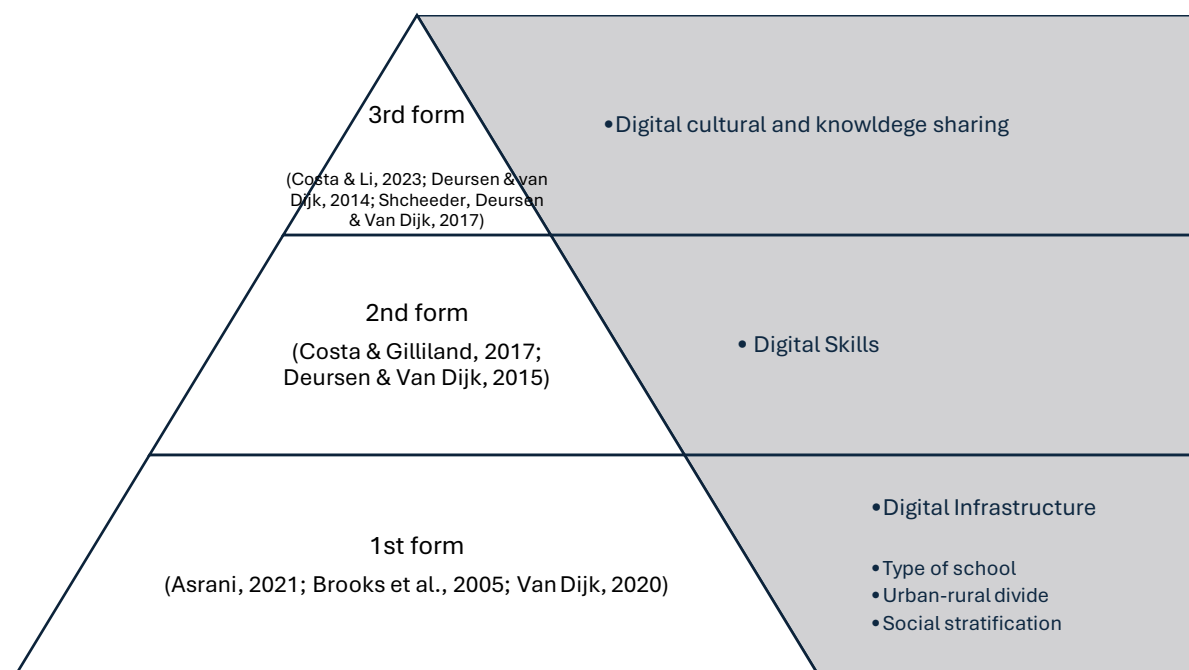


Figure 3: Forms of digital divide in India

First form of digital divide: Lack of digital infrastructure

With the onset of digital technologies and changing ways of accessing information, research has highlighted different forms of digital inequality. This form of digital access is understood as the duality of haves and have-nots with respect to access to technology (Ganesh & Barber, 2009; Van Dijk, 2020) such as computers, smartphones or internet connectivity (Heeks, 2022). The first and most basic form of digital inequality in the Indian context relates

to access to the digital infrastructure (Brooks et al., 2005; Asrani, 2021). To be able to participate online, it is necessary to have devices and access to an internet connection. Within one year, smartphones had spread more widely, with one of the reasons for this being the impact of the pandemic. Comparing this to the years during and after the pandemic, 95.8% had smartphone in 2022, as against 90.2% in 2018 (ASER, 2023). As previously stated, although access to smartphones and internet connectivity are improving, India still lags in terms of accessing digital infrastructure within the context of education.

Research findings have often pointed to the deficiency of technology-enabled quality education in India due to the lack of digital infrastructure (Bajpai et al., 2019). Research by Oxfam (2020), based on the household survey by the Centre for Monitoring the Indian Economy (CMIE) from January 2018 to December 2021, suggested that 82% of parents in India faced challenges in supporting students' education through digital technologies, and 84% of teachers struggled to teach using digital technologies during the pandemic. While there has been an improvement in the number of people accessing smartphones, there are also limiting factors such as unreliable electricity, affordability of connectivity, and erratic internet connection (Kumar et al., 2022). UNICEF's Remote Learning Reachability Report showed that only 24% of Indian households had internet connections to access e-education (UNICEF, 2020). In 2021, ASER found that of the children who had smartphones at home, 26% could not access them for studies (ASER, 2023). One of the reasons could be, as the research study by Kalba (2008) suggests, that digital devices and household networks in developing countries like Africa and India remain a household belonging rather than individual possessions. This is further suggested as teachers during the pandemic shared how timetables were adjusted because of the lack of devices present in one household, where siblings would often share smartphones to attend online classes during the pandemic (Mukhopadhyay, 2020). Additionally, there are researchers who argue against smartphones as a means of gaining education because of the distractions involved in using them (Chen & Yan, 2016) and disrupting the cognitive performance (Lepp et al., 2015) of students.

Lack of access to digital resources is further problematised by the type of school students attend in India. This is because India has diverse types of schools which vary in terms of available resources for students. For better context, the next section will focus on the types

of schools and how these contribute towards digital inequalities in education, especially in terms of access to digital resources.

Types of schools in India

In India, there are broadly three types of schools: 1) public schools, 2) semi-private or private aided schools, and 3) private schools or private unaided. The modern school system in India has its origins in the colonial system of education that was shaped between the 1830s and 1870s. Dominant features of the current system, including the centrality of textbooks and examinations, as well as a highly centralised system of education administration, can be directly traced to colonial institutional structures (Sarangapani, 2014).

Before understanding the different types of schools in India, it is important to note that India is a diverse country with 28 states and eight union territories, where each state has its own government, regional language, and culture that the state government acknowledges. In fact, some state governments initiate programmes that are only relevant to their own state and are not applied to others. In other words, each state in India has its own education department that develops initiatives and programmes based on specific needs. For instance, in 2019 the Punjab government, which is also the state explored in this research study, initiated a Smart School Policy for government schools in Punjab, prioritising schools with modern facilities and digital classrooms. Similarly, the Government of Kerala, in 2016, initiated the Hi-Tech School Program, under Kerala Infrastructure and Technology for Education (KITE), to upgrade all public schools with modern ICT infrastructure, high-speed internet, and digital devices for students in Kerala (KITE, 2024). In addition to the state governments, the central government, and specifically the Ministry of Education, is responsible for initiating policies for education in schools and in higher education at the national level.

Public schools are government-funded institutions operated by either the central or state government (Anderson & Lightfoot, 2019), depending on the school type. The operation of these schools is contingent upon their affiliated curriculum. According to the Right to

Education Act (Government of India, 2009), public schools provide free education to all children until the end of elementary school. Decisions regarding teacher recruitment, the curriculum, and other school operations are made either by the National Council of Educational Research and Training (NCERT) or the State Council of Educational Research and Training (SCERT) if the school is affiliated with the central government, or by the local educational department, such as the Punjab School Education Board or the Kerala Board of Public Examinations, if the school follows a local curriculum. NCERT and SCERT are departments under the Ministry of Education responsible for providing curriculum materials, textbook content, and all necessities for centrally run government schools. Likewise, each state has its own education department responsible for public schools managed by state ministries.

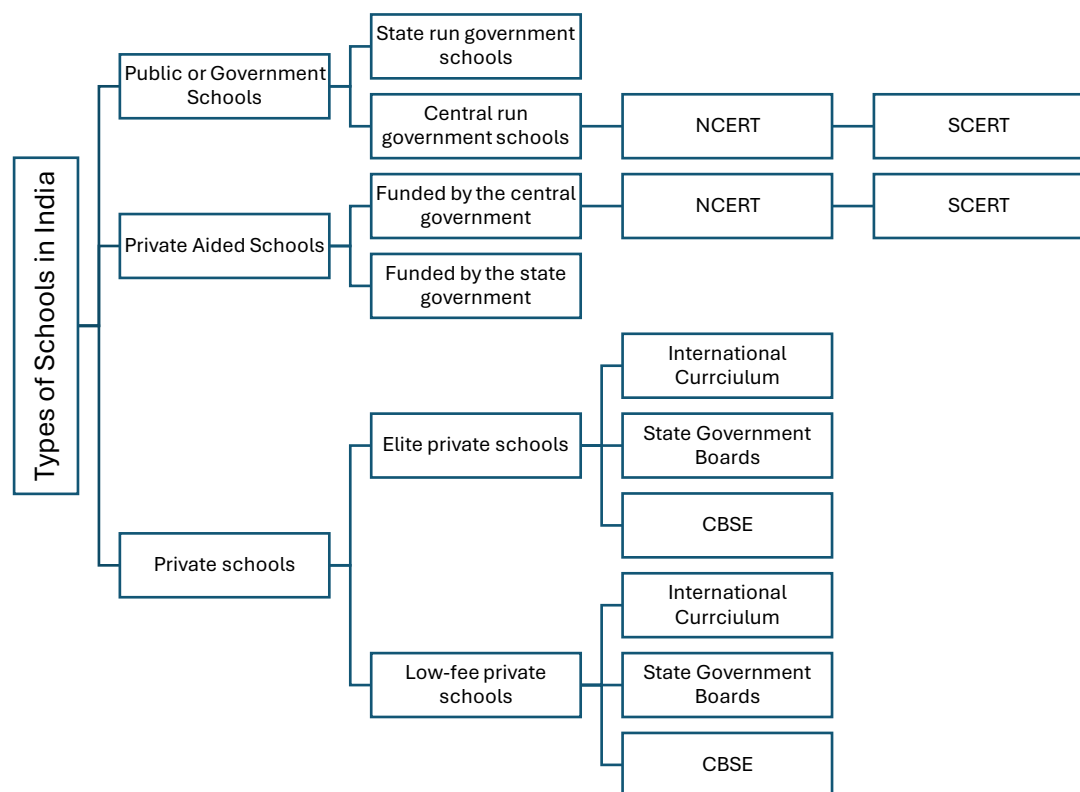


Figure 4 Different types of schools in India

Figure 4 above highlights the different types of schools in India. Another type of school in Indian education is private-aided (or semi-private) schools. These are private schools with partial or up to 95% government funding (Tilak & Sudarshan, 2001). Although they are known as private-aided schools, decisions regarding teacher recruitment, teacher salary, and

other financial matters are taken up by either the state or central government, similar to public or government schools.

The third type of school in India is private unaided schools. In this research study, private unaided schools will be referred to as private schools, to avoid confusion. Private schools in India are funded and managed privately (Chaudhry & Uboweja, 2014). Although private schools have autonomy in making decisions regarding school fees, teachers' salaries, recruitment processes, increments, and other school-related decisions, they must abide by a specific curriculum body, following the regulations set by that body. For instance, there are four types of educational curriculum bodies that private schools may affiliate with: 1) The Central Board of Secondary Education (CBSE), which is part of NCERT; 2) State Government Boards, which are state-run curriculum bodies; 3) The Council of Indian School Certificate Examinations (ICSE), which is another national, private, non-governmental board that offers curricula to private schools in India; and 4) International curriculum bodies like the International Baccalaureate or the General Certificate of Secondary Education (GCSE). As private schools are free to adopt their own philosophies, visions and missions, some may favour certain religions over others or focus on catering to specific communities (Tilak & Sudarshan, 2001), as long as they have an affiliated and recognised curriculum board chosen from the four mentioned above. Private schools generally cater to students from middle and higher socio-economic backgrounds. Private schools is interested more in the operation of the educational institution as a business entity (K. Kumar, Prakash, & Singh, 2021).

Having provided a summary of the different types of schools in India, it is important to understand that, unlike the common perception in the west where private schools denote exclusivity, in India private schools are not meant only for the elites (Härmä, 2011; Kingdon, 2020). Private schools in India are diverse, depending on their spatial location, fee structure, and the school ethos. There are private schools that are for the elites but there are also private schools known as low-fee private schools (Srivastava, 2013). The low-fee private schools (LFP) are categorised as schools that target disadvantaged groups and charge monthly tuition fees that do not exceed the daily wage earnings of a labourer at primary and junior level, and two days' earnings at secondary level (Srivastava, 2013), which is

considered less than some government schools per-pupil-expenditure (Kingdon, 2017). According to the Ministry of Statistics and Programme Implementation survey in 2019, the data suggests that approximately 50% of students in private schools in rural areas pay less than ₹500 (\$5.92) a month (Government of India, 2020a). Therefore, private schools in India can further be differentiated as either elite schools or low-fee private schools, as highlighted in figure 4 above.

Research focusing on understanding different types of schools in India suggests that the preferred choice among Indian parents for their children is private schools (Probe Team, 1999; De, Khera, Samson, & AK, 2013). This is due to the poor physical facilities available in public schools along with high pupil-to-teacher ratios and the low level of teaching in public schools in India (Trines, 2018). The absenteeism of teachers in public schools, due to lack of monitoring mechanisms compared to private schools, is also one of the reasons that parents prefer private schools over public (Saha & Saha, 2018). However, research on Indian teachers highlights that teachers prefer to teach in public schools over private ones (Ramachandran, 2016). Public school teachers are employed by the government and their job is regarded as a government job which comes with security and pension benefits (Probe Team, 1999), whereas teachers in private schools do not have job security unless employed contractually (UNESCO, 2023). The 2023 State of Teachers, Teaching and Teacher Education Report in India (Sarangapani, Bawane, Goyal, & Ramchand, 2024) found that over 50% of female teachers work without written any agreements contracts and are paid half of that earned by teachers in public schools. Private-school teacher salaries are typically one-fifth the salary of regular public-school teachers (and are often as low as one-tenth of these salaries), which enables the private schools to hire more teachers, have lower pupil-to-teacher ratios, and reduce multigrade teaching (Muralidharan & Kremer, 2006; Mehrotra & Panchamukhi, 2007; Goyal & Pandey, 2012; Kingdon, 2020).

Moreover, due to privatisation and competition among different private schools in India, there is pressure to maintain high quality teaching standards, which further results in performance anxiety and stress for teachers at private schools (Ramachandran, 2016). On the other hand, teaching and learning is very closely monitored in some private schools and teachers are often employed on short-term, insecure contracts and at lower rates of pay

(Ashley et al., 2014). There is also competitiveness among different private schools (Tilak & Sudarshan, 2001, p. 9) in the same region, in terms of which private school offer better facilities to students.

According to statistics provided by the Government of India (2022, pp. 139–140), only 35% of public schools had access to functional computers, while 71% of private schools enjoyed this access. Private schools typically have greater availability of resources and facilities, such as broadband access, ICT labs, sports, and various extracurricular activities compared to public schools, which lack essential resources to support digitalisation processes (Kingdon, 2017). Research by Naik et al. (2024) on teachers and their technological practices suggested that 66.2% of the teachers who participated in their questionnaire reported inadequate digital infrastructure in public schools. The study further concluded that public schools face greater challenges in accessing the latest technological advancements than private schools. Research by M. Kaur and Singh (2018) suggests that technology use in public schools is not implemented at the classroom level; instead, it is utilised for communication with authorities and for administrative purposes, such as filling out portals for teachers and students, rather than in the classroom. This highlights that public schools focus solely on the initial aspect of using digital technologies, limiting it to administrative purposes only.

The privatisation of the education market in India has led to competition between various private schools as highlighted before. This results in creating opportunities for access to quality education and offering differentiating demands in society (Tilak & Sudarshan, 2001), like private schools catering to single gender schools, or specific school with dominant religious practices to name a few. Research also suggests that private schools are not always superior to public schools (Saha & Saha, 2018), as there is no standardised quality level for private schools. However, the rise of private schools has resulted in a decrease of 11.1 million students in government schools and an increase of 16 million students in private schools from 2010 to 2015 (Tooley & Dixon, 2003; Kingdon, 2017). Some private schools, however, are unrecognised institutions, as they only educate up to 8th grade without being affiliated with any formal curriculum body, thereby complicating the measurement of the total number of private schools and their growth in India (Srivastava, 2008). During the pandemic, there was a shift from the dominance of private school enrolment to public

schools. According to research conducted by the Annual Status of Education Report during the pandemic (Government of India, 2020, 2021), there was an increase in public school enrolment between 2018 and 2021. This trend may be attributed to the financial crisis during the pandemic and the migration of workers from urban to rural areas. Parents struggled to afford private school fees, leading to increased enrolment in public schools in India (Banerji & Wadhwa, 2023), and, in some cases, to a complete lack of enrolment in schools. It is difficult to predict the current scenario post-pandemic, but the research indicates that, if given a choice, parents would prefer private to public schools in India.

The digital divide in India is further problematised by the urban/rural divide, as highlighted in the following section.

Rural/Urban Divide

Recent data on Indian geography has suggested that 69% of India's population lives in rural areas (D. Singh & Singh, 2022). Research by Singh (2010), Dasgupta et al. (2001), and Maiti et al. (2020) suggests a significant digital divide between urban and rural areas of India. Digital infrastructure refers to the lack of digital devices, networks and internet available among people in India. According to the study by ASER, 95.8% of population of India had a smartphone in 2022, as against 90.2% in 2018 (ASER, 2023), however, the study conducted by Oxfam India (2022) suggested that only 31% of the rural population has access to the internet compared to 67% of the urban population. Some schools, both public and private, in rural areas of India lack basic infrastructure like electricity, clean drinking water, and proper sanitation (Oxfam, 2022). Schools in urban regions of India offer a better educational experience, with high enrolment rates and a complex bureaucratic system when compared to rural schools (D. Singh & Singh, 2022), suggesting a rural/urban divide in the Indian education system. The ICT@Schools policy (Government of India, 2016b), a policy initiative by the Ministry of Education, proposed investment in information and technology labs across Indian government schools, but a report by IT for Change (2018) highlights that only a few public schools have access to functioning ICT labs. The DIC, which also launched various digital initiatives across different sectors of India, like agriculture, health, finance, and

education, has also acknowledged the importance of providing internet connectivity for rural areas by launching initiatives that prioritised providing broadband to these locales. The implementation statistics are not available online to understand the impact of such initiatives in rural areas, but given the complexity India offers, especially with respect to education, it is challenging to address the digital divide.

Batra (2021) highlights that during the pandemic, when schools and higher education institutions were directed to construct online learning platforms, the reality of a lack of internet access for students was not acknowledged. About half of India's urban population are migrants. A study by Drèze and Sen (2013) compared infrastructure, resources, teacher availability, socioeconomic conditions, and community involvement between urban and rural private schools, and there were differences between private schools in rural areas and those in urban areas. Another study by D. Singh and Singh (2022) on differing technology use in rural and urban areas of India highlighted that very few schools in rural areas prioritised computer training, when compared to schools in urban areas, where a high level of digital technology use was evident.

This disparity between urban and rural private schools exposes underlying layers of inequality, based on economic capital and social capital, as children with parents who can afford better private schools will have better access to resources in schools while those who cannot are left behind. These intrinsic descriptions further give rise to other forms of existing biases through forms of distinction (Bourdieu, 1984) based on location-rural or urban and gender, choosing to educate a boy over a girl if the economic capital is available for only a single child (Tilak & Sudarshan, 2001), making it essential to understand the complex case of the digital divide in the Indian setting.

Social Stratification

Lack of access to digital infrastructure is also impacted by the caste system in India. In India, social status is problematised by a complex historical social stratification system, where individuals' social status is determined by their economic position in society, occupation,

and education (Teltumbde, 2020), along with their caste. Caste system categorisation in India works through the notion of a hierarchy of superior and inferior occupations - called 'varnas' - divided into four levels (Jodhka, 2002; Teltumbde, 2020): Brahmins (priests), Kshatriyas (warriors), Vaishyas (traders), and Shudras (labourers), with Dalits (formerly known as 'Untouchables') and Adivasis (indigenous peoples) often excluded from this hierarchy, wherein people were separated through notions of 'purity and pollution' (Krishnamurthy, 2015, p. 15) and these castes are believed to be inferior to the rest (Dirks, 2001). In ancient times, these classifications and the jobs or varnas were hereditary, but with education working as a driver for social mobility (Jeffery et al., 2005) this has started to change, although only in urban areas (Teltumbde, 2020), and superficially. What this means is that the caste system is not practiced explicitly, but continues to influence social interactions and access to opportunities (Deshpande, 2011). According to the Indian constitution the lower castes are referred to as scheduled castes, scheduled tribes, or other backward classes.

The Right of Children to Free and Compulsory Education Act or the Right to Education Act, 2009 (Government of India, 2009) states that education is open to all irrespective of their caste, creed, colour, or religion. Within the Right of Children to Free and Compulsory Education Act, 2009, private schools are mandated to provide 25% of their places to students from low socio-economic backgrounds for free (Government of India, 2009). The Right to Education Act, along with the NEP 2020, prioritises enrolment, attendance, and learning levels to achieve the goal of 100% secondary school enrolment in Indian schools (Upadhyay & Malik, 2024). NEP 2020 categorised this disadvantaged group of Indian society as socio-economically disadvantaged groups (SEDGs) (Batra, 2020). There are economic challenges to accessing digital technologies among lower caste groups (Thakur, 2024) and with rural areas' lack of digital infrastructure, people who belong to low socio-economic groups in rural areas are often deprived of digital access (Nikam et al., 2004), which complicates the issue of digital inequalities in Indian society. Studies on digital inequalities in the Indian context, specific to caste, have suggested that upper-caste households have significantly higher levels of computer and internet access compared to lower-caste households (Rajam, Reddy, & Banerjee, 2021). Rajam, Reddy and Banerjee (2021) also highlighted that only 6% of individuals belonging to the so-called backward class had a

computer at home. Similarly, the gap in computer literacy rates between individuals and people belonging to a backward class was only 20%, suggesting only 20% of the individuals belonging to lower casts, had computers at home, suggesting forms of digital divide.

The next section highlights another form of digital divide which is lack of necessary skills for required to access digital technologies.

Second form of digital divide: Lack of digital skills

The second aspect of the digital divide relates to levels of engagement with the web, which involves having the necessary skills to assess the reliability of information therein. In other words, this divide is about accessibility (Costa and Gilliland, 2017). As the previous section highlighted, digital inequalities are far more complex and engrained in societal and cultural inequalities than just straightforward lack of access to the internet or technological devices. These inequalities are also social, cultural and educational (Van Dijk, 2005; Deursen & Van Dijk, 2015). In addition to a lack of digital infrastructure, many students and teachers in India also lack the necessary digital skills to participate online. A study on computer literacy competencies among Indian students found that there is a significant digital divide between rural and urban students, with urban students demonstrating higher levels of computer literacy (Sampath Kumar, Basavaraja, & Gagendra, 2014). Furthermore, more than half of the teachers in India have only basic computer experience and familiarity with digital information on smartphones, and are unaware of how to apply the participatory culture of the web to classrooms (R. Kumar & Selva Ganesh, 2022). Kaur and Kaur (2018) found no significant difference in the self-efficacy of urban and rural secondary school teachers in a particular state in India, but a significant difference was found on the basis of their teaching experience.

Research on teachers' attitudes regarding technology use in Indian classrooms suggests that teachers from private and public schools in India do not differ in their attitudes (Albert, 2016). The teachers have limited knowledge of the application of digital technology in classroom contexts, and are therefore less keen to make curricular changes to

accommodate digital education principles (Albert, 2016). However, a research study on technology use in English speaking and non-English speaking schools highlighted that 63% of the teachers in English speaking schools wanted to use technology without compulsion, compared to 48% of teachers in non-English speaking schools (Singhavi & Basargekar, 2019). The common barrier for both types of schools was good internet connectivity. New education policy prioritised the use of digital technologies to fulfil the goals of DIC. For instance, offering courses like Critical Understanding of ICT for student-teachers as part of their professional development has been pioneered with an intent to increase the use of technology in classrooms across disciplines with ICT in three broad topics: teaching learning, administrative support, and implications for society (CIET, 2019). However, the impact of implementation on teachers and their teaching practices is scarce in Indian research.

Third form of digital divide: Lack of digital cultural knowledge

Digital cultural knowledge is not a unifying form of knowing, but constitutes a form of competence, that of being familiar with the cultural norms of using digital technologies (Costa & Li, 2023). The third aspect of the digital divide relates to differences in individuals' capacity to access and gain useful outcomes from digital technologies (Amichai-Hamburger, McKenna, & Tal, 2008; Stern, Adams, & Elsasser, 2009; van Deursen, van Dijk, & Helsper, 2014). A deeper level of digital divide is observed with regards to types of online usage and levels of digital participation, which is often related to the social status of users (Deursen & van Dijk, 2014; Shcheeder, Deursen & van Dijk, 2017). Within the context of using digital technologies in education, a lack of digital cultural knowledge relates to a lack of using digital technologies for transformational purposes, which is the third strand to be discussed, as highlighted in Chapter 2 (see section Digital Technologies in Education). Literature on the lack of usage of digital technologies suggests that learners often do not associate the web with formal education and therefore do not transfer practices from their social experiences into their educational ones (Lark et al., 2018). The lack of using technology as a means of participatory web includes opportunities offered by the web, such as participation, collaboration, and knowledge production (Jenkins, 2009), and this denotes a lack of digital cultural knowledge.

In the context of India, a study by Dubey, Sinha, and Raj (2024) has suggested that there is still a lack of functional digital skills across different sectors in India, especially for rural women and deprived castes. Ownership of computers, phones, and laptops is also a matter of prestige in Indian households (Kamath, 2018). In the Indian context, considering education with respect to digital inequalities, there are issues with both access and quality (Dreze & Sen, 2013). According to a recent study by Kalyan, Sahni, and Roy (2024), within the context of the digital divide in a particular state of India, West Bengal, ‘the digital divide in Indian schools is long in the making’ (p. 46). Individuals may have varied physical access to the computer; they may not get adequate time to use it; they may lack the skills to use it (Kalyan et al., 2024), which further questions the expectations of digital initiatives, which seem to be far from rooted in reality.

The section on the digital divide in the Indian context has shown how deeply rooted digital inequalities are present in the Indian education system, and especially in Indian schools. Factors like type of schools, lack of resources, the rural/urban divide, and social stratification through the caste system, problematise the complex reality of the digital divide in Indian education. With new digital policies, it is important to understand how measures, especially within the context of the digital divide, are reflected in digital policies. The next section of this chapter focuses on teachers and their digital teaching practices in Indian classrooms.

Teachers’ Digital Practices in India

The previous chapter highlighted different ways in which digital technologies are practiced in education, including using technologies for administrative purposes, for teaching and learning, and for educational transformation (see Chapter 2, section on Digital Technologies in Education). One of the strongest barriers preventing teachers from using technology is their attitudes and beliefs toward technology, as well as their current levels of knowledge and skills (Ertmer et al., 2012). Additionally, how digital technologies are practiced has implications for teachers and their role in teaching. Research on teachers in India suggests that those in private schools are well versed in using digital technology as a way of accessing

resources (Bajpai et al., 2019; Naik et al., 2024). However, teachers' digital practices are limited to using technologies for classroom delivery (Naik et al., 2024). UNESCO's report, *Futures of Education* (2021), highlighted the relationship between teachers and technology, arguing that this should be complementary to teachers and their teaching practices rather than replacing them. However, the rise in educational technology businesses does not position teachers in this way. In a study by Burch and Miglani (2018) teachers' roles alongside technology software were evaluated, with the findings suggesting that teachers neither had a say in the digital content, flow or design of the software nor on the data provided by technology companies. This resulted in teachers' roles becoming limited to the digital tools in the hands of the administration.

Teachers largely believe that teaching using digital technologies depends on the knowledge transmission method, as the construction of knowledge among students relies on teacher expertise (Siddiqui et al., 2019). This further stems from teachers' fears of being replaced by digital technologies. For many teachers, the perception of using digital technologies is limited to speeding up access and information-gathering, forcing students to look for the quick fix (John & Wheeler, 2008). This suggests an interpretation of the use of digital technologies as limited to only accessing information via the web. Research by Nasreen and Chaudhary (2018) on student teachers studying in Indian universities suggests that only 60% of the teachers viewed digital technology as a tool for preparing classes, 91% for finding materials for class preparation, and 70% for use with respect to specific concepts and skills. Additionally, promoting higher-order thinking was considered vital by only 20%, while using it for teaching in a more creative way was noted by just 10% of the teachers in their dataset (Nasreen & Chaudhary, 2018). This further highlights the lack of prioritisation of digital literacies in Indian classrooms. Given Indian policymakers' insistence on digital skills being used for empowerment through education, the teaching practices highlighted in the literature do not align with the expectations of the digital initiatives of India.

In India, educational startups are on the rise, where several companies offer ready-made curricular and pedagogical content in the form of videos and worksheets for teachers, which schools are adopting. Some ICT initiatives in Indian classrooms encourage the distribution of tablets with available e-content to students, limiting teachers' roles to merely monitoring

the content (Kasinathan, 2018) rather than creating it. In some instances, even the order of the content cannot be altered by the teachers (Burch & Miglani, 2018). A research study by Tikly et al. (2022) on digital software companies in school highlights that the worksheets provided by the startup companies were rigid and did not align with the principles of teachers teaching in the school. The use of digital technologies not only redefined a teacher's role in the classroom but also influenced their teaching practices towards fulfilling the learning objectives of the software companies and not the curriculum (Burch & Miglani, 2018).

In addition to redefining teachers' roles, education technology companies, especially those emphasising the administrative aspects of their technologies, use digital platforms to 'manage, control and monitor' teachers in schools (Selwyn, 2021). Teachers' perceptions and beliefs play a significant role in when, why, and how they use technology in their classrooms (Ertmer et al., 2012) and technology businesses often lead to teachers losing their autonomy in classrooms, transforming teaching into a data-driven process using technology as the medium for instruction. Burch and Miglani (2018) have emphasised how teachers interpreted their roles while using technology software to teach. Teachers took charge of their classrooms by explaining concepts in their own language, repeating them when necessary, asking questions, and ensuring students were engaged in the learning process. Despite the macrostructure and the software that limits teachers' autonomy, teachers in their study exercised their agency by actively participating and finding meaning amid the technology-driven content (Burch & Miglani, 2018). This further leads to questions around the distribution of power in classrooms among teachers, students and technology (Appova, Lee, & Bucci, 2022).

Given the new policy directives and the push towards empowering the Indian economy through education, it is important to understand the on-the-ground realities of teachers' teaching practices when using digital technologies. The following section highlights the expectations of teachers with respect to the new policy directives, further highlighting the importance of investigating teachers' digital teaching practices in Indian classrooms.

Teacher expectations with respect to the policies

The National Curriculum Framework and the teacher education curriculum establish teachers as agents of social transformation (NCERT, 2005). However, in reality, Batra (2014) argues that the National Curriculum Framework prioritises teacher accountability over teacher development. The policies focus on ‘training’ teachers to perform and become accountable, rather than on changing the ways in which they are prepared and supported (Batra, 2014). Within the context of digital education, this further questions teachers’ agency and role with respect to digital technologies. Research on teachers in India highlights that teachers in private schools are positioned in a way that gives them low status and little control over the curriculum. According to Kumar (2005), teachers in Indian classrooms are described as ‘meek dictators’ (p. 73), mostly occupying the role of knowledge transmitters. This reflects a traditional education system with teachers across India having little autonomy, and their superiors in administration being satisfied if teachers simply follow orders (Ramachandran, 2016). The main aim of this approach is to equip teachers to implement policies formulated at a higher level (Apat & Swain, 2023). This is likely to remove meaning from the act of teaching and in turn to curb teacher agency.

In India, teachers expressed fears that digital technologies are creating new forms of surveillance (Tikly et al., 2022). For example, during the pandemic, WhatsApp groups that teachers created with students were monitored and checked by administrative officers, as highlighted in a research study by Tikly and colleagues (2022). This created a lack of agency and autonomy amongst teachers in classrooms, who felt they were being watched all the time (Tikly et al., 2022). Teachers’ agency is achieved through an interplay of individual efforts, available resources, and structural factors (Biesta, Priestley, & Robinson, 2015) that enable teachers ‘to act purposefully and constructively to direct their professional growth and contribute to the growth of their colleagues’ (Calvert, 2016, p. 52). Teacher agency manifests in teachers’ sense of purpose, competence, autonomy, and ability to reflect within cultural and structural contexts (Pyhälto, Pietarinen, & Soini, 2012; Pantić, 2017). The National Curriculum Framework, in the context of using digital technologies, emphasises the teacher's role as a facilitator. However, a recent study by Chandran (2020) suggests that the

vagueness of this term and the teacher's role in educational policies leaves it to the teachers to translate these into meaningful pedagogies, while their own autonomy and curricular freedom remain unchanged. As highlighted previously, in NEP 2020 digital technology in education focuses on the establishment of digital online monitoring systems like the NDEAR to monitor schools (Ministry of Education, 2021). Similarly, a study by Varanasi, Vashistha, Kizilcec, and Dell (2021) highlighted how surveillance and monitoring by higher management caused stress and an increase in workload outside of work hours for teachers. Digital technologies, therefore, also threaten teachers' autonomy and agency in classrooms and schools. There seems to be a gap in the literature in understanding how teachers interpret policy directives and the influences of policy initiatives on teachers and their teaching practices.

This research study, therefore, aims to investigate how teaching practices in India are shaped in light of new policy directives.

Conclusion

This chapter introduced key aspects of the educational technology landscape in India, where educational technology startups were introduced alongside recent digital policy developments, particularly regarding the DIC. India aims to unleash the economic potential that digitalisation offers through the launch of DIC, together with NEP 2020, which prioritises digitalisation in education. The role of teachers in Indian classrooms is seen as responsible for the moral and character development of students, as well as completing the curriculum. Moreover, the role of teachers also extends to empowerment through education, as per NEP 2020. With such expectations of teachers, and digital technology companies offering technological solutions to schools, it is essential to explore the on-the-ground realities of teachers using digital technologies in classrooms. This is complex because of the different forms of digital inequalities in India. The existence of different types of schools, the rural/urban divide, social stratification, and the lack of digital skills, along with usage of digital technologies, complicates the digital divide in India. The last section of this chapter highlighted the teachers and teaching practices in India that seem to suggest the

limited role of using technologies. In the wake of new digital initiatives and the expectations of teachers to be vectors of empowerment in NEP 2020, it is essential to explore teachers' understanding and use of digital technologies, as influenced by new digital initiatives. This is the research gap which this study aims to fill.

Part 2 Theoretical Framework

Chapter 4 Theoretical Framework

Introduction

This chapter highlights the theoretical framework that underpins this research study. The previous chapter highlighted the expectations from teachers due to the policy directives, especially NEP 2020, along with the changing education landscape resulting from the proliferation of education technology businesses in India. This leads to questioning the influence of policies that push towards the digitalisation of teachers' practice in classrooms. To understand this gap from a critical perspective, it is essential to apply theoretical lenses. My analysis utilises the theoretical tools of Bourdieu and Foucault to interpret teachers' teaching practices and their perspectives on the digitisation of Indian education through the launch of digital initiatives. The justification for employing Bourdieu and Foucault in this study, along with the specific tools relevant to this research, will be outlined in this chapter.

The first section of this chapter centres on Bourdieu's tools: habitus, field, capital, and doxa, followed by a section examining Foucault's conceptions of power and technologies of the self. The final section of this chapter emphasises the appropriateness of applying these theoretical tools together, within the context of this research study. While Bourdieu's theoretical tools allow for understanding of the embodied dispositions with respect to teachers' digital teaching practices within different schools in India, Foucault, especially in the context of new digital directives, offers tools to make sense of how teacher practices are internalised within the social structure through the conception of power.

Bourdieu's theoretical tools

Bourdieu assumes individuals are complex agents constantly negotiating their relationships with other individuals (King, 2000) through practice, which he sees as relational (Bourdieu, 1977). The theoretical tools provided by Bourdieu offer an understanding of (social) practice

(Murphy & Costa, 2015), which can be used to study use of technology among teachers, encompassing social and cultural relations, systems, and structures. The context of using digital technologies cannot be studied in isolation (Sterne, 2003), therefore to make sense of teachers' digital practices (Beckman, Apps, Bennett, & Lockyer, 2018) theoretical tools like habitus, field, doxa and capital are used within the context of this research study.

Bourdieu's theoretical tools do not work in isolation and must be understood as embedded in practices. They are integral to understanding the social world and the practices within in, leading to a theory of practice, with no one theoretical tool as primary or dominant (Thomson, 2016). The following section discusses habitus, field, doxa, and capital to understand the interrelated concepts that together provide a lens for understanding the nuances of teachers' digital teaching practices in private schools in India.

Habitus

Habitus is the 'structured and structuring structure' (Bourdieu, 1994, p. 170), the predefined dispositions of agents. The structured structure alludes to one's past and present circumstances whereas the structuring structure indicates a habitus in progress, transforming one's practices in a systematic organised system of dispositions. Disposition is a way of being (Bourdieu, 1977, p. 214) which is durable and transposable, but not unchangeable. It is durable as it lasts through time, and transposable because it remains active within the different spectra of social activity (Bourdieu, 1993). Bourdieu calls habitus the 'inertia' of all the past experiences that an individual accumulates in the biological body (Bourdieu & Collier, 2020, p. 14).

The relationship between habitus and social reality fosters the ability to 'capture and encapsulate' the duality of objectivism and subjectivism (Bourdieu, 1988, p. 782) within an individual. Through their interaction with society, the individual comprehends the 'sense of the game, meaning they do not need to apply a priori principles within the social structure but possess the practical flexibility to understand the rules of the game (Bourdieu, 1994; King, 2000). These rules are internalised through individuals' social structures and are

shaped by appropriate or acceptable practices within these structures, leading to changes in the behaviour of social agents (Bourdieu, 1987, p. 76). Bourdieu illustrates how the individual habitus internalises and acquires practical knowledge through social structural interactions, as internalising agents and their structural position in society. For example, a teacher's teaching habitus is a 'system of [educational] dispositions' (Bourdieu, 2005, p. 43) that is shaped by how teachers educate in a school. A teacher's teaching habitus is thus developed over time within the contexts of the educational structure that the teachers have engaged with (Hayes, 2016), by being trained in a certain way, engaging with the values and ways of practising they have been introduced to as part of their teacher preparation. Being part of the school environment also provides opportunities for further shaping of teachers' dispositions, via the meanings the school (and its leaders and other teachers) gives to education and the teaching as practised in that context. This is relevant within the context of this research study as it explores teachers' digital practices which are embodied and are 'internalised through their trajectories into formal education' (Costa & Harris, 2017), resulting in an implicit understanding of their role as teachers.

Examining social space or structure is essential to understanding the interactions between social agents. The next section highlights social structure, which Bourdieu refers to as the field.

Field

Field is the social setting where agents interact, operating within the habitus and social practices (Bourdieu, 1993). The social field consists of positions occupied by social agents. According to Bourdieu (2005), field not only locates the position of social agents but also how practices are embodied for the individual. In other words, there are limitations to what can be done with respect to the field, which further shapes the conditions, rules and position of the individual in the field (Thompson, 2016). According to Bourdieu (1989), the field is competitive where social agents aim to maintain or improve their position within it, though the accumulation of capitals (economic, cultural or social, which will be discussed next). The social field that influences the conditions and positions of agents refers to the

form of operating power. Position in the field is therefore determined and distributed by that power or authority which is legitimated in the field (Bourdieu & Wacquant, 1992). In this vein, field would essentially include the arena of interactions and the systems that operate through agents' exercising of capital/power for positions in the field (Broberg, 2015). There are struggles in the social field in terms of securing positions of status or influence. Having the 'right' cultural knowledge that aligns with the intentions of the social field agents are part of is therefore regarded as an advantage in playing and being in the game (Costa & Li, 2023).

Field may be defined as a 'network or a configuration of objective relations between positions' (Bourdieu & Wacquant, 1992, p. 97) and is referred to as 'spaces which are not visible, and that have to be constructed in order to account for practice' (Bourdieu & Collier, 2020, p. 13). This results in individuals modifying and manipulating their behaviour to align with the requirements of the social field (Bourdieu, 1990), in order to understand the knowledge of the field. Fields are, therefore, shaped according to the sense of the game, where each field has its own set of rules (Grenfell, 2008) and individuals act according to an established sense of practice, which is evaluated within the social setting (Bourdieu, 1990).

With each field having its own distinct logic of practice (Grenfell, 2008), or accepted way of behaving, agents in a field share common beliefs, and there are implicit rules that are determined by the powerful members of the field (Bourdieu, 1990). For example, teachers exist within a social field known as the school field. The school, along with its physical infrastructure, is also defined by its social system, with its own rules, policies, and how teachers position themselves in this field. This depends on their titles, such as the head of school having more power or a higher position compared to a newly joined teacher in the school, and teachers' years of experience in the school will also affect this. Therefore, it can be argued that a field can determine the sense of belonging or autonomy, for example among teachers who are part of the school field, based on their experiences in the school or the school ethos promoted by the head of the school. Similarly, teachers, in addition to being part of the school field, can also belong to another field, which within the research study is named the digital field (Costa & Harris, 2017). Here, immersion in the digital field can be through engaging with online platforms, or being part of digital spaces that have their

own sets of rules, expectations, and accepted practices. Individual can belong to multiple fields at the same time (Bourdieu, 1990), however, individuals within fields struggle to accumulate and monopolise on capital based on the field-specific rules of the game, with more successful actors being more adept at both accumulating and reinvesting capital (Bourdieu, 1994; Bourdieu & Wacquant, 1992). What happens when the field is forced to re-imagine itself - in this context, through new digital policy initiatives for teachers and using digital technologies for teaching and learning? How does their understanding of digital policies and the practices imposed by digital initiatives further influence teachers and their teaching practices? Do the digital practices have any implications for how they identify themselves as teachers and their role in classrooms now within this new digital field? Bourdieu's theory of practice allows us to answer these questions and to delve deeper in understanding the underlying factors that influence teaching practices.

Habitus and field do not function in isolation, but are embedded, challenging individual practices. The hysteresis effect occurs when habitus and the objective conditions that give rise to it do not complement each other. Simply put, there is a mismatch between field and habitus. The hysteresis effect occurs when the individual encounters an unfamiliar situation, which is, in the Bourdieuan sense, known as 'the fish out of water' effect. This is more likely to happen when agents face a crisis of meaning, such that they question their roles and positions within the fields in which their practices have materialised (Bourdieu, 1977). When an individual enters a new and unfamiliar structure, their internalised ideas or values conflict with the social structure, making the sense of the game feel unnatural to them (Bourdieu & Collier, 2020). The field is a structure with its own rules, power struggles, and power dynamics, and individuals interact within a social field that has specific explicit and implicit rules. The taken-for-granted assumptions that guide the feel for the game, with habitus operating in a field (Bourdieu & Wacquant, 1992), result in the definition of the characteristics of the field (Grenfell, 2008). Fields as spaces of social action feature 'explicit and specific rules' (Bourdieu, 1990, p. 67) which validate agents' own autonomation. One's habitus plays a crucial role in establishing an individual's position in the field, in that it allows one to remain relevant in the game or to feel like a 'fish out of water' (Reay, Crozier, & Clayton, 2010).

Within the context of this research study, teachers are part of a social field, the school, where they work, but they also belong to the digital field because of the push toward using digital technologies in classrooms. Although the web as a field may have made knowledge more readily available, Costa & Li (2023), suggests teachers are part of a field called digital, with own set of rules, expectations and teachers by being part of digital field are required to navigate and make sense of the field through their practice. Bourdieu's tools enable us to make sense of teachers' understanding of the field, school and the web/ digital practices.

Individuals interacting within a social field adhere to specific implicit rules, and these rules are known as doxa in Bourdieu's terms (Bourdieu, 2000). This will be highlighted next.

Doxa

Doxa broadly refers to the 'natural practices and attitudes' (Bourdieu, 1977, pp. 199-120) that constitute pre-reflexive or intuitive knowledge shaped by social practices. It encompasses a set of fundamental beliefs and taken-for-granted assumptions that are not necessarily explicit (Bourdieu, 2000, p. 16). Field and habitus enhance the power of doxa, which further informs social agents' feel for the game within the field (Bourdieu & Wacquant, 1992). Doxa consists of field-specific beliefs that shape the shared habitus of social agents operating within it (Deer, 2010). These unquestioned 'shared beliefs' constitute a field manifesting as symbolic power, where explicit physical force is applied through implicit social habits, mechanisms, and assumptions (Deer, 2010). According to Bourdieu (Bourdieu, 1977, p. 167), doxa 'goes without saying because it comes without saying'. Doxic assumptions about reality are validated by experiences or remain unchallenged, and thus, they are accepted as truth (Menghini, 2022). It is important to note that doxic practices do not emphasise happiness with the practices of the field, rather signifying bodily and unconscious submission, thus indicating an internalised and accepted form of practice (Eagleton & Bourdieu, 1992).

Having assumptions about the way things are, individuals justify and defend the orthodoxy of their positions (Bourdieu, 1977). Orthodoxy is the situation where the arbitrariness of

doxa is recognised as accepted in practice, and the rules of the game are known and adhered to by individuals in the field. On the other hand, heterodoxy recognises the possibility of competing beliefs, which results in a hysteresis effect, as highlighted previously. What this means in practice is that, for instance, a policy document, conveys a certain type of practice within the social structure (field) and social agents not only learn to recognise what it is expected of them, but also to follow the policy according to those perceived expectations. Such an approach can then be understood as agents playing by the rules of a game, where rules are doxa, as Bourdieu puts it (Bourdieu & Wacquant, 1992). Furthermore, the social agents have incorporated policy as unquestioned practices, which awards them with a desired level of recognition or reward. The primary mechanism of domination operates through the unconscious manipulation of the body (Eagleton & Bourdieu, 1992). Within the context of this research study, the use of digital technologies may challenge the doxic pedagogical approaches of teachers, which further challenges their digital teaching practices. The field protects its institutional doxa; the 'taken for granted' approaches that conceal the field's power and which set (invisible) limits to individuals' actions (Bourdieu, 1977). Operationalising Bourdieu's tools herein reveals the doxification of teaching practices established through schools' ethos or policy directives, offering nuanced accounts of teaching practices.

Capital

Capital refers to assets that can be economic, cultural, or material goods derived from social relationships, networks, skills, and knowledge. According to Bourdieu (1986), different types of capital are acquired by an individual through participation in a social field. For instance, economic capital encompasses monetary or material wealth, commodities, and physical resources. The second form of capital, social capital, relates to an individual's network of relationships and acquaintances. The third form, cultural capital, includes knowledge, skills, taste, lifestyle, and qualifications. Cultural capital can be embodied, objectified, or institutionalised (Bourdieu, 1986). The accumulation of capital affects an individual's ability to succeed or manoeuvre in a field, further influencing their position within it. The value of capital is determined by the field through recognition of the different types of capital

(economic, social, and cultural) within its context (Bourdieu, 1990). 'Capital is objectified as habitus and is embodied and realised in practice' (Moore, 2014, p. 111). Therefore, cultural capital is complex and highly personalised to individuals' circumstances. Embodied capital is the form of cultural capital that is internalised by individuals within their habitus, and often reflected in their taste, accent, or various other aspects of their personality. Objectified cultural capital refers to the material objects embodying cultural capital (Bourdieu, 1986), while institutionalised capital is associated with individuals' academic qualifications (Bourdieu, 1986).

Forms of dominant cultural capital create biases in society through an unconscious agreement among individuals, where certain groups possessing specific cultural capital are deemed to have greater social power (Bourdieu, 1977). This situation highlights the lack of a level playing field, as individuals entering the field with particular forms of capital have an advantage over others. This has the potential to create power differentials between social groups where cultural capital manifests in practice (Moore, 2014). For instance, within the context of this study, teachers in schools where a digital infrastructure is present will be able to implement digital initiatives better than those in schools where it is not. Implementing digital initiatives in Indian classrooms does not depend solely on the availability of resources, but a lack of digital infrastructure in a school is the primary barrier to implementation. This is further complicated in Indian schools, as highlighted in Chapter 3 (section on Digital Divide in India), by the type of school, whether it's rural or urban, and by social stratification in Indian society. In this vein, Roberts and Townsend (2016) have argued that opportunities made available through the web can confer individuals with a new form of capital, called digital capital (Roberts and Townsend, 2016, p. 202). Digital capital emphasises not only access to the digital infrastructure (tools), but also the importance of those skills and literacies required to navigating the online world. More concretely, digital capital can be identified not only through individuals' possession of technology or ability to use it, but also, and above all, through the dispositions and attitudes they display in appropriating it for their personal and professional development (Costa & Harris, 2017), which is essential to explore in the Indian context.

In the context of this study, Bourdieu's theoretical tools offer a lens through which teachers' digital practices, perceptions, and attitudes in a specific school field, as well as how these practices are shaped and challenged across different schools within the context of new policy development, can be examined. For Bourdieu, 'the real is the relational' (Bourdieu & Wacquant, 1992, p. 97), and the interplay of habitus, field, doxa and capital helps to determine how teachers identify themselves within a particular field (private school), and how these identities further influence their evolving practices amid the expectations of implementing DIC. The interplay between habitus, field, doxa and capital means that teachers' teaching practices become a negotiation of two fields (school and digital) featuring different conventions of where, how, and using which digital technologies teachers interact and teach in classrooms. The ongoing struggle between habitus and social field facilitates an understanding of intersubjective change among teachers.

While Bourdieu's theoretical tools provide a lens to extricate a deeper understanding of structure and agency as relational within the context of school and digital policies, Foucault's governmentality and technologies of the self lead to questioning of the conception of power within digital policies and the formation of internalised practices by teachers as a result of policy directives. The next section discusses Foucault's concepts.

Foucault's theoretical tools

Power, from a Foucauldian perspective, operates not only in a typical sovereign visible form, but also through invisible forms that further influence individuals and their realities. Foucault's work focused on trying to understand why individuals do things in certain ways, or who they become as a result of engaging with different forms of operating power. The following sections will discuss Foucault's conceptualisation of power and the technologies of self.

Conceptualisation of power

Foucault's conception of disciplinary power describes how this power not only restricts and trains individuals to orient towards certain behaviours but also encourages them to think about themselves in specific ways (May, 2011, p. 76). Foucault was interested in understanding how 'a particular kind of implicit knowledge' comes to be regarded as common sense, which further influences explicit knowledge (Feder, 2014, p. 55). For Foucault, power is understood as a complex phenomenon that can be derived from 'anywhere' and is 'productive':

'Power produces; it produces reality, it produces domains of objects and rituals of truth. The individual and the knowledge that may be gained of him belong to this production' (Foucault, 1979, p. 194).

Foucault argues that this kind of power is neither negative nor restraining. Power operates not at the state level but closer to the ground, where it is embedded in daily practices. Foucault refers to this form of power as disciplinary power. In his book *Discipline and Punish* Foucault illustrates how power operates through the material manipulation of the body, wherein powerful practices create a conscious manipulation of bodily actions (Oksala, 2012). Therefore, it can be argued that disciplinary power is a form of violence that does not destroy but reconstructs the body to produce new habits, gestures, and skills, thereby internalising behaviours.

It defined how one may have a hold over others' bodies, not only so that they may do what one wishes, but so that they may operate as one wishes, with techniques, the speed and the efficiency that one determines. Thus, discipline produces subjected and practiced bodies, 'docile' bodies. (Foucault, 1979, p. 138)

Disciplinary power controls the body to effectuate the production of the individual as well as individuality (Oksala, 2012). This individuality is produced through controlled bodily activities (Hoffman, 2013). Disciplinary power endeavours to meticulously, exhaustively, and continuously control the activities of bodies (Hoffman, 2013), with this continuous control of bodily activity leading to the formation of docile bodies (Foucault, 1979). Docile bodies

result from subjection, making individuals efficient in performance and obedient to forms of body governance (May, 2011). One influence of disciplinary power is evidenced in normalising judgments, which depend on the formation of norms. Norms are standardised forms of behaviour that are considered either normal or abnormal (Hoffman, 2013). This results in normalising judgement, which Foucault refers to as the 'normalising gaze' - that objectifies subjects through observation (Foucault, 1979, p. 184).

One of the ways Foucault explained disciplinary power was through the concept of the panopticon. The panopticon was originally an architectural design for prisons proposed by Jeremy Bentham, where the key feature of the design was a circular building with cells arranged around a central watchtower. This design allows a single guard in the watchtower to observe all inmates without them knowing whether they are being watched at any given moment (Bentham, 1791). The power is visible in the form of the central watchtower, where the watchtower is invisible, which creates uncertainty in the inmates about whether they are being watched, thus instilling a fear of observation. This uncertainty leads to inmates changing their behaviour according to the dominant discourse dictated by the prison rules (Allan, 2022). Using the example of the panopticon, Foucault highlights how power is distributed throughout a structure (Feder, 2014), focusing on the individual, where the prisoners and the watcher are both 'objects' and 'subjects' of power. Simply put, the prisoners are being watched by the watcher but are also trained to watch themselves, while the watcher is also an object of observation, as his performance is under scrutiny as well. This illustrates Foucault's understanding of surveillance as not limited to a top-down approach, but rather multi-directional (Foucault, 1979). The notion of Foucault's 'panopticon' effectively stems from the belief that individuals are under surveillance, which in turn allows opportunities for self-discipline, irrespective of whether one is being observed or not (Foucault, 1977).

Selwyn (2011), in the context of digital technologies as forms of learning management systems, highlighted how online attendance, digital records of student information, and virtual learning environments have extended institutional surveillance capabilities. This is also evident with respect to teachers. Selwyn (2011) notes that school leaders routinely use online systems to make teachers' lesson plans available for 'editing' and 'adjusting' by more

experienced and specialised colleagues. Furthermore, with digital technologies now offering curricula, teachers' agency is increasingly limited. Applying Foucault's understanding of power through the panopticon in this context, allows for understanding of the nuances of operationalising forms of disciplinary power through means of digital technologies. Foucault's conceptualisation of power allow to uncover forms of teaching practices that results in teachers internalising such practices as a result monitoring through the means of digital technologies.

Foucault's vision of a panoptical society highlights control through self-surveillance and acceptance of the normalising judgement embedded in the monitoring process (Hope, 2022). This normalisation suggests the appropriate ways to behave in any given context, which further creates structure and social meaning (Feder, 2014) within structures, and internalised behaviours among individuals. As pointed out by Foucault (1979), this creates a form of power that produces 'reality; it produces domains of objects and rituals of truth' (p. 194), which can determine what is considered to be truth in a given context. The disciplinary techniques form docile bodies, which are 'subjected, used, transformed and improved' (Foucault, 1977, p. 136).

Another form of power is governmentality, where an individual internalises behaviours through a form of disciplinary power to further transform the self. This will be discussed below.

Governmentality

Governmentality refers to governance and its underlying mentality, which highlights not only how individuals are governed but also how they govern themselves (Foucault, 1979; Fendler, 2014). Foucault defines government as 'the conduct of conduct' (Foucault, 1991, p. 341); thus, the term ranges from 'governing others' to 'governing the self' (Foucault, 2000, pp. 340–342). This self-governance requires the continuous rethinking and recreating of individual selves within forms of power (Danaher et al., 2000). The concept of governmentality enables questions about how individuals' subjectivity is shaped and

governed (Fendler, 2014; Chaudhuri, 2018b). This questioning and shaping underscores the notion of power, which does not operate in isolation (Foucault, 1984) and is guided through various forms of power. To understand government is to grasp the underlying practices that 'shape, sculpt, mobilise, and work through the choices, desires, aspirations, needs, wants, and lifestyles of individuals and groups' (Dean, 1999, p. 12). Therefore, governmentality encompasses the ways of thinking about practices which are internalised by individuals, achieved by questioning the formation of truth that serves as a 'framework for thinking about the world' that further leads to forming what is considered significant (Joseph, 2020, p. 3). Consequently, governmentality's influence is not limited to how governmental policies, societal practices or norms are internalised and acted upon by individuals.

Digital initiatives, or NEP 2020 in the context of this research study, are not simply vehicles for establishing structural or technical changes in school (Ball, 2003), but are also mechanisms for shaping teachers and their role as teachers, and furthering their teaching practices using digital technologies. The policy directives further have implications in producing new kinds of 'teacher subjects' (Ball, 2003, p. 217), thus resulting in neoliberal governmentality.

Neoliberal governmentality

Neoliberal governmentality refers to the 'art of governing, where power is diffuse, constantly balancing between maximum and minimum' (Raaper, 2016, p. 34). In this context, the minimum is considered an ideal method for governing individuals (Foucault, 2004). Neoliberal governmentality questions the government's role in shaping individuals through self-governance. According to Foucault, neoliberalism is manifested in governmental practices (*gouverner*) and rationalities (*mentalité*), which operate through various techniques whereby both individuals and states govern and are governed in accordance with neoliberal principles (Foucault, 2008). Within the framework of neoliberal governmentality, individuals are transformed into 'docile subjects' who are tightly regulated by neoliberal rationality while simultaneously believing themselves to be 'free' (Davies & Bansel, 2007, p. 256).

Foucault's concept of governmentality, relevant to this research study, facilitates an understanding of the digital practices initiated by DIC initiatives and schools, particularly regarding how these practices were initially shaped and governed. The initiatives of DIC and other independent entities underscore neoliberal ideology through public-private partnerships and economic opportunities via education. This shift in digital technologies and policies is transforming the role of teachers, who increasingly act as managers of learning and data workers. They are now involved in the collection, production, management, analysis, interpretation, and maintenance of data flows that have become integral to the daily functioning of modern 'learning' and 'knowing' organisations due to increasing digitalisation (Knox, Williamson, & Bayne, 2020). Policy initiatives have democratised the behaviours and practices of teachers, made to follow policy directives. A theoretical tool like governmentality enables investigation and questioning of teachers internalised digital practices that result from teachers being subjected to policy directives. Governmentality also enables understanding of the ways in which teachers resist or reject these internalised norms.

Technologies of self

This section discusses technologies of power/domination and technologies of the self within the research study. The conception of power through bodily discipline, highlighted in the previous section, refers to the technologies of power that 'determine the conduct of individuals and submit them to certain ends or domination, an objectifying of the subject' (Foucault, 1988, p. 18). Technologies of the self involve 'operations on their own bodies and souls, thoughts, conduct, and way of being' (Foucault, 1988) that individuals undertake either independently or with assistance from others to transform themselves.

In essence, technologies of the self are methods through which individuals shape themselves into subjects via various actions (Foucault, 1988). Foucault emphasised this concept through discussion of practices like writing, exercise, and meditation, that are said to enable people to reach a desired state. He defined governmentality as the interaction 'between the technologies of domination over others and those of the self' (1988, p. 19),

indicating that all individual behaviours stem from the dynamic between these two technologies. Thus, Foucault's term, technologies of the self, refers to enabling individuals to transform themselves to attain a 'state of happiness, purity, wisdom, perfection, or immortality' (Foucault, 1988, p.18). Becoming a subject involves a process in which subject positions are created, accepted, negotiated, and transformed (Lehn-Christiansen, 2011). This process of subjectification enables individuals to occupy spaces in the social hierarchy and come to know and accept their place (Graham, 2011).

While Bourdieu's theoretical tools allow understanding of embodied dispositions with respect to teachers' digital teaching practices within different types of schools in India, Foucault, especially in the context of new digital directives, offers tools to make sense of how practices are internalised within the social structure through the conception of power.

Although the two theoretical lenses differ, their combination provides a deeper understanding of the research in question. For instance, by adopting Foucault's notion of governmentality, this research study interrogates the digital practices influenced by policy initiatives, which, in turn, affect school culture and lead to internalisation of the accepted norms within the social field. These internalised practices, resulting from governmentality, lead to the doxification of teachers and their methods, thereby establishing rules within the social field. In other words, the interplay between governmentality and doxa culminates in the formation of the social field, where accepted rules and practices shape teachers and their teaching habitus.

The following section highlights the research objectives of this study in light of the appropriateness of the theoretical tools discussed herein.

Relevance of theoretical tools

The previous chapter highlighted a gap in the literature concerning new policy directives and teachers' digital practices, related to recent developments such as DIC and NEP 2020. The

theoretical tools discussed provide perspectives to both comprehend teachers' digital practices and to evaluate how digital policies further regulate these practices. The following section demonstrates how the theoretical lenses outlined in this chapter add depth and uniqueness to the study.

The aim of this research study is to understand the impact of new policy development on schools. Foucault's conceptualisation of power enables an examination of the subtle mechanisms through which power in social structures influences individual behaviour. Governmentality affects how governmental policies and norms are internalised and acted upon. Bourdieu's theoretical framework aids in grasping certain accepted practices within the social structure, specifically schools in this context, by clarifying the social field (school), the position of individuals within it, the influence of individuals in this environment, and how the school prioritises certain practices that may arise from policy directives.

Research, particularly in the field of digital technologies in education, seeks to adopt a critical approach that allows researchers to address how such technologies (re)produce social relations (see Apple, 2004) and to explore the actual utilisation of these technologies in education, rather than merely the promises they make (Selwyn, 2008, 2010, 2011). For example, it investigates how the use of technology aligns (or does not) with the broader social contexts that shape education and society (Selwyn, 2010). This raises the question of how teachers (re)construct their teaching practices within a school ethos shaped by DIC policies and the school's culture. The theoretical frameworks of Foucault and Bourdieu, known for their emphasis on accountability, recognition, measurement, and management (Marshall, 2000, p. 230), provide crucial lenses for comprehending the intricate dynamics of digital teaching practices among teachers in private school environments. The internalisation of societal norms and the regulation of behaviour through the lens of governmentality foster the development of practices and illustrate how teachers' habitus interprets the expectations of the field, offering nuanced insights into their digital practices.

Foucault's work facilitates an understanding of the interplay between policy and practice by explaining how policies compel teachers to adhere to school philosophies. Therefore, in analysing digital initiatives, Foucault's conception of power and governmentality offers

insights into how digital education conditions teachers and further shapes their practices. Considering digital teaching practices, Bourdieu, through the theoretical tools discussed in this chapter, suggests that school structure, referred to as field, influences and encourages practices that further can be highlighted through the relationship between teachers' teaching habitus and school field, resulting in either match/mismatch that further influences teachers' teaching practices in school. From Foucault's concept of governmentality, which is a way of operating power, teachers internalise their digital teaching within the accepted and expected practices of school. Therefore, together Bourdieu and Foucault provides nuanced perspectives on accounts of digital teaching and new policy directives in Indian schools. By considering concepts such as habitus, field, doxa, technologies of self, and governmentality, we can comprehend issues like surveillance, autonomy, and control within digital teaching practices.

In this sense, both Bourdieu and Foucault enable a deeper understanding of the social setting and the influence of new policy developments in private schools in India.

Conclusion

This chapter has offered an understanding of the theoretical tools used within the research study. It highlights Bourdieu's theoretical toolbox—habitus, field, doxa, and capital—which contributes to comprehending teachers' digital practices across various schools in Punjab, India. The concept of social field aids in understanding the school environment by elucidating teachers' positions, their perceptions of technology use within schools, and how these factors influence teachers' teaching habitus regarding the adoption of digital technologies. Foucault's theoretical concepts, including governmentality and technologies of domination and self, inform our comprehension of policy directives and the school ethos that subject teachers to digital technologies. This, in turn, clarifies how practices, particularly digital practices in teachers' classrooms, are shaped by policy directives. Therefore, the chapter underscores the appropriateness of employing Bourdieu's and Foucault's theoretical tools for this research study.

The next chapter will discuss the research methodology for this study.

Part 3 Research Methodology

Chapter 5 Research Methodology

Introduction

The aim of this chapter is to outline and justify the methodological decisions made with respect to this study. The first section of the chapter discusses the philosophical stance that further guides the methodology and methods used for data collection. The research study acknowledges that both education and technology are not neutral entities (Selwyn, 2011, Tshuma, 2021) and the positionality through reflexivity adopted by the researcher will also be highlighted in the first section of this chapter. The second section highlights the research methodology the study adopted. This research study is an exploratory case study that adopts mixed methods of data collection, including document analysis, online questionnaires, and semi-structured interviews. The third section of the chapter will provide a rationale for using said methods of data collection, and an explanation of the processes of analysis of collected data. The timeline for data collection and reflections on the ethical considerations involved will be highlighted in the last section of the chapter.

Research Paradigm for the Study

The beliefs and assumptions about our understanding of the world, and how we interpret knowledge while conducting research, are guided by a research paradigm (Schwandt, 2001). Research paradigms are the 'set of basic beliefs' (Guba & Lincoln, 1994, p. 105) that shape the types of questions the research study intends to ask and investigate (Kuhn, 1970; Crotty, 1998). For any research study, it is crucial to have alignment across three elements: ontology, epistemology, and approach to methods (Hamilton & Corbett-Whittier, 2012). Ontology refers to how one perceives reality, whereas epistemology concerns how one acquires knowledge within that reality (Mack, 2010). The distinction between what we know (the ontological question) and how we come to know(ledge) (the epistemological question) further establishes the foundation for how the research study will be conducted.

This research study, as stated previously, aims to investigate how the digital practices of teachers are influenced by digital initiatives launched under DIC. The research participants in this study are teachers, and their understanding of reality is not assumed to be objective but rather intertwined with subjective interpretations and enactments of digital policies. These interpretations further influence and impact their teaching practices and perceptions of using digital technologies in the classroom. The relationship between policy and practice is crucial in this research, which also promotes the construction of meaning within the context of digital technologies among teachers (the research participants). For this research, the philosophical stance adopted is the subjective construction of meaning, allowing teachers to make sense of their practice within digital policy initiatives. Interpretivism serves as an ontological position asserting that social phenomena and their meanings are continuously accomplished through social interaction (Bryman, 2016). Meanings are therefore constructed, not discovered (Gray, 2004). The research paradigm of interpretivism assumes that understanding the world comes from the subjective stories of individuals (Cohen et al., 2007). In other words, reality is seen as socially constructed, and knowledge is value-laden (Curtis, Murphy, & Shields, 2013). Interpretivism emphasises the distinctness of humans (Bryman, 2016) and investigates the 'taken for granted' aspects of individuals' understandings of constructed realities, meanings, and negotiations (Cohen et al., 2017, p. 33).

The interpretivist paradigm aligns with this study due to the assumption that the reality of teachers in schools is socially constructed through school practices, digital initiatives, and their own subjective understanding and perception of policy initiatives. The researcher's philosophical stance has therefore taken an interpretivist position, believing that reality is complex, unpredictable and multiple. Interpretivism allows for understanding of the phenomena through subjective meanings (Morgan & Smircich, 1980, 1980; Orlikowski and Baroudi, 1991), assuming teachers' digital practices are constructed through their subjective understandings, experiences and perceptions of using digital technologies, which depends on their social, political and economic context, and their understanding of digital initiatives under DIC.

The researcher assumes that no research activity is devoid of the researcher's point of view (Yip, 2024), and it is therefore important to acknowledge their positionality, and the theoretical lenses adopted to make sense of the subjective accounts of research participants (Yin, 2018). The positionality of the research is the worldview and the standpoint the researcher adopts when conducting research, as described by Rowe (2014). Through Bourdieu's conception of reflexivity, the position as a researcher is not neutral but is shaped by researcher's own habitus and the academic field (Bourdieu, Chamboredon & Passeron, 1991). My positionality as a researcher is therefore influenced by my own view of technology acquired through a critical inquiry. In other words, my understanding of digital technology in education is that framed through a perspective of relationality (Selwyn, 2013), in that neither technology nor education are neutral entities (Selwyn, 2011, Tshuma, 2021) and when interacted together, generate something new or different to the status quo of the settings in which they are inserted (Macgilchrist, 2021). This can further mean, that it disturbs, contests or justifies the practices of a given social field and the people inserted in it. My role as a researcher is not one to judge how participants position themselves in the field but rather explore and understand the weight technology carries to their educational experiences and in turn how it further shapes and/or affects their practices which are essential to their being as teachers in Indian classrooms in the context of this research study. The positionality through reflexivity allowed me to contextualise participants' accounts of using digital technologies in Indian classrooms using theoretical tools as highlighted in the previous chapter (Chapter 4). The theoretical framework the study adopted integrates Bourdieu's field, habitus, capital, and doxa with Foucault's concepts of power, governmentality, and technologies of self to make sense of the accounts of research participants critically within the scope of this research study.

While interpretivist research broadly focuses on understanding how people make sense of their social worlds, both Foucault and Bourdieu provide specific lenses to explore the interplay of power, habitus, field, and capital, allowing an understanding of the nuances of teachers' digital practices and forms of governmentality through digital policy initiatives. The reality of the research participants is thus understood as socially constructed, reflecting their part in the social structure—in this case the school—and the knowledge acquired from this

social participation, which is further assumed to be influenced by the policy initiatives the research study aims to explore.

Table 1: Ontology and Epistemology of Interpretivism

Ontology	Epistemology	Methodology
Subjective world (Klein and Myers, 1999)	Knowledge is acquired through social interactions (Cohen et al., 2007)	Case study research using mixed-methods research design

Table 1 above highlights the ontology and epistemology that align with the interpretivist approach, as the world is viewed through participation in social settings and is subjective, thereby lacking any objective truth. The knowledge within this research study is assumed to be acquired through social interactions. Therefore, a methodology that will work well with the research objectives and enable deeper investigation of the social context of the participants involves a mix of research methods, incorporating quantitative techniques as well as the qualitative study of experiences. Such research is known to take a middle approach, that includes elements of both qualitative and quantitative methods, instead of an either/or approach (Greene, 2008) to create a deeper understanding of the issue at hand (Creswell et al., 2011; Cohen et al., 2018), which is to explore teachers' digital practices in private schools, in both urban and rural regions. Mixed methods research also aligns with case study research, and the following section will provide a detailed overview of how case study research fits best with both the philosophical stance and the research objectives of this study. Furthermore, the appropriate ways of collecting the data, the research methods, using mixed methods, will be discussed later in this chapter.

Research Methodology

The section on research methodology is divided into three main parts: first, case study research and the reasons for adopting it; second, the mixed methods approach used for data

collection; and third, the sampling strategy used to choose a particular state of India, Punjab, to carry out the research study, and the sampling strategy adopted in choosing the case sites, which are private schools, for this study.

Case Study Research

A case study is a research tool that aims to investigate a phenomenon in depth within real-world contexts (Yin, 2018; Gillham, 2000; Yin & Davis, 2007). Case study research can be explanatory, descriptive, or exploratory, depending on the purpose of the study (Stake, 1994). Stake's emphasis on the qualitative analysis and interpretation of cases contrasts sharply with Yin's (2018) scientific approach, highlighting the different strategies that can be employed in case study research and the flexibility this method offers. According to Stake (1995), a case study is an exercise of depth that provides an opportunity to understand unique aspects of cases and to engage 'the best of our interpretive powers' (p. 136). Stake (1995) identifies two types of case studies: 1) intrinsic, and 2) instrumental. An intrinsic case study focuses on the case in its entirety, aiming for a comprehensive understanding, while an instrumental case study focuses on one aspect, concern, or issue with respect to the case. Within the context of this research study, the purpose was to understand the policy-practice interplay of DIC and teachers' digital practices in private schools, and because of the specific aspect this study aims to investigate, which is how school ethos and teaching practices are influenced by DIC, if at all, the instrumental case study best fits the scope of this study. To critically assess whether case study research is the appropriate methodology for this research study, Activity 1.6 of Hamilton and Corbett-Whittier (2012, p. 14) was helpful. This has been included here as Appendix 1. Cases can represent an individual, a group, an institution, or a large community, depending on the research question (Yin, 2018; Gillham, 2000), with private schools acting as the cases in this study.

The purpose of this research study is to explore the interplay between digital policies and teachers' professional agency while also addressing deeper and more complex questions. The research questions for this study aim to examine the complex phenomenon of digital teaching and learning practices evolving from new policy initiatives, by focusing on how

these digital initiatives influence school ethos and shape teachers' teaching practices, rather than simply asking descriptive questions around what or how many, which are typically associated with explanatory case study research (Yin, 2018). The case study addresses what, how, and why, with the flexibility of employing various methods for data collection, which became one of the primary motivations for adopting this research methodology. For this research study, the cases will be two K-12 private schools, one in a rural and one an urban region of Punjab, India. The research questions aim to uncover the complex realities surrounding the changing social phenomena of teachers dealing with digital policy directives. This justifies the research study as an instrumental (Stake, 1995) and an exploratory case study (Yin, 2018). Furthermore, exploratory case study research helps researchers delve deeply into people's feelings, perceptions, and experiences of what's happening (Gillham, 2000), providing unique nuances of complexity (Adelman et al., 1980) and the interactive dynamics of events (Hitchcock & Hughes, 1995), which aligns with the research questions and the interpretivist paradigm discussed previously (see Table 1).

Given the context of the study and the opportunities that exploratory case study research offers, as discussed above, this choice of methodology aims to capture the policy-practice interplay between DIC and teachers' teaching practices. The case study approach fosters a deep understanding of the contrasting conditions across different research sites (Yin, 2018), which can be 'temporal, geographical, organizational, institutional, and other contexts' (Hitchcock & Hughes, 1995, p. 319). Therefore, the second reason for selecting case study research for this study is that it allows for different experiences at each site, depending on the uniqueness of each case, while providing an opportunity to contrast.

The study will focus on two private schools in India, one in a rural area and the other in an urban area, to gain a contrasting understanding of the implementation of DIC. The case study methodology will not only provide a nuanced understanding of the policy-practice interplay in private schools in urban and rural regions of India but also capture the complexities of implementing digital policies in both urban and rural settings.

The next sections suggest how mixed-methods research complements case study research methodology within the scope of this research study.

Mixed Methods Research

To capture the various complexities of case study research, relying on a single method of data collection would not adequately address the research objectives (Yin, 2018). A variety of methods are required to capture the nuances of the two selected case sites; therefore, mixed methods are used to complement the case study research. Mixed methods will also provide means to tackle the complexities of school ethos and teachers' digital teaching practices within DIC. More complicated research questions necessitate richer and more robust evidence (Yin, 2015), which is collected via diverse sources of evidence (Yin, 2018). The form of case study research that employs mixed methods is known as embedded case studies (Yin, 2018), where various methods are integrated into the research study. The aim of employing a variety of methods was to comprehend the complexity of the case site within the context of school culture and the implementation of DIC among teachers at private schools in both urban and rural regions of India. The methods selected for this research study were document analysis, an online questionnaire, and semi-structured interviews. Document analysis was chosen to provide an overall understanding of the digital initiatives in education under DIC, further clarifying the policy directives and how these policies are enacted among participants (teachers in this research study). An online questionnaire distributed to all the teachers at the case sites offered a narrower snapshot of each school, while semi-structured interviews aimed to capture a deeper perspective on digital teaching practices. The mixed methods case study approach focuses on the qualitative element, whilst quantitative data was used to inform the qualitative element. Therefore, the questionnaire is applied in this study not to quantify the data but to create a fuller and more nuanced understanding of the case sites. The questionnaire is utilised solely to support the qualitative methods of data collection, particularly the semi-structured interviews and to contextualise each case site.

The methods used for data collection followed an iterative process (Cohen et al., 2018). Document analysis, online questionnaires, and semi-structured interviews were employed in a sequential mixed design, where one method of data collection follows another, each guiding the subsequent method, and ultimately synthesising findings from all strands to

answer the research questions. In other words, different methods were utilised to complement each other and guide the next method of data collection. A systematic approach was adopted, not only in choosing the most suitable methods for data collection, but also in determining the sequence of these methods, as shown in Figure 5 below. The aim of adopting a sequential mixed method design was to critically consider the purpose of each method and what is expected from each during the data collection phase (Teddlie & Tashakkori, 2009).

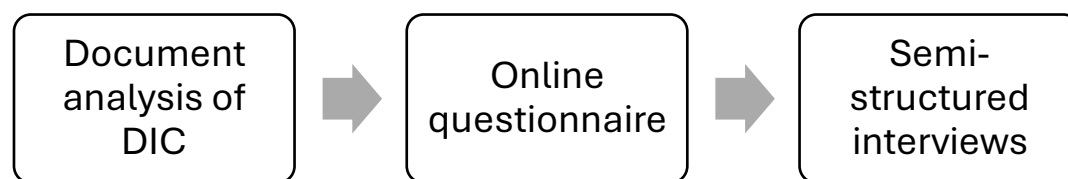


Figure 5: Sequential mixed methods of data collection

For instance, document analysis of the DIC provided insights into digital initiatives under the DIC, particularly in education, which further guided the formation of the online questionnaire, especially the section on DIC. The online questionnaire developed for the research study is included as Appendix 4. Analysis of DIC policy helped with specifying the questions for the online questionnaire to create a richer picture of the schools and how digital initiatives are being practised at the case sites. Similarly, the broad snapshot of the case site obtained from the online questionnaire informed the semi-structured interview questions. This will be discussed in detail under the section, Analysis of the Questionnaire in this chapter.

Thick descriptions of case sites

Case study research requires a nuanced and rich description of the case site to gain a deep understanding and make better sense of the analysis of data (Taber, 2014). Geertz (2008) introduced the term ‘thick description’ in 1973, taking inspiration from Gilbert Ryle in 1949. Thick description aims to address the context and meaning while interpreting participants’ intentions in their behaviours and actions (Holloway, 1997; Schwandt, 2001). A thickly described research site enhances the reader’s ability to visualise the site by comprehending

and absorbing the context of the situation or behaviour (Ponterotto, 2006, p. 539). Thick description may be defined as ‘the complete, literal description of the entity being investigated’ (Merriam, 1998, pp. 29– 30). For this research study, to better understand the two case sites - one rural and the other urban - thick descriptions of both case sites were developed, which included the geographical location of each site, demographics, and insights gained from school webpages and the online questionnaire. The thick descriptions produced as part of this study allowed a deeper contextual understanding of both case sites, with unique characteristics arising from their locations in different regions of Punjab, enabling interpretations that generated meanings from interactions and captured nuanced thoughts and emotions in context (Ponterotto, 2006).

The thick description of each case site is presented before the analysis of the two case sites in Chapters 6 and 7 to help contextualise the research setting and to make better sense of the analysed data.

Sampling Strategy

The process of selecting a research population for a study is known as sampling (McIntyre, 2005; Emmel, 2013; O’Leary, 2017). It is important to strategically select the sample that is most suitable for the research study. According to McIntyre (2005), the sampling technique depends on the nature of the targeted population and the research questions. For this study, a two-fold sampling strategy was adopted: 1) choosing a state to carry out the research study, and 2) selecting case sites for the research study. The sampling strategy applied for each method, such as choosing documents for the policy analysis of DIC and participants for the questionnaire and semi-structured interviews, will be discussed in the next section.

Choosing an Indian State: Punjab

Given the geographical size of India, this research project focused on one state, Punjab, located in the northwest region of the country. The primary reason for choosing Punjab was

convenience. India is a vast country with a total of 28 states, each possessing its own unique culture, traditions, and languages. The researcher, having been born, studied, and worked in Punjab, was an appropriate choice to conduct a study there due to the awareness of the culture, language, and general understanding of the people's mindset compared to other states in India. The researcher's familiarity with the state and their prior experience working in schools fostered professional contacts, making the process of approaching schools less cumbersome - something that would have been more challenging in other states. The sampling strategy used in this context was convenience sampling, which entails selecting participants based on their accessibility and availability to the researcher (McIntyre, 2005; Emmel, 2013).

Although the Punjab region has historically been primarily an agriculture-based area, following the success of the Green Revolution (1960-1970s), it became one of India's most advanced states (Jodhka, 2002). In recent decades, the economy of Punjab has revived with the growth of a service sector, including banking, IT, transport, tourism, and real estate businesses, alongside agrarian transformations (Jodhka, 2002). Despite the fact that approximately 96% of Punjab is rural, the 2011 census⁹ highlighted growth in the education sector. From 2000 to 2010, 2,132 new schools were built in Punjab, representing a growth of 13.66% (Kainth, 2016). The literacy rate in the state increased by 5%, with an average literacy rate of 71.42 % in rural Punjab and 83.18 % in urban areas (Census, 2011). Compared to other states, Punjab has less distinction based on caste (Sharma, 2012), which is about 31.94% that belong to lower casts (Census, 2011), owing to the majority presence of Sikhs (57.69%) and Hindus (38.49%) (Census, 2011). There has been research on Punjab in the context of teachers and their professional growth (Bedi, 2018), but a gap remains regarding teachers' digital practices related to policy initiatives. Given the significant disparity between rural and urban areas, conducting case study research in both regions of Punjab was deemed important. Furthermore, choosing case sites from both rural and urban regions offers insight into the geographical differences between regions of Punjab.

⁹ 2011 census in the most recent census as the next one was postponed due to the pandemic.

The following section highlights the sampling strategy adopted in choosing the case sites for the research study.

Choosing Case Sites: Private Schools in Punjab, India

A purposeful selection was made in choosing the case sites. Purposeful sampling is the technique most suitable for this research study, and can provide meaningful data (Robinson, 2014). Purposeful sampling was adopted because of the specific features required to approach different schools for participation in this study. The schools included in the research study had to be K-12 schools, which cater to students from kindergarten to Grade 12, thus excluding schools that serve pre-primary or senior secondary students. As Chapter 3 highlighted, there are different types of schools in India, and the schools selected for this research study both had to be private institutions following the CBSE (Central Board of Secondary Education) curriculum, to ensure symmetry between the rural and urban Punjabi schools.

The research initially aimed to focus on both public and private schools in India to understand the application of DIC in two different types of schools. However, it became challenging to find any public schools willing to take part. The researcher contacted some public schools in Punjab through references, but the head of one school backed out at the last minute. With no confirmations from any public schools, and the challenges posed by the COVID-19 lockdowns that had already delayed empirical work, it was decided to focus solely on private schools as the scope for this research study. As discussed in Chapter 3, private schools are comparatively more advanced in their uptake of educational technology, such that they can serve as key case studies in understanding the policy implementation of initiatives under DIC in schools. Private schools were contacted across Punjab, India, using purposeful sampling, with the criteria that they must be K-12 and follow the CBSE curriculum. Two case sites that volunteered to participate in the research study - one located in an urban area and the other in a rural area of Punjab - were chosen as case sites for the research study. Table 2 below summarises the sampling strategy for choosing case sites.

Table 2: A sampling strategy for choosing case site

Case sites: Private Schools in Punjab		
State of India	Punjab	Convenience Sampling
Private School	1 private school in urban Punjab	Purposeful Sampling K-12 private school CBSE curriculum
	1 private school in rural Punjab	

The next section of this chapter focuses on the methods chosen for the study.

Research Methods

This section provides a rationale for the methods used in data collection. A mixed-methods approach followed an iterative process, beginning with document analysis, followed by an online questionnaire, and concluding with semi-structured interviews. Each method informed the subsequent method of data collection. The next sections will highlight the three data collection instruments one by one, outlining the process of collecting data, the sampling strategy for each method, and the analysis of collected data.

Document Analysis

The first method of data collection used for this study was document analysis. Document analysis is a method of data collection that involves a 'systematic procedure for reviewing and evaluating documents' (Bowen, 2009, p. 27) to derive meaning and understand the nuances of the document contents (Corbin & Strauss, 2008). Document analysis, as a social research method, provides coverage and corroboration for the research study (Bowen, 2009). The documents are referred to as 'social facts' that are produced, used, and shared

within society (Atkinson & Coffey, 1997). Such documents are used for analysis with the purpose of ‘uncovering meaning, developing understanding, and discovering insights’ (Merriam, 1998, p. 118). Various types of documents can be utilised to better understand the context of research, such as public records, personal documents, or physical evidence (O’Leary, 2014).

In the context of this study, document analysis was chosen to gain an in-depth understanding of the digital initiatives under DIC. A critical understanding of DIC would provide a foundation for other data collection methods, which is also a benefit of using document analysis (Bowen, 2009). For instance, document analysis provided insights in understanding policy initiatives to make sense of teachers’ practical approaches in implementing DIC in their schools. Thus, a document analysis of the DIC webpages provided background knowledge about DIC and the necessary context (Bowen, 2009), which was also helpful for the subsequent data collection methods, justifying the sequential mixed-method approach of this study. Furthermore, document analysis of DIC helped establish teacher perspectives (Morgan, 2022) on DIC implementation after transcribing their interviews. The policy analysis of DIC contributed to understanding the policy-practice interplay in private schools in Punjab, India.

Document analysis, as a means of investigation (Tisdell, Merriam, & Stuckey-Peyrot, 2025), offers many benefits. However, the choice of documents is closely linked to the relevance of the research and the usefulness of these documents within the context of the study (Merriam, 1988). It has been argued that document analysis is the most appropriate method only when used in conjunction with other research methods (Hani, 2022). Conducting research using documents as the sole source raises concerns about biased selectivity (Bowen, 2009), as documents may appear objective, yet they are inherently biased (Tisdell, Merriam, & Stuckey-Peyrot, 2025). This bias arises from the procedure of negotiation of meaning with own understanding, attitudes, experiences of social and cultural milieu, and along with the history of the text in context (Tummons, 2014). Furthermore, documents are seen as influencing interactions and behaviours, as highlighted by Prior (2008). Therefore, a thorough and well-thought-out process for selecting documents for the research study is essential, along with triangulation with other methods of data collection.

Sampling strategy for documents for analysis of DIC

The purpose of document analysis was to understand DIC and the initiatives under DIC, especially for schools, due to the research scope of this study. With respect to DIC, the official understanding is derived solely from its webpages. Therefore, for this study, the webpages that provided an overview of DIC - including its implementation, broad vision, approach, and methodology - were selected for analysis. Since the research specifically focuses on education, the four digital initiatives under DIC related to education were included. This also enriched the contextual understanding for the other two forms of data collection: the online questionnaire and semi-structured interviews. To enhance the credibility and trustworthiness of the document analysis, skimming (superficial examination), reading (thorough examination), and interpretation were employed. The selection of documents was guided by Flick (2018) and Morgan (2022), taking into account the relevance and appropriateness of research documents. Table 3, below, was developed to shortlist the documents for the purpose of the research study by answering questions like what documents were chosen, how they were accessed, how credible the assessed documents were, and why these documents were chosen.

Table 3: Process of choosing documents for analysis of DIC

What documents were chosen?	How were the documents accessed?	How credible were the assessed documents?	Why were the documents chosen?
Digital India Campaign website: Introduction, vision and vision areas, programme pillars, and approaches and methodology	Accessed online	All the documents were accessed from the official website of Digital India Campaign, making them accessible from a primary source.	To understand the depth and breadth of the Digital India Campaign and overview of the policy.
ICT under Department of School Education and Literacy: e-Paathshala, Shaala Sidhdhi, Saransh, GIS Mapping, The Curricula for	Accessed online	All the documents were accessed from the official webpage, making them accessible from a primary source.	To understand the application and content of the initiatives within the theme of digitalisation in education.

ICT in Education, NISHTHA, DIKSHA			
National Education Policy 2020	Accessed online	All the reports and circulars were checked if they were from the official agencies with official signatory and stamps, making it a primary source.	To understand how curriculum policies support the uptake of initiatives.
Research sites: School website	Confidential Accessed through schools	Credible because they were confirmed as originating from the schools.	To understand the context of the school. To create thick descriptions of the case sites.

It is also important to note that DIC does not operate in isolation; rather, different departments, government agencies, and state governments collaborate to achieve the larger goal of empowering India. Given DIC's broad vision, the education sector's programmes are coordinated via the different agencies under the Ministry of Education. For instance, within the education sector, the Ministry of Education encompasses the Department of School Education and Literacy, and the Department of Higher Education. Each department includes autonomous bodies, such as the Department of School Education and Literacy, which comprises the Central Board of Secondary Education (CBSE), the National Council of Educational Research and Training (NCERT), the National Council for Teacher Education (NCTE), and many others working together to initiate various programmes within their specific areas (Government of India, 2025). As this research study only focuses on school education, those digital initiatives relevant to the Department of School Education and Literacy were shortlisted.

Furthermore, a timeline for DIC was devised to understand its progression and how the initiatives launched under DIC have evolved over time (see Figure 6 below). The timeline was also used to understand and choose the relevant documents for analysis of the study's findings.

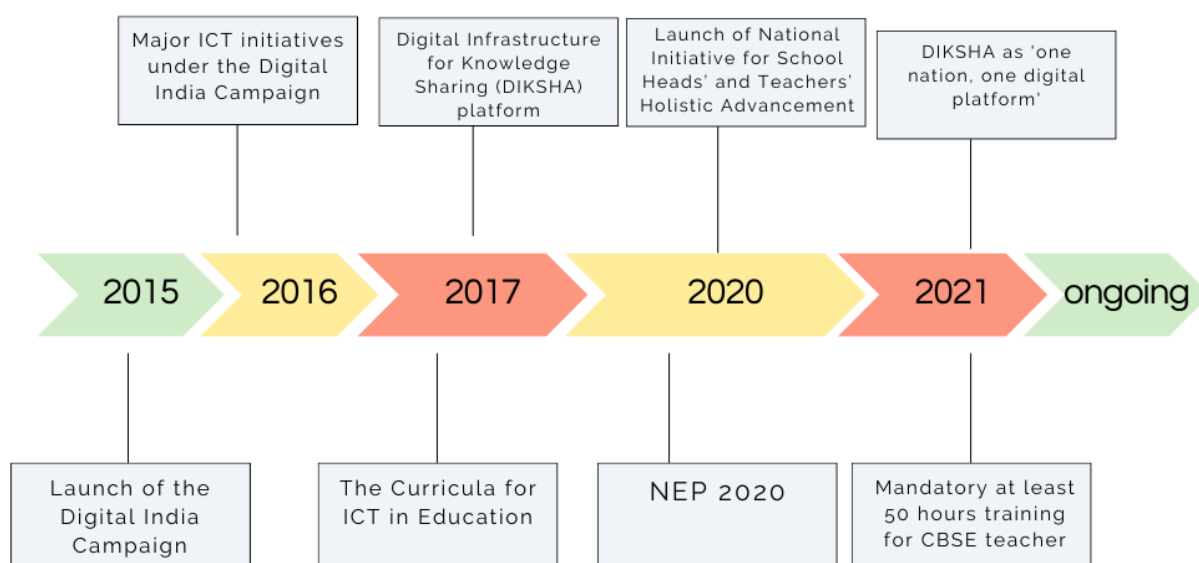


Figure 6: Timeline of DIC

The webpages accessed on the official DIC website were examined from 2021 to 2023, aligning with the data collection phase of this study, and served as the primary source of information on DIC. Screenshots of all the webpages analysed for the research study are attached as Appendix 10. DIC was not launched as traditional policy documents, but rather as webpages that conveyed the vision, mission, and approach of the campaign. Four webpages were selected from the DIC website to uncover the purpose underlying the launch of the campaign: the introduction of DIC, the vision of DIC, an overview of the programmes launched under DIC, and the adopted approach. In July 2020, during the COVID-19 pandemic, a new education policy, The National Education Policy (NEP) 2020, was released. Some sections of the policy document emphasised support for DIC, making it essential to include in the analysis of DIC. Details of the sections included in the analysis, the list of documents, the reasons for choosing these documents, and how they contributed to answering the research questions for the study are highlighted in Table 3 above. Alongside the DIC webpages, the school websites of the case sites were also analysed to develop a thick description for the case study research. The school website provided background information about the school, enabling the development of a rich picture that included school infrastructure and activities highlighted on the school website.

From the timeline, there were four main digital initiatives within the Department of School Education and Literacy, relevant to private schools, and categorised as ‘major ICT initiatives’, on the official website of the Ministry of Education (Government of India, 2016a, 2016b, 2016c, 2016d): e-Paathshala, Shala Sidhdhi, Saransh, and GIS Mapping. These were included as part of the analysis. The four initiatives and their role in DIC are described below:

a. ePathshala

This programme was developed by NCERT (National Council of Education Research and Training) to provide eBooks, resources, and digital content for students, teachers, and parents (Government of India, 2016a).

b. Shaala Sidhdhi

The programme focuses on providing school standards for schools to self-evaluate via digital means (Government of India, 2016b).

c. Saransh

Saransh is the programme that indicates areas of improvement for different stakeholders in education, for instance: students, teachers, and curriculum (Government of India, 2016c), again through digitalisation.

d. GIS Mapping

This programme of DIC provides the online database for schools, including information and geographical location (Government of India, 2016d).

According to the timeline of DIC (Figure 7), The Curriculum for ICT in Education was launched in 2017 by the Central Institute of Educational Technology (CIET), part of NCERT, to support DIC’s vision. Therefore, the overview webpage of the Curricular for ICT in Education was included in the study's analysis. Many initiatives within the education sector that started before the pandemic evolved further afterwards. For example, the Digital Infrastructure for Knowledge Sharing (DIKSHA) initiative was officially launched in 2017 with the goal of

providing teaching, learning, and assessment resources for teachers (Government of India, 2024a). During the pandemic, DIKSHA was identified as part of the Prime Minister's e-Vidya programme to offer e-content and QR-coded textbooks, and was referred to as 'one nation, one digital platform' by Nirmala Sitharaman, the then Union Finance Minister of India (2020). The DIKSHA platform now plays a crucial role in providing resources and online training to teachers as part of their continuous professional development, as mandated under NEP 2020; hence, its webpage overview was included in the analysis.

The National Initiative for School Heads' and Teachers' Holistic Advancement (NISHTHA) was introduced during COVID-19 in 2020 as a continuous professional development programme for teachers. NISHTHA's integrated training programmes 1.0, 2.0, and 3.0 were designed online for teachers, head teachers, and other school-level administrative stakeholders on the DIKSHA platform. The NEP 2020 made these courses compulsory for teachers as part of their continuous professional development (Government of India, 2020c). For example, it is mandatory for any CBSE teacher to undertake 50 hours of continuous professional training courses each academic year (offline or online) (Government of India, 2020c). An overview of NISHTHA's official webpage was included in the analysis to understand the training provided through the DIKSHA platform.

Table 4 below highlights the shortlisted documents for the analysis of digital initiatives, including the year initiatives were launched, along with the word count of each webpage which was analysed. A total of 10,413 words were thematically analysed as part of the policy analysis of DIC, which will be elaborated in Chapter 6.

Table 4: Documents for policy analysis of DIC with word count

S.no	Webpage/document for analysis	Launch year	Word count of the webpage/documents that were analysed
1	Digital India Campaign	2015	a. Introduction (word count: 570) b. Vision and Vision areas (word count 203) c. Programme Pillars (word count: 520) d. Approach and Methodology (word count: 300)

2	Major ICT initiatives under Department of School Education and Literacy 1. E-Pathshala 2. Shaala Sidhdhi 3. Saransh 4. GIS Mapping	2016	e. E-Pathshala (word count: 686) f. Shala Shidhdhi (word count: 688) g. Saransh (word count: 404) h. GIS mapping (word count: 166)
3	The Curricula for ICT in Education	2017	i. Overview of ICT Curriculum in Education (word count: 1058)
4	Digital Infrastructure for Knowledge Sharing (DIKSHA) platform	2017	j. DIKSHA (word count: 715)
5	Launch of National Initiative for School Heads' and Teachers' Holistic Advancement (NISHTHA) platform	2019	k. About NISHTHA (word count: 400)
6	National Education Policy (NEP) 2020	2020	l. NEP 2020 (Policy Document) - Introduction (pages: 3-7) (word count: 2202) - Technology Use and Integration (pages: 56-58) (word count: 1373) - Online and Digital Education: Ensuring Equitable Use of Technology (pages: 58-60) (word count: 1128)
Total word count for analysis: 10,413			

The webpages and policy documents were analysed using thematic analysis. Because thematic analysis is a form of data analysis applied to all the qualitative data collected in the research study, this will be discussed in a later section of this chapter.

Before moving ahead with the other two methods of data collection, the following section will highlight the sampling strategy adopted for the online questionnaire and research interviews.

Sampling strategy for questionnaire and semi-structured interviews

For both the online questionnaire and the semi-structured interviews, the sampling technique chosen was random purposeful sampling, because the participants were randomly selected from the case sites already chosen through purposeful sampling. Table 5, below, summarises the sampling strategy adopted for the research study. For the online questionnaire, the target audience were teachers within the two case sites. The sample size was different in each school because of their diverse characteristics. The sample size for the questionnaire from the private urban school was 103 teachers, with only 15 from the private rural school, such that proportionally there were five times more teachers surveyed in the urban school. Similarly, for the semi-structured interviews a total of 19 teachers from both schools were chosen randomly, using the random purposeful sampling technique.

Table 5: Sampling strategy for questionnaire and semi-structured interviews

Research participants: Teachers and Head of the school		Random purposeful sampling
Private school in urban Punjab	103 respondents for Online questionnaire	
	11 interviews with teachers	
	1 interview with head teacher	
Private school in rural Punjab	15 respondents for Online questionnaire	
	8 interviews with teachers	
	1 interview with head teacher	
Total	118 respondents for Online questionnaire 21 semi-structured interviews	

Eleven teachers from the urban school and eight from the rural school volunteered to participate in semi-structured interviews, along with heads of both schools. Therefore, a total of 118 individuals participated in an online questionnaire and 21 teachers participated in semi-structured interviews.

Online Questionnaire

The second method of data collection was the online questionnaire. The following section provides a rationale for the questionnaire, including the steps taken in its development, piloting the questionnaire, and its analysis, which guided the semi-structured interviews.

It has been argued that questionnaires do not provide the depth and detail needed to contextualise research studies (Curtis, Murphy, & Shields, 2013), but it is beneficial for capturing a broad snapshot of the research context (Cohen et al., 2017). The use of an online questionnaire aligns with the research scope and the methodology adopted for this research study. For this study, the purpose of including an online questionnaire as an instrument for data collection was to acquire a snapshot of the research sites, the two schools, their digital practices, awareness of the digital policy among teachers, and a basic understanding of different digital practices used by the teachers, to further formulate and guide the semi-structured interviews. Therefore, the purpose of the questionnaire in this study was to support the third method of data collection, semi-structured interviews, and to provide a larger snapshot of the case sites.

As the DIC was recently developed and evolved, this research study is one of the few to understand the influences of the DIC among private schools in Punjab, which meant creating a questionnaire from scratch for the purpose of this study as there were none available that could be re-used. Hunt et al. (1982) and Foddy & Foddy (1993) considered questionnaire development to be a complex communication process where the result of the interaction is produced by researchers and respondents, leading to shared meaning making. For this, the clear purpose of using a questionnaire was reflected using a five-point based Likert scale to allow analysis to understand participants' positions. Likert scale questions are useful for finding out about the perceptions, emotions, and feelings of participants (Shields, Curtis, & Murphy, 2013). Research suggests that anything between a five-point and seven-point Likert scaling serves as effective analysis (Johns, 2010). For this study, a five-point Likert scale was chosen. Two open-ended questions were also included in the questionnaire, to explore the

unknown (Bailey et al., 1994) and allow specifics to be captured (Cohen, Mansion, & Morrison, 2013) from participants in their own words.

Forming a questionnaire from scratch is a lengthy process, keeping in mind the random and measurement errors. Random errors are unpredictable errors, and measurement error refers to that incurred during the measurement process (Fink & Litwin, 1995). The guide provided by Cox and Cox (2008) on developing questionnaires from scratch was used for framing the questionnaire. As previously highlighted, this research study followed a sequential process, where policy analysis of DIC informed the understanding of key themes, especially for the section on DIC in the questionnaire.

The questionnaire included four sections. The first was teacher demographics, including their total teaching experience in years, their teaching experience using digital technologies, their age, qualifications, and the location of their school, to differentiate the rural and urban datasets. The second section, mostly guided by document analysis, included the section on DIC. The questions related to awareness of policy initiatives, and specific names of the initiatives that were practiced in the school formed part of the questionnaire. The third section related to the school and its practices, and the availability and use of digital educational infrastructure and resources in the school. The purpose of this section was to understand the school practices and make sense of the case site to contextualise the research study. The last section focused on teachers' perceptions and experiences with digital technology, as informed by the literature review and key themes that were highlighted with respect to digital teaching practices, such as using technology for collaboration, creation, and a sense of autonomy, and perceptions about engagement with students using digital technologies. The development of the online questionnaire was also informed by the theoretical framework adopted, as highlighted in Appendix 2. The questionnaire was developed using Durham University's license for JISC's online survey tool, and the link was shared with all the teachers to collect the questionnaire data. The two separate datasets for the rural and urban schools were later exported from the questionnaire platform for analysis using SPSS.

Crosskey and Vance (2011) have highlighted that questionnaire pilot testing is essential to check if the questions are understood well, the length of the questionnaire is not too much for participants, and that a positive response rate is encouraged. The purpose of validating the questionnaire was therefore to understand if the questions (or items) were well understood by the participants. The process of assessing the questionnaire for dependability is known as validation (Cox & Cox, 2008). Piloting of the questionnaire can be done in two ways: small scale piloting and large-scale piloting (Munn & Drever, 1990). One of the ways of validating a small-scale pilot is through expert opinion, where a few individuals work through the questionnaire to understand how long the questionnaire will take for participants to fill in, if the wording of the questionnaire is clear, and the interpretation and the intentions of each item (questions) of the questionnaire.

For the purpose of this research study, keeping in mind time constraints, two methods were used to validate the questionnaire: 1) expert review, and 2) piloting the questionnaire, which will be discussed below.

1. Expert review

Expert review is a method used for validation, where an expert helps to review the questionnaire by going through each element/item. This type of validity is called content validity, and ascertains whether the questions in the questionnaire are understood well among the participants (Litwin, 1995). This approach is different from face validity, which is usually carried out by untrained individuals and is just a casual assessment of item appropriateness.

The questionnaire was first reviewed by my supervisors, who suggested some changes within the theoretical framework to be included in the questionnaire. For instance, adding questions related to the governance of teaching practices within the context of digital policy, thereby further aligning it with the theoretical framework of the study. Further to this, two head teachers from private schools in Punjab were asked to review the questionnaire before sharing it for piloting. The two head teachers were chosen from the personal references of the researcher for convenience. Given the experience of both head teachers, which was

more than 10 years of heading private schools in the region of Punjab, it seemed appropriate to choose them to review the questionnaire. The two heads chosen as experts were not heads of the schools approached to participate in this study. The review of the questionnaire entailed going through each question with both heads individually and then combining their feedback for further development. The questionnaire did not demand a lot of changes, aside from some minor language changes for teachers to better understand the questions. One of things that was pointed out by the reviewers was to include a question regarding COVID, which was later added to the main questionnaire. Although the study does not focus on the impact of the pandemic on the teachers and their teaching practices, the study acknowledges the pandemic has had an impact on teachers and their experiences of teaching using technology. Therefore, following recommendations from the experts two questions were added: one Likert scale question, 'COVID-19 has accelerated my teaching with digital technologies', and one open-ended question, 'How do you think the pandemic (COVID-19) has affected your teaching with digital technologies?' All the changes to the questionnaire, before and after the reviewing process, are highlighted in Appendix 3.

2. Piloting the questionnaire

The second method for validating the questionnaire was piloting it. Piloting a questionnaire is time consuming (Belson, 1986), but it does help the researcher to understand if the questions are well planned, understood and responded to among the target audience. According to Gorard (2001), piloting the questionnaire should be regarded as 'a full-dress rehearsal for the whole research design' (p. 102), which means a pilot questionnaire should aim to replicate the sampling and delivery of the questionnaire, and the analysis of the results in the same way as is intended for the final study.

The pilot questionnaire was shared among teachers teaching in the region of Punjab. Despite being a lengthy process, the questionnaire was shared among all the schools (public and private) across Punjab, with teachers asked to fill out the questionnaire, to understand if it made sense within the research context. The questionnaire was shared among the head teachers at schools across Punjab, excluding the research case sites for this study. The headteachers who acted as experts reviewing the questionnaire were requested to share it

among their teachers to participate in the pilot study. The questionnaire was shared randomly, and the total number of responses collected was 178, of which 45 were from rural and 133 from urban schools.

The sample size of the pilot study is larger than that for the actual data. Firstly, as shared previously, the study initially aimed to target both public and private school, which was eventually changed due to a lack of public schools being willing to participate. It was later decided to focus on private schools. This decision was taken after piloting the questionnaire, so the pilot questionnaire included all types of school and shared randomly among teachers in the region of Punjab. There were 17 teachers from public schools who participated in the pilot questionnaire, 64 from public-aided and 97 from private schools. Table 6 below highlights the demographics of those who participated in the pilot study. Secondly, as shared in the literature review section on different types of schools in India, there is no standardisation in terms of school size in private schools across India. This results in not knowing the number of teachers in any particular private school. The rural school who volunteered to participate in the research study only had a total of 20 teachers, compared to 140 in the urban school, making the actual sample size smaller than the questionnaire pilot's reach.

From table 6 below, showing the demographics of the pilot study, only 17 teachers out of 178 were from public schools, and 54.5% of the participants were from private schools. The data also evidences the difficulty with accessing public schools as case sites for the study, further justifying the decision to continue with only private schools.

Table 6: Demographics of a Pilot questionnaire

The school you are teaching in is a...		Public school	Private-aided school	Private school	Total
The school you are teaching in is in...	Rural Punjab	3	20	22	45
	Urban Punjab	14	44	75	133
Total		17	64	97	178

The data from the pilot questionnaire was analysed to understand the different sections of the questionnaire, as highlighted above. The analysis of the pilot questionnaire did not result in any major changes for the final form but provided an impression of the overall understanding of DIC among teachers on a large scale in Punjab. Most of the teachers in the pilot study were aware of the DIC policy, with 58.4% agreeing and 37.1% strongly agreeing. Similarly, the teachers from the pilot study confirmed that schools in Punjab are following the DIC initiatives, with 41% strongly agreeing and 53% agreeing with the statement. The most common digital initiative used by teachers across all the schools in Punjab was DIKSHA, which was noted by 100 teachers out of 178. The pilot study also restated the policy-practice gap between digital programmes under DIC and teachers' digital practices, suggesting the relevance of this research study. The analysis of each section from the pilot study was summarised to make sense of the data therein (see Appendix 5).

One of the things that was changed for the main questionnaire after validating the questionnaire was to delete the question about the type of school, as the research only focused on private schools. Following analysis of the pilot questionnaire and a final review from my supervisors, the online questionnaire was sent to the two chosen case sites along with the 'participant information sheet', included as Appendix 7. Table 7 below provides the timeline of questionnaire development, including its formulation, validation, and finally its distribution.

Table 7: Timeline for questionnaire development

Questionnaire formulation process	Timeline
Formulation of the questionnaire	December 2021 to January 2022
Mapping of the questionnaire with theoretical framework	January 2022 to February 2022
First draft of questionnaire	March 2022
Validation by expert opinion	April 2022
Validation by piloting	April 2022 to May 2022
Preliminary analysis of the pilot study (178 responses)	June 2022

Revising the questionnaire	July 2022
Distribution of the revised questionnaire to the two case sites (schools)	July to August 2022

The following section presents the process of analysis of the actual questionnaire for the research study and how this further informed the research interviews.

Analysis of the questionnaire

There are different means of analysing the data from questionnaires, like descriptive analysis, correlation, regression analysis, and predictive analysis (Punch & Oancea, 2014), but for the purpose of this research study, only descriptive analysis, which is done on a variable-by-variable basis and is usually calculated using standard deviation or variance, mean or frequency analysis, was applied to make sense of the data (Punch & Oancea, 2014). This was done because the reason for using questionnaire data was to gain a broad snapshot of the case sites and to guide the research interviews for the study. Analysis of the questionnaire was grouped into two datasets, one for the rural school and one for the urban and was carried out using SPSS.

The online questionnaire was sent to two private schools in Punjab, one rural and one urban. The demographics of each school are highlighted in Table 8 below, including the number of responses from each site. The data from the pilot questionnaire is greater than the actual dataset from the two chosen schools, however, as previously mentioned, the pilot questionnaire accounts for all types of schools in Punjab and the purpose of developing the questionnaire was not to quantify an understanding of DIC across all schools, but to gain an understanding of the case sites. However, the rigorous process of formulation and validation of the online questionnaire within the context of this research study can be added as a contribution to knowledge for future research within the context of DIC.

Table 8: Response rate from the questionnaire

Type of school	Number of teachers in each school	Number of responses	Response rate
Private school in rural Punjab: School A	20	15	75%
Private school in urban Punjab: School B	117	103	88%

The analysis of the questionnaire provided not just a contextual understanding of the case sites, which guided the thick description, but also offered a richness to the semi-structured interview process. Analysis of the questionnaire will also be highlighted in the thick descriptions of school A and school B, in Chapters 7 and respectively. The following section provides instances of how questionnaire analysis from both case sites guided the interview questions.

Forming the semi-structured interview guide

The analysis of the questionnaire data informed the development of a semi-structured interview guide for the research study. The following section provides some examples from the questionnaire analysis that guided this process.

The following table (Table 9) highlights the datasets from both the rural and urban schools. The question, 'The implementation of digital programmes is an important development for my school', was strongly agreed or agreed with by all teachers in both schools. This highlights the awareness of DIC among teachers in both rural and urban schools, and the priority teachers give to implementing these initiatives in both case sites. Interview questions such as 'In what ways do you embrace initiatives under DIC in your school?' and 'What are your responsibilities or duties in your school to implement initiatives under DIC?' were added to understand the implementation of digital initiatives within schools. The full list of semi-structured interview questions for teachers and heads of school are included as Appendices 11 and 13.

Table 9: 'The implementation of digital programmes is an important development for my school'

'The implementation of digital programmes is an important development for my school'.		Frequency	Percent	'The implementation of digital programmes is an important development for my school'		Frequency	Percent
Rural school				Urban S school			
Valid	Strongly agree	7	46.7	Valid	Strongly agree	68	66
	Agree	8	53.3		Agree	32	32
	Neither agree nor disagree	0			Neither agree nor disagree	2	1.9
	Disagree	0	0		Disagree	0	0
	Strongly disagree	0	0		Strongly disagree	0	0
Total		15	100	Total		103	100

Another questionnaire item, 'My school acts on the feedback I provide about my digital teaching experiences', suggested teachers' feelings of being valued in the school, with respect to sharing their feedback and experiences of using digital technologies. Table 10 provides data from both schools with respect to this questionnaire item. In the rural school, five teachers strongly agreed, and 10 teachers agreed with the statement that their school acts on the feedback they provide about their teaching experience using digital technologies. Similarly, 49 teachers in the urban school strongly agreed and 53 agreed with the statement about their feedback being valued. The data from both rural and urban schools suggest that teachers feel their opinion is valued. The interview questions on specific school practices that contribute towards teaching using digital technologies were included to make sense of how the teaching habitus is formed through the school field. Questions like 'what school practices have helped you and your teaching using digital technologies?' or 'Any school practices that you would like your school to adopt in supporting your teaching using digital technologies?' were included in the semi-structured interviews. Interview questions like 'To what extent do you think your leadership style has had an impact on using

technology in teaching and learning in your school?’ were also included to understand head of school’s perspectives, thus giving a deeper understanding of the schools.

Table 10: ‘My school acts on the feedback I provide about my digital teaching experiences’.

‘My school acts on the feedback I provide about my digital teaching experiences’.		Frequency	Percent	‘My school acts on the feedback I provide about my digital teaching experiences’.		Frequency	Percent
Rural school				Urban school			
Valid	Strongly agree	5	33.3	Valid	Strongly agree	49	47.6
	Agree	10	66.7		Agree	53	51.5
	Neither agree nor disagree	0			Neither agree nor disagree	1	1
	Disagree	0	0		Disagree	0	0
	Strongly disagree	0	0		Strongly disagree	0	0
Total		15	100	Total		103	100

Similarly, questions like ‘My school provides opportunities to share and implement digital teaching practices with other colleagues’ in the questionnaire suggested an understanding of school practices that can contribute to teachers’ understanding of digital technologies. Table 11 below suggests that in the rural school four teachers strongly agreed and 11 agreed that School A provides opportunities for them to share their digital teaching practices with their peers. Similarly, 64 teachers in the urban school strongly agreed and 36 agreed that school B provides opportunities for sharing digital teaching practices among colleagues. This further guided the inclusion of questions to understand how exactly digital practices were shared in both schools and the impact on teachers and their teaching practices. Questions like ‘What school practices allow a system of sharing practices among colleagues? How does it make you feel?’ were included in the semi-structured interviews.

Table 11: 'My school provides opportunities to share and implement digital teaching practices with other colleagues'.

'My school provides opportunities to share and implement digital teaching practices with other colleagues'.		Frequency	Percent	'My school provides opportunities to share and implement digital teaching practices with other colleagues'.		Frequency	Percent
Rural school				Urban school			
Valid	Strongly agree	4	26.7	Valid	Strongly agree	64	62.1
	Agree	11	73.3		Agree	36	35
	Neither agree nor disagree	0			Neither agree nor disagree	1	1.0
	Disagree	0	0		Disagree	0	0
	Strongly disagree	0	0		Strongly disagree	0	0
Total		15	100	Total		101	98.1
				Missing		2	1.9

Table 12 below highlights another questionnaire item, 'Teaching with digital technologies would not be my first choice', which led to diverse answers from teachers at both the rural and urban schools. For instance, only one teacher strongly agreed with this statement in the rural school, but seven in the urban school strongly agreed that teaching with technology would not be their first choice. The percentage from both the schools who strongly agreed was the same, at around 6.5%. Interestingly, three teachers in the rural school and 24 in the urban school agreed with this statement, also marking similar percentage of teachers. Similarly, the majority of teachers in both schools, nine in the rural and 50 in the urban, disagreed with the statement suggesting that technology would be their choice in their teaching. Similarly, 6.7% of the teachers in the rural and 6.8% of those in the urban school strongly disagreed with this statement in the questionnaire. There was only one teacher in the rural school and 14 in the urban school that neither agreed nor disagreed with the statement. The similarity of answers from both schools suggests that the questions on digital technologies and the understanding of teaching using technology are important to ask in order to make sense of whether teachers prefer to use technology or not. As such, interview

questions like ‘how did you come about teaching with digital technology? How did it develop over time and how does it make you feel?’ were included in the interviews.

Table 12: Teaching with digital technologies would not be my first choice.

‘Teaching with digital technologies would not be my first choice’.		Frequency	Percent	‘Teaching with digital technologies would not be my first choice’.		Frequency	Percent
Rural school				Urban school			
Valid	Strongly agree	1	6.7	Valid	Strongly agree	7	6.8
	Agree	3	20		Agree	24	23.3
	Neither agree nor disagree	1	6.7		Neither agree nor disagree	14	13.6
	Disagree	9	60		Disagree	50	48.5
	Strongly disagree	1	6.7		Strongly disagree	7	6.8
Total		15	100	Total		102	99
				Missing		1	1.0

Questionnaire questions like ‘Teaching with digital technologies limits my autonomy as a teacher’, and ‘Teaching with technologies exposes my practices and make me vulnerable towards my superiors’ offer understanding of teachers and their feelings about digital technologies, especially within the context of control, autonomy or vulnerability that might limit their use of digital technologies. Tables 13 and 14 below indicate data from the questionnaire on such statements. For instance, two teachers in the rural school and 14 in the urban school strongly agreed that teaching using digital technologies limits their autonomy. The majority of the teachers in the rural school (60%) agreed with the statement, whereas in the urban school 32% agreed. However, there were also 34% of the teachers in the urban school who disagreed. This suggests that it is important to investigate how teachers feel about their autonomy with respect to using digital technologies. For this reason, interview questions to understand digital teaching practices, and in what ways technology is being applied in classrooms were included. Interview questions like ‘What would be your ideal scenario for teaching using digital technologies? Do you think using

digital technology limits your autonomy as a teacher in the classroom?’ were included in the interview guide.

Table 13: ‘Teaching with digital technologies limits my autonomy as a teacher’.

‘Teaching with digital technologies limits my autonomy as a teacher’.		Frequency	Percent	‘Teaching with digital technologies limits my autonomy as a teacher’.		Frequency	Percent
Rural school				Urban school			
Valid	Strongly agree	2	13.3	Valid	Strongly agree	14	13.6
	Agree	9	60		Agree	33	32.0
	Neither agree nor disagree	1	6.7		Neither agree nor disagree	15	14.6
	Disagree	3	20.0		Disagree	35	34.0
	Strongly disagree	0	0		Strongly disagree	4	3.9
Total		15	100	Total		101	98.1
				Missing		2	1.9

In a similar context, questionnaire items like ‘Teaching with technologies exposes my practices and makes me vulnerable towards my superiors’ provided an understanding of teachers’ feeling about using digital technologies. Table 14 provides data from both the schools suggesting that teachers from both schools strongly agreed or agreed that teaching using digital technologies makes them vulnerable towards their superiors. Superiors in this context could be a head of school or coordinators who are placed higher than regular teachers. Approximately 93% of the teachers in the rural school strongly agreed or agreed with the statement and 80% of the teachers in the urban school strongly agreed or agreed. The data from the validating a questionnaire guided to include questions like “teaching with digital technologies makes my practice visible to others. I think this is a good thing” or “teaching with technologies exposes my practice and makes me vulnerable towards my superiors” for teachers and also heads of school, to understand the head’s viewpoint on teaching using digital technologies. The interview guide prepared for the teachers and the head is included in the appendix (see Appendices 11 and 13).

Table 14: 'Teaching with technologies exposes my practices and make me vulnerable towards my superiors'.

Rural school				Urban school			
'Teaching with technologies exposes my practices and make me vulnerable towards my superiors'.		Frequency	Percent	'Teaching with technologies exposes my practices and make me vulnerable towards my superiors'.		Frequency	Percent
Valid	Strongly agree	3	20.0	Valid	Strongly agree	33	32.0
	Agree	11	73.3		Agree	49	47.6
	Neither agree nor disagree	1	6.7		Neither agree nor disagree	6	5.8
	Disagree	3	20		Disagree	13	12.6
	Strongly disagree	0	0		Strongly disagree	2	1.9
Total		15	100	Total		103	100

The next section will discuss the last method used for data collection, semi-structured interviews.

Semi-structured Interviews

The third instrument for data collection was semi-structured interviews. The semi-structured interviews allow participants to openly share their subjective stories (Hennink et al., 2020) with the flexibility (Gill et al., 2008) to ask open-ended questions relevant to the theme of the research study (Curtis et al., 2013). Semi-structured interviews encourage participants to contribute their own thoughts, allowing the researcher to focus on building rapport during the interview (Curtis et al., 2013). Given the research objectives for this study, in-depth semi-structured interviews were the appropriate research method to capture teachers' perceptions, practices, and understandings of using the digital technologies included within policy initiatives. Interviews with the heads of school were also included to comprehend their perspective on teaching with digital technologies and how the school implements the uptake of initiatives under DIC. Eight teachers from the rural school and eleven from the

urban school, along with the heads of both schools, volunteered to participate in this phase of the study.

Interview Process

During the initial school visit with the heads of the schools, the head of both the case sites, introduced the researcher to one of the school's coordinators, who were appointed as the main points of contact for this research study. The data collection process was explained to both coordinators, along with all the documents required, which for this study included the official link to the school website and any school prospectus to understand the school better. The researcher shared the information sheet for the questionnaire and the interviews, the debriefing document, the privacy document, and the consent form with the assigned coordinator from each school, who were responsible for disseminating the documents to all the teachers. All the documents shared with the participants are attached in the appendix (see Appendices 7 to 9). Once the questionnaire was completed and analysed, the researcher contacted the coordinators of both schools individually via WhatsApp to inquire about teachers who wished to participate in the interviews. The coordinator at both schools assisted in coordinating with the teachers interested in participating based on their schedules. They also helped to arrange the online meetings at the teachers' convenience. This required requesting of the coordinator at each school that the teachers are voluntarily taking part in the study, and that the space for teacher to engage in the interview, if in the school, is somewhere teachers feel safe to share their accounts.

During the school visit, I, in my role as a researcher, was welcomed in the school and was also offered lunch on both occasions, which not only suggested the cultural difference of carrying out a research study in India compared to Western contexts, but also how the researcher in Indian context can be viewed with increased deference and could come across as someone from a position of power. To balance the power dynamics between me, as the researcher, and the participants, three things were purposely included during the interviews. First, as the interviews with the teachers were initially organised by the coordinators of both the schools as previously highlighted, the research participants were also informed that they

could leave the study at any point in time, and that this would not result in any consequences for them. This was repeated before the start of the interview to make sure that teachers were participating voluntarily, and they were not obligated to participate in the research study because of the request from the coordinator. Second, the teachers were given the choice of conducting the interview in English or Hindi, so they would feel safe during the interview. This was also to build the relationship between the researcher and the participant. Giving liberty to the participants created an open environment of comfort during their involvement (Blaikie & Priest, 2019). The majority of the teachers in the rural school preferred to conduct their interview in Hindi, whereas teachers in the urban school mostly preferred English. This further suggests the differences of school culture between the two case sites. Third, the research interview always started with ice-breaker questions like 'how's your day going?' or 'how many years have you been teaching in the school?', to build rapport with the participants and allow participants to ease into the conversation. These strategies during the interview process allowed to build trust and rapport with the teachers to enable the natural flow of conversation with the participants (Yip, 2024). Furthermore, the scope of the research study being an untapped research area, offered the researcher to allow participants from both the (urban and rural) case sites in offering insights, sharing their knowledge, perspectives and narratives regarding the practices of implementing the digital policy initiatives.

While I, as a researcher tried to balance the power dynamics during the interviews by making sure the interviewees were participating voluntarily, conducting the medium of interviews as per participants' preference (English/Hindi) and starting each interview with the ice-breaker questions to build trust and rapport with the participants, I also made an effort to remain aware that research interviews are not conceptualised without power imbalances (Kvale, 2006). The relationship between the researcher and the participant is essential to research studies (Yip, 2024) as the research interviews always involves asymmetrical power relationships between interviewers and participants (Kvale, 2006; Wang and Yan, 2012). Throughout the entire empirical work, I made sure to acknowledge that the rationalities offered by the research participants during the interviews may have been rehearsed before as the interviews were organised by the coordinator teacher in each school. However, the interviews with the research participants (both the teachers and the

heads in both the schools) offered their reality which might have been further influenced by various socio-cultural contexts they navigate. In interviews, participants narrated their realities as they reconstructed their experiences of it. That said, as Bourdieu argues, ‘researchers cannot escape the perceptual biases that are social’ (Bourdieu, 2024, p. 4). For this, I kept a reflective diary where I wrote the ideas that populated my thinking during and right after the school visits, as well as the ideas that came to me as the interviews were analysed using Bourdieu’s and Foucault’s theoretical lens as highlighted in the previous chapter (Chapter 4). These layers of engagement with participants’ data allowed me to refine the research knowledge I developed during these interactions, ensuring that my personal experiences and views did not contaminate the robustness of the findings. Using theoretical tools offered by the two social theorists, the data was analysed to re-interpret the nuances provided by the research participants within the scope of the research study. Adopting a critical reflexivity stance allowed me to negotiate power relations to focus on participants’ voices and their narratives critically using the social lenses discussed in Chapter 4.

The pilot interview was conducted on 10th November 2022 with one of the teachers in the urban school, to understand if any changes were required in the interview guide, but this was included in the analysis. A sample of an interview transcript with the teacher and the head of school is included in the appendix (see Appendices 12 and 14). Subsequently, the interview schedule was created with the help of the coordinators in both the school, with a maximum of two interviews scheduled per day. The interviews were conducted using the Zoom platform, which the teachers suggested since they had prior experience using Zoom during the pandemic. The interviews with the heads of the schools were scheduled only after completing the interviews with the teachers, to clearly contextualise the heads’ perspectives. Table 15 below highlights the interview schedule for the research study.

Table 15: Interview Schedule

Participant pseudonym	Type of school	Subject	Duration of interview	Date of interview	Time of the interview (BST)

Rita	Urban	English PGT	35.26 mins	10/11/22	8:00 am
Gita	Urban	English PGT	34.31 mins	19/11/22	9:00 am
Reena	Rural	Punjabi PGT	43.25 mins	21/11/22	8:30 am
Mita	Urban	Economics PGT	37 mins	23/11/22	3:45 am
Ram	Urban	Physics PGT	31 mins	24/11/22	4:00 am
Meena	Rural	Science and EVS-	27.03 mins	29/11/22	11:00 am
Teena	Rural	Componential Communication Skills	31.15 mins	3/12/22	11:00 am
Sita	Urban	English	35.58 mins	12/12/22	3:15 am
Radha	Urban	Mathematics	45.12	14/12/22	8:00 am
Beena	Rural	Kindergarten teacher	17.15 mins	15/12/22	10:00am
Nita	Urban	English	30.40 mins	16/12/22	3:30am
Rama	Rural	Primary classes	19.09 mins	21/12/22	12:00pm
Veena	Urban	Counsellor	30.33 mins	21/12/22	9:30am
Nivedita	Rural	English and Mathematics	24.24 mins	22/12/22	12:00 pm
Preeti	Rural	English	22.08 mins	7/1/23	12:30 pm
Bitu	Urban	Political Science	35.26 mins	10/01/23	4:00 am
Anjali	Urban	Political Science	42.55 mins	10/01/23	9:00 am
Rana	Rural	Social Science	22.01 mins	13/01/23	10:00 am
Archie	Urban	Computer coordinator	56.22 mins	13/01/23	8:30 am
Head	Rural	Head of the school	66.31 min	6/5/23	10:30 am
Head	Urban	Head of the school	41.14 mins	4/4/23	11:30 am

The interview schedule highlighted in Table 15 above also highlights the time of the interview. This was included to highlight one of the challenges the researcher faced while conducting interviews online in India. The researcher was in the UK and the teachers were in India during the period of conducting interviews. The teachers in the rural school preferred to schedule interviews after school hours, whereas those in the urban school preferred to

participate during school times, which resulted in conducting some of the interviews as early as four in the morning. In order to be mentally present for the interview, the researcher adjusted her sleeping schedule according to the convenience of the teachers, so as to be fully immersed in the data collection phase. Although the timings were not conventional, conducting interviews with both the schools around the same time provided an opportunity to compare and contrast the two case sites simultaneously.

Results Analysis using Thematic Analysis

The method adopted for analysing the documents, the open-ended questions in the online questionnaire, and the semi-structured interviews was thematic analysis (Braun and Clarke, 2006, 2021). Thematic analysis is the process of organising data into codes and themes such that a pattern emerges from it, with emerging themes becoming categories for analysis (Fereday & Muir-Cochrane, 2006). Thematic analysis involves drawing connections at a deeper level (Fugard & Potts, 2019). This type of analysis to go beyond the surface level, deducing meanings from themes that can be further explained using various theoretical lenses (Ponterotto, 2006). This aligns with the case study research methodology adopted for this study, along with the research objectives. The aim of thematic analysis is not to summarise the data content but to identify and interpret key features, guided by the research questions and theoretical framework of the study (Clarke & Braun, 2017). With the flexibility and adaptability that thematic analysis offers, it was applied across different datasets in the research study, including data from document analysis, the open-ended questions of the online questionnaire, and the semi-structured interviews.

The thematic analysis of documents provided a critical understanding of the policy initiatives extending beyond the text itself. Moreover, the thematic analysis of open-ended questions and semi-structured interviews clarified teachers' perspectives on digital teaching practices with respect to the policy directives. Basic document analysis does not yield precise, accurate, or comprehensive records of events that transpired. Therefore, the process becomes more crucial, involving identifying, selecting, appraising (making sense of), and synthesising the data contained in documents. The characteristic of language as

communication, emphasising the content or contextual meaning of the text (Lindkvist, 1981; McTavish & Pirro, 1990; Tesch, 2013), was also considered. This analysis encouraged critical questioning of the policy initiatives beyond mere text. The documents provide not only textual information, but also the language of the policy documents enables a deeper interpretation that may lie concealed beneath the political agenda. For the policy analysis of DIC, which primarily involved official webpages, the digital initiatives launched in education were examined to understand how these initiatives position digitalisation within the context of education and further influence the practices of schools and teachers.

A six-phase model of thematic analysis by Braun and Clark (2006) was applied across the dataset, which will be discussed below. NVivo was used to place all the sources of data together. These were categorised school wise, rural and urban and one section for the shortlisted documents for the analysis. The six steps of document analysis were repeated for each of the interviews. The interviews from the rural and urban case sites were grouped separately, and the codes and themes were generated separately for each case site, to draw on differences and similarities later. This was done to gain rich insights into each case site to justify the case study and individual context of the case sites. The NVivo screenshot of how DIC was broken into codes to create emerging themes and thematic analysis for the rural and urban case sites is highlighted in Appendix 15.

The following are the steps of the implementation model which was adopted:

1. Familiarity with data

The first stage of data analysis is to make sense of the data. This was achieved through repeated readings of the data in an active manner, searching for meanings, patterns, and context. For documents, this involved re-reading and reviewing them to understand the context of the selected webpage. For semi-structured interviews, each interview was translated and transcribed before being uploaded to NVivo. As previously mentioned, the interviews in the rural school were conducted in Hindi to accommodate the research participants. The researcher hired a professional agency for their translation and transcription into English. Although the researcher is verbally proficient in Hindi, it was

decided to have the translation and transcription handled by professionals to capture the nuances of the data accurately. Since the translation and transcription were already completed, more time was available to become familiar with the data, and the original audio recordings were also referenced during the first reading. After the initial reading, each interview was read three times to comprehend the data effectively.

2. Generate initial codes

The second step in the data analysis involved generating initial codes. After thoroughly reading the data, an initial list of ideas was created for both documents and interviews. Codes serve as the building blocks for larger patterns of meaning and represent the most basic elements of the raw data (Boyatzis, 1998). NVivo played an important role here. The entire dataset was examined systematically, giving full and equal attention to each data item. Any interesting aspects of the data were highlighted and transformed into initial codes.

3. Search for themes

After the initial generation of codes, a long list of codes was created in NVivo. To review each code, the code list was exported as a Word file for easier re-reading. Tables and mind maps were used to make sense of the different codes and categorise them into initial themes. The construction of categories was based on common characteristics to uncover related themes. The relationships among different codes with common characteristics allowed for the development of initial themes. A section called 'miscellaneous' was also created for items not belonging to any theme.

4. Review themes

The fourth stage of the analysis involved reviewing the initial themes derived from the data. This stage encompassed two levels of reviewing and refining. The first level focused on reviewing the themes based on coded data extracts and the narrative flow of the generated themes. The second level aimed at refining the themes, concentrating on their alignment with the research objectives and the theoretical framework adopted for the study. The

miscellaneous dataset was also reviewed to determine if it aligned with the narrative of the themes; anything that did not fit was disregarded in the research analysis.

5. Define and name themes

This theme emphasised defining and refining the themes to grasp their essence. To clarify the main theme and its subthemes, a detailed summary of each was developed. The summaries were shared with supervisors for feedback. The codes were also cross-referenced with the original transcripts of the interviews to understand the context of each code. After gaining a clear understanding of their scope and essence, the themes were renamed.

6. Produce the report

The last step in the analysis is to write the research findings chapter in a form which is not just descriptive but also analytical, as defined by the themes derived from the data. For this many drafts of research findings were written to make sense of the themes derived. The drafts of the research findings were shared with the supervisors for their feedback. For this study, three datasets were analysed: policy analysis of DIC, questionnaire and interview data from rural schools, and data from urban schools. The research findings are highlighted in the following three chapters (Chapters 6, 7 and 8), focusing on each dataset.

Table 16 below highlights the themes and subthemes derived from the analysis, which will be discussed in the next three chapters.

Table 16: Theme and subthemes derived from the analysis

Document analysis of DIC (Chapter 6)	School A (private school in rural Punjab, India) (Chapter 7)	School B (private school in urban Punjab, India) (Chapter 8)
Theme 1: Vision to empower Indian citizens Central policy with decentralised mechanism	Theme 1: Two-fold experience of using readymade lesson plans (LEAD) Readymade lessons: Increased workload and restricted teaching	Theme 1: The culture of teacher training Monitoring of DIKSHA training

• Translation of DIC's vision into education Theme 2: Education as electronic delivery of resources • Lack of access to digital infrastructure • Digital transformation by accessing digital content Theme 3: Digital technology for education governance • Digital technology for self-evaluation of schools • Continuous professional development through DIKSHA for teachers	• Readymade lesson: Ease of teaching and personal growth • Readymade plan: Head of School's view Theme 2: DIKSHA, the digital initiative in action DIKSHA: lifeline for new teachers • DIKSHA platform: Valuable for new teachers • Digital certificates: Proof of training undertaken • Double workload for teachers: LEAD and DIKSHA Theme 3: Pedagogy of (digital) transmission Pedagogy of digital consumption Theme 4: Implications of using digital technologies • Teachers exercising agency in classrooms • Teachers' responsibility in keeping up with changing times	• Mandatory training via DIKSHA • Appreciation for in-house training Theme 2: Teachers internalising the value of training provided • Training as medium for collaborative teaching • Training necessary for keeping up with changing times Theme 3: Teachers exercising agency in classrooms • Providing conceptual clarity • Prioritising the student teacher relationship

The following sections of this chapter focus on the challenges faced during the research study, the timeline for the data collection phase, and the ethical considerations that this study adhered to.

Timeline of data collection

Table 17 below highlights the data collection phase for the research study, from contacting the schools to participate in the study to the results and analysis of the collected data. As previously stated, the pandemic had a huge impact on the research study and delayed the project for a couple of months, and the table below provides the month-by-month progression of the data collection and analysis stages.

Table 17: Timeline of data collection

Tasks completed	Timeline
Ethical approval from the University of Durham	March 2021
Documents collected for policy analysis	April to June 2021
Initial policy analysis of DIC	July to September 2021
Initial phase of contacting schools to undertake the study	October to December 2021
Delay due to COVID-19 Closing of schools in India	November 2021 to March 2022
Questionnaire formation	December 2022 to February 2022
Phase 2 of recontacting schools once re-opened	March 2022 to April 2022
Confirmation from schools of participation in the study School visits (visited 3 case sites) Expert's opinion process for pilot questionnaire Collection of documentation from each school Initiated pilot study of questionnaire	April 2022 to May 2022
Results analysis from pilot study (Respondents: 178) Shortlisted two schools for case study	June to July 2022

Revising the online questionnaire based on the pilot study	
Online questionnaire for two private schools (Respondents: 118)	July to August 2022
Analysis of the online questionnaire Writing results analysis of DIC	September to October 2022
Preparation for semi structured interview questions Pilot Interview	October 2022
Semi-structured interview phase with teachers (19 interviews)	November 2022 to January 2023
Completion of 19 interviews Transcriptions	February 2023
Semi-structured interview phase with heads (two interviews) Transcriptions of the two interviews	April 2023
Initial results analysis and discussions	April 2023 to April 2024

Ethical Considerations

The research study adhered to The British Educational Research Association (BERA) (BERA, 2018) guidelines to carry out the research ethically. The study was granted ethical approval by Durham University on 19th March 2021. A copy of the ethical approval form is attached as Appendix 6. All the ethical procedures outlined by the School of Education, University of Durham were followed during the data collection and analysis phases. The research study was carried out using voluntary informed consent with the right to withdraw at any time during the study. Participants were treated fairly, free from prejudice, and keeping in mind their social environment and responsiveness towards structural inequalities (Shields et al., 2013; Cohen, Manion, & Morrison, 2013). The following ethical considerations were addressed thoroughly.

Voluntary informed consent

The research was conducted voluntarily with written informed consent from participants. During the data collection process, a participant information sheet was provided to all participants (see Appendices 7 and 8). This sheet included the reasons for participating in the study, details as to how the data would be recorded, stored, and analysed, as well as the participants' right to withdraw at any time. The participant information sheet for both the questionnaire and the interviews was distributed separately to those taking part in the research. Consent forms for the interviews were also sent in advance to all participants (see Appendix 9).

When approaching schools to voluntarily participate in the research study as case sites, the initial letter of invitation was provided, including information about the project, the importance of the PhD for the future, and the stages of data collection. This included the three methods of data collection, which were shared with a timeline. Once the schools voluntarily agreed to participate in the study, the debriefing sheet, privacy sheet, and participant information sheet were shared with all participants.

Sometimes in the context of India participants will agree to participate in a study out of respect, particularly in rural areas (Srivastava, 2020). As previously highlighted, there was a teacher coordinator in each school who scheduled interviews with the teachers depending on their availability during or after school hours. During the interviews, it was made clear that the teachers are participating in the interview voluntarily. This was done by explaining the research study and ensuring verbal agreement, which was recorded as the participant's response to the seeking of consent for the recording of the Zoom call at the beginning of the interview, keeping in mind the ethical concerns when conducting interviews online (Salmons, 2021).

Right to withdraw

Participants were made aware that they could withdraw from the interview or from answering any question at any point before or during the interview without any implications.

For the online questionnaires, none of the questions except the location of the school (urban or rural) were made mandatory for the participants (Salmons, 2021).

Right to confidentiality

The right to confidentiality was offered to all participants in the questionnaires and interviews. Online surveys by JISC (formerly known as BOS) were used to collect responses for the questionnaires, and the Zoom online platform was utilised in conducting the online interviews. Both the online surveys by JISC and the Zoom interviews were operated under the University Cloud System license owned by Durham University, which complies with the General Data Protection Regulation (GDPR), ensuring better security and encryption.

The online survey did not collect the IP addresses from which the questionnaire was shared. The interviews included audio or video recordings of the participants only after obtaining their approval in the consent form and verbal approval during the interview. Participants were only required to indicate the grade they were teaching, the subject, and how long they had been teaching at the school. Other data sought included participants' experiences with digital practices within the context of their school and the new digital policy initiatives.

An India-based company was approached for the translation and transcription of the interviews. The recordings were shared with a third party under a written contract that specifically stated that all recordings and transcriptions would be deleted immediately after delivery (see Appendix 16). The audio and video files were shared with the third party through the University's Cloud System, licensed to Durham University, which complies with the General Data Protection Regulation (GDPR). The identity of the participants was protected by assigning pseudonyms immediately after transcribing the interviews. Following transcription, all audio and video files were deleted to retain anonymity.

Data protection and data storage

To ensure the safe storage of data (Data Protection Act, 2018), all information was stored in Durham University's cloud storage, OneDrive for Business, which is licensed to Durham University and complies with the General Data Protection Regulation (GDPR). The data was only accessible through the researcher's password-protected computer, and all stored files were also password protected, accessible only to the researcher (myself). Each file was assigned an anonymous number for data collection, which could not be traced back to the identity of the participants in any way.

Sensitivity towards Indian culture

Given the research participants included were from both rural and urban regions of Punjab, the researcher was sensitive to conducting research that did not make the participants feel uncomfortable. As previously highlighted, participants were given the opportunity to decide which language they were comfortable using, and this was asked at the start of the interview. The teachers from the rural school preferred to conduct interviews in Hindi and the majority of teachers in the urban school preferred English. This was also used to balance power during the interview (Ozano & Khatri, 2018; Wilson, Janes, & Williams, 2022), through giving autonomy to the teachers to decide their comfortable dialect for the interview. Questions about how their day was going and any activities happening in school that day were included at the start of the interview as ice-breakers to provide a comfortable environment for the interview process (Blaikie & Priest, 2019).

Conclusion

This chapter provided an overview of the conducting of the research study. From the research paradigm which this study adopted to the research methodology, along with the methods of data collection. The research paradigm which this study adopted was interpretivism, which assumes that reality is subjective and socially constructed. My positionality through reflexivity therefore allowed me to contextualise the research study critically using Bourdieu's and Foucault's theoretical lenses. My positionality as a researcher in this study suggests that education and technology are not neutral entities and when

interacted together generate something new or different within the context of which they are inserted (Macgilchrist, 2021). This further results in understanding the practices of the participants with an intention to make sense of their digital practices within the context of the research setting.

The methodology that was guided by the research paradigm is case study methodology. With the flexibility that case studies offer, it was highlighted that the research methodology of exploratory case studies is the most appropriate for this research study. A mixed methods iterative approach was adopted, that included document analysis of DIC, an online questionnaire to understand the case sites and further guide semi-structured interviews, and finally semi-structured interviews to capture the subjective reality of teachers within the context of their digital teaching practices using digital initiatives under DIC. An online questionnaire was established from scratch with the purpose of understanding the case sites and establishing a guide for the research interviews. To validate the established questionnaire, an expert's review and piloting of the questionnaire were adopted. Some instances of questionnaire analysis guiding the interview questions were also discussed in this chapter. The third method of data collection was the semi-structured interview with the teachers and the head of the schools of two case sites. The chapter highlighted the interview process which discussed the overall mechanism of conducting the interviews in both the school, the strategies the researcher adopted to create rapport and trust with the participants and the challenges of conducting the research interviews. The research interview is not always without power dynamics, therefore making sure the interviewees were participating voluntarily, offering participants to decide the language to carry out the interview (English/Hindi) and starting each interviews using ice-breaker questions allowed me to built trust and rapport with the participants. Although, this research study acknowledges that the rationalities offered by the research participants during the interviews might have been rehearsed as the 'researchers cannot escape the perceptual biases that are social' (Bourdieu, 2024, p. 4), but the research participants through the interviews provided realities as they reconstructed their experiences of using digital technologies within the context of DIC. The data were analysed using theoretical tools from Bourdieu and Foucault to make sense of data critically.

Thematic analysis was adopted for all the qualitative data for the research study, and the six-step process that was followed for the thematic analysis was also highlighted in this chapter. Finally, the timeline for the data collection and the ethical considerations for the research study were included.

Part 4 Research Findings

Chapter 6: Thematic Analysis of the Digital India Campaign

Introduction

This chapter presents and discusses the findings from the analysis of the Digital India Campaign (DIC). As highlighted in Chapter 5, thematic analysis was adopted for the examination of the webpages of DIC, digital initiatives in education, and chosen sections of the National Education Policy (NEP) 2020. This chapter introduces and discusses the key themes derived from the analysis of DIC. The themes derived are 1) Vision to empower Indian citizens, 2) Education as electronic delivery of resources, and 3) Digital technology for education governance.

Thematic Analysis of DIC

Vision to empower Indian citizens

The literature on the strategic focus on the digitalisation of India highlighted economic and regulatory imperatives (Ferrari et al., 2022) as the main drivers for the rise of digitalisation in society. This is because digitalisation offers new opportunities for financial gain (Kistruck, Beamish, Qureshi, & Sutter, 2013) through an understanding of operational efficiency and effectiveness (Bilgeri, Wortmann, & Fleisch, 2017), and projected cost savings (Valenduc & Vendramin, 2017). Digitalisation processes are also portrayed in these documents as enhancing workers' skills, resulting in projections of the efficient and effective working of society. The vision of DIC is to transform India into an 'empowered society and knowledge economy' (Government of India, 2020b) through processes of digitalisation. This aligns with the literature on a push towards digitalisation for the economic growth of the country

(Kistruck et al., 2013; Valenduc & Vendramin, 2017; Bilgeri et al., 2017; Ferrari et al., 2022). Furthermore, three vision areas of DIC were identified in the following excerpt from a digital initiative, The Curricula for ICT in Education, in support of DIC's vision:

The Digital India Campaign (2015) strives to transform India into a digitally empowered society and knowledge economy by focusing on the three vision areas: Digital Infrastructure as Core Utility to Every Citizen, e-governance and Services on Demand and Digital literacy and empowerment of citizens (*The Curricula for ICT in Education*).

As per the policy directives, the vision areas emphasise digital infrastructure, e-learning, and skills development, to align with global educational standards and economic demands. The research by Gurumurthy, Chami, and Thomas (2016) mentioned on DIC's webpages, and the speeches and Tweets from the prime minister, Narendra Modi, during the time of the launch of DIC in 2015 highlighted that 52 Tweets by Narendra Modi mentioned the digitally enabled economic development of India, with 20 addressing the vision areas like skills development, digital literacy, and bridging the digital divide through the launch of DIC. The Tweets on DIC and the vision areas noted by the prime minister of India not only suggest that this campaign was a priority for the prime minister during the time of its launch, but since 2015 the vision areas of DIC have not been revisited or updated, suggesting the focus of DIC still remains on the three broad themes highlighted above.

Central policy with a decentralised mechanism

To achieve the broad vision highlighted in the above excerpt from DIC, different ministries and departments work together towards a single, comprehensive vision to empower the digitalisation of Indian society. The collaborative links that DIC enforces are not only between different state organisations (ministries and departments) but also partnerships with the private sector, through forming public-private partnerships (PPP). This is highlighted in the excerpt below from the DIC webpage, *Programme Pillars and Approach and Methodology*.

Each of these [vision] areas is a complex programme in itself and cuts across multiple Ministries and Departments..... It weaves together a large number of ideas and thoughts into a single, comprehensive vision so that each of them can be implemented as part of a larger goal (*Programme Pillars*).

Public Private Partnerships would be preferred wherever feasible to implement e-governance projects with adequate management and strategic control (*Approach and Methodology*).

The excerpt above highlights the preference for ‘public-private partnerships’ with collaborative governance, to have ‘adequate management’ and ‘strategic control’ when implementing digital initiatives. Singh (2021) study of the DIC argued that the promotion of public-private partnerships on their website is a direct invitation to investors to contribute towards developing digital infrastructural needs in India. The push towards public-private partnerships is also evident in the ease of foreign investment in India, which was highlighted previously in the literature review chapter (see Chapter 4 section on Education Technology in the Indian context). By promoting privatisation (Osborne & Gaebler, 1993; Harvey, 2009), the government is no longer seen as the direct provider of services, but rather facilitates the market via privately owned companies (Olmedo, 2018). This leads to competition rooted in profit-making motives (Picciano 2013; Ball & Santori, 2017) by privately owned companies, further reframing citizens as consumers, and public goods as commodities (Brown, 2015). This outcome can therefore be seen as a medium for operationalising neoliberal ideology through DIC’s initiatives (Singh, 2021).

With the encouragement of public-private partnerships to implement the initiatives under DIC, the Department of Electronics and Information Technology (DeitY) suggests the following guiding principles, as highlighted on the DIC webpage, *Programme Pillars*.

Digital India is to be implemented by the entire Government with overall coordination being done by the Department of Electronics and Information Technology (DeitY) (*Programme Pillars*).

The overall coordination by DeitY suggests that power, accountability, and management control are under DeitY. The excerpt below from the webpage, *Approach and Methodology*, highlights the working of DIC through a ‘decentralised implementation model’, promoted through a centralised initiative.

e-Governance would be promoted through a centralised initiative to the extent necessary, to ensure citizen-centric service orientation, interoperability of various eGovernance applications and optimal utilisation of ICT infrastructure/ resources, while adopting a decentralised implementation model (*Approach and Methodology*).

The webpages analysed for this study did not provide details of this ‘decentralised implementation model’ of DIC, but the study conducted by Aiyar and Kapur (2021) suggested that in 2015 the central government implemented a decentralised architecture to promote their coordination with states across India. The decentralised architecture was put in place for better transparency, increased accountability, and progress reporting, coordinated through a centralised system (Aiyar and Kapur, 2021).

India has a unitary system of government and is also referred to as a quasi-federal system (Wheare, 1946; Stepan, 1999). Put simply, India has a federal system with central and state governments, and power is shared between the central and state governments; however, the central government is the more powerful. Beriya (2021), on analysing DIC’s specific initiatives within the context of governance, highlights that state governments’ adoption of the essence of DIC is crucial for comprehensive digitalisation in India. It seems the decentralised system, which is referred to in the excerpt above, is giving more autonomy to the state government but with a controlled monitoring system in place by the central government. This is also evident from the excerpt below, highlighting the responsibility for

additional inclusivity and flexibility given to the state governments in implementing initiatives under DIC.

States would be given flexibility to identify for inclusion additional state-specific projects, which are relevant for their socio-economic needs
(*Approach and Methodology*).

Furthermore, the following excerpt highlights how existing digital initiatives in the different states of India will also be 'revamped' within the principles of DIC to achieve a 'single comprehensive vision' of DIC.

The existing/ongoing e-governance initiatives would be suitably revamped to align them with the principles of Digital India. (*Approach and Methodology*).

The above two excerpts highlight two underpinnings of the working mechanism of DIC's broad vision across a large country like India. First, with a decentralised model the power is with central government, but the flexibility to identify state-specific projects lies with the state government. This, however, is unclear in terms of roles and responsibilities in the state and central governments with respect to managing different digital initiatives. It can be assumed that the vagueness of shared responsibility dissolves accountability for implementing the digital programmes. Within neoliberal ideology, accountability is dissipated because it is a shared responsibility between the government and private firms (Read, 2009). The empowerment of state government also suggests responsibility being withdrawn from the centre (Brown, 2015). This lack of accountability also results in vagueness with respect to the power interplay between those involved in the implementation of DIC, like the central/state governments and private companies. Singh (2021) study argues that a 'one-size-fits-all' techno-solutionism relieves the state of any accountability by placing the burden of adapting to technological systems on the citizens. By blurring public (state and central government) and private distinctions in operations (Hamann, 2009), DIC highlights neoliberal ideologies that seem to imply individual

accountability for 'optimal utilisation of ICT' (*Approach and Methodology*) . This will be highlighted further in the next two themes more specifically.

The following section focuses on the translation of DIC's broad vision via education policies.

Translation of DIC's vision into education

The most recent education policy document, National Education Policy (NEP) 2020, highlights education as a key driver in transforming India into a globalised knowledge society, as the excerpt below indicates:

This National Education Policy envisions an education system rooted in Indian ethos that contributes directly to transforming India, that is Bharat, sustainably into an equitable and vibrant knowledge society, by providing high-quality education to all, and thereby making India a global knowledge superpower. (*NEP 2020*)

The language used here is significant, and similar to that language used in the vision of DIC that promoted India's knowledge economy. Both policy directives seem to project India as a global knowledge superpower, one through the prism of a knowledge economy (*Vision and vision area*) and the other through the perspective of knowledge society (*NEP 2020*). Dasgupta (2018) has argued that the language of digital initiatives exemplifies the idea of neoliberal Indian nationalism, which seems to be visible within the context of NEP 2020 as well. Although the two terms, knowledge society and knowledge economy, are not the same, there are aspects that connect them together. The literature on knowledge economy focuses on the shift towards marketisation of public services, economic changes, and competition, which directly relates to neoliberal ideology (Harvey, 2007), whereas the literature on knowledge society focuses on the context of globalisation (Välimaa & Hoffman, 2008). In other words, the economic growth of a country is dependent on the 'knowledge of technology and levels of information flow' (Peters, 2007, p. 26), which is also reflected in the

excerpt above, in the hope that through education India can become a ‘global knowledge superpower’ (*NEP 2020*).

The excerpt below from *NEP 2020* makes a direct link between ‘technology and education’ and how this new education policy will play an essential role in implementing DIC’s vision.

The Digital India Campaign is helping to transform the entire nation into a digitally empowered society and knowledge economy. While education will play a critical role in this transformation, technology itself will play an important role in the improvement of educational processes and outcomes; thus, the relationship between technology and education at all levels is bidirectional. (*NEP 2020*)

This highlights the ‘bidirectional’ relationship between education and technology, where technology supports India’s educational processes and outcomes, and education contributes towards the country’s economic growth. This seems to be aligned with policies across the world by organisations like OECD, World Bank, and UNICEF, connecting education and technology to the overall development of nations (see for instance, OECD, 2020a, Sustainable goals by United Nations, United Nations, 2024). The literature on education policy highlights how intra-national agencies like OECD, UN, and World Bank create a push towards digitalisation in education, especially within the context of providing economic growth for a country, positioning education as a key driver in the upliftment of society, with technology playing a key role. This is evident from the excerpt from *NEP 2020* above. The push towards new education policy, after a gap of 34 years, suggests a major step in the direction of making India a global knowledge centre through prioritising the role of digital technologies in education (Kumar, Prakash, & Singh, 2021).

Another example that demonstrates the push towards education for economic growth through digitalisation is an initiative called The Curricula for ICT in Education which aims to contribute to the goals of the DIC. The following excerpt from the webpage of *The Curricula for ICT in Education* highlights this.

Curricula for ICT in education is a step towards realising the goals of both the National Policy, the National Curriculum Framework (2005) and the recommendations of Digital India Campaign. (*The Curricula for ICT in Education*)

This can be seen as an example of how economic imperatives and digital innovation are entangled with education. The quality of the education system determines the economic growth of a country (Ball, 2016; Mundy et al., 2016), which is evident in how different ministries and departments in the Indian system work together towards their common goal with education as a key focus and a main driver towards achieving economic upliftment for India. Given the scale of DIC, the broad vision followed across ministries like the Ministry of Education and further to the Department of School Education and Literacy, through means of the decentralisation implementation model (*Approach and Methodology*). The decentralisation mechanism, with different state governments, ministries and autonomous governmental bodies involved, results in the diffusion of power. This further has implications with respect to the reduced accountability for central government (Rose, 1999) and promotion of the entrepreneurial self (Brown, 2015). Moreover, it seems that the digital initiative in education and NEP 2020 only highlight the vision of DIC in policies, without any clear explanation of how the vision is translated into practice. This suggests that the vision of DIC is present in NEP 2020 at a superficial level without providing any nuances of how to achieve the economic vision of DIC, or the 'bidirectional' relationship between education and technology.

According to Foucault, policy documents can be seen as tools through which institutions exercise power by defining what is knowable and what is not, in other words the creation of a norm (Foucault, 1975). Those digital initiatives offering only surface-level details, like those analysed here, seem to retain control over the narrative of DIC. Through only stating their vision within various educational documents like NEP 2020 or digital initiatives like The Curricula for ICT in Education, DIC has purposely left the implementation framework vague, to be implemented by those directly implicated by it. This further leads to the production of a new kind of citizen, who is digitally literate and values themselves in a digitally driven, market-oriented world. At first glance, this may seem to offer a high degree of freedom, but

it also places a significant level of accountability on the individuals (practitioners) responsible for implementing these digital initiatives. Digital initiatives, through promoting this accountability further, lead to individuals internalising practices, resulting in making them responsible and entrepreneur. This results in forms of power that lead to individuals governing themselves (Foucault, 1979). This is reflective of the operation of neoliberal governmentality.

This theme has demonstrated the broad vision of DIC, which is to transform India into a digital knowledge economy. The working mechanism that DIC adopts rests on a decentralised implementation model that encourages collaboration among state governments, ministries, (like the Ministry of Education), and public-private partnerships. The decentralised implementation model rests on the state and central governments, which results in dissolving of power between the two, suggesting the accountability is placed upon individuals to reap the benefits but also the implications of a process of digitalisation they must implement. The theme further highlighted how the broad vision of DIC is translated to different educational initiatives along with the new education policy, NEP 2020, which in this context is only evident in the inclusions of DIC's broad vision in policy directives. This allows policy directives to not only control the narrative of policy initiatives but to enact further influence in producing new kinds of citizens (practitioners) who are responsible and accountable for empowering themselves through means of digital initiatives.

The next theme highlights the initiatives in education under the DIC that focus on providing access to digital resources for schools, teachers, students and parents.

Education as electronic delivery of resources

This theme demonstrates the digital initiatives launched in education, which are developed by the Ministry of Education and the autonomous bodies under the Department of School Education and Numeracy, such as NCERT (National Council of Educational Research and Training) and CBSE (Central Board of Secondary Education). The webpages of digital

initiatives in education like *e-Paathshala* and *DIKSHA* (screenshots attached in Appendix 10) highlight the focus on accessing digital resources rather than digital infrastructures.

Lack of access to digital infrastructure

Research on digital inequalities in India (see Chapter 4) reflects understandings of a digital divide, which includes lack of access to digital infrastructure, lack of digital skills, and lack of usage of digital resources (Brooks et al., 2005; Van Dijk, 2005; Deursen & Van Dijk, 2015). The first and most basic form of digital inequality, which is still evident in the Indian context, relates to access to digital infrastructures (Brooks et al., 2005; Asrani, 2021). Throughout the webpages and sections of NEP 2020, access to digital infrastructure is not focused on digital devices, but relates to accessing educational resources digitally. The following excerpt from *NEP 2020* highlights how digital platforms like DIKSHA¹⁰, SWAYAM¹¹ and SWAYAMPBHA¹² aim to promote inclusive education through the use of technologies in the Indian context.

Existing e-learning platforms such as DIKSHA, SWAYAM and SWAYAMPBHA will also be leveraged for creating virtual labs so that all students have equal access to quality practical and hands-on experiment-based learning experiences (*NEP 2020*).

Underlying this narrative, there seems to be an expectation, or perhaps assumption, that digital devices are available across Indian schools, to teachers, parents and students, which, as research has suggested, is not the case (see Digital Inequalities in India, Chapter 4). Here, equal access to quality digital resources is prioritised, rather than the medium of accessing quality content, which seems to be largely omitted from the narrative. A research study by Islam and Manchanda (2023), analysing the digital initiatives of DIC through a gendered lens, argued that the proposed programmes do not prioritise the development of digital

¹⁰ DIKSHA is Digital Infrastructure for Knowledge Sharing for teachers, students and parents to access online resources. See <https://pmevidya.education.gov.in/diksha.html>

¹¹ SWAYAM is an Indian government portal for a free open online course platform that provides educational courses for university and college learners. See <https://swayam.gov.in/about>

¹² SWAYAMPBHA is an Indian initiative to broadcast quality educational programmes 24 hours a day, 7 days a week through television using satellite. See <https://www.swayampbha.gov.in/>

infrastructure, resulting in individuals having to take responsibility to break the social barriers of access to empower themselves. Singh (2021), in analysing the DIC website pages, pointed out that 35 different applications are being built within DIC with respect to various e-governance initiatives. However, infrastructural prerequisites for accessing these applications were missing from policy narratives. Another study on DIC by Das and Sagara (2017) highlighted how the absence of digital infrastructure in both urban and rural areas proposed unattractive opportunities for the private sector to set up their company operations. The above narratives are also relevant to the context of education. The excerpt above from NEP 2020 suggests that digital technologies are utilised through accessing quality educational content, with the assumption being that digital devices are already available. This has further implications for existing digital inequalities. As previously highlighted (see Chapter 4), digital inequalities in India are complex, due to the different types of schools, the rural/urban divide, and the social stratification of Indian society. The digital initiatives assuming that digital infrastructure is available across all sectors of Indian society can further reinforce existing socio-economic inequalities (DiMaggio and Garip, 2012) therein.

Another initiative called ePaathshala, developed by NCERT, addresses the phenomenon of the digital divide in terms of accessing digital content and resources in education. The following excerpt highlights how the platform aims to focus on the 'dual challenge', which is to target different clientele (here, this market-focused language refers to students, teachers, schools, and parents) and bridge the digital divide by offering free e-content to students, teachers and parents.

The platform addresses the dual challenge of reaching out to a diverse clientele and bridging the digital divide (geographical, socio-cultural and linguistic), offering comparable quality of e-contents and ensuring its free access at every time and every place. (*e-Paathshala*)

From the above excerpt, the aims of e-Paathshala highlight two aspects of the digital divide, first to provide content to various stakeholders, which are referred to in the above quote as 'clientele', and second, to provide free quality digital resources to all stakeholders (schools,

parents, teachers and students), assuming that digital tools are accessible in schools. This digital initiative does not address the issue of access to digital infrastructure to be able to obtain the online materials in the first place.

The above excerpt highlights two important aspects. Firstly, digital initiatives in education seem to only prioritise the access to digital resources and does not account for the surface-level digital divide, including access to the digital infrastructure. The policy document also does not reflect upon potential lack of digital skills (Deursen & Van Dijk, 2015; Costa & Gilliland, 2017) and the lack of engagement with digital knowledge in Indian schools (Deursen & van Dijk, 2014; Shcheeder, Deursen & Van Dijk, 2017; Costa & Li, 2023).

Therefore, it can be argued that the policy initiatives are underscored by the notion that provision of digital resources will lead to equity and inclusion in Indian classrooms, without considering the on-the-ground realities of the availability of digital devices to access digital resources, while also limiting understanding of the digital divide, especially in the Indian context. The second aspect highlighted in the excerpts above is how educational resources position students and teachers as ‘clientele’, representing them as content consumers and adopting a language mostly associated with economics and market driven imperatives. Digital technologies used only for consuming content do not align with an understanding of the participatory culture of the web that aims to be empowering and to promote participation, collaboration and creation in and for learning among teachers and students (Jenkins, 2009; Miller, 2020). Comparing this to the purpose of NEP 2020, as highlighted previously, which is rooted in empowering Indians through acquisition of digital skills and literacies in order to achieve sustainable goal 4, to attain quality education (Upadhyay & Malik, 2024), evidences a gap between these approaches. The digital initiatives seem to focus on integrating digital technologies in Indian classrooms by prioritising mere access to resources.

Digital transformation by accessing digital content

The previous section highlighted how digital access to infrastructure is assumed in policy text, and that the digital initiatives launched support this assumption. This section highlights

how digital initiatives in education make sense of using digital technologies in classrooms. The following excerpt highlights the digital initiative called ePaathshala that focuses on providing digital resources like books and digital content for students, teachers, and parents.

e-Paathshala has been developed by NCERT for showcasing and disseminating all educational e-resources including textbooks, audio, video, periodicals and a variety of other print and non-print materials through website and mobile app (*ePaathshala*).

Here, ‘showcasing and disseminating educational e-resources’ highlights that the purpose of e-Paathshala is to provide digital textbooks, which are already present as physical copies. It seems the platform does not aim to produce new resources, but rather to enable the digitisation of existing resources for all stakeholders involved in schools. The digital initiatives developed in education highlight the use of digital technologies for teaching and learning, focusing on knowledge transmission for the effective transfer of content. Although this digital initiative is portrayed as keeping up with societal change through the digitalisation of resources, its positioning of technology as a source of knowledge transmission only serves one element of digital education: access to published knowledge. There is therefore an incongruity with forms of digital practices that enable the development of a participatory culture in and for teaching and learning. There also seems to be a misalignment between contemporary (digital) education theories that emphasise the agentic role of the learner and practices (the 3rd strand of using digital technologies for transformation, see Chapter 3 section on Digital Technologies in Education) prioritising the participatory elements, which encourage creation, participation, collaboration, and knowledge sharing through digitalisation (Jenkins, 2009), and the way digital technologies are positioned in NEP 2020, which emphasises the role of content.

Another initiative, DISKHA, provides an application for students, teachers, and parents to explore lesson plans, worksheets, e-resources, and interactive class material related to the school curriculum as prescribed in schools:

It is loaded with lesson plans, worksheets and activities, to create enjoyable classroom experiences [...]. The app is loaded with engaging learning material that fits the needs of prescribed school curriculum (DIKSHA).

The difference between ePaathshala and DISHA is that while ePaathshala focuses on providing digital resources - mostly Central Board of Secondary Education (CBSE) textbooks and other print or non-print materials - to students, parents and teachers, DIKSHA provides interactive digital resources, lesson plans and digital activities for students and parents, rather than just CBSE textbooks. DIKSHA is also an official portal for online training, which teachers are required to complete by NEP 2020 (Government of India, 2020c). While the two digital initiatives differ, the core of both rests on providing online resources, one more interactively (DIKSHA) than the other (ePaathshala).

The study by Naik, Shankaranarayanan, Swaminathan, Bali, and Jain (2024) suggests that teachers prefer using DIKSHA, as they trust in the content, due to it being relevant to the national curriculum and easily accessible. One of the reasons teachers trust content provided by DIKSHA is because it is created by teachers for teachers and students in India. This is highlighted in the excerpt below.

Explore interactive material created by teachers and the best Indian content creators for teachers and students in India. By India, for India! (DIKSHA)

It seems DIC was initiated along similar lines, with the conception of a digital and open access culture (Miller, 2020) that offers opportunities for teachers to create content for students and other teachers. But critically reviewing the excerpt above and judging by phrases like 'the best Indian content', and 'by India, for India', it seems that DIKSHA encourages a feeling of national pride by highlighting the creation of content by Indian teachers for Indian teachers, that further promotes DIKSHA as a desirable platform for accessing online resources. Information about how teachers can upload or share, collaborate in creation, or if there are certain schools that are chosen to create content for

DIKSHA, seems to be missing from the webpages that were analysed for the research study. Furthermore, research by Naik et al. (2024), focusing on the impact of technology integration in Indian classrooms, has highlighted that only four teachers out of 20 in their dataset across India (primarily South India) created video lessons for the DIKSHA application. Although the platform seems to include an element of creation among teachers through the medium of creating videos for other teachers on the platform, this is majorly to promote the reliability towards the platform and not creation in a pedagogical sense. Decentralisation of information is not equal to decentralisation of power (Gupta, 2019b), in other words, access to information, resources and content is made widely available through various digital initiatives promoted by DIC, but the opportunity for practitioners to create and share pedagogical content is largely missing from the strategic thinking communicated via policy and guidance documents. Although teachers as content creators are seen to initiate the elements of participatory web in practice, teacher-led content creation through new policy initiatives is mainly seen to fulfil the purpose of knowledge transmission. This shows a misunderstanding of the elements of a digital participatory culture for classroom practices.

The webpage of DIKSHA largely portrays itself as providing teachers, students and parents with online resources. This seems to be the key mission of digital initiatives in education. With the recent development of a mandatory 50 hours of teacher training and official online training through the DIKSHA platform, it is largely viewed as a medium for online training, positioning teachers as recipients of knowledge and not as content creators. Digital initiatives in education seem to promote the idea of technology at the service of knowledge transmission, with digital tools and platforms leveraged to enable access to resources.

From the Foucauldian perspective, using DIKSHA or other digital platforms can be seen as an example of promoting idealised and normalised ways of using digital technologies (Foucault, 1979). This results in setting standards for teachers to teach in a certain way when using these technologies, which, from the above excerpts, suggests teaching that relies on transmitting knowledge to students as an ideal way of teaching using digital technologies. From a Bourdieusian perspective, this imparts a doxic perspective (Bourdieu, 2000), that technology is a medium of information transmission, further delivering to an educational habitus that rests on a hierarchical understanding of teaching and learning dynamics and the

practices that assist in them. In other words, digital initiatives and the launch of applications like e-paathshala and DIKSHA can be seen as creating a valid way of using digital technologies which aims to promote the transmission of approved knowledge through government released e-content and digital resources. This further implies that teachers and their teaching practices should be limited to using technology in ways promoted by the policy initiatives.

Theme 2 demonstrated the translation of the broad vision of DIC in education through different digital initiatives launched under the Ministry of Education. It highlighted the two main arguments discovered through analysis of the digital initiatives for education. Firstly, the focus of the digital initiatives in education involves prioritising digital access to resources and rests on the assumption that digital infrastructure is not an issue in Indian schools, which is far from the reality of digital resources in schools. The initiatives not only assume availability of digital infrastructure but do not acknowledge other aspects of the digital divide, such as lack of digital skills and lack of usage of digital technologies (see Digital Inequalities section in Chapter 3). This emphasis on access to digital resources as the only means to challenge the digital divide in India conflicts with on-the-ground realities and the vision of DIC of utilising digital technologies to prepare the younger generation for the future (UNESCO, 2020). Secondly, the digital initiatives launched in education focus only on providing digital resources as a form of incorporating digital education into Indian classrooms. Other elements of digital culture, like participation, creation, autonomy, and collaboration, seem to be absent from the programmes launched under DIC. This has implications around imparting, perhaps unintentionally, an understanding of digital education as a medium of knowledge transmission among teachers. This may create a normalised, accepted and internalised view of digitalisation in education as a functionalist approach to using digital technologies. This will be further suggested when considering teachers' teaching practices in the two schools reflected upon in Chapters 7 and 8.

The next theme explores the digital initiatives under DIC in education that focus on the administrative aspect of governing schools and teachers.

Digital technology for education governance

Theme 3 focuses on those digital initiatives launched under the DIC in education which promote self-evaluation, categorisation of schools, and digital training for teachers through DIKSHA. The webpages focused on digital initiatives in education, such as *Shala Sidhdhi*, *Saransh*, and *DIKSHA* (screenshots attached in Appendix 10), highlight digital forms of school governance through Shala Sidhdhi, promoting a culture of teacher training through the DIKSHA platform.

Digital technology for self-evaluation of schools

DIC's education initiatives were not limited to providing digital access to resources, but also involved schools self-evaluating as per the guidelines provided by the CBSE. The National Programme on School Standards and Evaluation (NPSSE), also known as Shaala Sidhdhi, is a digital initiative under DIC developed by the National University of Educational Planning and Administration (NUEPA). It provides digital school standards and evaluation for schools to improve themselves. The following excerpt from the *Shaala Sidhdhi* webpage highlights this:

The National Programme on School Standards and Evaluation (NPSSE), known as Shaala Sidhdhi is a comprehensive instrument for school evaluation leading to school improvement... A web portal for the framework has been launched (*Shala Sidhdhi*).

The above quote highlights the launch of a web portal that allows schools to self-evaluate. The School Standards and Evaluation Framework (SSEF) was developed as an instrument for evaluating school performance (Acharya, 2024), allowing schools to make professional judgements that result in school improvement, as highlighted in the excerpt below.

[To] enable schools to evaluate their performance in a more focused and strategic manner and facilitate them to make professional judgments for

improvement [...] to establish and refer to an agreed set of standards and to provide clear pathways for each school for self-evaluation. (*Shala Sidhdhi*)

The webpage of Shala Sidhdhi that was analysed for the purpose of this research study, highlights seven key domains for schools' self-evaluation. Furthermore, the platform highlighted that the evaluation results will be included on a public platform.

[To] enable all schools to engage in self-evaluation in the 7 key domains under the Framework. The results of the evaluations will be available on a public platform along with the school report card. (*Shala Sidhdhi*)

The content of self-evaluation is based on seven key domains: teaching-learning and assessment, learners' progress attainment, managing teacher performance, school leadership and management, inclusion, health and safety, and productive community participation (Acharya, 2024). From the above excerpts, it seems that the purpose of the DIC's digital initiative rests on the administrative use of technology (1st strand of using digital technology, see Chapter 3, section on Digital Technologies in Education). This further results in highlighting digital technologies' lack of neutrality (Selwyn, 2010), wherein they have political and philosophical implications that further guide schools in their thinking within the key domains, as suggested by the policy directives. This results in schools starting to govern themselves to align with policy expectations. This aligns with Foucault's conception of governmentality, where the ideas and practices of managing, disciplining and regulating individuals (Jha & Pankaj, 2021) result in self-governance (Foucault, 1991). The above excerpts from Shala Sidhdhi, imply that schools are responsible for improving themselves using the set of standardised self-evaluative domains directed by digital policy initiatives. Using digital policy evaluative guidelines, schools have a responsibility to self-evaluate under the seven key domains with an expectation of improving themselves by following the suggested guidelines. According to Foucault, this responsibility on schools to self-evaluate results in them internalising control through forms of surveillance (Foucault, 1977). The expectations for schools to further improve themselves results in self-surveillance, leading to self-governance (Foucault, 1979). Put simply, schools are governing themselves to align with

policy goals. Self-surveillance is therefore a form of neoliberal governmentality that guides individuals, or schools in this context, with 'a set of truths about the world and [...] a way of looking at the world' (Chopra, 2003, p. 432). In this context, this way of looking is guided by the digital initiatives under DIC.

Another initiative, Saransh, is a digital programme developed by CBSE to identify areas of improvement in students, teachers and the curriculum through 'comparison of results' among different schools in India. The following excerpt from the webpage, *Saransh* highlights this:

This tool allows schools to identify areas of improvement in students, teachers and curriculum and take necessary measures to implement change by comparison of results. (*Saransh*)

Furthermore, this digital initiative is especially constructed for parents and students, enabling them to compare the results of private schools in India at national and state levels. The excerpt below highlights this:

[It] will enable the parents and students also to look at and compare their results vis-a-vis school, state and national level (*Saransh*).

The information on how Saransh presents student data to parents or students and how confidential the data remains seems to be missing from those webpages analysed as part of this study. Furthermore, the difference between *Shala Sidhdhi* and *Saransh* is that while *Shala Sidhdhi* allows schools to self-evaluate through a set of standards provided and via digital reporting, *Saransh*, through comparison of results among schools in India, provides a digital platform to compare students' result that will eventually lead to identifying areas of improvement. While *Shala Sidhdhi* highlights the administrative use of digitalisation for school evaluation, *Saransh* focuses on comparison and competition among different Indian schools through means of digitalisation. By providing a medium to compare student results in schools, Saransh seems to rest on performativity through self-improvement based on comparison (Ball, 2003). This further results in the effectiveness of schools being based on

quantified outcomes, for instance ranking based on school results, as in this context. Performativity emphasises competitiveness, which further results in making schools or individuals (parents/students) responsible for their own improvement. By giving autonomy to schools for self-improvement, the digital initiative further becomes a tool of control. From the two digital initiatives highlighted above, Shala Shidhdhi and Saransh, it seems they rest on comparisons, judgements, and self-management (Ball, 2000; Ball, 2016), using digital data to not only govern schools, but also encouraging schools to further improve themselves either through self-evaluation (Shala Shidhdhi) or through comparison to other schools' performance (Saransh). Technology is thus employed to serve the instrumentalist goals of streamlining accountability processes, rather than to promote educational or pedagogical imperatives.

Through the processes of digitalisation, the digital initiatives focuses on self-evaluation via the means of comparison. This results in setting standards and norms on school practices. This classification and categorisation is ultimately an exercise in power and the application of discipline (Devine-Eller, 2004). This is also, according to Foucault, an example of operationalising power that 'produces domains of objects and rituals of truth' (Foucault, 1979, p. 194). The norm in this context refers to how schools should govern through a set of standards and key domains directed by policies. Schools internalise these accepted practices and expectations, resulting in them further governing themselves, leading to self-improvement according to the policy directives. This is a form of operating neoliberal governmentality (Foucault, 1991). The classifications of schools that will result from comparing different schools will shape what is accepted as legitimate practice in India, through reflection on what is already done in those other global nation states that the Indian government aims to compete with. In other words, the categories used to compare schools are themselves the products of historical, globalising and political processes rather than objective reflections of the goals set forth to improve and modernise education through digital solutions. The processes adopted further create normalised judgement criteria. The criteria used for comparison are thus embedded in power structures that determine which schools or ideas are valued and which are sidelined.

The next subtheme focuses on a digital initiative, DIKSHA, that promotes continuous professional development for teachers.

Continuous professional development through DIKSHA for teachers

The excerpt from NEP 2020 below highlights how teachers are regarded as the ‘centre’ within education policy.

The teacher must be at the centre of the fundamental reforms in the education system. It must do everything to empower teachers and help them to do their jobs as effectively as possible. (*NEP 2020*)

This highlights how NEP 2020 regards teachers primarily as agents for school improvement. It seems that one of the ways in which DIC connects education to its role in contributing to the knowledge economy and Indian competitiveness is by prioritising teachers and their intellectual growth. Literature on teachers and their role suggests the importance of empowering teachers for any education reform to be successful (Datnow, 2020). Furthermore, research on digital education strategies around the world suggests that training teachers and working on their digital skills was the one most common practice that OECD countries adopted in this context (Gabriel, Rebecca, Ysabella, Vitomir, & de Laat, 2022). This is also evident in the education policy of NEP 2020, where professional learning and training through DIKSHA’s digital platform is promoted.

As per NEP 2020, all teachers in CBSE schools must undertake 50 hours of mandatory training, either online through DIKSHA or offline, where it is provided by CBSE trainers. The excerpt below highlights how DIKSHA courses can be used for teachers’ continuous professional development (CPD) through digital content.

This platform (DIKSHA) [...] utilized for Teacher’s Professional Development through e-content. (*NEP 2020*)

The research on teacher training, especially within the context of digitalisation, suggests that countries with strong professional development strategies for teachers focus on developing confidence to use digital technologies which is achieved by providing teachers training that focuses on pedagogies together with technical which is often missing from the policy documents (Gabriel et al., 2022). The webpages that were analysed for this research study did not reflect the quality of training provided to teachers, but the importance of training through the DIKSHA platform was emphasised.

The excerpt from NEP 2020 also suggests that courses accessible through DIKSHA will further provide certificates:

Join courses to further your professional development and earn badges and certificates on completion. (*DIKSHA*)

Although the above excerpt from the DIKSHA webpage does not seem to highlight that there is an expectation that teachers earn badges and certificates, the document on guidelines for 50 hours of CPD for teachers suggests that they either have to update their e-portfolio with certificates or provide supporting evidence that they have completed the 50 hours of CPD required (Rajput, Chitkara, Dewan, Sutar, & Gaur, 2022). This suggests that certificates or badges are used as a medium to monitor the training undertaken by teachers using the DIKSHA platform. The mandatory training and the expectation of earning badges and certificates on completion creates a measure of incentive, control and change based on rewards and sanctions, which can be referred to as performativity (Ball, 2003). The DIKSHA platform can therefore be seen as an example of 'legitimation of education through performativity' (Lyotard, 1984). Through digital initiatives, teachers are required to engage with and accept the platform, and to enact within the domains of required action in order to fulfil the mandatory training through the platform. The training will further be monitored through certificates and badges teachers receive as part of completing the course on DIKSHA. Although the excerpts above do not explicitly highlight the monitoring aspects of training through certificates, the calculated aspect of a number of required training highlights the performative measure, which leads to monitoring.

From Bourdieu's perspective (1986), it seems that certificates or badges on completion from the DIKSHA platform are a medium of gaining cultural capital for teachers. In this context, training on DIKSHA which are projected as a medium of empowering teachers according to NEP 2020, can be seen as gaining a form of cultural capital which is valued in school (field) because of the mandated requirements as per NEP 2020. Because training on the DIKSHA platform are seen as empowering teachers in NEP 2020, there is an expectation of teachers in schools to gain certificates – to follow the rules of the game by gaining certificates of completed training through DIKSHA - that further leads of teachers gaining a form of cultural capital. The excerpt below further highlights how DIKSHA is also a portal that highlights teachers' career progression and tracks their career trajectory:

The portal enables the teachers to understand their career span. From the time they join the school to their retirement, they can map out their career progression and can work on their skills accordingly. (*DIKSHA*)

Similar to Shala Sidhdhi and Saransh, where the focus was on school and school improvement, but here DIKSHA prioritises teacher improvement and teachers' career mapping. The responsibility is on teachers to understand the career trajectory and to work on themselves to improve their teaching. This is further highlighted through teachers taking courses on the DIKSHA platform, which is regarded as them improving themselves.

Furthermore, the platform records all the courses teachers have taken through DIKSHA and can be used as a form of career progression mapping through the profiles that are created on DIKSHA. This is highlighted below:

View your teaching history across your career as a schoolteacher. (*DIKSHA*)

From the excerpts above, it seems that the DIKSHA platform goes a medium beyond simply providing training to teachers, providing them with a means to view their progression and career trajectory. This has implications with respect to monitoring teachers by tracking their career trajectory and their teaching history, suggesting forms of surveillance through means of digital platforms. The digital platform DIKSHA expects teachers to view their teaching

progression, improve their practices and take accountability of their teaching career. Teachers are made responsible for their own training to empower themselves, which is also expected in the education policy via 50 hours of mandatory training. The teachers become the subjects of policy while also becoming enactors of it (Ball, 2003). Through policies projecting self-regulation and a micro-technology of control (Ball, 1993, p.111), teachers are expected to change their practices in some ways, and this practice in turn 'changes them' (Perryman et al., 2016). The individualisation of consciousness oriented towards performativity constitutes a more subtle form of control of teachers. From a Foucauldian perspective, this shaping of teachers through forms of performativity can be labelled as a form of disciplinary power (Foucault, 1979), that results in teachers internalising the expectations set on them to train themselves using DIKSHA. This further results in their practice being made visible through the platform, such that teachers end up governing themselves by taking charge of their own empowerment through CPDs. The language of empowerment within policy initiatives projects the need for teachers to be empowered through training, where they are subtly governed through an understanding of being digitally empowered within the expectations set by policy directives. This further results in teachers, by being empowering through training, becoming docile bodies (Ball, 1993, p.110), through forms of disciplinary action led by policy directives.

Theme 3 demonstrated digital initiatives in education that focus on two main aspects: school improvement (Shala Sidhdhi and Saransh) and teacher empowerment (DIKSHA) through digital platforms. All three digital initiatives seem to rest on neoliberal governmentality that focuses on individual empowerment leading to forms of self-governing. The theme also highlighted how a culture of self-evaluation through digital means is normalised for schools as well as teachers, resting on comparison, judgements and calculation of number of hours spent on training for teachers. The theme also highlighted how mandatory training will have further implications for teachers and their teaching practices where they are subjected to training through forms of power operating through governmentality. This will be discussed further in Chapters 7 and 8.

Conclusion

This chapter highlighted the key aspects of the DIC that set the foundation for understanding its broad vision, especially within the context of digital initiatives in education. The purpose of this chapter was to investigate how digital initiatives under DIC in education promote school and teacher practices through ways of understanding the use of digital technologies for education and by teachers. Theme 1 illustrated the vision and working mechanism of DIC. The workings of DIC rest on central policy with a decentralised mechanism and collaboration among different state governments, public-private partnerships, and various autonomous bodies. The broad vision of DIC is also reflected in policy documents like NEP 2020 and other digital initiatives like The Curricula for ICT in Education, but without clear underpinnings as to how this vision will be achieved. Theme 2 illustrated the digital initiatives under DIC in education, evidencing how the initiatives, especially those launched in the education sector, rest on providing electronic delivery of resources without prioritising digital infrastructure when encouraging the accessing of online materials. The theme highlighted two key aspects. Firstly, the assumption of availability of digital infrastructure (like digital devices or internet service) to all stakeholders involved in schools to enable access to the e-content or digital resources that are launched as part of digital initiatives. Secondly, digital initiatives in education rest on knowledge transmission through technology. The opportunities that web offers like participation, creation, collaboration were seem to be missing from the digital initiatives for education launched under DIC.

Theme 3 demonstrated the administrative aspect of using technology that rests on self-evaluation, comparison and judgement among various schools in India. The theme also highlighted the digital initiatives that promote CPD for teachers based on monitoring and performative aspects through the means of digital initiatives. The theme highlighted how these digital initiatives rest on neoliberal governmentality, which has implications for teachers and their teaching practices in classrooms. How teacher practices are viewed within the implementation of DIC will be discussed in the two case sites (rural and urban) in Chapters 7 and 8.

Chapter 7: Research Findings from a Private School in Rural Punjab: School A

Introduction

This chapter will discuss the analysis of the first case site, a private school in rural Punjab, India, which is designated in the study as School A. The first section provides a thick description of the research site in a rural part of Punjab in India. As highlighted in the methodology chapter, the thick description of the case site is developed from the school webpages and the online questionnaire completed by the teachers, to understand the context of the research site, the demographics of the school and the research participants, to get a deeper sense of the case for analysis. The latter part of this chapter includes the thematic analysis of the case site. The themes derived from the analysis are: 1) Two-fold experience of using readymade plans (LEAD); 2) DIKSHA, the digital initiative, in action; 3) Pedagogy of (digital) transmission; and 4) Implications of using digital technologies.

Thick description of School A

School A is an English-medium, co-educational private school in a rural part of Punjab, India. 'English medium' refers to a school where English is the first language of communication to teach and communicate with the students. School A is affiliated with CBSE (Central Board of Secondary Education) and is a K-12 school that includes kindergarten (pre-primary), primary, secondary, and senior secondary grades. At the time of data collection, the school had 20 teachers and 150 students. School A is surrounded by agricultural land, and most of the students in the school belong to a low socio-economic background. Most of the parents of the students studying in the school are farmers and full-time workers and are not literate.

According to the Census¹³ (2011), more than 60% of the area of Punjab is considered rural, and agriculture is the most common occupation among people residing in rural parts of Punjab. The literacy rate of rural Punjab is approximately 73% whereas the urban literacy rate is approximately 83% (Census, 2011).

Given the location of the school, there is a lot of open space within the school premises. Some of the spaces are allocated for growing different plants and herbs, and the school refers to that space as the 'school forest'. The school aims to foster interaction with nature and focuses on sustainability, envisioning not only providing the best academic practices to students but also providing them with values and moral studies. Further details on what is meant by moral studies were missing from the school website, but the section on school activities portrays different sports like boxing, yoga, and racing, academic activities like students learning abacus, science experiments, well-being activities like meditation, excursions and day visits to local factories, and celebrating different festivals throughout the year. These activities were highlighted visually on the website through photos of students and teachers. The school website also has a list of online activities that highlight various Zoom sessions relating to different extra-curricular topics like laughter yoga sessions and food seminars. These online sessions were dated during COVID-19, suggesting the activities took place during the pandemic. The school also has international connections. For instance, the school has collaborations that encourage digital student exchange programmes with schools in Bhutan. It is also subscribed to Khan Academy online and Story Weavers to get the best practices for the students.

The monthly fees of the school range from \$11 to \$16. It is estimated from the tentative income of farmers suggested by the Ministry of Agriculture and Farmers' Welfare (2022) that parents spend approximately 3% of their monthly income on school fees. This is not taking into account any annual fees or additional costs for books, uniforms, or extra teaching support outside of school hours (private tuitions). The research by Endow (2019) on low fee private schools in Delhi highlighted that parents usually spend roughly between 7% and 10% of their monthly income on school education per child. The research on low fees private

¹³ The latest one available as the next one was delayed because of the pandemic.

schools in the cities Delhi and Noida (city in another Northern state of India) suggests that the majority of low fees schools were charging less than \$6, with only 10% charging more than \$10 (Endow, 2019). School A is priced on the higher side when considered with respect to this research (Thorat, 2011; Endow, 2019).

The school aims to provide skills to help students to ‘thrive in the 21st-century’ (as highlighted on the school website). The motto of the school, as per the school website, focuses on three aspects: ‘wisdom’, ‘integrity’ and ‘action’. The mission and vision of the school is to provide 21st-century skills for students to become ‘innovative thinkers’ and ‘creative problem solvers’ (as per the school website). The website also has a section on high academic achievers with students’ names and the grades they achieved in 10th and 12th grade examination. The use of digital technologies in teaching and learning was also evident from the questionnaire data, as noted in the table 18 below, where the majority of the teachers who participated strongly agreed that the school encourages the use of digital technologies in teaching and learning, and the remainder agreed with this statement, suggesting this is a priority for teaching and learning at school A.

Table 18: School A - ‘My school encourages teaching and learning with digital technologies’.

‘My school encourages teaching and learning with digital technologies’.		Frequency	Percent
Valid	Strongly agree	8	53.3
	Agree	7	46.7
	Neither agree nor disagree	0	0
	Disagree	0	0
	Strongly disagree	0	0
Total		15	100

The school focuses on being ‘tech-friendly’ on its website, which showcases the available digital infrastructure for students through photos of digital labs with computers. As per the welcome note from the head of the school on the website, the school stresses the importance of having ‘very effective and timely communication with the parents’ through means of technology. The school, during the time of data collection, was collaborating with

an online curriculum software company called LEAD, which is an educational technology company in India that provides curriculum support to schools (see section on Education Technology Landscape in India, Chapter 4). According to the LEAD website (2025), more than 8000 schools are subscribed to it. Given that there are more than 1.5 million schools in India (Government of India, 2022a) it can be argued that LEAD caters to less than 0.5% of private schools in India. LEAD provides CBSE curriculum support, and teacher programmes through digital tablets that include LEAD resources for teaching and learning (Government of India, 2022a). In practical terms, this means that teachers were provided with tablets that included all the resources to teach, including the daily lesson plans, digital resources like videos, or any activities related to the topic as specified by the curriculum body the CBSE schools follow. Every classroom in the school has LCD screens, provided by the school to accommodate teaching using the LEAD curriculum, which typically includes showing videos during the classroom sessions, as provided through the LEAD software. Each teacher in the school is expected to teach through tablets provided by LEAD, with the exception of teaching Punjabi (regional language teacher). This is because the LEAD programme does not have resources for teaching the Punjabi language.

The availability of digital infrastructure in the school was also highlighted in the questionnaire. Table 19 below suggests that the majority of teachers who participated in an online questionnaire from school A strongly agreed or agreed that the school has digital infrastructure available for digital teaching practices.

Table 19: School A – ‘My school has digital infrastructure available for the implementation of digital teaching practices’.

‘My school has digital infrastructure available for the implementation of digital teaching practices’.		Frequency	Percent
Valid	Strongly agree	6	40
	Agree	8	53.3
	Neither agree nor disagree	1	6.7
	Disagree	0	0
	Strongly disagree	0	0

Total	15	100

Although the school has LCD screens in every classroom, broadband is one thing the school lacks. There was no Wi-Fi in the school, and most of the digital resources were either in the tablet provided by LEAD, or the teacher would need to download the digital resources before coming to school. There is also a computer lab in the school for students and teachers, and projectors in two rooms in the school. In terms of the personal devices of teachers, all the teachers have mobile phones, and a few stated that they purchased smartphones by themselves during the COVID pandemic as a necessity to teach online sessions. Teachers also shared how most parents lack laptops for their children, and students usually work through smartphones. It was pointed out during the interviews that some of the parents have only one smartphone that is being shared among the students and their siblings who are studying in the same school, so the teachers have to be mindful when sending homework digitally.

The school website highlights that students should be taught ‘through four learning styles viz: Auditory, Visual, Tactile & Kinaesthetic’, that leaves no student behind and, therefore, ensures ‘their overall development’. By the time the head of the school was interviewed, which was after the interviews with the teachers, the head of the school stated that she had decided not to go ahead with LEAD in the upcoming academic year due to the cost of the software and the technical support which was missing from LEAD in their second year. The headteacher also highlighted that the parents the school caters to do not demand things relating to technology.

The head of the school is also its chairperson, and she considers herself an ‘accidental principal’. She also expressed how teaching as a profession, especially in Punjab, is not considered a serious profession, and there is a shortage of good teachers, especially in the rural belt. She said that it was challenging to keep good teachers in a rural area as well. According to the teachers’ and students’ data from UDISE+, which is one of the largest management information systems in India (Government of India, 2023a), the total number of teachers in private schools in Punjab has decreased 15.4% from 2020-21 to 2021-22, with

a 25% increase in total teachers in public schools from 2020 to 2021. The research also suggests that rural areas have teacher shortages as teachers prefer urban postings (Datta & Kingdon, 2021), due to better resources, opportunities and financial growth for teachers compared to rural areas. The head used the term 'cheating' for when the teachers shift to urban areas after working for a couple of years and getting trained in the school, as she puts in effort to train them only to lose them later.

The following section highlights the demographics of teachers, as derived from online questionnaires and semi-structured interviews.

Demographics of teachers who participated in the study

There were 15 participants out of a total of 20 teachers in school A who took part in the online questionnaire, and eight who further volunteered to participate in semi-structured interviews. The response rate to the online questionnaire for school A was 75%. From the teachers who participated in the questionnaire, Table 20 below highlights their years of teaching experience and of teaching with digital technology. Six participants shared their teaching experience and their experience of teaching using technology to be under two years, which is 42% of the total participants, making them newly appointed teachers in the profession and in the school. This aligned with what the head of school stated, about her challenge in finding and holding onto good teachers, especially in rural areas. Five teachers had more than 10 years of teaching experience, but their teaching and learning experience with digital technology varied: two teachers had 2-3 years, two teachers 5-6 years, and one teacher had more than 10 years of teaching and learning experience using digital technology. There were also two teachers with total teaching experience of 4-5 years and 6-7 years, but with 2-3 years of experience teaching and learning using digital technologies.

Table 20: School A- Total teaching experience in years versus teaching experience of using technologies in years at School A

Total experience of teaching with digital technology in years		0-1 years	2-3 years	6-7 years	10 or more than 10 years	Total
Total experience of teaching in years	0-1 years	6	0	0	0	6
	2-3 years	1	0	0	0	1
	4-5 years	0	1	0	0	1
	6-7 years	0	1	0	1	2
	10 or more than 10 years	0	2	2	1	5
Total		7	4	2	1	15

Table 20 above provides the demographics of teachers who volunteered to participate in semi-structured interviews. It highlights that 50% of the teachers who participated in the interview were newcomers and had a year or less of teaching experience in the school, further suggesting that newly joined teachers were more likely to volunteer to participate in the study in school A. Table 21 also highlights the grades of the teachers who were interviewed, to contextualise the data collected.

Table 21: School A- Demographics of teachers who participated in the interview

S.no	Participants	Total years of teaching experience	Years of experience in School A	Subject's taught
1	Beena	2 years	2 years	Kindergarten
2	Nivedita	2 months	2 months	English and Mathematics to 2 nd , 5 th , and 6 th grades
3	Meena	1 year	1 year	Science and EVS to 5 th , 6 th , and 10 th grades
4	Preeti	4 years	6 months	English to 4 th and 5 th grades
5	Rama	5 years	5 years	All subjects to 1 st grade

6	Rana	7 years	7 years	Accountancy and English to 9 th , 10 th , 11 th and 12 th grades
7	Teena	1 year	1 year	Componential communication skills
8	Reena	12 years	5 years	Punjabi
9	Head	10 years	7 years	Head of the school

The aim of the thick description of School A was to provide an overview of the context of the research site located in rural Punjab in India to make sense of the research setting, the demographics of the school, and the demographics of the teachers who participated in the research study. This provides a nuanced understanding of the data with respect to the research site.

The next section discusses all the four themes derived from the thematic analysis.

Thematic Analysis for School A

Theme 1: Two-fold experience of using readymade lesson plans (LEAD)

The first theme focuses on the experiences of teachers using a digital curriculum management software called LEAD. As previously mentioned, the school website highlights how school A focuses on 21st-century skills, with timely communication with parents using digital technology, and subscribes to an educational technology company called LEAD for lesson delivery. This theme demonstrates the impact of teaching with lesson plans provided by LEAD on teachers at school A. While there were some teachers at school A who suggested their workload had increased through teaching using LEAD, there were also those who preferred to teach using LEAD because of the easy lesson delivery. Furthermore, teaching using LEAD also leads to personal development for some teachers. This theme also

highlights the view of the head of the school with respect to teaching using readymade lesson plans.

Readymade lessons: Increased workload and restricted teaching

The readymade lesson plans provided by LEAD instruct teachers on the curriculum the school follows. The following excerpt from Meena suggests the teaching using LEAD software.

The tabs have the day plans for every chapter and unit that we have to follow with the set instructions and some activities that we have to complete with the students on the same day. (Meena)

In the excerpts below, Meena and another teacher, Reena, suggest that teaching with LEAD requires them going through the content beforehand and preparing the lessons accordingly.

we have to prepare beforehand [...] Firstly, we write down the instructions for our reference and accordingly plan homework which we would send. (Meena)

Earlier, the teacher would just go to the class and deliver the lecture but that isn't the scenario anymore. Now, whatever we have to teach the students in the next day's class, we need to prepare it in advance. So, for this purpose [...] we watch videos and the next day we tell the entire content to the students. (Reena)

The quotes above suggest that the pedagogical approaches the teachers in school A are asked to adopt rest on rehearsing the lesson delivery from LEAD prior to teaching students in the classroom. This method, of rehearsing and repeating lessons in classrooms, suggests a behaviourist understanding of teaching and learning, where the pedagogy focuses on cramming and repeating the material from teachers to students (Arthur & Davies, 2010).

Furthermore, this aligns with the banking model of teaching, where students receive, memorise and repeat the contents as a form of learning (Freire, 2018).

Following LEAD every day with the required set of instructions also has implications for teachers' workload. In the excerpt below, Rama shares how LEAD has increased the workload and the challenge of keeping up with it on a daily basis. This is sometimes accomplished through combining two days' teaching in order to keep pace with teaching through LEAD.

The workload has increased a little, since [...] we have to follow the daily lesson plan. In case we are on leave on a particular day, we miss the rhythm and then the next day we have to club the work of the two days in order to be on track with the lesson plan. (Rama)

This keeping up with LEAD on a daily basis suggests an instrumentalist form of teaching and learning, where the contents of teaching and learning are replaced with increased dependency on guidance from the digital software, LEAD, thus placing teachers in a sort of functionalist trap (Paraskeva, 2017). This further implies that LEAD schools across the country, which, as per their website, is more than 8000 schools, will be following the same standardised form of teaching. Using LEAD has implications with respect to teachers' lack of autonomy to creatively plan their lessons, due to having to adhere to a very strict standardised form of curriculum delivery.

Similarly to Rama, Rana, too, in the excerpt below, highlights that lesson delivery through LEAD is 'time-bound' and she adjusts to keep up with the rhythm of teaching using LEAD software.

LEAD is time bound. So, during school hours, we have to adjust it within class because there are some changes that take place within class. (Rana)

Rana uses the word 'adjust' in reference to making LEAD work with class delivery. The above quotes by Rama and Rana highlight that teachers' practices are being subjected to the

requirements set by the LEAD curriculum in their teaching at school A. In other words, it seems teachers are subjecting their practices within the expectation to teach according to LEAD and teachers adjusting their teaching practices by adjusting through the controlled mechanism of following teaching using the LEAD curriculum. This creates a culture of normalisation of teaching in certain ways for teachers in school A. The norms of standardised teaching at school A are being set in such way that teachers are expected to be in sync with teaching using LEAD on a daily basis. The teacher's autonomy is limited, and they are not trusted as knowledge producers, but instead positioned as deliverers of pre-approved content, suggesting, from a Foucauldian perspective, an example of operating disciplinary power (Foucault, 1977). This is because teaching using the LEAD curriculum requires teachers to follow the curriculum exactly as suggested, which was evident in teachers' accounts. This results in teachers internalising their teaching practices in accordance with the LEAD curriculum. Teachers must meticulously, exhaustively, and continuously control (Hoffman, 2011) their teaching activities within the norms and expectations set by the LEAD software. Teachers' routines involve teaching using LEAD, as is expected from being a teacher at school A, suggesting the operation of disciplinary power.

Following the planned sequence for teaching, Nivedita highlighted how teaching has become 'structured' for her, where 'fixed' topics need to be covered in the required time frame:

Since it is so much structured, and you have to cover fixed topics in a certain time period, then it is very obvious that you must have to go through the topics before [...] Whatever practical demonstration has to be done those things are sent with the package. It has made teaching so limited that whatever has to be written on the blackboard, what homework has to be sent, what has to be discussed is mentioned there.
(Nivedita)

Nivedita also highlighted the importance of going through the topics beforehand, like Meena and Reena. Furthermore, Nivedita highlights how everything, for instance, homework, and discussion in the class, is provided through LEAD, thus limiting her teaching. As shown in

Table 21, Nivedita's teaching experience is only 2 months, so this is her first job as a teacher. Nivedita is trying to navigate and learn about what it means to be a teacher. This means, from a Bourdieusian perspective, that Nivedita has entered the field of education, which is a structured social space (Bourdieu, 1998), school A in this context, where she is positioned and positions herself as a new agent, not yet fully aware of all the rules and norms that make up that field. School A has its own set of rules, expectations, and practices, which seems to be shaped by the proposed LEAD curriculum, which is inevitably shaping teaching and in process setting practical norms that do not seem to open to question, i.e., are doxified by the logic of the field (Bourdieu, 1977) that teachers aim to adopt where their teaching activities are concerned.

With no prior teaching experience, Nivedita seems to question her lack of autonomy as a teacher, given that everything is already prepared for her, where she is expected to follow the LEAD structure and teach accordingly. Although there is no evidence in the quote above that she resists teaching through LEAD, it seems that she is aware of the constraints and limitations on her teaching autonomy in the context of this school. From Bourdieu's perspective, the social field has certain expectations and rules (Bourdieu, 1977), which in the context of school A involves expectations that all the teachers will teach following the LEAD curriculum. With respect to the teaching habitus of Nivedita, the values she carries about her practice become less salient, with importance placed on her teaching through LEAD. The expectations from the social field do not translate directly to form doxic practices – the unquestioning internalisation of the rules, norms and lore of the field – but it does shape what she perceives as what is acceptable for her to do, leaving Nivedita feeling that teaching has become a constrained practice for her.

Similarly to Nivedita, Rama also shared how teaching using LEAD software has become restricted. Whatever is 'instructed' through the LEAD app, she has to do:

it has restricted our teaching to some extent. Whatever we are instructed, we have to do that only. (Rama)

Here, statements like ‘whatever we are instructed, we have to do that only’ suggest a form of compliance from a Foucauldian perspective. For Foucault (1979), power produces reality, and imposed practices create a conscious manipulation of bodily actions (Oksala, 2011). In this sense, compliance can be the product of internalised, subtle, and strategic power operations (Foucault, 1977). Here, Rama is showing evidence of being subjected to a form of disciplinary power, where a structured form of teaching is encouraged which requires teachers to follow directions from LEAD in delivering lesson plans. As disciplinary power is one element in shaping who individuals become (Foucault, 1977), the excerpt highlights how teachers in school A are being subjected to the practices and internalised norms of practices that are encouraged in school A.

The first section of theme 1 highlighted how, through the encouragement of teaching using the LEAD curriculum, some teachers at school A felt their teaching had, been restricted and limited. However, not all teachers who were interviewed highlighted this. The next section focuses on how for some teachers at school A, teaching through LEAD was easy and allowed opportunities for personal growth.

Readymade lesson: Ease of teaching and personal growth

Rana highlights how because of the lesson delivery structure provided by LEAD software, teaching became easier for her:

So, there's a planned sequence, using which, through technology, there's ease in teaching for us and the lessons are planned great. Above all, the execution of these in class is very easy. (Rana)

Rana highlighted above (in the previous subtheme) that she has to ‘adjust’ her teaching when following LEAD. The above quote highlights that by adjusting and following a ‘planned sequence’, the execution of LEAD teaching has become easy for her. Foucault highlights how disciplinary power is a form of violence that does not destroy but reconstructs the body to produce new forms of habits, gestures and skills, resulting in internalised behaviours

(Foucault, 1979). It seems Rana has altered her teaching practice according to LEAD, making the execution unchallenging for her. The internalised practice of teaching using LEAD has resulted in the creation of teaching practices that are doxified by the logic of the field (school A). This, from Bourdieu's perspective (Bourdieu, 1977), suggests that Rana has adjusted her practice, creating a harmonious match between the field, the school, and her teaching habitus, which has been adjusted to fit with teaching using LEAD. This further results in what was evident from the quote, Rana's comfort with teaching and executing the LEAD curriculum.

In addition to ease of teaching in classrooms, the excerpts from some teachers at school A suggest that LEAD is seen as adding value to their personal development. For instance, Nivedita pointed out how she is learning 'something new' by teaching using LEAD:

We understand that we are learning something new as when I will apply in some other school, I can always mention that I have learnt this, and I can teach with technology. So, I think this is very beneficial for us. (Nivedita)

It seems that LEAD is advantageous to Nivedita's personal growth, especially when applying for other job opportunities. The above quote also suggests that Nivedita is already preparing to leave for another school, which aligns with the challenge to retain teachers in rural areas pointed out by the head of the school. Research on the urban-rural divide in India suggests that teachers prefer urban schools because of higher pay, better working conditions, and better opportunities for professional development (Colborn et al., 2003; Datta & Kingdon, 2021). For Nivedita, teaching using LEAD can provide an advantage when looking for better work opportunities. This is because teaching using LEAD is understood by her as teaching with digital technologies.

In the previous section, Nivedita highlighted how teaching through LEAD is structured and limited for her, but it seems that she has come to the realisation that teaching with LEAD will eventually serve as an advantage when she applies for future (and better) jobs. Employing a Bourdieusian perspective, teaching this way for Nivedita can be seen as an example of gaining cultural capital, which can further be leveraged to gain economic capital by seeking

better job opportunities and experiences through the experience acquired at school A. Nivedita shows that she understands how India emphasises digital education, and that her use of digital technology, via teaching using LEAD, can give her strategic leverage when applying for other jobs.

Similarly, Preeti highlights that despite the school being far from where she lives, she does not mind the commute because she is learning from teaching using LEAD in the school. She further added that teaching using LEAD has improved her teaching methodology, and she is 'confident' that she can teach in any school now:

Even though the school is quite far away from my home, but the only reason due to which I have joined this school is that I am learning something new here. As the school has LEAD [...] I think, I have improved myself a lot by teaching according to the lesson plan. I have improved my teaching methodology, and I can say this very confidently that now I can teach in any school. I will not face any problem. Since teaching with the lesson plan has indeed benefitted me. (Preeti)

Preeti, who has been in the school for six months, highlights that she values teaching through LEAD because of the improvement she has seen in her way of teaching. It also seems that she is developing her own competitiveness for future teaching jobs, and LEAD has given her confidence that she can 'teach in any school' now. Preeti further added that teaching through LEAD has improved her lesson delivery, which is the result of following lesson LEAD plans. She stresses how this is 'one of the best improvements' for her:

I can prepare a lecture plan on my own and teach according to it. This has been one of the best improvements in me. When a teacher joins a new school, initially she is quite nervous that how she should go about but now I am confident with this, and I can teach accordingly. I study the lesson plan thoroughly and teach according to that only. (Preeti)

Preeti highlights how she studies and follows the lesson plan ‘thoroughly’, and by teaching accordingly has improved her teaching methodology and lesson delivery. This adherence to lesson plans has resulted in her internalisation of teaching according to LEAD, which has further resulted in the outcome that she is confident in planning, delivering and teaching, within the expectations and standardisations set by LEAD. This confidence in following the norm of teaching in accordance with LEAD has given Preeti a sense of accomplishment which has further given her the confidence that she can teach in any school now. Here, Preeti, who is teaching thoroughly according to LEAD, has set her standards of teaching, which is teaching using LEAD. Internalising LEAD’s teaching approach results in valuing LEAD because of the improvement in her teaching. Preeti, from the excerpt above, is further governing herself in arguing that this also leads to achieving confidence, being more in control, and more successful lesson delivery. Preeti is engaging in self-monitoring and self-evaluation — not because someone is watching, but because the lesson plan has become an internal guide for her, and she has come to value teaching using LEAD. This is a form of operating power that is productive in nature (May, 2011), a form of subtle power: instead of controlling her, the system gives her tools to control herself - from a Foucauldian perspective this is a form of governmentality (Foucault, 2000) — through which Preeti internalises the norms of teaching using LEAD, which results in her further governing herself accordingly. Preeti, who is being subjected to teaching according to LEAD has internalised this particular way of thinking about her work and career and wants to govern herself because of the improvement she has seen in her lesson delivery. This further indicates how governmentality involves an element of internalisation and enacting neoliberal logic, which rests on self-improvement.

The above quote can also be interpreted from a Bourdieusian perspective (Bourdieu, 1977), in that it seems the teaching habitus of Preeti is aligned to the logic of the field. Preeti is following teaching according to the rules of the field and is benefitting from it, taking to it like a fish to water. For Preeti the result is the accrual of important cultural capital, such as the confidence to plan and teach according to any lesson plan, in any school. This is embodied in the way that she can, therefore, translate this into symbolic forms of capital, such as the prestige associated with the expertise of being able to teach with technology, a transferrable skill allowing her that to ‘teach in any school now’.

The following quote from Teena, who has been in the school for a year now (see Table 21), suggest how she was:

Initially, we all were apprehensive regarding how will we do this? How will we learn this? But once we became accustomed to it, we were able to use it, and we helped others to understand it. We feel good there at least we are technically sound, and we are able to teach others too in case a new teacher comes. Even we have a sense of accomplishment that we have also learnt something new when we are also achieving our holistic growth.
(Teena)

Here, the use of words like ‘accustomed’ suggest the process of subjectification she has undergone with respect to the teaching practices guided by LEAD. Following LEAD, and encouraging other teachers by teaching them about LEAD, brings a ‘sense of accomplishment’ to Teena as she is teaching what is promoted in the school. This results in giving her the satisfaction that she knows how to teach in the classroom in accordance with the standards set by the school, which is teaching using LEAD. This results in her feeling that she is a competent teacher, which also provides a feeling of a certain degree of control in her teaching practice. Through the internalisation of accepted norms and the standardisation of teaching practices in school A, Teena, like Preeti, suggests an example of operating power through a form of governmentality (Foucault, 1977). This is evident from the quote, which suggests that Teena being accustomed to using LEAD in her classroom results in her feeling that she is ‘technically sound’ and justifies her belief that she is a ‘good teacher’. This further results in sharing this feeling of being a good teacher to further encourage and help those who are struggling to teach using LEAD.

This section has suggested how teachers teaching in accordance with LEAD results in them internalising the standardised form of teaching set by the school, which further results in teachers valuing teaching using LEAD. This is evident from the accounts of teachers who feel that their lesson delivery has improved as a result of closely following the LEAD curriculum. Furthermore, the internalised view of teaching using LEAD, that this is similar to teaching

using digital technologies, results in the forming of doxic practices for teachers, which further has an impact on teachers' understandings around teaching using digital technologies, let alone the expectations of being a 'good teacher'.

The next subtheme highlights the head's viewpoint on teaching using LEAD.

Readymade plan: Head of School's view

As mentioned above, by the time the head of the school was interviewed she had already decided not to proceed with using LEAD in the next academic year. She shared that LEAD was expensive for the school to continue using, especially because of the parents that the school caters for, as highlighted in the thick description. She further noted that there was less support from LEAD in the second year.

I left that because LEAD was expensive. The location where I am in, if I talk about my clientele or parents, they don't have that kind of pockets otherwise they had two good programs [...] it was a bit costly, and we need a support system in that which was not very effective from their side in the second year. Our co-ordinator in the first year was very active and she was very giving but we didn't find it good in the second year. So, we just dropped. (Head)

Here the head of school highlights the use of the word 'clientele' for parents. This is similar to the language used by one of the digital initiatives, e-Paathshala, as pointed out in Chapter 6. The word clientele suggests that parents are consumers of educational institutions. Furthermore, it seems from the quote above that the motivation to not continue with LEAD in the upcoming year was focused on the economic aspect and not on the control the lesson delivery methods of LEAD created with respect to teachers and their teaching practices. The motivation for cancelling remains with the parents and their economic status, which decides the continuation of LEAD or not. As previously mentioned in the thick description, the head of school is also the chairperson of the school, which means she is responsible for the

school's finances. The quote from the head suggests the mindset of the school leadership, or management, that prioritises economic capital, suggesting that parents are consumers or customers of private schools, and their financial status is the deciding factor for discontinuing LEAD. The decision is therefore economic and not pedagogical.

The head of the school, in the following excerpt, also highlights that those teachers who preferred LEAD did so because it was less pressured, whereas some teachers, who she referred to as 'creative teachers', felt 'trapped' when teaching the way LEAD suggested.

If I talk about teacher being creative and if they have such calibres so then they feel like why are they being asked to do all this most of the time because last two years we had a third party in our school that was LEAD schools; that's a curriculum built by them and they had given us the LEAD and tabs, all the lessons plans were there and all the assessments everything was there so teachers pressure did lighten up but the creative teachers always felt trap that we have to work in the same pragmatic way.
(Head)

Interestingly, the quote suggests that for the head of the school, teachers who resisted being subjected to following LEAD were actually more creative. This was further used as a reason to discontinue LEAD in the upcoming academic year. This seems to highlight how the economic aspect is one of the most important factors in choosing to discontinue LEAD. Research on the privatisation of Indian schools suggest that private schools are run as business models in India (Kumar et al., 2021). This further has implications with respect to students and parents taking responsibility for their own education, as the government schools do not provide them with sufficient resources, as highlighted previously (see section on Types of Schools in India, Chapter 4).

Theme 1 highlighted the two-fold experiences of teaching using LEAD in school A. Although, for some teachers, lesson delivery through LEAD resulted in an increased workload and restricted teaching, there were others who not only appreciated the ease in delivering lessons but also claimed it provided them with an opportunity to improve their own

competitiveness as teachers and to enhance their future job opportunities. The last section of the theme highlighted the head's decision to discontinue LEAD in the upcoming year, which was driven by the economic aspect, and not the pedagogies promoted by the LEAD software.

The next theme highlights the digital initiative, DIKSHA and how teachers perceived training through DIKSHA in school A.

Theme 2: DIKSHA, the digital initiative in action

Theme 2 illustrates that digital training provided by DIKSHA seems to be the only initiative of DIC practiced in school A. Furthermore, this theme also highlights the monitoring mechanism that have been put in place in school A to calculate the number of training completed by teachers. This theme further highlights the impact on workload, due to training having to be completed on DIKSHA alongside structured teaching using the LEAD software.

DIKSHA platform: Valuable for new teachers

All teachers following the CBSE curriculum must undertake 50 hours of mandatory training (online or offline) as part of their continuous professional development (Government of India, 2020c). Meena shared her views on the training available via the DIKSHA platform:

It is for the teachers to learn how to give better instructions to the students in the class, how we can make a concept clear [...] We get a lot many new teaching ideas that we use in our teaching methodology.
(Meena)

Similarly to Meena, Teena and Beena also referred to the DIKSHA platform for better instruction and activity ideas to apply in classrooms.

In DIKSHA, various topics are given class wise and if sometimes we get stuck on a particular topic, then we can refer to it and get to know a better instruction method that are not boring rather engaging for the students.

(Teena)

It is good and knowledgeable. There are many courses in it to increase our knowledge [...] I learnt doodling from there and then I made my students do it in the class and I got a good response from the students. (Beena)

The excerpts from the teachers (Meena, Teena, and Beena) highlight how DIKSHA courses have improved their classroom delivery. What is common to all three is that they have worked in the school for two or fewer years, making them newly appointed teachers in the school. The interviews with more experienced teachers like Rana and Reena, who have worked there for five or more years appreciated LEAD more than the courses on DIKSHA.

The following excerpts from Rana and Rama highlight their views on DIKSHA courses in comparison to LEAD.

The training we received through DIKSHA were good, no doubt. But LEAD gave us a proper package. There was a proper video for everything. No doubt, the courses for our development on DIKSHA were also very good but if we look at the practical aspect, most of the enhancements have been through LEAD.

(Rana)

I think LEAD provided a lot of improvement in my teaching and I prefer LEAD.

(Rama)

This suggests that, according to them, LEAD offers practical guidance in teaching using digital technologies, in contrast to training on the DIKSHA platform, such that they prefer LEAD. Rana previously highlighted that teaching through LEAD is easy for her, with comfortable execution, which resulted in her seeing value in using LEAD as a medium to deliver teaching.

Rama previously pointed out that LEAD has restricted her teaching, but it seems that she too has seen improvement despite the restrictions involved. This further suggests that teachers actually find LEAD beneficial for their teaching practices despite the limitations stated in the previous theme. This seems to be true across all teachers irrespective of their teaching experience in the school. However, within the context of DIKSHA, it does not seem to suggest that teachers value the training provided therein, especially in the case of more experienced teachers. One of the reasons for this could be related to how the training are viewed by the head of the school.

The following excerpt from the head of the school explains how the DIKSHA courses are part of their enrolment process for new teachers joining the school:

We had Continuous Professional Development (CPD) for 32 hours but during National Education Policy 2020 made it like 50 hours which were compulsory for every teacher to have this professional development programme and they have to generate their certificates [...] If you ask me as a principal, sometimes I feel very hopeless; that how will I manage but those modules are available [...] it is like our lifeline so whenever any teacher is enrolled, or they come to my school. They get appointed as a teacher in our school so firstly there DIKSHA ID is generated and then FLN [Foundational Literacy and Numeracy], expansion and module. These are the three programmes which are very important in DIKSHA, and we stress on them to complete it. (Head)

The head of school uses the term 'lifeline' for the courses on DIKSHA with respect to the training provided, especially for new teachers. She states that when a new teacher joins the school, their DIKSHA ID is created to access the online courses. There is also stress on generating certificates on completion by the head of the school, as a way to monitor teachers, tracking the 50 hours of training required by NEP 2020.

Additionally, the head of school highlights how teachers learning to be teachers (student teachers) are not aware of the changes in NEP 2020 and digital platforms like DIKSHA:

They [new teachers] are not knowing about NEP, any digital platform. They know nothing at all so if I go to some of the B.Ed colleges. They are not considering it, and they are not changing their curriculum, so teachers are still the same. (Head)

It seems that the head of the school expects new teachers who come into the teaching profession to be aware of recent policy changes in education. For this, the courses on DIKSHA are regarded as a 'lifeline' by the head of the school, due to the online self-paced courses that serve as a starting point for new teachers to understand the latest curriculum changes. Although the 50 hours of training online through DIKSHA are compulsory for all teachers, it seems from the above quote that the courses on DIKSHA are more of a medium to train newly appointed teachers with respect to the new developments in the curriculum than being continuous professional development for more experienced teachers. Chapter 6, which analysed different digital initiatives, suggested DIKSHA as a platform for 'professional development', as per DIKSHA's website. The training on DIKSHA focuses on providing practical support to teachers, which seems to be missing from their teaching degree. Furthermore, the training on DIKSHA serve to bridge the gap between theory and practical understanding for individuals to become teachers, which results in usage of DIKSHA courses being more valuable for newly appointed teachers than for those who are more experienced. Furthermore, the excerpt from the head of the school on how she perceives training on the DIKSHA platform also aligns with the accounts of teachers in the school as the more experienced teachers prefer LEAD over DIKSHA than the newly appointed teachers.

Perhaps, this could result in two things. Firstly, the content of the training on DIKSHA is in reality only relevant to new teachers, and secondly, that the head influences the culture of the school, which results in establishing norms, expectations and accepted ways of teaching, training and further shaping teachers' teaching practices. In other words, the implementation of digital initiatives in schools also rests on how the head of the school perceives digital initiatives. This suggests the head is someone who translates policy directives for the by setting the expected practices, standardisation of teaching, and

normalised culture of the school. For new teachers, this is more evident than for more experienced teachers.

Using Bourdieu's theory of practice (Bourdieu, 1990), it can be argued that the head sets the expectations of the field, which in this context is using the DIKSHA platform as a medium for newly joined teachers to gain an understanding of policy and the teaching support that they require. The newly appointed teachers, in keeping up the logic of practice, use the DIKSHA platform as expected, to improve their teaching methodology, as is evident from their quotes above.

The next section highlights the digital certificates generated through DIKSHA, which are key to showcasing the undertaken training.

Digital certificates: Proof of training undertaken

Another aspect of the training through the DIKSHA platform is certification and the importance of generating certificates once the teachers complete a course on the DIKSHA platform. This is reflected in the excerpts below by Meena and Reena, who share that it is important to inform the higher authorities in the school once the certificates are generated after completing a course on DIKSHA, and that it is necessary to complete all the sections of the course to get the certificates.

We teachers have to complete the courses to get the certificates and there is a set maximum duration which we need to complete during a year [...] and when we get a digital certificate on completion of a particular course, we need to inform about this to the higher authorities (Meena)

We need to complete all the parts in order to get the certificates.

Approximately I have around eight to nine certificates by now (Reena)

This implies that teachers have to generate certificates upon completion of courses on DIKSHA. The priority given to attaining a certificate is further accentuated in the quote by Teena:

Sometimes it so happened, that I didn't get my certificate. Then, I felt bad that even after putting up so much effort and time it all went waste. So that was little problem, and I took it with the pinch of salt. (Teena)

It seems that it is not only mandatory for teachers to complete 50 hours training on DIKSHA, but it is equally crucial for them to showcase the completed training through the certificate of completion. The number of hours spent on training or generating certificates becomes a metric for teacher evaluation, recognition or professional growth. The quote from Teena highlights the disappointment when she could not receive the certificate because of a technical error. The words of Teena like 'effort and time [...] went waste' suggests certificates are one of the key aspects related to training through DIKSHA. The number of hours of training, and the certificates collected by teachers, seem to indicate practices that make teachers 'continually accountable and constantly recorded' (Ball, 2003), positioning training as performative competition among teachers. This results in teachers seeing themselves through this metric of training outcomes as a quantitative element, such as Reena highlighting that she has around eight certificates up to now. This, from a Foucauldian perspective, suggests that teachers are internalising the expectations and directives in policies, which in this context involves completing the 50 hours of mandatory training. This further results in teachers regulating themselves from the view of this quantitative element which is imposed by the policy directives. This is evident from the accounts of Reena, as highlighted previously, where she stated that she preferred LEAD over DIKSHA, but also that she has about eight certificates, as this is expected from her due to the policy directives.

The school further monitors the certificates generated on completing DIKSHA training, which results in teachers disciplining themselves to complete the mandatory training. This is evident from the following excerpt by the head of the school:

They [teachers] have also been given a page behind their personal diaries which they can show us that how many certificates they have generated so far [...] we ask teachers to share their generated certificates. (Head)

The head of the school highlighted that teachers have a page dedicated to certificates and they are required to keep a record of these. This record also acts as proof that teachers have completed the mandatory hours for professional development. This further has implications for making teachers subject to gaining certificates as a form of performative action rather than to learn from the training, something that is enabled by the digital strategies that are put in place, and which seems to trickle down in a way that allows teachers to develop a very specific understanding of the field as a game to be played - as Bourdieu (1977) would put it. A key orientation to practice in this sense seems to be one of accumulation of certifications as a badge of specialisation, and not necessarily as a form of intellectual and professional enrichment.

Furthermore, adopting a Foucauldian perspective, mandatory training rooted in the performative aspect suggests that the standards for the teacher to complete this training results in a 'myriad of judgements, measures, comparisons and targets' (Ball, 2003, p. 220) for teachers as per the policy directives. It seems the value of the training is reduced to the number of certificates the teacher gets, which is further monitored and imposed within school practices by showcasing the number of training certificates generated by each teacher. This, as previously highlighted, results in a form of disciplinary power (Foucault, 1979), where teachers are expected to abide by the standards and requirement of continuous professional training, influenced by policy directives, further interpreted by the head of the school, and monitored by means of achieved certificates.

The next section highlights the dual work pressure for teachers at school A, teaching through LEAD alongside fulfilling their mandatory training through the DIKSHA portal.

Double workload for teachers: LEAD and DIKSHA

With teachers required to complete CPDs via DIKSHA as well as teaching using the LEAD curriculum, they struggled to manage everything. This is evident in the quote by Reena below, highlighting that the workload is too heavy, and they have very little time to complete the training on DIKSHA. But they 'have to do it' even if this means sacrificing sleep.

Sometimes the workload is too much. Sometimes we are not left with much time also, like its winters now and the school will start at 8 or 9 in the morning and sometimes we would reach home at around four in the evening. So, we have to manage the family and kids too [...] Sometimes it is difficult, but we do it. At times, we feel that we have to do it anyhow even if that calls for a sleepless night! (Reena)

Similarly, Rana highlights that it is difficult to join courses after school because of her personal tuitions that she conducts in the evenings, but she has to complete the courses when asked. Here tuitions are referred to as additional instruction outside of school hours on a fee-paying basis, which is a common practice in India (Bhorkar, 2018) to supplement teacher income.

It is time consuming because we have to join the courses after school hours. So, every teacher has tuition classes. So, it is difficult, but we have to. (Rana)

The above excerpts from Reena and Rana highlight that it is challenging for teachers to manage training and teaching together due to time restrictions and personal commitments. However, words like 'we have to' are common.

It is important to note that the difficulty in managing time and maintaining work-life balance was highlighted by almost all the teachers who were interviewed, however none of the teacher's suggested non-compliance with the training. This is evident from the quotes

above, where teachers highlight that they have to complete the training, and it seems that for them not complying was not even an option to consider. As the previous themes have highlighted, the norms and expectations are set for teachers by the head of the school, including following LEAD curriculum for teaching and prioritising CPD through the DIKSHA platform. These practices occur via means of surveillance, such as monitoring of certificates or teaching using a fixed curriculum software provider to teach in the classroom, resulting in teachers internalising such practices as a result of operating forms of power, as suggested by Foucault (1979). But this internalisation of practices further results in the formation of doxic practices (Deer, 2010) – which are the unquestioned shared beliefs of the social field, or school A. From a Bourdieusian perspective (1977), this could mean that teachers are aware of the rules of the field (school A in this context), which they understand as not being open to contestation. This reflects the field's doxa, that such expectations are not open to being questioned, thereby leading to practices and assumptions that are unreflectively accepted 'without saying' (Bourdieu and Wacquant, 1992). In this context, the requirement to complete the mandatory training, even if it is challenging for them due to time constraints, is an imposition in the shape of a professional expectation. For teachers, this translates into their dispositions linking to the demands of the field, a match between habitus-field that leads to making 'choices' (Bourdieu, 1984, p. 170) that do not necessarily sit well with them. This is evident in Reena's sacrificing sleep to complete the required training, because the teachers 'have to do it'.

In the following excerpt, Teena shares that she sometimes gets overwhelmed with work and lesson planning, even though she realises the courses are important for her individual progress and growth.

At times I feel that it's too much because along with the teaching, preparing the teaching plan, marking the student's notebooks and delivering the lectures [...] but on the other hand, I feel it is for our individual progress and growth. (Teena)

Teena has been teaching in the school for only a year now (see Table 21 above), and, in comparison with the teachers who have been teaching for more than five years, she is new to the school and to the teaching profession. Teena also highlights her struggle to complete mandatory training, like Reena and Rama. However, her quote above further suggests that the training by DIKSHA are also useful for her individual growth and professional progression, something which was missing from the excerpts of more experienced teachers like Rama and Reena. Applying Bourdieu's theory of practice (1990), it seems that because Teena is new to the school she is trying to comply with the field, not questioning its doxic ways of operating, but rather showing understanding for the rules of the field even when this leads to an increased workload; she balances this with the value she places on training for her personal growth.

Theme 2 highlighted the implementation of the digital initiative, DIKSHA, and how this is further influenced and interpreted by the teachers in their practices. The theme also suggested how this interpretation of a digital initiative is further influenced by the head of the school. The theme also suggested the monitoring mechanism of certificates being achieved by teachers, which acts as a form of surveillance. The theme further suggested that teachers will comply with mandatory training, even if it is challenging for them, such as sacrificing their sleep in order to complete it.

The next theme demonstrates teachers' digital teaching practices, wherein they apply diverse teaching methodologies to using digital technologies in classrooms.

Theme 3: Pedagogy of (digital) transmission

Theme 3 demonstrates how teachers perceive teaching using digital technology in classrooms. One of the most common ways of using technology in classrooms among teachers at school A was showing students videos in the classroom, followed by questions related to the contents of the video. The following excerpt by Teena highlights a teaching methodology that entails students first watching a video and then completing a worksheet related to that topic.

I like the concept of individual practice. The children first watch the videos and then they solve the worksheet themselves. There we get to know if the student has understood the concept and is able to give the answers to the questions related to it. (Teena)

This teaching methodology seems to be guided by the LEAD software. The study conducted by Burch and Miglani (2018), that evaluated teachers' role with respect to technology software providing self-study programmes in one of the Indian states, highlighted that teachers neither had a say in the content and design of the software nor the data provided by the technology companies, resulting in limited agency on the part of the teachers. This is similar to the context of school A, where lessons are provided by LEAD that guide teachers in teaching in a very specific way that includes using digital resources provided by LEAD, as pointed out by Teena.

Furthermore, Teena also shares in the following excerpt that how students are more interested in watching videos in the classroom than listening to her delivering the lesson.

We sometimes play the videos when the students are not interested in listening to us. At least we have a satisfaction that even if they did not listen to us while we were teaching at least they have watched the video and understood the topic. So, they watch the videos with much interest since it involves various characters and cartoons that engages them.
(Teena)

From the above two excerpts by Teena, it seems that because the student 'is able to give the answers', or in other words, provide validation by 'solving the worksheet themselves' after watching the video, Teena is convinced that the students understand the given topic after watching videos in the classroom. It seems that the priority for teachers at school A is providing students with conceptual knowledge, and this is now replaced in a form of students' watching a video. The quote further seems to suggest that the technology is responsible for managing students' attention. Teena seems to

indicate that technology is being used as an enhancement, or sometimes to replace teachers.

Rama highlighted that learning happens through repeating and reciting the contents of the video side by side during the classroom teaching:

The students learn it well. They recite along with the videos and do actions as they see. So, they learn a lot in this way. (Rama)

It seems that LEAD enforces an instrumental teaching practice which rests on repetition and memorisation of content, but now the mechanism through which memorisation is encouraged seems to be through the watching of videos in classrooms. As highlighted previously, in theme 1, this form of teaching and learning is behaviourist in form, with technology used as an accessory of innovation, even though it does not seem to yield much difference in comparison to more conventional practices. Research by Siddiqui et al (2019) highlights that teachers believe that knowledge transmission methods are the 'safest' of all methods for memorisation, such that they are an integral part of teaching-learning processes. This seems to align with the teaching methodology proposed by LEAD, which teachers at school A seem to follow. This is further accentuated by Meena's quote, suggesting that repeating things in class is key to gaining conceptual clarity, which is further validated when students are able to answer the questions.

Whatever they have understood or learnt by watching those videos they should repeat it in the class so that we also come to know that how much conceptual clarity they have got [...] once they [students] watched that video, they understood it easily and they were replying to the questions related to it within minutes. (Meena)

The above quotes from Teena, Rama and Meena indicate that teachers, when using digital technologies in their teaching, do not prioritise the development of digital skills that would lead to creative, participative or even collaborative input. Rather, their focus remains on learning via memorisation within the constraints of answering questions anticipated by the

LEAD curriculum. It seems from the above quotes that teachers are using technology as a direct replacement for traditional forms of teaching that emphasise students repeating information in the classroom, as a means of creating the evidence that conceptual clarity is achieved by the students. Teachers are therefore, through the use of technology, considered as class delivery mechanisms rather than innovators (Kumar et al., 2021). This was common across all the teachers' narratives, irrespective of their years of teaching experience.

Adopting a Foucauldian perspective (Hoffman, 2011), it can be argued that through the provision of a static curriculum, LEAD, teachers have seemed to be subjected to teaching accordingly. This is done by following the LEAD curriculum that promotes the use of digital technologies as a form of knowledge transmission, as suggested by teachers. This further sets the normalisation (Foucault, 1979), through a conscious manipulation of bodily actions (Oksala, 2011), through teaching using digital technologies in a certain accepted way, resulting in particular forms of teaching practice. Furthermore, with students responding with answers according to teaching using LEAD, teachers validate this form of their teaching practice using digital technologies. This further results in teachers internalising these ways of using digital technologies. The lesson plans available on LEAD align with NEP 2020, such that the norms of teaching using digital technologies are set by educational technology companies, resulting in teachers' subjectification to teaching using technologies as a form of transmitting knowledge.

Additionally, from a Bourdieusian perspective (1977), it could be argued that internalisation of teaching using digital technologies as directed by LEAD results in the creation of teachers' doxic practices (Eagleton & Bourdieu, 1992), or unquestioned practices, suggesting that this is how teachers are expected to make use of technologies. Teachers using digital technologies in this way suggests this is the only way to use these technologies, and the teachers seem to follow the expectations of the school field, aligning their teaching habitus accordingly – in the same way as with traditional forms of teaching, but now through the means of technology. This does not create a feeling of discomfort for teachers as their pedagogical beliefs are not challenged through using digital technologies. This suggests that teachers' teaching habitus and field are in sync with the use of digital technologies as they are still providing content to students.

The head of the school suggests that too much exposure to technology hinders students' creativity:

Extra exposure should not be given but only that much which can be digested easily. It depends on the digestion. It should not be done in such way that kids get addicted to it [...] if you will give a lot of exposure of technology then a child's creativity gets compromised. (Head)

This indicates some ambivalence about the use of technology. On the one hand she introduced the LEAD curriculum and teaching through the use of digital technologies, but on the other, she views technology as a threat to students' creativity. Ironically, even though the head of the school seems to be worried about students' creativity, she supported the implementation of LEAD in her school for two years. It seems that although the head of the school, through implementation of LEAD, highlights the use of technology, she approaches it with caution. The typical approach of placing limits on technology use due to concerns about addiction seems to be highlighted here. Furthermore, it seems that this perception of using digital technologies also stems from how use of technologies is being practiced in school, such that it threatens students' agency and autonomy, as it is seen as only providing knowledge, rather than as something that can in fact make students more creative individuals. The use of technology is therefore seen as a medium for students to watch videos, not as a way to develop any critical skills, as shown in studies like Conole's (2010), Selwyn's (2016) and Buckingham's (2007). The use of technology is seen as a medium for transmitting content to students, and a means of controlling the classroom, and this is done through making students watch videos. This teaching methodology seems to be replacing teachers by digital technologies in delivering lessons to students.

The focus of using digital technologies at school A largely rests on enabling the transmission of knowledge through digital channels, and not on opportunities for pedagogical transformation, which would involve digital technologies supporting creation, participation, and production of knowledge (Jenkins, 2009). This further suggests that teaching with technology is viewed as enabling the transfer of knowledge to students, casting them as

passive consumers of information. As highlighted in Chapter 6, digital initiatives under DIC also focus on providing digital content and resources to different stakeholders in schools. It seems that the normalised view of using digital technologies can be traced back to how digital policies are envisioned, but also their interpretation through conventional perspectives of what teaching and learning are. This misalignment between digital technologies and transformative pedagogies in harnessing potential is therefore obvious. This is also highlighted through educational companies whose technological solutions rest on functionalist approaches, focusing on content and overlooking the potential to create new contexts for learning (Costa et al., 2023).

Furthermore, Reena shares how during parent-teacher meetings (PTMs), parents complain about the use of digital devices, such as using:

Facebook, Instagram, and blah blah. The kids are too eager and curious about creating reels. It's too much. It is good also and at the same time bad too. If we see it from the point of view of knowledge, then there are a lot many benefits, but the kids of today's generation are more inclined towards such useless things rather than exploring the benefits of the technology. They believe that they cannot live without mobile phones.

(Reena)

From the thick description, most of the parents in school A are from low socioeconomic backgrounds, and teachers during the interviews pointed out that students usually share smartphones with their siblings. It is important to highlight that students are interested in 'creating reels', but creating videos is labelled as 'useless things', despite the knowledge and skills required to do so. This view indicates how teachers at school A do not connect to technologies as a medium for gaining different skills, but only to acquire conceptual knowledge as per the curriculum. This research study on digital technologies suggests there is a gap between formal and informal ways of learning, and Reena's narrative seems to align with this gap. This further stems from how digital technologies and digital literacies are viewed within policy directives. As stated previously, the lack of acknowledgement of other forms of digital education suggests teachers' lack of understanding of digital skills from

outside of their own conceptual model. How school A applies digital technologies in classrooms, however, seems to lack a focus on the development of students' digital skills and the usage of those skills (DiMaggio & Hargittai, 2001; Deursen, Dijk & Helsper, 2014).

This further has implications with respect to how teachers position themselves in classrooms when teaching through digital technology. The next theme highlights teachers' role in the classroom when teaching using digital technologies.

Theme 4: Implications of using digital technologies

Theme 4 highlights the implications of using digital technologies in classrooms as a form of transmitting knowledge. This results in teachers finding ways to exercise their agency in classrooms amidst using digital technologies influenced by LEAD, as suggested in the previous theme. Teaching using digital technologies further results in teachers realising their responsibility in keeping up with the changing times to survive in the teaching profession in future.

Teachers exercising agency in classrooms

Teachers using digital technologies as a means of knowledge provision also highlighted that they did not let technology take full charge of conceptual knowledge. For instance, the quotes below by Rama, Preeti and Teena suggest that teachers prefer to explain conceptual knowledge to students in their own words, which was done by translating the video 'side-by-side':

But till the time I don't explain it to them [students], I don't get that contentment that the students have understood well. (Rama)

In this system, as we teach a lesson, we keep translating it side-by-side for the students. So, we have to do our work of explaining the concepts in our

own way. However, when we use LED and tabs alongside, the students get further clarity. So, it is not like we are doing less of the work, even we are doing our best and using technology to help us along. (Preeti)

Even if today, we are using digital technology in teaching, still after watching the video we need to explain the concepts to the student. Otherwise, they just think that they have watched a movie over the screen. (Teena)

The quotes above reflect that translating video side-by-side and explaining things in their own words is important for teachers using digital technologies in classrooms. The quotes further suggest that even though teachers are using digital technologies, this should not be understood as them not putting effort into their teaching, as teachers are explaining concepts in their own words, thus asserting their role in classrooms.

Teachers using their own voice to pass on conceptual knowledge to students in tandem with using technology suggests that technology implies a sense of loss for teachers. It seems that explaining concepts to students not entirely through the use of technology gives teachers satisfaction or contentment, reasserting the importance of their role as teachers, as pointed by Rama and Preeti above. This seems to be an example of teachers practising their agency in classrooms by aligning the adopted methodology alongside teaching students the conceptual knowledge. It seems that teachers want to retain control of their classrooms regardless of digital innovations. They do so by explaining conceptual knowledge in the classroom in their own way. This shows teachers' clear need to exercise and practise their agency while using technology to teach. Agency is achieved through the interplay of individual efforts, available resources, and structural factors (Biesta et al., 2015). It is also argued that teacher agency is constituted through a sense of purpose, competence, scope of autonomy and reflexivity (Pantić, 2017). Within the context of the research study, the quotes show how teachers strategise to take charge of their lesson delivery in their own way.

One of the reasons for this could be the fear that technology might replace them, or that students would not want or need them as technology provides them with conceptual knowledge. But there is something else here, their teacher's pride and commitment to their role. The quotes above suggest examples of teachers exercising their agency and using their voice by letting students know that even though conceptual knowledge delivery can be done through technology, their role is still of prime importance in the classroom. Put simply, this is their way of trying to assert themselves and their importance in the classroom, further implying that they are not giving up full control to technological solutions. In their view, teaching is still a human-centred activity.

Utilising Bourdieu's conception of field-habitus (1990), it seems that teachers align their practices within the requirements of the field, which includes the expectation to teach using the LEAD curriculum, but that they are also navigating their teaching habitus, which is the values they uphold, as reflected in the dispositions that shape their practice. This results in them exercising their agency in classrooms by combining the teaching methodology provided by LEAD with their own aim as a teacher, which is to provide knowledge to students. This results in teachers navigating their own teaching habitus while also playing along with the field – the expectation to teach through the LEAD curriculum, which relies on showing videos in classrooms – further maintaining the field-habitus alignment. This results in teachers adapting within the field by aligning their teaching habitus with what the field values.

Teachers' responsibility in keeping up with changing times

Teachers expressed how important it is for their professional development to keep up with emerging technology in education. Among teachers at school A, there was an awareness of the need to keep up to date with technology to survive in the teaching profession in the future. Rama, in the excerpt below, highlights how teachers will be better off if they have practical knowledge of using different digital devices. Rana too highlighted that to 'survive' in their professional career, it is important to keep upgrading themselves.

The teachers who have greater practical knowledge about various devices, those will be better off. (Rama)

I feel that technology has become a need for us. And I feel only those teachers will survive who are able keep themselves up to date with technology. Those who don't, their professional career will be jeopardy. Therefore, I feel that we should keep ourselves updated with the day-to-day changes in technology. Only then will we be able to pursue this career. (Rana)

The above quotes by Rama and Rana suggests their understanding of the changes in the teaching profession due to emerging technologies, which impact on teachers and their roles. This is evident from the quotes, in the realisation that for them to survive in the teaching profession, it is important to keep up with the changing times. Furthermore, the quotes suggest that to survive in the teaching profession, teachers need to take charge and be accountable for their own professional growth.

In this context, Nivedita also shares how she is confident that she can learn and improve herself with changing technology, and because of her mindset of being a lifelong learner.

I think I can adjust with the changing technology. I will learn it, I will go at par with it, I will never step back, and I will always learn further from different platforms so that I can convey it further to others that technology is preferable, and we should use it and it is beneficial. I do not think that in future I would have any issues in teaching with technology. (Nivedita)

This suggests an optimistic approach towards learning and empowering herself in using digital technologies to continue as a teacher in future. The quotes from the teachers at school A above suggest them prioritising the need to train themselves, and valuing the need to upskill themselves in using digital technologies in teaching, out of a fear of surviving the teaching profession in future. From a Foucauldian perspective (Foucault, 2004) teachers,

through self-improvement, become entrepreneurial subjects taking charge of their upskilling, in order to survive in the teaching profession in future. This further leads to self-governance within standardised norms via policy directives. This implies that teachers internalise policy directives, leading to further self-governing through complying with policy initiatives. This is further evident with respect to digital initiatives in education, as highlighted in Chapter 6, that promote self-improvement through digital training. This leads to policy directives producing practitioners who focus on self-empowerment. This is evident in practice from the accounts of teachers at school A, where they have internalised this political narrative of empowerment in the wake of digitalisation. This, from a Foucauldian perspective (Foucault, 1991), suggests that teachers, through taking charge of their own professional growth to survive in the teaching profession, are operating within neoliberal governmentality.

This theme highlighted how teaching using digital technologies, in the context of school A influenced by LEAD, that further results in teachers taking charge of providing conceptual clarification to students on their own and not relying on digital technologies. Furthermore, the accounts of teachers in school A have highlighted that teachers realise that to survive in the teaching profession they need to empower themselves and utilise technology in classrooms. This is further achieved through training provided by digital initiatives that, by promoting self-improvement, influences teachers to take accountability for themselves to benefit from digitalisation.

Conclusion

This chapter has provided research findings relating to the case site of school A, using thematic analysis. Guided by the thick description of the case site, the four themes provided a rich understanding of teachers' thoughts around their teaching practices using digital technologies. The first theme illustrated the experiences of teachers using a digital curriculum software, LEAD, that provides ready-made plans and resources to teachers, where they reconstruct their teaching methodology to follow the expectations of the school field – which is to teach according to the LEAD curriculum. While some teachers felt their

teaching became restricted and limited, there were also those who appreciated teaching through LEAD, as it offered them cultural capital that can be further translated to economic capital through better job opportunities. The second theme highlighted the implementation of the DIC initiative DIKSHA in school A. Through analysis of the accounts of teachers at school A, it seems that this rural school in Punjab region prioritises use of digital technologies in classrooms. Although, through analysis of the interview with the head of the school, who is also the chairperson of the school, the decision to discontinue LEAD was based on the economic capacity of the school and expectations of parents.

Using accounts from teachers, the chapter highlighted how their digital practices were influenced by teaching using LEAD, which promoted teaching as a medium for transmitting knowledge, rather than being rooted in promoting digital skills to students. Theme three illustrated how teachers apply a pedagogy of knowledge transmission as a methodology to teach using digital technologies in classrooms, which is influenced and conditioned through teachers' experiences of using LEAD. The final theme suggested the implications of teaching using digital technologies, especially where technology is the only medium for transmitting knowledge to students. The teachers highlighted their means of exercising agency, which was rooted in their fear of being replaced by digital technologies. This further lead to teachers taking responsibility for empowering themselves, which was mainly to survive in the teaching profession in future, rather than being pedagogical.

The next chapter focuses on the research findings for the second case site located in an urban area of Punjab, India.

Chapter 8: Research Findings from a Private School in Urban Punjab: School B

Introduction

While the previous chapter highlighted the research findings from a private school in a rural area, this chapter will discuss the analysis of the second case site, a private school in an urban area of Punjab, India, designated in the study as School B. The themes in this chapter are slightly different from those in the previous chapter because School B was not signed up to any educational technology company for lesson delivery, unlike school A. However, teachers exercising their agency while teaching using digital technologies is similar to that of teachers at school A. Furthermore, teachers at school B also showcased taking responsibility for keeping up with the changing times due to digital technologies, through the medium of online continuous professional development training through DIKSHA. This chapter is therefore divided in the following way.

The first section of this chapter provides a thick description of the case site. As highlighted in the methodology chapter, this thick description is developed from the school's webpages and the online questionnaire completed by the teachers at the urban school, providing the school's context via means of the school infrastructure, demographics of the school, the vision and mission of the school as per the school website, and the demographics of the teachers who participated in the research study. The second section of this chapter highlights the three themes derived from the thematic analysis. These are: 1) The culture of teacher training; 2) Teachers internalising the value of training provided; and 3) Teachers exercising agency in classrooms.

Thick Description of School B

School B, like school A, is also an English-medium, co-educational private school, but in the urban part of Punjab, India. School B is also affiliated with CBSE (Central Board of Secondary Education) and is a K-12 school that includes kindergarten (pre-primary), primary, secondary, and senior secondary grades (up to grade 12). School B was established in 2004 and is located in one of the most populous and largest cities of Punjab, India called Ludhiana. According to the Census (2011), the literacy rate of the city is more than 85%, which is higher than the overall literacy rate of Punjab. The city alone has more than 350 private schools. According to its profile, the city is regarded as a well-developed manufacturing and commercial hub of north-India. To understand the employment and unemployment situation in India, the National Sample Survey Organization (2011-2012) conducted a survey which indicated the different occupations of people in this city in Punjab (Ministry of Statistics and Programme Implementation, 2011). Most of the occupations as per the survey were: elementary occupations that require the use of handheld tools, plant and machine operators, craft and related trades workers, and shop or market sales workers. According to the survey (2011-2012), the unemployment rate of the city was 0%, and the urban poverty ratio was less than 10%. Given its location, the school seems to cater to the middle and upper-middle class. Although this was not specified in the accounts of the teachers who were interviewed or on the school website, it can be assumed from the location of the school and the demographics of the urban city offered by the census (2011). The teachers during their interviews highlighted that there were only a few students in the school who lacked access to digital infrastructure (devices and internet) at home during the pandemic, implying that the majority have access to laptops or smartphones with an internet connection. Therefore, in comparison with school A, where most of the parents were farmers, it can be assumed that parents of students at school B are better placed economically.

School B is one the larger private schools in the region of urban Punjab, India. It has a large estate, which is estimated at over 9800 square metres and includes well-furnished classrooms, and various playgrounds, including a basketball court, badminton court, cricket

pitch and table tennis court. The school also has a language lab equipped with audio and visual facilities, an auditorium, a library with 21004 books (as per the 2023 report uploaded on the school website), a music and dance room, an arts room, a mathematics lab, a computer laboratory, and four labs for science subjects: physics, chemistry, biology and composite science. Although there are smartboards and projectors in every classroom, there is also a strict 'no mobile phones' policy for students on the school campus. There is no Wi-Fi on the premises, but there is internet connection in the computer laboratory and for the smartboards. The school also has a library and a dedicated cinema room that offers extra-curricular activities to students. From the questionnaire analysis of teachers at school B, the following Table 22 highlights that the majority of the teachers strongly agreed that the school has digital infrastructure for the implementation of digital technologies. This aligns with the information regarding school infrastructure on the school website and in its prospectus.

Table 22: School B- 'My school has digital infrastructure available for the implementation of digital teaching practices'.

'My school has digital infrastructure available for the implementation of digital teaching practices'.		Frequency	Percent
Valid	Strongly agree	61	59.2
	Agree	41	39.8
	Neither agree nor disagree	0	0
	Disagree	1	1
	Strongly disagree	0	0
Total		103	100

The school website not only included the vision and mission of the school but also its motto and aim. As per the school website, the school envisions itself as a space that instils positive characteristics, and that focuses on creating enlightened, aware, and adaptable citizens of the world. The character of the students studying in the school is built through self-awareness, as reflected in the motto of the school. The core principles in the school prospectus focus on the overall wellbeing of students, and developing an international

mindset through supportive and visionary leadership. The aim of the school is stated as providing 'holistic and harmonious development' (as per the school website) of the students. Furthermore, the school's mission statement prioritises 21st century skills, technology integration, and innovative practices for students. The welcome message from the head of the school on the website prioritises use of the latest digital technology to 'facilitate an adaptive learning curriculum' (school website), alongside providing students and teachers with the means to 'browse, research, collaborate and expand' (school website) knowledge using digital technology. The monthly fees in the school range from \$24 to \$28. Comparing this to the private school in rural Punjab, school A, the student fees of school B are approximately double. According to a study conducted by EduFund on private schools (2024), the average fees that private schools charge is usually between \$30 and \$94. This implies that the fees charged by school B are not high compared to other private schools, making school B an affordable private school in an urban area.

The school website also includes a section on student activities, with a description of the activity undertaken, the date and photos of the activity. Similarly to school A, school B on its website also has a section on academic achievements, with students' names and the grades they attained in 10th and 12th grades. The school website also highlights interviews with school alumni, their online newsletter, and various activities and collaborations that the school undertakes. For instance, there are community outreach projects, robotics projects, vocational courses like makeup, culinary, introduction to financial markets, financial literacy, artificial intelligence, data science, coding, and handicrafts for students from grades 6 to 12. In the online newsletter on the school website, various events where students were exhibiting their skills and capabilities during festivals throughout the year were also highlighted. These events and exhibitions by students help to develop an entrepreneur mindset and skills among the students studying at school B. The school website also includes a digital prospectus, which is updated annually and includes the vision, mission and motto of the school, the principal's message to parents, details about the school's infrastructure, key activities undertaken in school, and academic achievements in terms of students' results, especially in grades 10 and 12, plus their admission policy and criteria. From the website, there seem to be lot more activities happening than in school A.

The use of digital technologies in teaching and learning was also evident from the questionnaire data (Table 23 below), where the majority of the teachers who participated strongly agreed that their school encourages the use of digital technologies in teaching and learning, and the rest of the teachers agreed with this statement, suggesting the priority of using digital technologies in teaching and learning at school B.

Table 23: School B - 'My school encourages teaching and learning with digital technologies'

'My school encourages teaching and learning with digital technologies'.		Frequency	Percent
Valid	Strongly agree	70	68
	Agree	33	32
	Neither agree nor disagree	0	0
	Disagree	0	0
	Strongly disagree	0	0
Total		15	100

The school website also has a section called 'counselling' and highlights the roles and responsibilities of the school counsellor. The school website under this section highlights various counselling sessions undertaken in school, such as career guidance, cyber safety, alumni interactive sessions, and a menstrual awareness workshop. Relevant links for higher education, like studying abroad or colleges in India, along with different career options after school, were also part of this section. There is also a blog by the counsellor of the school, for students, parents and even teachers that focuses on how to manage stress during the examinations. There is a section on mental health care tips for teachers. The process of how to contact the counsellor is also highlighted on the website.

The school conducts training sessions for the teachers on various topics, as highlighted on the school website through photos and details of each training session which has taken place. The school website has a section called 'in-service trainings' which highlights all the training undertaken by the teaching staff. The training document includes the date of the training, the topic of the webinar, the resource person who conducted the session, the source of the training (for instance through DIKSHA or in-house training), along with the

names of the teachers who attended the session. Some of these sessions were conducted by the head of the school. The website also has a section on the head's achievements, a recent award she received, the conferences she attended, and training she undertook, outside or inside the school. The head of the school is associated with CBSE and is also the training coordinator and the district training coordinator for the city. The resource person of CBSE has access to new education policy development drafts, which means access to new policy changes before the formalisation of the policy, and is also appointed as an external trainer to train other schools in various topics related to the implementation of NEP 2020 policy across different private schools following the CBSE curriculum.

The website also has a section on achievements and awards received by teaching staff in the school, alongside their photos. This training was also evident from the questionnaire analysis, with Table 24 below suggesting that the majority of the teachers who participated strongly agreed or agreed that the school understands their professional developmental needs and provides relevant training to teachers. Only one teacher out of 103 participants strongly disagreed with this statement.

Table 24: School B- 'My school understands my professional developmental needs provides training in the implementation of digital teaching practices (for example, via DIKSHA)'

'My school understands my professional developmental needs provides training in the implementation of digital teaching practices (for example, via DIKSHA)'.		Frequency	Percent
Valid	Strongly agree	72	69.9
	Agree	30	29.1
	Neither agree nor disagree	0	0
	Disagree	0	0
	Strongly disagree	1	1
Total		103	100

The following section highlights the demographics of the participants who took part in the online questionnaire and further volunteered to participate in a semi-structured interview.

Demographics of teachers who participated in the study

The participants from school B who completed the online questionnaire were 103 teachers out of 140, marking a response rate of 73%. Out of 103 participants in the online questionnaire, 11 teachers and the head of the school volunteered to further take part in semi-structured interviews. Most of the teachers in school B were experienced, with only six having less than 3 years of teaching experience. Table 25 below is the crosstabulation of teachers' total years of teaching experience with teachers' experience of teaching using digital technologies. More than 80% of the teachers (82 out of 103) who took part in the online questionnaire had more than 10 years of teaching experience. Twenty-nine teachers had two to three years of teaching experience using digital technologies, 19 teachers had four to five years' experience, and 16 had six to seven years' experience. There were only 12 teachers out of 82 who had over 10 years of teaching experience using digital technologies.

Table 25: School B-Total teaching in years versus teaching experience of using technologies in years at School B

Total experience of teaching with digital technology in years		0-1 years	2-3 years	4-5 years	6-7 years	8-9 years	10 or more than 10 years	Total
Total experience of teaching in years	0-1 years	2	0	0	0	0	0	2
	2-3 years	1	3	0	0	0	0	4
	4-5 years	0	1	1	0	0	1	3
	6-7 years	1	2	0	0	0	0	3
	8-9 years	0	2	2	2	1	1	8
	10 or more than 10 years	0	29	19	16	6	12	82
Missing		0	0	0	0	0	0	1
Total		4	37	22	18	7	14	103

Of the 103 teachers who completed the online questionnaire, 11 volunteered to take part in semi-structured interviews, along with the head of the school. Table 26 below provides the demographics of the teachers who participated in interviews, as well as highlighting teachers' total years of teaching experience in school. Nine teachers who participated in the study had been part of the school for more than 10 years, and only three had been in the school for five years or less. Table 26 also highlights the grades the teachers who were interviewed taught in, to contextualise the data collected.

Table 26: School B- Demographics of teachers at School B who participated in an interview

S.no	Participants	Total years of teaching experience	Years of Experience in School A	Subjects taught
1	Anjali	22 years	15 years	Social Science to 5 th , 6 th , 7 th and 11 th grades
2	Radha	12 years	12 years	Mathematics
3	Ram	12 years	11 years	Physics to 11 th and 12 th
4	Nita	21 years	10 years	English
5	Mita	8 years	4 years	Economics to 11 th and 12 th grades
6	Gita	15 years	15 years	English
7	Bitu	16 years	15 years	Senior Coordinator and teaches Political Science to 12 th grade
8	Archie	20 years	17 years	Head of Department of Computer. Teaches computer to 11 th and 12 th grade
9	Rita	19 years	19 years	English to grades 11 th and 12 th
10	Sita	14 years	3.5 years	Coordinator English to 4 th and 5 th grades
11	Veena	5 years	5 years	Counsellor
12	Head	30 years	19 years	Head of the school

Comparing the demographics of the two case sites, it is clear how the two schools differ, not only in terms of the size of the school, and the number of student and teachers, but also teachers' years of experience in the school. The majority of teachers in school A had less

than two years of teaching experience, whereas the majority of those in school B have 10 or more years of teaching experience, implying that school B is more successful in retaining teachers. As highlighted in the thick description of school A, by the head of the school, they face challenges in this aspect.

The following sections discuss the themes derived from the data analysis of school B. The first summarises all four themes derived from the thematic analysis, followed by sections exploring each theme.

Thematic Analysis for School B

Theme 1: The culture of teacher training

Theme 1 illustrates the culture of training at School B. As previously highlighted, the school website suggests two types of training, online training on DIKSHA and in-house training given by the head of school to all teachers. The head of the school is also the resources person for CBSE, and her role involves training teachers (mostly on the implementation of NEP 2020) at a national level. This theme highlights the accounts of teachers who volunteered to take part in this research study, with respect to training that highlights the monitoring of teachers and how the school maintains records of training undertaken.

Monitoring of DIKSHA training

Chapter 7 highlighted School A's process of monitoring the certificates teachers received after completing training on DIKSHA. The monitoring process of School A entailed teachers updating the received certificates on their personal diary and informing the head of the school once training was completed. Given the much larger size of school B, the monitoring process is more structured. For instance, Anjali, Sita and Veena, who are the coordinators in the school, shared in the following excerpts that they first share the training module with

the teachers, following this up by using a Google form, where teachers are asked to complete the information on training and to attach certificates generated on competition. This form is later shared with the head of the school.

I am acting as a coordinator, so whenever any circular comes or any module is there, it is my duty to share it with my teachers and then after that whenever they get certificate, they share it with me so that I would come to know which teacher has done it and got the certificate. (Anjali)

For every teacher, every month I used to make a Google form, and I used to post that Google form in [name of the school] community group where all the teachers are the members. The teachers who do these programs in a month- as I send these forms every month [...] accordingly and then I prepare an excel sheet which I need to submit to some other teacher who is working on the reports which finally sent to the management. So, we have a complete record that way. (Sita)

In the Google form we have three to four particulars that we have to fill our name, designation, who conducted the training, how long it was, three takeaways from the training, how we are implementing that in our classroom and how that has enhanced our capability as a teacher and in the last column of the form we have to attach the certificate. (Veena)

These quotes suggest that being a coordinator in the school is an extension of surveillance put in place to monitor the undertaking of training through DIKSHA monthly. The process from awareness to training on DIKSHA to the generation of the report suggests that teachers at school B are being monitored at every step by the coordinator, followed by the head and management of the school. This continuous monitoring regime for teachers results in creating idealised standards in this context – an idealised way to monitor teachers. Using a Foucauldian perspective this involves internalising surveillance through a visible form (Foucault, 1979). In other words, the monitoring mechanism resembles the surveillance through a form like the panopticon (Allan, 2022), where teachers are monitored at every

step. This, according to Foucault, suggests that the possibility of being seen becomes a mechanism of self-discipline (Foucault, 1977), resulting in a body that is made docile through a form of disciplinary power, further resulting in deference to authority (Devine- Eller, 2004).¹ In this context, the surveillance of training in school B results in teachers internalising the monitoring mechanism, further leading to them normalising this surveillance, and training in a way that is expected of them, by completing the required number of hours of training.

Furthermore, the head of the school highlighted that:

According to me, that is the minimum requirement, rather, it should be even more than that [...] They must be lifelong learners. It should not only be the enforcement of those 50 hours being made compulsory; if they can do more, that is good. (Head)

Additionally, the head of the school added:

In my school, last year I did the survey, and there were teachers who had completed more than 100 hours of such courses, however, there were a few who did only 15 or 20 hours, but there were also teachers who did more. At least, some of them get motivated to learn more. (Head)

It seems that the monitoring mechanism of training in School B rests on the quantitative aspect, where the number of hours spent on training by teachers is prioritised, calculated and even included on the school website (highlighted in the thick description). The head of the school arguing that 50 hours training should be a minimum for teachers, further results in a soft form of pressure to complete more training. This suggests that training though DIKSHA is an instrument of performative action prioritised by the head of the school. It seems that the head of the school sets expectations for the teachers to complete the training (even more than the required training) as guided by policy directives. This is evident in how proudly she shared that the majority of the teachers completed more than 100 hours

of training last year. The head of the school however seemed to focus solely on the quantitative element of the training, and not on their quality.

From a Foucauldian perspective, this suggests that the head of the school is establishing norms – creating a normalising gaze (Foucault, 1979) - which is not limited to training for 50 hours, but as many hours as possible, as a form of disciplinary power in action (Foucault, 1979). This further results in teachers not only internalising the accepted norms but also self-governing, as a product of surveillance (Foucault, 1977). Teachers self-monitor and manipulate their behaviour according to the accepted norms set by the head of the school. Through subtle forms of operating power, the head of the school is setting benchmarks for the teachers that promote them being lifelong learners. This is further internalised through a monitoring system which is making sure teachers' training records are made visible through the mechanism process the school adopts monthly. Thus, results in teachers being subjected to completing and prioritising training not only as mandated by policy directives but also as laid out by the head of the school.

Additionally, this, from Bourdieu's perspective, suggests that the rules of the game in the social field, school B in this context, are created by the people in power (Bourdieu, 1990), which seems to be the head of the school. Following their own interpretation of policy suggests the expectations of the field involve not only completing mandatory training, but doing more than is required. This further results in teachers finding ways through their practice, to be recognised with respect to the new benchmarks of distinction, for instance, by counting the hours of training undertaken and completing the Google form to track this.

Teachers' thoughts on the mandatory training by DIKSHA are highlighted in the next section.

Mandatory training via DIKSHA

As previously highlighted, 50 hours of mandatory training is required by NEP202 for all teachers, and this can be achieved online through the DIKSHA platform. Excerpts from Veena

and Mita below highlight their views on the content on DIKSHA, which is engaged with only for the sake of completing the required training.

I felt that around sixty percent of it, I was already aware of, and it was only forty percent of the content that I got to know was new for me [...] I did ten to twelve trainings and completed fifteen to sixteen hours, but somewhere at that time my focus was just to complete it rather than learning anything. This way, I find that it is a wastage of time. I can say that even if I spent sixteen hours, but what I have learnt in those sixteen hours, the productivity would be only of three to four hours. (Veena)

I think two or three are sufficient but anyhow we have to follow the norms so five to six trainings we have to complete and sometimes if the burden is more, we lose interest in these activities. (Mita)

This suggests that the content of the DIKSHA courses does not provide anything new. Both Veena and Mita have certificates, Veena about 10 and Mita around five, but only for the sake of completing the required training. The counting of hours of training undertaken is an example of the performative interpretation that teachers attach to its completion. This further seems to lead to performative competition, where teachers are subject to a 'myriad of judgements, measures, comparisons and targets' (Ball, 2003, p. 220), with a focus on the number of training or certificates achieved. As highlighted previously, there is a standard set by the head of the school that seems to prioritise the quantified element of training, and there is an underlying expectation from the head for teachers to complete even more than the 50 hours of training required. The above quote seems to suggest that teachers are keeping up with these expectations. Furthermore, the teachers also highlighted that they are completing the training for the sake of it. Put simply, they are not finding the training valuable but are still doing anyway. This, from a Foucauldian perspective, suggests that teachers internalise the rules that are expected from them (Foucault, 1979), further suggesting an element of compliance (May, 2011), where teachers are responding to the pressures of training more than expected as an accepted view of being a teacher at school B, due to the expectations set by the head. This compliance becomes an element of producing

teachers as subject to policy directives, and because of the training regime in school B, normalised in the school. The head of the school achieves this through forming a norm of teachers being lifelong learners as an appropriate or accepted way of being a teacher in the school. This further leads to teachers becoming docile bodies (Foucault, 1979), through following this intensive expectation of training even when they do not see value in them. This internalisation of being a teacher in a school that devotes more than 50 hours to training further results in the creation of doxic practices – those assumptions that go without saying – to become a lifelong learner via means of training for more than 50 hours.

From a Bourdieusian perspective, teachers align this doxicity of rigorous training in school with an accepted norm, and this can be referred to as the rules of the game – the social field, where the teachers play according to the expectations of the school, which leads to gaining a form of capital – that is symbolic in the sense that teachers need to keep upgrading themselves to maintain their position in the school. This is achieved by teachers through keeping up with the training and acting strategically to maintain their position or job in the school, which values the number of training and certificates they obtain. This is further accentuated by Sita:

Sometimes, to be very honest, I might not listen anything and I attend it is just for the sake of doing that because every time you cannot attend it and devote full time sitting, so at times, we do listen while the other times, we just do it as a formality. (Sita)

According to Foucault, where there is power there is also resistance (Foucault, 1988), not necessarily through visible forms. From the accounts of teachers, Veena, Mita and Sita, it seems that teachers are manipulating, resisting and manoeuvring the training by not listening or attending them for the sake of completing the required number of training. This suggests that teachers are exercising their agency through ways of resisting. This is further highlighted by Archie:

I have seen that many of the teachers switch on the camera, listen to it, attend it, but they are not mentally present in the session. Even if their

names are called out, they give no response. At the end of the session, if they ask for queries, nobody asks that, so this means they are not present there, they are doing it just for the certificate or they are doing it just because it is forced. So, till the time it does not come from inside, the zeal to listen and to learn something new, this won't happen whenever you attend a session. (Archie)

Radha too highlights that the purpose of the training through DIKSHA is:

Quite obvious we have to improve our profile. We need more and more certificates, and I would like to say here one proverb that, 'We are we are Jack of all, but master of none'. We are getting more and more certificates [...] I think videos stretching for one hour or one hour twenty minutes or five hours are uploaded. Instead, it should be conversation mode like one-to-one. That will be more convenient. If we adopt lecture method in the class the students get bored so in the same way even, we do. (Radha)

The above quotes suggest that teachers apply techniques like not listening to the training or not being mentally present when in attendance at DIKSHA training. The teachers seem to suggest, from a Foucauldian perspective, a form of resistance (Foucault, 1988) towards the training which are being imposed on them as a form of expectation. This results in teachers not entirely internalising and being subjected to this training, but rather complying alongside resisting. Foucault's notion of power (Foucault, 1978) reconstruct individuals but also allow teachers to resist the practices. This seems to be evident from the quotes by teachers practising which suggest teachers exercising their agency and resisting the training by playing along and not being entirely subjected to the school practices.

Alongside the training provided by DIKSHA, the head of school also provided training to teachers. The next section highlights teachers' appreciation of the training provided by the head of the school.

Appreciation for in-house training

The following excerpts from Nita and Gita in the following quotes highlight how head of the school trains teachers. They added:

Our Principal Ma'am takes the initiative for everything. She is the guiding force here. (Nita)

I am not just bragging [...] she [head of the school] keeps on organising such sessions to just update that teachers with latest technology and latest techniques for teaching pedagogies innovations all that, so we are blessed to have her with us. (Gita)

It seems that the training provided to teachers by the head of the school was appreciated more than the DIKSHA training. This further highlights how the position of the head as a district coordinator of CBSE places her as someone whose training are seen as more valuable for the teachers. This was further accentuated by Archie:

If I compare my school with other schools, the culture of handling students, collaboration, leadership is much better than other schools. I have met so many principals in the city and outside the city, I have met many teachers. If I compare my school with other schools, I feel it is better than many others. (Archie)

According to Nita, Gita and Archie, it seems that the head of the school has a positive influence on the teachers at school B, which further leads to teachers valuing the training she provides. This further results in teachers justifying the training regimes and practices that are normalised by the head of the school, prioritising the push to become lifelong learners. Anjali suggested that this value in training provided by the head is validated when she compares the training culture in her school with others.

Whenever we meet certain teachers from other schools, they are of the view that, 'your school is doing everything, but our school isn't doing these things.' Then at such an instance we get confused, whether we are wasting our time, or they are very smart or we are smart? So, at that times we compare ourselves with them. But ultimately, we consider ourselves as superb, since we are doing everything. Along with teaching, if we are doing something extra, so that enhances our capabilities. (Anjali)

It seems that Anjali is questioning the intensive training regime which is normalised as an accepted and expected form of practice in school B. By comparing the training regime to other schools and teachers, Anjali is questioning and casting doubt on school B's practices. While there are teachers at school B who have internalised the school's practices and the standards set by the school, especially by the head, which is reflected in valuing of the training received from the head, there are also teachers like Anjali who question these standards. This suggests resistance to subject formation from a Foucauldian perspective (Foucault, 1988). By comparing the practices of her school, Anjali is questioning if such intensive practices are in fact needed. This casting doubt has not resulted in not following the expectations of the school, but this questioning of the need for such intensive **training** highlights a form of resistance.

Additionally, that the above quotes show that teachers value the head's role as district coordinator, which further results in forming norms expecting teachers to prioritise training, and even undertaking more than 50 hours of it. As highlighted previously in the thick description, the district coordinator also has access to new education policy development drafts, which means access to new policy changes before their formalisation. This was evident in the excerpts from Rita and Mita, suggesting that due to the position of the head of the school as a resource person, teachers are privileged in accessing early information about policy directives.

Our principal is proactive. Everything is done before time. The moment CBSE, because she's one of the CBSE planners because she's into that system. So, the moment one thing is introduced there, we have a full-

fledged you know, two three hours session on that and we are made well versed with that. So, we are made well versed in that system and by the time it starts coming into the schools, we know it and it's there in our system. So that's the best part being pre prepared. (Rita)

Our principal ma'am is following all the recent practices, whether it is related to teaching, academics or co-curricular, she is making sure to follow every activity so that nothing is left behind. (Mita)

Rita shared how the teachers at the school benefit from the head being part of the system, because everything is explained to them by her. Furthermore, the quotes above highlight how every CBSE policy is being practiced in school and 'nothing is left behind', all because of the head of the school. The quotes from Rita and Mita suggest that the reason for appreciating the in-house training more than DIKSHA is down to the personalised element, wherein teachers benefit from the head being part of CBSE. The position of the head results in teachers validating her interpretation of the policy directives, which results in the formation of norms, standards, expectations, and acceptance of practices in the school. In other words, the head of the school influences the culture of the school. For teachers at school B, the training from the head of school especially is seen, from Bourdieu's perspective, as gaining a form of cultural capital (Bourdieu, 1990). The interpretation of policy which has not yet been formulated can be translated into symbolic capital as a form of prestige – due to being pioneers in implementing the policy and being well versed in adopting it into practice. The training provided by the head of the school will allow teachers to not only sustain their position as teachers in school B, but also to seek forms of recognition through appreciation from other schools, as highlighted by Archie and Anjali above.

The quote below from the head of the school highlights that:

I am lucky that I am associated very closely with CBSE on certain points. As I am the training coordinator and the district training coordinator for [the city], we keep getting the information a little early, and that is how our

teachers also benefit because they also get to know all this beforehand.

(Head)

This being prepared and knowing before everyone else creates a powerful position for the head among teachers in terms of delivering training. From Bourdieu's theory of practice this seems to suggest the creation of symbolic relevance by the head of the school, through providing opportunities for the teachers at school B to gain symbolic capital by becoming the pioneers of knowing the policy implementation before other schools. This further suggests that the head of the school has her position in the school, but being the district coordinator of CBSE positions her as a recognised authority by the teachers, resulting in them not only valuing her training but also internalising the value of the training provided by the head.

Theme 1 demonstrated the two types of training undertaken by teachers at school B. Firstly, training by DIKSHA, which are seen as performative by teachers, who are expected to attend them even if they do not see their value. Secondly, the in-house training provided by the head of the school, which is valued and appreciated by the teachers. One of the reasons for this is the head's position as district coordinator of CBSE, allowing her access to information related to policy changes before everyone else. This is deemed valuable by all the teachers at school B. This theme further highlighted how the head of the school influences its culture, as well as the expected and accepted practices of teachers therein.

The next theme highlights the subjected influence of training on teachers at school B.

Theme 2: Teachers internalising the value of training provided

The previous theme suggested two types of training at school B: DIKSHA training and in-house training by the head of the school. The culture of training promoted in school B highlighted teachers' perspective of training and its importance. This theme demonstrates how training contributes to teachers using this as a medium for collaborative teaching and personal growth.

Training as a medium for collaborative teaching

In India, the second Saturday of the month is generally a day off for both teachers and students, but some of the private schools encourage teachers to use Saturday as a working day, to engage in training and collaborative work. According to education policy (Government of India, 2020c), teachers are expected to work a minimum of 220 working days and 800 instructional hours per academic year, in addition to 45 hours (including preparation hours) per week in an academic year. The CBSE guidelines only suggest the minimum number of working hours for teachers. Muralidharan and Sundararaman's (2015) study reveals that a typical day in a private school is longer than that in a government school because of the privatisation and competitiveness of private schools in India that impose longer working hours for teachers in comparison with the minimum requirement of working hours per academic year. This is further highlighted by Archie that at school B:

We never have second Saturdays off. It is off in other schools, but in our school, it is not off. We have a departmental meeting scheduled on that day, in departmental meetings we share ideas, problems with each other and the pedagogies and even if a teacher is very good in any of the topic, she would teach the other teachers also. So, this way the collaboration is there. (Archie)

This highlights how teachers are only given one day off, which is Sunday, as a rest day. The above quote seems to suggest that spending a weekend day working is categorised as a day for them to collaborate to plan their teaching. This further results in teachers seeing value in spending Saturday in school. Phrases like 'we never have second Saturday off' do not seem to bother Archie.

Here it seems that Archie has subjected herself to the school culture of prioritising training over rest, which she has internalised as a good thing. She and the other teachers in school B utilise Saturday as a day dedicated to collaborative teaching. Archie has accepted working on Saturdays and has started to see the value in spending this time in school. This was also

evident in Anjali's excerpt, where she highlights this as one of the best practices in her school. She further added that discussions on Saturday help her to learn different topics and work on planning lessons.

I would say, some best practices are that we believe in sharing, for instance, every second Saturday, we have departmental meetings, in those meetings every teacher shares their well-planned lesson plans. One of the teachers, who is well-versed in explaining a particular topic, explains it well to the whole department. We share our best practices, so that another teacher who might not be good in that particular topic can get some idea to teach it. She might not follow the same manner but can do it in her own way. This is one of the very good practices that we have in our school. We do not have a holiday on second Saturday, rather we do these discussions.
(Anjali)

Similarly, Gita also highlighted that Saturday is the day for them to work collaboratively. She further added:

It's really very good to have connection with other teachers because all are working as a team [...] So if one teacher has sent me sent us a PDF of MCQ or objective type, other teacher was preparing the questions for subjective part. So it was just as a team together. So we were helping each other so that provided benefit. (Gita)

From the excerpts above it seems that the common perception of working on a Saturday is that it is positive, where teachers collaborate and plan their lesson delivery department wise. It seems the participants see value in collaborative working on Saturdays to improve their teaching through discussion with peers. Comparing such training to that from DISKHA, the teachers seem to value group work and collaborative lesson planning more than self-paced DIKSHA training. From a Foucauldian perspective, this can be explained as a form of operating power, where teachers have internalised the school practice of working on a Saturday to develop lesson plans. From the accounts of teachers, it seems they not only

comply with working on a Saturday, but in fact value this time they are spending working on planning their lesson delivery. This suggests that teachers, through internalisation, are being subjected to school practices that require them to spend Saturday on planning and training, and the improvement and self-growth have as a result of this subjectified them further. This seems to be an example of neoliberal governmentality, further highlighting how governmentality always involves an element of internalisation, which in this case is enacted through a logic of 'self-improvement' (Foucault, 2004). From Foucault's notion of governmentality, the internalisation of working on a Saturday results in the enactment of a tireless work pace masquerading as a form of professionalism and being a 'good teacher', where teachers willingly subject themselves to the practices the school stipulates.

This further highlights why teachers did not seem to complain about coming to school on Saturday, because they do not think this is even a question to consider. Here, from a Bourdieusian perspective, this leads to the doxification of what teacher preparedness should look like. Teachers coming to school on Saturday has become a taken for granted practice, one that goes without saying (Bourdieu, 1990), internalised as how things are done around here, and therefore not open to question. It seems the expectations from the field are to work collaboratively on Saturday, aligning with a teaching habitus that values team teaching, and thereby suggesting a match between habitus and field, resulting in no conflict or complaints from teachers.

The head of the school highlighted how Saturday is the time for teachers to sit together department wise and plan activities.

Second Saturday is basically the only time when the teachers collaborate. They sit department and class wise, and we conduct separate meetings for different age groups and for particular subjects. They decide what kind of activities can be done. (Head)

What is revealing in the quote above is how it highlights Saturdays as the 'only' time when teachers get to work collaboratively, implying a two-layered structure to their work. Furthermore, the head highlights how the teachers plan their Saturdays. The teachers

'decide' activities for Saturday, implying that they have the autonomy to plan their Saturdays on their own. This act of teachers deciding what they need to work on a Saturday is a projection of superficial autonomy onto the teachers by the head of the school. In other words, there is a false sense of freedom projected by giving teacher choice about what to do, but not when to do it, and also remaining within the expectations set by the head of the school. The teacher is therefore expected to utilise Saturday for the purpose of improving their teaching practices, which are within the expectations set by the head of the school around what is considered valuable and worth spending time on. These expectations further result in teachers being subjected to these practices and valuing the time spent working on Saturday, as highlighted previously.

Training necessary for keeping up with changing times

The teachers who were interviewed highlighted that training not only provided an opportunity for collaborative teaching but was also necessary for their survival in the teaching profession. The excerpt from Gita below highlights training as:

If we want to survive in future, we need to change ourselves. We need to keep ourselves updated with the changing technology. Because if we feel that we can go along with the previous pedagogies and methodologies, it's not possible. No, we also need to change our mindset we need to be receptive to the changing scenario, only then a teacher can survive. This is not an easy nowadays. Earlier it was feeling that teaching is a cup of everybody's tea. Now it's not possible. Yeah, it has become a difficult and challenging job. (Gita)

Mita also shared that she thinks technology has replaced teachers. She further highlighted how:

Technology has replaced the teachers. In future, I mean five to ten years ahead, students will not require the teachers, they will watch all the

sessions online. A teacher's burden will be reduced, and I think our jobs are in danger because of this technology. (Mita)

It seems that teaching using digital technologies is only understood as a transfer of information, which aligns with the teaching methodology of teachers at school A. It seems that using technology for knowledge transmission through online means creates fear among teachers about being replaced by technology.

Archie also suggested that teachers need to be completely ready when teaching using digital technologies and it is:

the responsibility is on the teacher's part that she has to be very well-versed with technology and she should be completely ready before she enters the class. (Archie)

Additionally, Nita also shared how as a teacher,

it's our own responsibility if we want to upgrade ourselves. It is not forcefully put up on us. So, this is for us. If we want to implement it on ourselves, it is truly upon the teachers. It's not that it has been forcibly given to you that you need to do this [...] the kind of children we are getting are very proactive and it difficult to solve their queries. Their queries are not only related to the subject. Their queries are not limited to that. There are so many queries that sometimes even you find difficult to answer. It will be very difficult for teachers in times to come to teach such students who are inquisitive, who are proactive, those who have so many queries. (Nita)

From the above quotes by Gita, Mita, Archie and Nita, phrases like 'survive in future', it is important to 'change ourselves' (Gita), 'jobs are in danger' (Mita) and 'our own responsibility' (Archie and Nita) suggest that teachers at school B prioritise their personal growth and recognise the importance of upgrading themselves to compete in the teaching

profession, especially within the context of teaching using digital technologies. Participants in this study have internalised the importance of training, but mostly from a place of fear and their understanding of how technology is changing the teaching profession. This suggests that participants like Gita and Nita are advocating the importance of training to remain relevant in their area of work. Training is not explicitly forced upon teachers, but it seems the perception that technology changes their practice scenario is being internalised through fear.

Similarly, this is also evident from the quote by Anjali that highlights:

Time is a constraint, but if we want our growth, then we have to take out time for such things. I think nowadays, teaching sector has become just like a corporate sector. It is no more a seven to two job. It is just like a corporate sector. We have to work throughout the day but the salary which we are getting is not at all equivalent to the corporate jobs. But then we need to manage these challenges. (Anjali)

Bitu also shared her concern that she does not want to be left behind and should not only use technology but also motivate students to make use of it.

It should not be like; the world moves ahead, and we would lag behind. If there is any change in the technology, I think that everybody, especially me, should know each and everything and I should learn and I should use that, and we should motivate our children also to make use of technology in their life. (Bitu)

The following excerpt from Radha in the same context also suggests that the head of the school has highlighted the importance of training and during the training it is important to work to:

improve your skills otherwise your replacement is ready. The robotic science is ready with our replacement. Nowadays, teachers have become

students as we try to learn new technology and we have to become tech savvy. I believe it is must for each and everyone [...] If one is not well versed with technology, then he or she is considered zero. (Radha)

From the accounts of the teachers above, it seems the sense of realisation of the need to upgrade themselves, and of technology as a replacement for teachers is passed on in subtle ways, through imposition of Saturday training sessions. The head of school, via the institutionalised school practices, promotes training regimes that aim to internalise the norm for teachers to be lifelong learners at the cost of their rest days. This internalisation subjects teachers to training regimes in the school, which may benefit their expertise, but does so at the cost of their free time. This internalisation is further evidenced through the accounts of teachers at school B who seem to prioritise their training as a tool of competitive advantage through an understanding that they need to keep up with changing times. Teachers in school A also viewed digital training and using the LEAD curriculum as a way to increase their competitiveness with respect to job prospects, although was more evident from new teachers. This suggests that training in both urban and rural schools may also be related to the standards and requirements in urban and rural Punjab.

The next subtheme highlights the strategies teachers apply in classrooms when using digital technologies.

Theme 3: Teachers exercising agency in classrooms

This theme illustrates how teachers exercise their agency when teaching using digital technologies. Teachers prioritise using their own voice, especially when using digital technologies, focusing on building student-teacher connection in the classroom.

Providing conceptual clarity

Teachers using digital technologies prioritise their presence in the classroom. This was common among teachers at school B. Anjali highlighted how she explains concepts to students so they can sense her presence in the classroom. Furthermore, she shares that she feels it is her responsibility to create her importance in the classroom.

As we show the slides, along with that we need to explain them, so that they can sense their teacher's presence and the fact that the teacher can explain it to them in a better way. So, we have to create our own importance [...] now we have to make our role come alive and visible. It is our duty to make it alive, the students will not listen to us, but we have to make them understand and think that we are present [...] This is what I feel, if the teachers want their importance to remain, then they need to create it, it will not come on its own, it has to be created by the teacher.
(Anjali)

Anjali highlights how using her own voice to explain conceptual knowledge to students lets her students know that she can explain better than the technology can. She further shares that it is her responsibility as a teacher, her 'duty', to make her role come alive and be visible. It seems that using technology as a form of providing knowledge is equivalent to losing her presence in a classroom. In this sense, it seems that Anjali is resisting using technology herself and limiting her use because of her concerns around losing her visibility in the wake of using digital technology. Anjali is exercising her agency by resisting, through using digital technology in a limited way. Another teacher, Archie, shares that:

Explanation is required, without explanation that is just like watching a movie which they can otherwise watch in their rooms also or we can share it with them on the WhatsApp and the students will see. So, the best scenario is that with technology, a teacher has to explain also. (Archie)

Different strategies are adopted by teachers using technology for explaining topics in their own words. For instance, Bitu pauses the video to explain the topic in her own words, Ram talks side by side while showing videos to students, and Mita asks students questions in

between so that they remain active in the classroom. This is suggested from the excerpts below.

I just play a video in the class and then share an assignment with the students, but that won't serve the purpose. We can have a blended learning, and I can explain the topic along with using the technology. While playing a video, I will have to pause and explain the concept and then conclude and share the assignment or take up a group discussion regarding what they have learnt. Or we can prepare some synopsis with the students, (Bita)

I always talk side by side with the video. (Ram)

First of all, we should give them the idea about the concept, afterwards we can show it to them through the smart classes. This way they will enjoy these activities because they will be already having clarity of the concept. Their vision will be clear that what the video is trying to convey and what the picture is trying to say. When their concept is clear, then they enjoy these classes otherwise they lose the interest [...] We have to ask the question in between about what the video is they saying, look carefully what is the picture depicting, what is the graph showing. So, we have to ask the questions in between. We have to be very much active and involved while they are watching smart classes. (Mita)

Judging by the above quotes from teachers at school B, the majority of the teachers there are using technologies in the classroom only as a medium of knowledge provision. This further has implications for teachers' digital practices, as evidenced above. The teachers feel threatened by digital technologies and limit their use which results as using technology as form of functionalist model. The teachers seem to prioritise delivering conceptual knowledge to students by not completely relying on technology. The strategies highlighted by teachers, like talking in between or explaining in their own words, further suggest that this is a form of taking control of their classrooms. It seems that digital technology

challenges the control and autonomy of teachers in classrooms (Conole, 2010). These strategies seem to emerge from a place of wanting to assert teacher relevance, underlying the fear of replacement teachers may feel in light of digital technologies' implementation, which in this study seems to lead to an internalised belief that education is changing, and that teachers need to keep up with changing times, as highlighted previously.

Similar strategies were evident in the accounts of teachers at school A. This implies that teaching experiences of using digital technologies are similar in the rural and the urban setting, even though different practices are in place. While teachers at school A follow a readymade lesson plan, those at school B work collaboratively on theirs. Nevertheless, in both schools' technologies are regarded as conduits of information consumption, and teachers at both seem to be taking charge of their lesson delivery in their own way, as a form of resistance. The teachers are integrating their individual efforts by explaining concepts in their own words to students, and not solely relying on the technology, although they give the impression that if they wished to do so they could. This is their way of trying to insert themselves and their relevance in the classroom, further implying that they are not giving over full control to technology. This is further evident in the excerpts from Gita and Nita, who highlight the importance of taking control of the classroom, especially when using digital technologies.

We need to be present every time and we need to control each and everything ourselves. Only then it's fine. We can't leave anything on students here. (Gita)

the responsibility of the teachers will increase. As the technology becomes easily available to the students, we will require more control over it.

Everything will be done. (Bita)

These quotes from Gita and Bita suggest that the need to control derives from their concerns surrounding the effects of digital technologies. Although the two quotes highlight two different reasons for controlling technology, for Gita this control seems to refer to the context of classroom delivery using digital technologies. This is similar to those teachers who

are applying strategies to remain involved and stay active in the classroom when using digital technologies. On the other hand, Bitia highlights control with respect to students who are dependent on technologies. For Bitia, control refers to the context of taking control over technology, because everything is 'easily available' to students through the medium of digital technologies. In both quotes there seems to be an underlying element of concern, which for Gita is about classroom delivery and for Bitia is about the ready availability of resources due to the web.

From Bourdieu's perspective, it seems the digital field brings new learning opportunities for students through available resources. This challenges the typical role of teachers, who in the past saw themselves as the sole knowledge providers. This shift implies a change in teachers' teaching habitus within the context of teaching with digital technologies, one that teachers featured in this study are not in full acceptance of. To keep up with their teaching habitus and the expectations around teaching with digital technology, teachers are teaching in a way that prioritises their own role, through pausing videos to explain concepts and not letting the technologies be the sole holder of knowledge. This results in teaching with digital technologies in a way where teachers feel they are active and involved in classrooms, restoring some meaning to their teaching practice and professional selves.

Although the majority of the teachers at school B suggested using digital technologies as a medium of transmitting knowledge, there were some who seemed to realise the importance of digital skills and literacies for students, and that teachers are responsible for imparting such skills to them. Archie suggested that the responsibility of the teacher is also changed because:

A student can search anything, but right now the responsibility that we have is to teach them; how to filter the information that is available.

(Archie)

Similarly, the quote from Bitia below also highlighted the importance of not only completing the syllabus but also prioritising communication, creativity, and skills, alongside conceptual knowledge, further asserting how the job of teaching has become challenging.

A teacher's role is increasing day-by-day. It is no more like reading from a piece of paper and explaining the topic. The children themselves have so much knowledge in their hands, that with just a click they can gather a lot of information. So, we have to find out different ways in which we can impart the education and what value they get from the content and syllabus. Our duties are increasing day-by-day, and it is limitless. (Bita)

From the quotes by Archie and Bita, it seems there is an awareness from teachers, even if only some teachers, that digital skills are important to impart to students in the wake of digital technologies. However, the implementation of teaching using digital technologies is not embedded in pedagogy as suggested from the accounts of teachers. From a Foucauldian perspective, this can be explained with respect to the policy directives and the legitimisation of particular practices by policy directives and the head of the school. In other words, even though the policy directives highlight educational transformation through means of education, NEP 2020 does not seem to acknowledge the importance of digital literacies and their pedagogical usage in its policy. As highlighted previously, according to Foucault (1979), power also takes the form of creating legitimising norms that result in accepted and expected forms of digital practice. The above excerpts therefore suggest that even though teachers realise the importance of imparting digital skills to students, there seems to be a lack of practical ways for teachers to apply this pedagogically.

Prioritising the student teacher relationship

The interviews with teachers at school B highlighted how they try to make their teaching visible in the classroom through techniques of resisting technology. Another way this was highlighted was by prioritising student teacher bonds in classrooms. The excerpt by Nita below highlights how:

The usage of mobile phones is also increasing. So, these are the things to be worried about. Moreover, they don't interact with the teachers. We had

an alumni meet earlier. When we met those children, we had a better connection with them than what we have nowadays. So, the connection between the teacher and the student is lacking these days. I think this is because of technology and gadgets [...] teachers are the main connect between technology, students and their studies. So, teachers cannot be replaced. (Nita)

Similarly, Sita and Anjali both highlighted the importance of forming connections with students as this cannot be replaced by technology:

In the school we have personal touch, there is emotional bonding, so I think connectivity is a big factor in making learning happen [...] I believe that social and emotional bonds should be there. The technology cannot replace this thing. (Sita)

We need to connect with the student if we want to correct them. We have to establish a connection with them, only then they will listen to us. (Anjali)

The excerpts above suggest how student connections are seen as a medium for valuing their teaching amidst the use of digital technologies. This further suggests that forming connections with students will make them irreplaceable in the wake of technology, as a form of resisting the use of technology. Furthermore, this suggests the underlying fear that using technology can replace teachers. Forming connections with their students results in exercising agency that makes them valuable as teachers, and expands their role beyond just delivering conceptual knowledge.

This is reflected in the quote by Radha below. She shares how she motivates her students to ask her questions instead of using the internet for help. She further added that although she might herself use the internet, she motivates her students to ask her instead of using digital technology.

Even when I teach in my class, I tell my students not to take help from internet rather, they should ask me or can call me. However, I myself am ready to take help from internet but I do not motivate my students to do so [...] I personally believe that my existence is very much there. I mean, I receive so much love and respect from my students and it co exists with digital teaching because they come with the same kind of plea to me. Till the time the students have queries, they will always require a teacher. But maybe gradually, the presence of the teacher is reducing. (Radha)

Radha here highlights how her existence is present in the classroom because of the love she receives from her students. She argues that while students have queries they will require a teacher. It seems that according to Radha, her role as a teacher is defined by her students' dependence on her. The pedagogical view taken is teacher-centred. Furthermore, to keep that dependency of students on her, she encourages them to ask her questions instead of having them relying on digital technology for the same purpose.

For teachers, taking into account the above testimonials, there is an understanding that bonding with students is a priority for teachers, but also an excuse to reinforce the idea that technology cannot replace such a relationship. The previous theme also highlighted how because of the fear of being replaced by technology, teachers prioritise their training as their responsibility to keep up with the changing times, thus highlighting the strategies teachers adopt in their classrooms when using digital technology to exercise their agency, through resisting it.

Conclusion

This chapter has provided the thematic analysis of the case study of a private school in the urban region of Punjab, India. As suggested from the thick description, school B is a large school with 140 teachers in total. Three themes were highlighted in this chapter to make sense of teachers' digital teaching practices. Theme 1 illustrated the implementation of initiatives under DIC, and the different perspectives of teachers using DIKSHA training and

the in-house training provided by the head of the school. The theme further suggested that teachers only completed training on DIKSHA as a performative action, and did not gain value from this training, unlike that provided by their head of school. This further suggested the influence of the head on the school's culture, especially in the context of teachers internalising training as a necessity to survive in the teaching profession. This internalisation was further evident in theme 2, where teachers valued training through collaborative teaching by sacrificing Saturday for professional growth. Theme 3 highlighted teachers exercising agency through means of resistance when using digital technologies in classrooms. This further suggested how teachers preferred to explain in their own language, rather than relying on technologies alone. The theme also highlighted how teachers value forming connections with students in classrooms because this is not replaceable by technology.

Part 5 Discussion and Conclusion

Chapter 9 Discussion

Introduction

Chapters 6, 7 and 8 presented the research findings of this study. The purpose of this chapter is to discuss the key findings therein, thus making sense of teachers' digital teaching practices in private schools in both rural and urban regions of Punjab, India from a theoretical perspective.

This chapter is divided into three sections. The first focuses on digital initiatives in education and the implications of these initiatives for teachers' digital practices. Adopting Foucault's conceptualisations of power and technologies of self, and Bourdieu's habitus, field, doxa and capital, the following section highlights an understanding of continuous professional development (CPD) of teachers promoted through the digital initiative DIKSHA, as operating via neoliberal governmentality and as a medium of accumulating forms of cultural capital. The second section elaborates on the promotion of using digital technologies in education from a functionalist perspective, as evidenced by teachers from both schools. The third section zooms in on the two empirical sites, school A and school B, and the influence of the head of the school in each, in promoting the uptake of digital initiatives among the teachers. The last section of this chapter highlights how the promotion of idealised and normalised approaches to using digital practices leads to a disjuncture between field and habitus that further results in a misalignment between education policies and the practices of teachers at school A and school B.

DIC and implications for teaching practices

1. Digital initiatives operating through CPD as a form of self-governance and capital accumulation

The analysis of digital initiatives in Chapter 6 highlighted the operational mechanism of DIC, which rests on a decentralised framework aimed at empowering India's economy through digitalisation. For this purpose, the Indian government emphasises the promotion of public-private partnerships and shared responsibility between central and state governments. This indicates that the Indian government is no longer regarded as the direct provider of services; rather, the initiatives underpinning the Digital India Campaign have largely worked to facilitate an 'educational' market through privatisation (Olmedo, 2018). Privatisation results in a competitive market that fosters decision-making driven by data and profit motives (Picciano, 2013; Ball & Santori, 2017). Consequently, private companies reframe citizens as consumers and public goods as commodities (Brown, 2015). This is evident with respect to digital initiatives in education, which cast schools, students, teachers, and parents as 'clientele' to consume digital educational products – in the shape of educational resources, technological tools and training packages - thereby positioning India's digital initiative as a commodity. Research participants in this study, especially the heads of the schools, also used the term 'clientele' when referring to the parents of the children they taught, and when discussing their educational provision and strategies. This underscores a market-driven perspective, where education is leveraged as a commodity and parents and students are perceived as consumers of knowledge that private schools can 'sell'.

State-supported privatisation can also lead to power dissipation because accountability is now a shared responsibility between the government (both state and central) and private firms and companies. This creates a lack of accountability from the government, resulting in a reduction of their power. Although this offers a high degree of freedom to the individual in the choices they can make – for example, the type of technologies they can choose for their school - it also places a significant level of responsibility on individuals (the head of school and teachers in this context) to become digitally literate and skill themselves up in a digitally-driven, market-oriented world, as promoted by DIC. This is further highlighted by those digital initiatives in the new Indian education directives that prioritise aspects of self-improvement and accountability, such as Shala Sidhdhi, Saransh, and DIKSHA. The majority

of these digital initiatives focus on self-evaluation, placing the onus on self-improvement on schools as institutions, as well as on teachers as individuals, to pursue their own development in line with the stipulated directives. This has implications in forming individuals who are responsible for their own growth, resulting in less accountability for the government while controlling individuals through expectations and setting standards via policy directives. The implications of these digital initiatives for teachers position them as agents of educational transformation, as highlighted in NEP 2020, while also heightening their accountability for such transformation. These expectations from policy directives were evident in practice, as reflected in the accounts of teachers from both schools. Teachers in both schools seemed to realise that it is their responsibility to empower themselves, with a greater sense of this responsibility observed in school B than in school A. This further suggests that the digital initiatives under DIC in education are grounded in neoliberal ideologies, enforcing individual accountability for the 'optimal utilisation of ICT' (as stated on the webpage of DIC, under *Approach and Methodology*), which, in education, refers to accessing digital platforms, as launched for teachers and schools for self-improvement.

Digital initiatives promoting accountability further implies that individuals should internalise practices, making them the prime party responsible for implementing these policies. This results in forms of power that enable individuals to govern themselves (Foucault, 1979) within the standardised norms set by policy directives. The digital initiatives with which research participants worked as part of their teaching practice and professional development emphasise self-evaluation and self-improvement for schools and teachers, giving schools and individuals the responsibility for improvement while packaging it as a form of self- and institutional empowerment. From a Foucauldian perspective, this translates into forms of self-governance (Foucault, 1988), which are an inevitable part of governmentality, through which individuals internalise and apply techniques to manage their own behaviours, thoughts, and actions (Foucault, 1991). For Foucault, power does not merely operate on individuals externally; it also works through self-discipline and self-regulation (Foucault, 1979). This type of self-governance is observed in the schools and teachers featured in this study through their testimonies, and particularly their accounts of the CPD they undertook. Underpinning their accounts and motivations is a strong notion of self-improvement that is necessary to deliver the practices promoted by these Indian digital

initiatives. In this context, teachers feel that they must train themselves using a digital platform called DIKSHA. These training are further monitored by individual schools through a system of certificate attainment, with each school having its own method of monitoring the completed training. Participants have thus become accomplices to their own subjectification, in that the institutionalisation of these policies has socialised them into norms of teaching and learning that require constant update through specific and continuous training. Due to digital technologies being in constant flux, the imperatives of CPD follow this narrative too, leaving teachers constantly chasing new knowledge and expertise. CPD could in this context be understood as a technology of the self, used to manage and direct their behaviours and to encourage self-regulation of actions and practices (Foucault, 1988).

It is important to highlight that CPD is indeed important for teachers and their intellectual growth, especially within the context of using digital technologies, as studies confirm (see Gabriel et al., 2022). Training is one of the best ways to empower teachers, especially within the context of teaching using digital technologies. However, it is also important to understand how different schools promote teachers within the context of training. The way training is imposed on teachers in both the schools in the research study is critical. This is especially evident in the context of school B, through the subtle shaping of teachers, in Foucauldian terms (Foucault, 1979) making them subject to training as a form of empowerment, leading to teachers internalising and further normalising working towards empowering themselves, even on Saturdays. This further results, in Bourdieusian terms (Eagleton & Bourdieu, 1992), – in the doxification of teachers’ practices – the taken for granted assumptions that remain unquestioned. This was evident from the accounts of all teachers at school B.

For new teachers, who make up the majority at school A, training through DIKSHA is seen as a pathway for personal growth. In contrast, experienced teachers at both schools completed DIKSHA training as a mandatory requirement. This indicates that digital initiatives are generating varied interpretations, with not everyone being fully aligned with the available approaches. Teachers embrace DIKSHA in accordance with theirs and the school’s interpretation of policy directives. The imperatives of the neoliberal concept of self-

improvement and empowerment through continuous professional development (CPD) using DIKSHA is something that most interviewed teachers acknowledged in one way or another through the approaches they undertook. From a Foucauldian perspective, less experienced teachers internalise CPD training as necessary for their professional growth. This internalised practice further leads to teachers governing themselves accordingly and perceiving the value in training as part of their career progression and aspirations, suggesting power through governmentality (Foucault, 1991). Teachers with more experience viewed the training as a necessary requirement that they endured as part of a performative act they were expected to carry out. While teachers in both schools seemed to endorse the view that it is their responsibility to upgrade themselves professionally, they shared different views as to the need to do so in accordance with their level of experience and ambition.

Adopting Foucault's conceptualisation of power (1977) suggests that teachers' agency with regards to their CPD is subject to the interpretations they make of such practices. Moreover, the initiatives launched under DIC also create a form of disciplinary power over teachers, as they feel compelled – willingly or not – to follow the expectations imposed upon them regarding the use of technology in their teaching and being certified to do so. This aligns with the expectations of policy directives in practice among teachers, internalising that training is a means to empower themselves not only in relation to the changing educational landscape that becomes framed through digital initiatives, but also with respect to their career goals and ambitions. While teachers new to the profession see this as an opportunity to get ahead, those with more experience see it as a necessity to remain relevant. Although training is cast by policy as a form of empowerment, teachers highlighted various reasons for pursuing it, many of which are strategically aligned with their career goals less than with their willingness to pursue further knowledge solely for the sake of learning something new. Newly appointed teachers in school A expressed their desire to empower themselves, motivated by the demands of a competitive job market, whereas those in school B prioritised training for personal growth as a strategy to survive or remain relevant in the teaching profession.

Digital technologies and the policies they inspire are not neutral (Selwyn, 2010); they are rooted in political and philosophical approaches that further guide schools and teachers in thinking within the key domains of practice and strategic advantage. This results in schools starting to govern themselves to align within policy expectations, as well as teachers being subjected to a culture of training. From Foucault's conception of governmentality, the idea and practices of managing, disciplining and regulating individuals (Jha & Pankaj, 2021) further results in promoting idealised and normalised ways of using digital technologies in education (Foucault, 1979). The production of subjectivity within economic, social, and political agendas contributes to internalising acceptance that a rigorous training approach is an acceptable form of continuous professional development. This 'always-on' approach to self-improvement thus leads to a 'normalising gaze' (Foucault, 1979, p. 184).

Digital initiatives create a responsibility for schools and teachers to self-evaluate, resulting in internalised control through forms of surveillance (Foucault, 1977). The expectations for schools and teachers to improve themselves also foster forms of self-surveillance, which in turn leads to forms of self-governance (Foucault, 1979) and competition, as seen in this study, for example, through the acquisition and proud display of certificates of CPD completion. From a Foucauldian perspective, this can be referred to as the operation of neoliberal governmentality, producing new subjectivities where schools and teachers are governed not by force, but by internalised responsibility and performance logic (Foucault, 1991) that gives recognition to those who follow it. Self-surveillance is, therefore, a form of neoliberal governmentality that guides individuals or schools in this context with 'a set of truths about the world and [...] a way of looking at the world' (Chopra, 2003, p. 432). In this context, this way of looking is directed by the digital initiatives under DIC, with schools and teachers in charge of setting the digital landscape in the way policy directives require.

a. Surveillance on digital initiatives

Within the context of this research study that focuses on teachers and their digital teaching practices, DIKSHA was one of the initiatives that was most highlighted in teachers' accounts

in both schools. This is because the purpose of DIKSHA, as promoted by DIC, is based on the assumption that through digital self-paced training resources, NEP provides teachers with a digital medium to 'empower teachers and help them to do their jobs as effectively as possible' (NEP 2020). The 50 hours of mandatory training for teachers per academic year has aimed to promote the use of digital initiatives and make teachers aware of the importance placed on digital technology for and in Indian Education, as evidenced in the accounts of teachers in both schools. The mandatory training through DIKSHA and the expectation to earn certificates on completion are aimed to stimulate this directive, creating a measure of incentive, but also control, that ends up defaulting to a culture of performative action (Ball, 2003), leveraging training as distinction and not just staff development. Teachers from both schools highlighted the use of the DIKSHA platform for their training purposes and the importance of gaining the certificate on completion to showcase the required training. This leads to surveillance of teachers through means of generated certificates that further suggest the number of hours of CPD training they have undertaken (Rajput et al., 2022). This mandatory training, and the expectation to earn badges and certificates on completion, creates a measure of incentive, control, and change based on rewards and sanctions, which can be referred to as performativity (Ball, 2003), which emphasises competitiveness, further reinforcing the idea that teachers must be responsible for their own improvement.

Through digital initiatives, teachers become both subjects and enactors of the policy (Ball, 2003). Through policy projecting self-regulation and a micro-technology of control (Ball, 1993, p.111), teachers orient their practices towards serving policy expectations. From a Foucauldian perspective, this form of surveillance is an example of techniques of disciplinary power through the panopticon (Foucault, 1977), which was evident especially within the monitoring mechanism at school B, where teachers and their DIKSHA training were monitored at every level via Google forms. This further leads to performative action that constitutes a more subtle form of controlling teachers. This results in some teachers complying with the normalisation of monitoring, while others suggested forms of resistance to being subjected to such surveillance. This was evident from teachers playing the system of training on DIKSHA as expected by the school by only superficially attending training, only for the sake of attending, but not being mentally present - which suggests forms of resistance towards digital initiatives. Such subtle forms of resistance by teachers highlighted

that they are only implementing digital initiatives because of the imposition to empower themselves through the 50 hours of mandatory training.

b. CPD as an accumulation of cultural and symbolic capital

Teachers in school A, within the context of training on DIKSHA and teaching through LEAD, highlighted that they gained forms of cultural capital that can be translated into other forms of capital, as per Bourdieu (1986). This was evidenced by newly joined teachers at school A, who suggested that their experiences of teaching with digital technologies can provide leverage for them when applying for better job opportunities, as a form of distinction. The cultural capital accrued through CPD certification and experiences of teaching with digital technologies through the LEAD curriculum also becomes a form of prestige in this context, i.e., symbolic capital that has the potential to lead to better job opportunities in future. This shows that teachers' intent is more than gaining skills, they are trying to gain advantage as per their reading of the rules of the educational game, where the DIKSHA platform and NEP 2020 show that capital accumulation for competitive advantage is done through training and certification as evidence of digital expertise. Some of the teachers at school B also suggested being invested in training because of the training being offered by their head of school. As previously highlighted, the head of school B is the resource person for CBSE, who can be seen as someone who is aware of policies at a higher level. Training from such a person leads to gaining skills that are not available to teachers in other schools, which can be translated to symbolic capital in the form of prestige.

Moreover, educational digital initiatives focusing on accountability encourage teachers to utilise digital applications through their personal devices. The narratives of the guidance and policy on digital initiatives highlight that digital technologies are utilised for providing access to quality educational content; underlined is the assumption that digital devices are readily available for teachers and students to use. This has implications for understandings of existing digital inequalities. The digital initiatives issued by the Indian government place a lot of faith in the availability of digital infrastructure across all sectors of Indian society, even though this is still not the case, as this research showed through the case study of a rural

school where technological access is limited and unstable. Policies that take such issues at face value can lead to further reinforcement of existing socio-economic inequalities (DiMaggio and Garip, 2012) in the Indian context, catering for those who already benefit from more digital inclusion and the capitals associated with it – not only the cultural capital digital education resources are able to leverage, but also the social and economic advantage that being digitally literate can imply, alongside the distinction (symbolic capital) being online may give to teachers and students.

The digital initiatives and NEP 2020 focus on the digital divide in India in a rather simplified way, implying that it can be resolved by means of accessing digital resources. However, it means the digital policy does not acknowledge the complex realities of the digital divide, as highlighted in Chapter 4. This further leads to the argument that those digital initiatives examined for this study position themselves as providing access to digital resources (also via CPD), placing the responsibility on the individual and their institutions to overcome the challenges of the digital divide – i.e., access to technological infrastructures and hardware - to access digital resources. Furthermore, the policy documents also do not acknowledge the lack of digital literacies (Deursen & Van Dijk, 2015; Costa & Gilliland, 2017) and the lack of digital knowledge in Indian schools (Deursen & van Dijk, 2014; Shcheeder, Deursen & Van Dijk, 2017; Costa & Li, 2023) as the basis for teacher training. This was further evident in the accounts from teachers in both the schools who did not believe the resources they had access to prioritised digital literacies at a pedagogical level. This, considering Bourdieu's forms of capital (1986), suggests the reproduction of forms of digital inequalities, further widening the digital divide in India, as accessing digital technologies is not a level playing field for different schools in India. This is a priority which when not resolved jeopardises the key purpose of building a digitally literate society. This was further evident from the two schools in this research study, even though it was more salient in the rural school context where access to broadband and digital devices is less common when compared to its urban counter partner. This reflects a geographical divide that further compounds the issues of digital inequalities in India. Additionally, it also illuminates some of the intentions behind teachers' adherence to the CPD demands, in that their digital training gives them a more competitive edge in the form of accrued capital, especially given the scarcity of digital access in their region. Teachers, via such training, can distinguish themselves from other teachers

and schools, thus increasing their market value within the teacher recruitment pool in light of new policy requirements.

2. Digital technology in and for education: A functionalist approach

The digital technology employed to carry out digital initiatives suggests instrumentalist goals of accountability processes through self-improvement more than they seem to promote educational or pedagogical imperatives. The way digital technologies are depicted in the available guidance and resources attributes a very specific direction of technology use, namely one of access to content/resources. This is a limited view of how technology in education can be used, and one that sits uneasily with developmental goals of education as anticipated by the Indian government. Furthermore, such an approach is not aligned with an understanding of a digital participatory culture that aims to be empowering of digital users via the promotion of participation, collaboration and creation (Jenkins, 2009; Miller, 2020). In the context of education this means that teaching with technology becomes a shared venture between teachers and students, where agency is shared for the benefit of learning while doing, or learning through creation (Costa et al., 2018). These are expectations established by the new education policy, NEP 2020, whose given goal is to reform education that reflects and promotes digital transformation. The initial digital guidance that underpinned DIC, which was accompanied by the former national policy developed in 1986, has created a disjuncture between the new vision and old educational approaches that can be broadly discussed as highly conservative. This is reflected in the accounts of all the teachers in both schools studied here.

With the digital initiatives set by DIC preceding NEP 2020, the lag in establishing the direction of education practice around digital imperatives has led to misinterpretation and differences in how technology is leveraged to achieve the grand purpose of digital transformation. This is reflected in policy directives that set standards for teachers to teach in a certain way based on resources that were created for that purpose and which cast digital technologies in education as technologies for the transmission of knowledge through video and pdf resources. This is explicitly reflected in the participants' accounts, where teachers suggest that their teaching now relies on using digital technologies to show

students explanatory resources such as videos. From a Bourdieusian perspective, this imparts a doxic perspective (Bourdieu, 2000) of what teaching with technology can be, one that is endorsed through the standards established by the resources available to teachers. In other words, digital initiatives and the launch of applications like e-paathshala and DIKSHA can be seen as creating a valid way of using digital technologies as a way of teachers accessing digital content they can (re)use in their teaching, which some teachers deemed limiting of their practices even though they assumed this to be the gold standard of using digital technologies because it was promoted by policy initiatives they had to follow. This means that teachers have been socialised through an approach of teaching through rather than teaching with technology (See Costa et al., 2023), i.e., technologies become a channel of transmitting information rather than a new way through which knowledge can be created. Given that their training and available resources mostly lean in this direction, teachers have become inserted in a logic of practice that only partially enables them to harness the innovative potential of technologies, embedding them in a doxic view of what teaching with the use of technologies is or could be. While this seems to sit uneasily with some of the participants with regards to a reported limiting effect on their teaching practice, they do not seem to fully dispute this approach, because it has trickled down through the guidance and training they have received. However, as NEP 2020 was launched to replace NEP 1986, a new disjuncture between practice and policy is slowly starting to be unveiled, given that NEP 2020 is far more attuned to the imperatives of a digital participatory culture, positioning students and teachers as creative and participatory agents within digital contexts. However, undoing the learning/training teachers have been subjected to via the CPD on offer is going to be hard to achieve given the investment teachers have made in shaping their teaching habitus that links technology to access of resources and not the production of content.

Rural and urban contexts: Technology and practical divides

The two case study sites, School A and School B, are different in terms of school size, school infrastructural and resources available, the years of experience of teachers, and the group of students the school caters to, as highlighted in the thick descriptions of each school. This

section discusses what sets them apart and makes them unique in terms of teachers digital teaching experiences and what they might have in common.

1. LEAD: A form of operating disciplinary power

In School A teaching using LEAD has led to standardised forms of teaching using digital technologies, that rests on the pedagogies of transmission. The result, as reflected in participants' narratives, is the creation of standardised ways of using digital technologies that they are unable to change or challenge, as they only have access to a product – teaching resources and lesson plans – and not the process of curriculum design. This further limits the application of digital technologies in education, which are here seen as a channel readymade for teaching that anyone can use without scope for personalisation or teacher input. This was a key issue raised by teachers working at school A, through their accounts of how their teaching often had to feature the showing of videos. Even though they found ways to resist, work around, or complement what those digital resources offered, they expressed a felt limitation on their practice. The demand for digital skills, even in informal settings, is not acknowledged in such approaches, and in turn they did not seem to be appreciative of the digital skills that students acquired outside of formal settings, such as creating reels, due to the standardised way in which digital technologies have been implemented and are expected to be accepted in the context of classroom practice.

Additionally, this shows a direction of technology use through an interpretation of how it can support teaching. It is less evident how such approaches cater to or interpret learning. Furthermore, LEAD approaches have resulted in teachers redefining their role as teachers, which derives from their fear of being replaced, by restating that teaching is human-centred and finding ways to show that teaching through technology is not enough. Even if unconsciously, this shows resistance to the rules of this educational field and compromise with the new technological order, through fighting for their place on the playing field. While a new logic of practice is imposing itself this cannot occur without the endorsement of its agents, as this is the dynamic of field and habitus (see Bourdieu, 1992). This endorsement in the form of seeking validation provides leverage to exercise power, or at least seek some recognition for their worth, even though it may feel limiting. This was evident when teachers

sought ways to empower themselves, which further resulted in forms of self-governance, as discussed above.

So while, from a Bourdieusian perspective, LEAD aims to install a new teaching habitus through a doxified perspective of what technology in education ought to be, i.e., a new way of practising, of ‘how things work around here’, from a Foucauldian perspective (1979) the LEAD curriculum becomes a form of disciplinary power, that leads teachers to internalise and comply with a very specific form of understanding technology in education. For Foucault, power produces reality (Foucault, 1979), and imposed practices create a conscious manipulation of bodily actions (Oksala, 2011). In this sense, compliance can be the product of internalised, subtle, and strategic power operations (Foucault, 1977), which was evident from those teachers following the LEAD curriculum, despite some feeling it restricted their teaching. Furthermore, this continuous control of bodily activity leads to the formation of docile bodies (Foucault, 1979), in that teachers end up ‘buying into’ these forms of ‘doing’ teaching and justifying the approaches they end up taking. This internalisation results in teachers self-governing in line with LEAD and valuing lesson delivery through it. Figure 7 below illustrates how teachers are subjected to teaching with LEAD in school A.

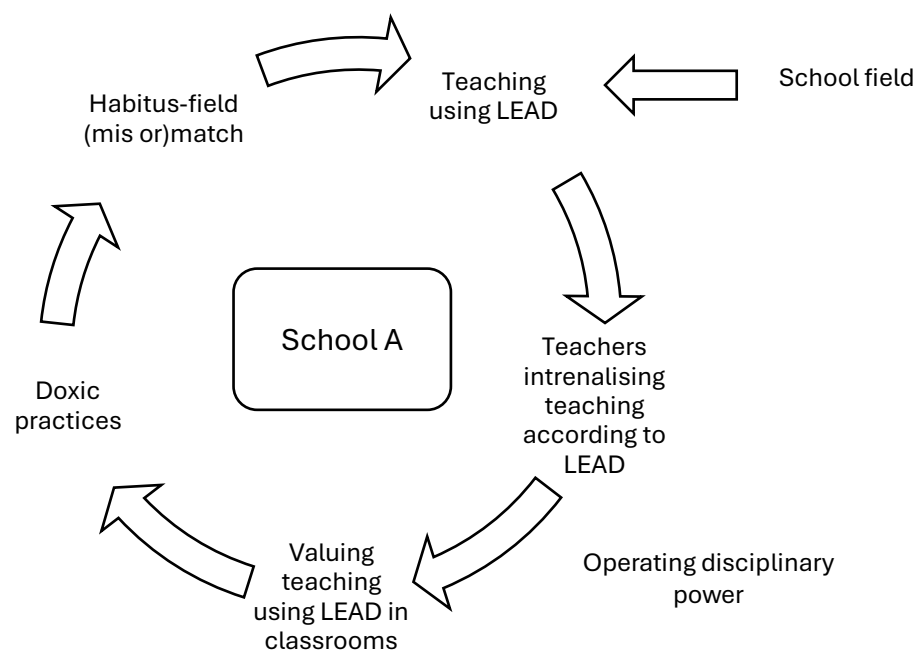


Figure 7: Teachers subjected to teaching using LEAD

Furthermore, adopting and subscribing to educational technology software such as LEAD can be seen as filling the gap of digital infrastructural needs of the schools especially in rural areas. The tablets and digital resources provided on subscribing to the LEAD curriculum were a means to attain the benefits of teaching using digital technologies for the school with less available resources and poorer digital connectivity compared to schools in urban areas. However, such subscriptions result in teachers' digital practices being subjected to those promoted through such educational technology businesses, as evidenced through the teachers' practices in school A.

2. The role of the heads of Schools

The head of school B is the district coordinator for the Central Board of Secondary Education (CBSE), implying that she is one of the trainers appointed by the CBSE as an official training provider to schools following the CBSE curriculum. This further suggests that she has a thorough understanding of policy initiatives, and especially the new education policy, NEP 2020. From the accounts of teachers at school B, the school prioritises training in two forms, online training through the promotion of the digital initiative DIC and the in-house training provided by the head of the school. From the narratives of teachers, those at school B appreciated the training provided by the head of the school more than those received from the digital platform, DIKSHA, so much so that teachers considered themselves fortunate to be working under such leadership. Furthermore, this was evident from the majority of teachers at the school having completed more than 100 hours of training, as proudly highlighted by the head. According to the teachers at school B, the training provided by their head has resulted in teachers valuing training which is personalised, in-house, and run by a resource person of CBSE, who has a thorough understanding of expected and accepted teaching practices in education. Similarly, in the context of school A teaching was framed through a LEAD approach which left teachers with little autonomy as to how to use technology, which may thereby justify greater appreciation for CPD training through DIKSHA. This was especially so for new teachers when compared with the more experienced teachers. This was because training through the DIKSHA platform for new teachers was used as a medium for increasing awareness of new policy developments, as explained above, as a form of accruing credentials and expertise that was seen to make them more competitive.

This view was also highlighted by the head of the school. This further suggested that in both schools, the influence of the head on teachers and their practices was an impactful measure of leadership and technology implementation. This therefore places the head of the school in a position of power with respect to the school field, according to Bourdieu's logic of practice (1990). The head of the school seems to inform teachers about the interpretation of policy directives, which was further reflected in the accounts of teachers from both schools, as aligned with the expectations, standardisations and accepted practices in both schools. This suggests the head's influence on the school field, setting the expectations of the school field, and further impacting on school practices for teachers.

The next section highlights the misalignment of expectations from the policy directive to empower education through means of digitalisation and the digital teaching practices of teachers in classrooms.

Policy-practice misalignment

Digital initiatives in the context of digital education in India promote the ideology of technology as a means of knowledge transmission, grounded in the use of technology to access educational resources. From a Foucauldian perspective (Foucault, 1977), DIKSHA can be seen as an example of promoting idealised and normalised approaches to using digital technologies through forms of training. This is further evidenced by the external curriculum provider, LEAD, which also focuses on supplying digital materials to teachers in classrooms, with external, private providers dictating not only content but also the teaching methods teachers must adopt. The emphasis on content provision as part of such an interpretation of what digital teaching should be suggests a didactic influence – rather than an emancipatory one - on the educational objectives of digitisation. Digital education is therefore largely objectified as access to information and resources, subjecting teachers to limited pedagogical creativity (Costa et al., 2023). At the centre of such interpretations are policy directives that are heavily invested in 'supplying knowledge' as a form of education. In turn, they promote less commitment to fostering the development of essential literacies needed to address the demands of a knowledge society and a digital participatory culture (Jenkins,

2009; Costa et al., 2018). Digital cultural practices value access to information while also placing a strong emphasis on participatory action as a means of knowledge creation and citizen involvement, both suggesting a shift in perspective and encouraging a change in educational practices, particularly regarding who should be the main actors in the educational process (Costa & Harris, 2017). This was not evident from the analysis of DIC, nor from the accounts of teachers in both schools.

Although the digital initiative is portrayed as keeping up with societal change through the digitalisation of resources, the way the initiative positions technology as a source of knowledge transmission only serves one element of digital education: access to published knowledge. There is therefore an incongruity with forms of digital practice that enable the development of a participatory culture in and for teaching and learning. What is more, there also seems to be a misalignment between contemporary (digital) education theories – that emphasise the agentic role of the learner and practices (the 3rd strand of using digital technologies for transformation, see Chapter 3, section on Digital Technologies in Education), prioritising the participatory elements that encourage creation, participation, collaboration, and knowledge sharing through digitalisation (Jenkins, 2009) and the way digital technologies are positioned in NEP 2020 that emphasises the role of content.

Teachers at school A were employing digital technologies as an approach to teaching that was influenced by the LEAD curriculum provider, which was limited to providing conceptual knowledge. In contrast, accounts from teachers at school B reveal that some educators initiate discussions about the importance of digital skills for students but fail to incorporate these discussions into their teaching practices, defaulting to actions that allow them to exercise control over both the technology and the students. Although there is a slight realisation of the importance of digital skills among teachers at school B, the promotion of digital technologies through policy directives does not align with essential skills like creation, collaboration, and knowledge production using these technologies, even though later directives in NEP 2020 do emphasise this aspect.

Additionally, from the perspective of rural schoolteachers, there appears to be a divide between formal and informal learning regarding the use of digital technologies. Some

participants, for instance, expressed concerns about the lack of value placed on digital skills developed outside of school, particularly regarding their pedagogical application. This situation aligns with Foucault's idea (Hoffman, 2011) that certain forms of education are deemed non-normalised due to the impact of policy directives. This further highlights how the application of digital technologies in education is still viewed in isolation and not as commanding transferable skills that can combine in-school and outside use of technologies as learning.

Regarding the digital initiative under DIC, there is a misalignment between emancipatory education theories (see Freire, 1971), which emphasise the learner's active role, and current practices that seem to prioritise content delivery through digital technologies. The policy directives in India demonstrate a lack of engagement with digital culture principles as a form of curriculum innovation (Costa et al., 2018) and prioritise using digital technologies in classrooms mainly for knowledge transmission. Furthermore, this opens avenues for businesses like LEAD, with curricula that rely only on providing readymade plans for teachers to teach in classrooms, accentuating the impact of digital capitalism on the education sector, a trend that has increased since the pandemic and which seems to impact developing nations disproportionately (Patil, 2022).

From a Bourdieusian perspective, this misalignment can also be explained by a mismatch between school practices resulting from policy directives and teachers' teaching habitus (1990). The field's intentions and its agents' habitus are at odds, which can lead to a disjuncture in practice. Teachers at school A highlighted this comparison with the LEAD curriculum. More experienced teachers preferred LEAD over training through DIKSHA due to the lack of practical support offered by the latter. Additionally, teachers at school B demonstrated a tendency to comply with the rules of the school field during training through the DIKSHA platform. This was evident when teachers were not mentally engaged during the online training and indicated that they participated in DIKSHA only to fulfil the required number of hours. This suggests that the CPD training through DIKSHA is not perceived as valuable by teachers, but instead as a necessary strategic action to remain relevant in the field of action. Teachers' compliance with the expectations imposed by the field indicates understanding that a compromise is needed for teachers to remain key

players within the game, but the uneasiness they report suggests that the new ideas and practices the field is aiming to impart have not yet been fully endorsed by them, suggesting a habitus-field disjuncture (Bourdieu, 1977). This was further evident in the accounts of teachers completing the required training because they have to complete it, even if they fully perceive the benefit of it and it may come at the cost of their personal time. Retaining relevance in the field of practice is a form of exercising relative power, a strategy that oftentimes requires compromise between what is expected and what one believes in. The introduction of technology in education has never been reported to be straightforward, especially when it affects the taken for granted approaches people have adopted, and which shape their agency and identity as teachers.

Figure 8 below summarises the key findings from this section that influence teachers' teaching practices. The digital initiatives driven by policies affect school practices, such as the monitoring of the certificates earned by teachers for completing DIKSHA training at both schools. This further indicates that digital initiatives, along with the interpretation of policy directives by the head of the school, shape school structure by establishing the framework of the field (Bourdieu, 1990), such as expectations from teachers within a specific school context, accepted teaching practices, and the school hierarchy. The school structure, through forms of school leadership, also impacts teachers and their teaching practices, as highlighted in this chapter, and summarised in figure 8 below.

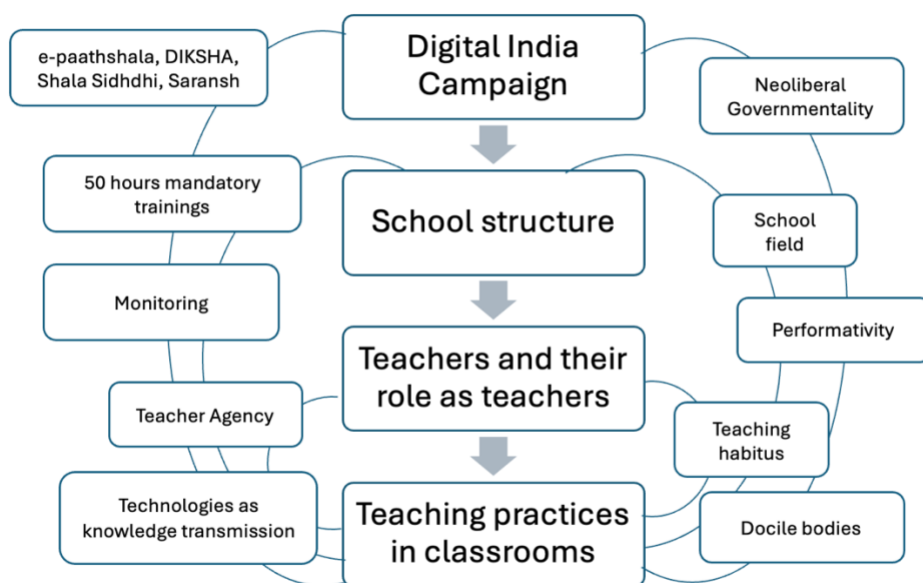


Figure 8: Impact of DIC on teachers and their teaching practices

Conclusion

This chapter discussed the key findings from previous chapters to understand teachers' practices in using digital technologies in classrooms in the aftermath of the Digital India Campaign's educational guidance, training directives, and resources, and the new National Education Policy, NEP 2020. It highlighted how initiatives under DIC can promote a neoliberal ideology, resulting in forms of governmentality among teachers, especially in how they interpret and adjust their approaches to meet political expectations that affect their practices and the values they hold about their profession. Additionally, it has suggested that teachers' digital teaching practices are influenced by school heads, who set the expectations within the school field. This influence is evident from the varying views on training among teachers from different schools, as shaped by their respective heads. The promotion of digital technologies in policy directives correlates with teaching practices that rely on teachers internalising their self-improvement more for strategic gain than for the necessity of seeking professional development. However, there is a misalignment between policy expectations regarding the use of digital technologies, not only in the Indian context but in

society in general, which can be described as casting teachers and students as digital users - within an information consumer frame - rather than digital creators - from the perspective of a content producer, or perhaps more accurately a consumer-producer, dialectic - to reflect real-life digital engagement. This misalignment is also evident in how policy directives encourage digital practices. Initial digital initiatives and directives posited that technology serves as a medium for knowledge access, thereby informing how schools and teachers integrate these technologies in the classroom to fulfil this vision. Although NEP 2020 explicitly advocates for a more interactive use of technology in both teaching and learning as a pathway to learner autonomy and advanced digital skills, its late publication has meant its message is dissociated from the practices and perspectives that educational actors have been working to incorporate. This results in teachers' digital teaching practices being limited to using digital technologies solely as a medium of knowledge transmission, rather than aligning with new educational policy expectations. Consequently, this leads to teachers fearing replacement by technology, instead of utilising technology as a means of transforming education, as expected by NEP 2020.

Chapter 10 Conclusion

Introduction

The purpose of this chapter is to synthesise the research findings in order to revisit the two research questions that underpin this study. This study has aimed to answer the following questions: 1) How does the uptake of the Digital India Campaign (DIC) shape the ethos of private education in rural and urban Punjab, India? and 2) How do the initiatives under the Digital India Campaign (DIC) influence teachers' teaching practices in private education in rural and urban Punjab, India? This chapter will first address the research questions, followed by an exploration of how this study contributes to knowledge, practice, and policy. Additionally, the limitations of this research study and the scope for future research are highlighted.

1. How does the uptake of the Digital India Campaign shape the ethos of private education in rural and urban Punjab, India?

The analysis of DIC highlights how digital initiatives, through the promotion of public-private partnerships and accountability for individuals to empower themselves where the upskilling of digital educational practices is concerned, seem to be directed by a neoliberal ideology. This logic has trickled down from policy to practice by school leaders in how their schools interpret such directives and the responsibilities attributed to teachers concerning their professional development and the approaches they are expected to adopt with respect to teaching and learning. This study presents evidence as to how teachers internalise this direction of travel, through the adoption of perspectives and practices that promote their self-empowerment and self-growth. This is enabled by the digital initiative DIKSHA, the main initiative noted by teachers as a medium for their online training on DIC's perspective of digital education and teachers' needs. As indicated by the research participants in this study, CPD through the DIKSHA

platform is a medium for schools to showcase their commitment to upskilling and staying up to date with digital trends. Such an approach seems to acquire more importance than one that is investing to pursue knowledge and innovation in relation to pedagogical imperatives. This leads to strategic approaches being developed by both the school leadership and the teachers themselves to enmesh themselves into an ethos of digital innovation without substance or value. Emphasis is placed on performing in accordance with the interpretation of the policies and directives in question without necessarily cultivating a strong set of values that define and support a direction of digital education that they can genuinely believe in, endorse, and support. The responsibility and accountability placed on teachers to adapt to changing times and new policy developments in part prevents this. Schools used as case sites in this study were compelled to implement the digital initiatives stipulated by DIC, even without being fully convinced of their purpose. This aligns with Foucault's conception of power, suggesting that digital initiatives in education are operating as a form of disciplinary power (Foucault, 1977), leading to increased docility among teachers, who feel they need to comply with it to remain relevant in their profession. This results in understanding and normalisation that further compels teachers to self-regulation within the expectations imposed on them.

This is particularly evident in the practices reported in School B, where teachers' training records are monitored through a Google form that requires them to attend training sessions, generate certificates, and complete the form to maintain records to share with the head of the school and school management. This training regime has been normalised among teachers at School B, further implying that surveillance is holding them accountable for their training. These subtle mechanisms of power (Foucault, 1977) not only shape teachers' practices but also influence who they see themselves as: implementors of policy guidance without much say in how these can be deployed. This issue is further complicated by school leadership imposing compulsory training on teachers, presented as opportunities for professional enhancement and growth. This leads to the internalisation of these messages as doxa (Bourdieu, 1990), in that these expectations start to be seen and accepted as taken-for-granted activities and practices that should not be questioned but followed. This, for example, was evident in their

acceptance of attending training sessions on their rest days, on Saturdays, showing their subjectification to the imperatives of the school, which is rationalised as for teachers' own benefit. This scenario is not very different from that reported by teachers in School A, who, despite struggling to complete training due to time constraints and a heavy workload, sacrificed their sleep to meet the demands of their professional learning. This aligns with the rationality and subjectification of a 'good teacher' and 'good worker', which is also interpreted as a way of showcasing competitiveness within the Indian teaching job market, which inevitably will privilege those who can show engagement with digital training.

Furthermore, it is important to note that a school's ethos, as reflected in teachers' utilisation of digital technologies in accordance with policy directives, is heavily influenced by the heads of school. The school leadership encourages training through the DIKSHA platform, tailored to the context of each school, as evidenced by the accounts of teachers in both schools. For instance, in School A the head of school regarded the training provided through the DIKSHA platform as a 'lifeline' for new teachers, as most of them joined immediately after completing their bachelor's degree and needed to be made aware of new policy developments and evidence of innovative practices to advance to their next job. This aligns further with the accounts of teachers at School A and how they describe their understanding of the platform and the training opportunities it makes available to them. The value of training on DIKSHA was notable primarily among teachers new to the profession, while more experienced teachers preferred LEAD A due to the practical support that teaching through LEAD provided with respect to the lesson plans they had to use. In contrast, teachers in the urban setting (school B), most of whom have ten or more years of experience, viewed training as a means to empower themselves and to keep up with the changes brought about by digital technologies, to maintain their relevance in the field. However, this relevance was mostly perceived through a panopticon conception of how they had to show engagement with CPD training, leading teachers to adopt a performative approach to such opportunities, given the rigorous monitoring mechanism of School B in documenting the CPD certificates accrued by teachers. The training experiences at School B were also influenced by the position of its head of school, who took on a dual

role, also being the district coordinator of CBSE. The in-house training provided by the head of the school was more personalised, resulting in greater appreciation for training at School B compared to the more experienced teachers at School A. Regardless, the school ethos at both schools was heavily shaped by a logic of performance adopted to reflect their interpretations of the policy. This meant that each school devised its own rules, accepted practices, and norms as a way to demonstrate how they are successfully delivering governmental imperatives. While this allows them to show they are fully on board with DIC directives, commodifying their offer as innovative and driven by digital solutions, there is less evidence that this claim to innovation trickles down to pedagogical expertise that can transform their educational practices.

2. How do the initiatives under the Digital India Campaign influence teachers' teaching practices in private education in rural and urban Punjab, India?

The analysis of the two case sites shows that the digital teaching practices of teachers are complex and contextualised by their urban and rural needs. Their approaches and practices are influenced not only by the uptake of initiatives under DIC but also by factors such as school structure, leadership style, resource availability, teachers' perceptions of using digital technologies for teaching and learning, and their navigation of school expectations, alongside the impact of digital policy initiatives. From the accounts of teachers in rural and urban private schools, analysis suggests that teachers tend to adopt a functionalist approach when it comes to using digital technologies in their classrooms. This shows a perspective that mostly emphasises the role of digital technologies in education with respect to knowledge provision. Elements of digital technologies such as participation, collaboration, and creation (Jenkins et al., 2006) were rarely contemplated within the strategies teachers reported using in implementing digital technologies in their teaching. This suggests an interpretation of technology as a tool of teacher replacement, something many participants hinted at when contemplating their future. Furthermore, teachers did not emphasise the integration of digital technologies as key to pedagogical innovation, nor did they report the need to support the development of their students' digital literacies. Instead, they exercised

their agency to highlight the need for their presence when teaching conceptual knowledge, asserting the value of their work over that of technologies. This was a concern evident in both schools, suggesting that the influence of digital practice policies like DIC and NEP 2020 has been on technology implementation as opposed to pedagogical transformation.

In rural schools, teachers participating in the study reported having to use the LEAD curriculum to teach with digital technologies, which further influenced and shaped their teaching practices in restrictive ways, as the use of the LEAD curriculum was an imposition on their teaching practice that operated through a closed curriculum of readymade lesson plans. This suggests a form of disciplinary power (Foucault, 1977) that subjugates teachers to controlled and impersonalised forms of teaching, from which they are removed pedagogically, as their input to how teaching and learning is organised is not requested or considered. It can be argued that LEAD and similar educational technology businesses are influenced by a narrow vision of digital inclusion that promotes access to educational resources, but which does not tap into more advanced understandings of digital divides that aim to tackle disparities in cultural understandings of how digital technologies can be leveraged for personal and educational gain through the opportunities they can present. Excluded by such technologies by for-profit educational solutions are teachers as well as students. While teachers are not invited to develop expertise and understanding of how these technologies can be harnessed to transform and enhance their curricular and teaching practices, students are not exposed to different ways in which technologies can be used for learning in more innovative and creative ways. A conception of digital education as a form of accessing content precludes individuals from experimenting with the other elements of using digital technology in education, that empowers learning, for instance, using technologies for participation in and creation of knowledge.

This interpretation of digital technologies in education was present in both rural and urban settings, even though they took on different contours according to their contextual nature. In the rural case, the LEAD approach can be justified as allowing for a more seamless experience of a version of digital education that was usable with basic

digital devices, i.e., unstable access to broadband and infrastructure. With the ready-to-use content downloaded to devices, the risk of technology failure was lessened, allowing schools and their agents to report on a good technological experience. In the context of the urban school, which was not subscribed to LEAD, the use of technologies was still mostly employed to harness resources that complemented, or in some teacher's views replaced, teaching practices. However, educators in both environments shared a similar perspective on the use of digital technologies, viewing them primarily as a means of transmitting knowledge to students, not of empowering students, as well as themselves, with new pedagogical approaches that could reflect the day-to-day use of technology where people both consume and produce information through different means associated with their digital engagement. This could include forms of text production, but also other multi-modal forms of communication that draw on photography, video and/or audio. These opportunities around using technology in more diverse ways in the classroom were largely absent from research participants' testimonies.

Underlined are the limitations of the DIC policies, directives and CPD packages that show an inclination to activate the use of technology in schools in a very specific way, one that is also aligned with general commercial interests and that focuses mainly on using educational resources. This, however, is curiously in contrast with NEP 2020, which is underpinned by a series of educational principles that recognise digital technology as transformative. Given the delay in publication of NEP 2020 in relation to the DIC policies and directives efforts are required to re-align DIC with the direction of the NEP 2020 objectives. Nevertheless, this will be a more challenging task than the initial phases of DIC integration. Teachers and schools are already deeply rooted in the logic of education technology as offering digital content, and they may now also need to add a new stance to it to recognise the role of technology as a means to foster knowledge creation, thereby perceiving students as active producers of knowledge too. This paradigm shift will be crucial for implementing NEP 2020 in line with its guiding principles. Otherwise, Indian education will promote a limited version of the innovative side of integrating technology within the classroom.

The contributions of this research

This research makes the following contributions.

Contribution to knowledge

This research unveils the gap in knowledge regarding the understanding of DIC in education and teachers' digital teaching practices in private schools in rural and urban Punjab, India.

The study, through analysis of digital initiatives in education, suggests that DIC relies on public-private partnerships with shared responsibility between state and central governments, indicating a lack of accountability and regulated control by the government. These initiatives further highlight how efforts in education grant autonomy to schools or teachers for implementing digital initiatives aimed at self-evaluation and self-improvement. This underscores that the digital initiatives are based on a neoliberal ideology that prevents more diverse and innovative approaches from emerging, as the concern of schools is to ensure they can evidence they are following the directives. Furthermore, this study emphasises how private educational technology companies like LEAD utilise digital technologies that further influence teachers' understanding of technology in education limited to access to educational resources.

Although this case study research is situated in private schools in urban and rural regions of Punjab, it serves as a starting point for understanding digital teaching practices within the context of digital initiatives in India. The study emphasises the necessity of unpacking the nuances of various digital initiatives and the influence of NEP 2020 on teachers' practices. In light of recent policy developments, this research underlines the need for further investigation into teachers' practices, their perceptions of utilising digital technologies, and the impact of policy initiatives across different schools in India that strive to empower the country through digital transformation.

The novelty of utilising theoretical tools from both Foucault and Bourdieu allows for unpacking teachers' experiences and their role in the classroom through a critical lens, highlighting the hidden curriculum of how and with what intent digital technologies are used in education, as well as how teachers exercise their agency within the expectations of policy directives and their school's ethos and goals to promote themselves as innovative and digitally ready. Furthermore, utilising these theoretical tools contributes to the lack of critical studies in educational technology, as pointed out by (Selwyn, 2010) .

Contribution to practice

This research offers rich descriptions and in-depth analysis of digital teaching practices, particularly the understanding of digital initiatives, which include training through the DIKSHA platform in both urban and rural schools.

The study also suggests that the misalignment between digital initiatives, which aim to transform education, and teachers' practices, is limiting the perspectives they end up implementing, especially those that link technologies to the ability to provide experiences of knowledge transmission. This results in teachers using technology in passive and superficial ways that add little pedagogical meaning, but which heighten their concerns about being replaced by digital technological developments in the future. This further limits their use of digital technologies to merely providing knowledge as a singular element of digital education.

The study also shows that teachers' understanding of using digital technologies in both rural and urban schools are not that different despite their contextual geographical and digital infrastructural differences. This further highlights the need for teachers to learn about and apply pedagogies that cast technologies as a source to practice and empower student agency. This further indicates that pedagogical support in practice using digital technologies is essential for teachers. It also suggests implications for teacher training that are necessary within the context of integrating digital technologies into lesson planning, with DIKSHA

provision requiring serious updates to its training provision to align with NEP 2020 principles.

The study also highlights that although one of the vision areas of DIC rests on digital literacies, this was not evident in the accounts of teachers' digital teaching practices. Teachers' digital practices do not seem to highlight digital literacies, especially for students, implying the need to prioritise teachers' awareness of the advanced levels of the digital divide in Indian schools, so that they can adapt their practices accordingly to benefit their students' digital engagement and literacy.

In short, this study evidences that teacher training needs to be redeveloped to include a more comprehensive understanding of digital technologies as both a form of access to educational resources and a form of participation in digital environments, and as a space for exercising creative forms of knowledge production that can position students as digital citizens. Such an approach can also provide teachers with a greater degree of autonomy regarding how they apply their CPD learning to their practice, giving them much needed creative autonomy to conduct their teaching.

Contribution to policy

This research contributes to policy by examining the policy-practice gap in teachers' digital practices within classrooms while implementing digital initiatives and NEP 2020. The policy initiatives aim to transform education through digital technologies, with this research suggesting a misalignment between technology use and policy expectations. This further impacts teacher and their teaching practices when using digital technologies.

This research study contributes to an understanding of how policy is being deployed in practice through perspectives that see the use of digital technologies as a means of knowledge transmission. This conflicts with the expressed expectations set by DIC's vision to transform India digitally, particularly through the directives published under NEP 2020. The late introduction of NEP 2020 has not managed to overcome the limited views of technology

for education imparted by initial directives, as suggested by the accounts of teachers in the study. Elements of a participatory web, such as creation, participation, and collaboration at the policy level, along with clear guidelines for teachers to embed at a pedagogical level, are required to fulfil both DIC and NEP 2020 objectives.

Training provision by DIKSHA would therefore benefit from embedding digital technologies in the classroom through a pedagogical perspective that prioritises different curricular principles fit to teach with digital technologies and the learning opportunities they can enable (Costa & Harris, 2017), rather than just being leveraged to access online content. One initial approach could be to involve teachers in creating, collaborating, and participating through the digital platform DIKSHA rather than merely using the platform to access digital content to acquire certified training.

The study has also shown that the complicated reality of the digital divide in Indian schools needs acknowledgement, so that the goals of NEP 2020 can be fully exploited and realised. Furthermore, policy interventions must address more advanced levels of the digital divide beyond digital access. The development of digital skills and cultural knowledge is essential in the promotion of digital literacies and citizenship. It is essential to create inclusive digital teaching and learning approaches, prioritising the use of digital technologies as a foundation for preparing future-ready individuals through education.

Finally, through analysis of digital initiatives and understanding of teachers implementing digital initiatives, it is crucial to highlight that to achieve the goals of DIC through education, the way policy and teacher training aims to fulfil the vision of DIC needs to align more closely with the NEP 2020 guidelines.

Limitations of the study

There are some limitations to this research study.

The purpose of the study was to investigate how digital teaching practices are influenced by the policy initiatives launched under DIC with respect to education. For this, case study research was deemed to be the most appropriate methodology, as justified in Chapter 5 of the research methodology. However, case study research has its own set of limitations, one of which is the lack of generalisation possible from the cases due to the uniqueness of each case (Hamilton & Corbett-Whittier, 2012). Although the case sites exhibited some similarities among teachers' digital practices in terms of exercising their agency in classrooms, and the use of digital technologies being limited to knowledge transmission, replicating this research study across different regions of India would provide a deeper understanding of policy initiatives within classrooms, especially in a diverse country like India. Similarly, due to the time constraints and resources of being one researcher, other stakeholders such as policymakers and management members of private schools were not included in the analysis.

Due to the pandemic and the time restrictions of the PhD programme, the duration of the school visits was limited. As such the study could not capture the teachers' practices at School A after the school stopped using the LEAD curriculum. Understanding whether their practices differed or not could be a potential extension of this study, aiming to explore teachers' teaching practices, which was beyond its original scope.

Nonetheless, this study addressed the gap in knowledge regarding teachers' teaching practices and the implementation of digital initiatives in classrooms.

Areas of future research

This research project has thus far been one of the few studies to focus on the influence of DIC in education. The policy analysis of DIC within the educational context and recent policy developments highlighted the need to address gaps related to teachers and their teaching practices.

Each digital initiative under DIC presents an opportunity for further research to understand the implementation, policy development process, key stakeholders involved, and the impact of digital initiatives on teachers, schools, parents, and young people. There is potential to grasp the effects of such policy initiatives not only for teachers but also for students, parents, and schools. This would facilitate the conceptualisation of the decentralised implementation model of the digital initiatives under the DIC, which is based on the action of neoliberal ideology. Further research specifically on each digital initiative will contribute to the literature on the policy analysis of DIC in education. This will further point out new CPD needs that would merit being piloted and investigated within the context of policy implementation in schools in India.

The research study also highlighted how the new education policy, NEP 2020 uses technology as a medium to fulfil United Nations Sustainable Development goal 4, where technology is seen as an equaliser. Further research especially within the context of digital divide based on different castes and religious perspective in both private and public schools would be an area of future research that provides policy-practice research within the context of DIC in Indian schools.

The study focused on understanding teachers' digital teaching practices in urban and rural private schools in Punjab to clarify the overall uptake of digital initiatives. From the research findings, the influence of the head of the school plays an important role in implementing policy initiatives in the school. The future studies on the how the heads of the schools in India especially in both private and public schools will help contribute to understanding and interpreting the policy directives further influencing the uptake of digital initiatives in Indian schools. This would enrich the research on policy practice in Indian education.

The research study also suggested the gap of formal and informal digital skills among teachers and students more in rural case site than in urban. The future research on teachers' digital practices outside of school and teachers' use of digital technology outside of teaching and learning would further accentuate teachers' experiences of using digital technologies in classrooms. As the research findings highlighted the pedagogy of using digital technologies by teachers in both the schools relied mostly on knowledge transmission using digital

technologies, the area of future research on more nuanced understanding of digital skills and understanding of different digital skills among teachers would provide nuanced pedagogical understanding of using digital technologies by teachers in classrooms.

Although the study focused on digital technologies in classrooms, it provides opportunities to explore emerging technologies such as artificial intelligence, machine learning, and LLMs, along with their implications for teachers and their practices concerning new policy directives.

Appendices

Appendix 1

Activity 1.6 from Hamilton and Corbett-Whittier (2012, p. 14)

Problem under investigation: To investigate how school and teachers' teaching practices are influenced by the initiatives under DIC.

Instrumental form of case study

Case: Two Private schools (one in rural and one in urban area of Punjab, India)

Who/ what could provide data?

School website

Teachers at the school

Head of the school

Some core questions might be?

How DIC is understood among teachers at private schools?

How are teachers using digital technologies in classrooms?

What are the school practices that are influenced by DIC?

Appendix 2: Questionnaire informed by theory

Questions/ Items	Purpose for the question	Theoretical explanation	Ideas for Interview questions
About			
1. The school you are teaching is in	To know where the participant is located, to understand the cultural context.	This section is to understand the social structure, the school field of the research participants. The demographics of the school will enable gain an understanding of the experiences of research participant within the digital field.	Questions like breaking the ice by asking years of experience in teaching, in school and the subject the teacher teaches?
2. The school you are teaching is a	Type of school is important because the survey will be circulated to 2 different research sites.		
3. Your gender	To check if there is any gender disparity within the context among different research sites.	Items 5, 9 and 10 gives explanation to habitus which is to understand the research participants and their history of experiences professionally and digitally.	
4. Your age in years	To know if there is any connection with age and experience with digital teaching and learning of research participants.		
5. I am a	To understand the role of the teacher in particular research site/school.		
6. What subjects do you teach?			

7. Which stage of career would you consider yourself to be at?	To deeply understand the subjects the research participants/ teachers are teaching and if they have any connections with their digital use.		
8. What is your highest education achieved?	To understand the motivation and aspirations of research participants.		
9. Your teaching experience in years			
10. Your experience of teaching and learning with digital technology in years	To know the highest educational degree of research participants.		
	To understand teaching journey of research participants.		

	To gain an understanding of digital teaching and learning experiences of research participants.		
Digital India Campaign			
11. I am aware of the policy called ‘Digital India Campaign’ initiated by the Government of India. 12. I am aware of one or more digital programmes mentioned above under the Digital India Campaign. If yes, specify. 13. My school is engaging with one or more digital programmes which are under the Digital India Campaign.	To know if the teachers know the policy initiative called Digital India Campaign. To know if the programmes under the policy are known to the research participants. To understand in which ways (via which initiatives) the policy is being implemented in different schools.	This section derived from the policy analysis is to understand how school prioritises implementation of DIC and the performativity aspect of using DISKHA a training platform.	

14. The implementation of the digital programmes is an important development for my school.	To know how serious the school is in implementing the programmes under the campaign. At the fore level, to understand the take on the programmes under the DIC by research participants/ teachers.		
School Environment			

15. My school has digital infrastructure available for the implementation of digital teaching practices. 16. My school encourages teaching and learning with digital technologies. 17. My school has a digital literacy policy in place. 18. My school understands my professional developmental needs and provides training in the implementation of digital teaching practices (for example, via DIKSHA). 19. My school has made compulsory for me to take professional	To know if a particular research site has the digital infrastructure like computers, wifi available for research participants/ teachers. To know how serious a research site takes on teachers' continuous professional development within the context of technology and if a particular research site provides training to research participants. To know if the training are encouraged via DIC programmes.	To understand social field, school. Aspects of performativity	

development courses (on DIKSHA) to improve my digital teaching practices. 20. My school provides opportunity to share and implement digital teaching practices with other colleagues. 21. My school acts on the feedback I provide about my digital teaching experiences. 22. My school encourages me to create lessons that make use of digital technologies. 23. My school has a digital learning management system.	To understand the culture of the school and the peer relationship among research participants. To understand the dynamics of research participants within a research site To better understand the peer-to-peer interaction.		

	To know if research site creates an environment for research participants to have a voice and that voice is heard. To understand if the school adopts neoliberal policy implementation. To know if a particular research site uses any digital teaching and learning platform.		

Teachers' Digital Experiences			
24. Teaching with digital technologies allows me to be creative with my lesson planning/teaching.	To know if research participants are comfortable to use the digital teaching and learning platform.	To understand elements of digital education	What according to you is digital education?
25. Teaching with digital technologies allows me to plan collaborative lesson with my students.		To make sense of teaching habitus of teachers and practices that encourage formation.	How do you think the policy initiatives have impacted your teaching and learning?
26. Teaching with digital technologies enables me to create a more inclusive environments where all students can participate.	To know the pedagogic approach of teachers when using technology for teaching and learning.	To understand technologies of self and technologies of domination.	
27. Teaching with digital technologies helps me design more autonomous ways of learning.		To understand acts of resistance through digital practices.	
28. Teaching with digital technologies makes my practice visible to others. I think this is a good thing.	To know the pedagogic approach of teachers when using technology for teaching and learning.		

29. Teaching with digital technologies allows me to be more connected to my students.			
30. Teaching with digital technologies increases engagement in learning among my students.	To know the pedagogic approach of teachers when using technology for teaching and learning.		
31. Teaching with technologies exposes my practice and makes me vulnerable towards my superiors.	To know the pedagogic approach of teachers when using technology for teaching and learning.		
32. Teaching with digital technologies limits my autonomy as a teacher.			
33. Teaching with digital technologies would not be my first choice.	To know the power dynamics of student teacher in teaching online.		
34. I use the digital learning management system to plan my lessons.			

35. I am comfortable asking students for help when teaching with digital technologies. 36. I need to upgrade my digital skills. 37. I am confident teaching with digital technologies. 38. When given a choice, I would ignore teaching with digital technologies. 39. COVID-19 has accelerated my teaching with digital technologies. 40. The Digital India programmes have supported my teaching practices.	To know the power dynamics of student teacher in teaching online. To know how digital programmes have impacted teaching online.		
Subjective Question			

41. How do you think the pandemic (COVID-19) has affected your teaching with digital technologies?			
42. How do you think The Digital India programmes has affected your teaching practices?			

Appendix 3: Changes before and after expert's review

Changes before expert's review	Changes after expert's review
Added questions regarding COVID	COVID-19 has accelerated my teaching with digital technologies. How do you think the pandemic (COVID-19) has affected your teaching with digital technologies?
Made changes to the language The Digital India programmes has affected my teaching practices. I feel comfortable asking help from my students when I use technology in my teaching. I use the digital learning management system to plan my lessons using digital technology. I feel I don't have control when I am using digital technology in my teaching.	The Digital India programmes have supported my teaching practices. I am comfortable asking students for help when teaching with digital technologies I use the digital learning management system to plan my lessons. Teaching with digital technologies limits my autonomy as a teacher.

I feel my students are more engaged in learning when I use technology in my teaching. I feel teaching using digital technology allows me to be creative with my lesson planning/teaching. I feel teaching using digital technology allows me to plan collaborative lesson with my students. I feel I am more connected to my students when teaching using digital technology. My school pressurises me to create lessons that make use of digital technology.	Teaching with digital technologies increases engagement in learning among my students. Teaching with digital technologies allows me to be more connected to my students. Teaching with digital technologies makes my practice visible to others. I think this is a good thing. Teaching with digital technologies helps me design more autonomous ways of learning. My school encourages me to create lessons that make use of digital technologies.
Questions that were added	When given a choice, I would ignore teaching with digital technologies. I am confident teaching with digital technologies. I need to upgrade my digital skills. Teaching with digital technologies would not be my first choice. Teaching with technologies exposes my practice and makes me vulnerable towards my superiors.

Appendix 4: Online questionnaire

Consent for the Research Study

You are invited to take part in a study that aims to explore the influence of the Digital India Campaign on educational practices.

This study has received an ethical approval from the Ethics Committee at School of Education of Durham University.

Information about the project and how the responses will be analysed can be accessed here: https://durhamuniversity-my.sharepoint.com/:f/g/personal/fghp25_durham_ac_uk/Eod0SLeDgSBNvrzBWtEbBSYBxKSP0nlZT4CImTLk6lMQ_g?e=x1bXfq

This questionnaire is anonymous, and no questions are mandatory.

By clicking the submit button at the end of the questionnaire, you agree to the terms of the research:

- I. I confirm that I have read and understand the information sheet and the privacy notice for the above project.
- II. I have had sufficient time to consider the information and ask any questions I might have.
- III. I understand how the data will be stored and what will happen to the data at the end of the project.
- IV. I agree to take part in the above project.

- V. I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason.

About you

The questions below are some general questions about you and the school you are teaching in.

1. The school you are teaching is in

- Rural Punjab
- Urban Punjab

2. Your gender

- Male
- Female
- Other

3. Your age in years

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old

4. I am a

- Pre-Primary Teacher
- Primary Teacher
- Secondary Teacher
- Head Teacher

- Other

5. What subjects do you teach?

6. Which career stage would you consider yourself to be at?

- Early career
- Mid-career
- Senior-level

7. What is your highest education achieved?

- Class 10+2
- Bachelors
- Professional Diploma
- Masters
- Ph.D

8. Your teaching experience in years

- 0-1 years
- 2-3 years
- 4-5 years
- 6-7 years
- 8-9 years
- 10- More than 10 years

9. Your experience of teaching and learning with digital technology in years

- 0-1 years
- 2-3 years
- 4-5 years
- 6-7 years
- 8-9 years

- 10- More than 10 years

Digital India Campaign

[Digital India Campaign](#) was launched by Prime Minister, Narendra Modi in the year, 2015 with the mission to “transform India into a digitally empowered society and knowledge economy” (Government of India, 2020b). The questions in this section are about your awareness of the digital programmes launched under the Digital India Campaign and the implementation of the programmes in the schools you are teaching.

The following are the programmes launched to promote digital India.

- a. ePaathshala
- b. Online Labs (OLABS)
- c. Saransh
- d. Shaala Darpan
- e. Shaala Siddhi
- f. SMS based Mid-day meal monitoring system
- g. Swayam
- h. eBaasta
- i. DIKSHA (Digital Infrastructure for School Innovation)
- j. NISHTHA
- k. CBSE COE (Centre of Excellence)

Please indicate how much you agree or disagree with each of the following statements.

10. I am aware of the policy called ‘Digital India Campaign’ initiated by the Government of India.

- Strongly Agree

- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

11. I am aware of one or more digital programmes mentioned above under the Digital India Campaign.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

If yes, please specify _____

12. My school is engaging with one or more digital programmes which are under the Digital India Campaign.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

13. The implementation of the digital programmes is an important development for my school.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

About my School

The following questions are around the digital education implementation in your school and how the school is supportive of your training needs.

Please indicate how much you agree or disagree with each of the following statements.

14. My school has digital infrastructure available for the implementation of digital teaching practices.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

15. My school encourages teaching and learning with digital technologies.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

16. My school has a digital literacy policy in place.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

17. My school understands my professional developmental needs and provides training in the implementation of digital teaching practices (for example, via DIKSHA).

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

18. My school has made compulsory for me to take professional development courses (on DIKSHA) to improve my digital teaching practices.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

19. My school provides opportunity to share and implement digital teaching practices with other colleagues.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

20. My school acts on the feedback I provide about my digital teaching experiences.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

21. My school encourages me to create lessons that make use of digital technologies.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

22. My school has a digital learning management system.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

My experiences of teaching with digital technologies

This section aims to understand your perceptions, experiences, and teaching practices in relation to digital technology.

Please indicate how much you agree or disagree with each of the following statements.

23. Teaching with digital technologies allows me to be creative with my lesson planning/teaching.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

24. Teaching with digital technologies allows me to plan collaborative lesson with my students.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

25. Teaching with digital technologies enables me to create a more inclusive environments where all students can participate.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

26. Teaching with digital technologies helps me design more autonomous ways of learning.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

27. Teaching with digital technologies makes my practice visible to others. I think this is a good thing.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

28. Teaching with digital technologies allows me to be more connected to my students.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

29. Teaching with digital technologies increases engagement in learning among my students.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

30. Teaching with technologies exposes my practice and makes me vulnerable towards my superiors.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

31. Teaching with digital technologies limits my autonomy as a teacher.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

32. Teaching with digital technologies would not be my first choice.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

33. I use the digital learning management system to plan my lessons.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

34. I am comfortable asking students for help when teaching with digital technologies.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

35. I need to upgrade my digital skills.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

36. I am confident teaching with digital technologies.

- Strongly Agree
- Agree
- Neither agree nor disagree

- Disagree
- Strongly disagree

37. When given a choice, I would ignore teaching with digital technologies.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

38. COVID-19 has accelerated my teaching with digital technologies.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

39. The Digital India programmes have supported my teaching practices.

- Strongly Agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

40. How do you think the pandemic (COVID-19) has affected your teaching with digital technologies?

41. How do you think The Digital India programmes have affected your teaching practices?

Thank You

Thank you for completing this questionnaire.

Furthermore, if you have any questions about this research, or would like to know the result analysis of the study, please contact me at priyanka.bhatia@durham.ac.uk.

Appendix 5: Analysis of the pilot questionnaire

1. Awareness of the Digital India Campaign

The aim of this section was to understand the basic understanding of Digital India Campaign among teachers and to know how many initiatives are being implemented in the school among the initiatives introduced by Digital India Campaign.

Majority of the participants were aware of the policy called Digital India Campaign with 58.4% agree and 37.1% strongly agree with 7 respondents to neither agree and disagree and only one to disagree. Similarly, approximately, 55% of the respondents agree to be aware of one or more initiatives under the Digital India Campaign. The overall majority states that most of the participants are aware of the policy called Digital India campaign. Similarly, approximately 41% and 53% of the participants strongly agree and agree respectively the programmes being practiced by the schools they are working.

By asking which initiatives were most commonly aware, 100 responded and the most popular initiatives were: DIKSHA, ePathshala and CBSE Centre of Excellence. The most popular one, DIKSHA platform focusing on providing interactive online course on 'experiential learning' for teachers. This notice by Central Board of Secondary Education (CBSE) was released on 2nd July 2020, during COVID where it was 'requested to join this free online course mandatorily' for all the schools affiliated to CBSE curriculum body. Presently, it is mandatory for all the schools to keep encouraging teachers to take up online courses via DIKSHA platform and upload the certificates on the CBSE portal. The certificates are awarded after the end of each course, and it is mandatory for all the teachers to upload on the CBSE portal website.

2. School culture within the context of digitalisation

The aim of this section was to understand the school culture within the context of digitalisation. This included, the implementation of Digital India Campaign, the availability of digital infrastructure, the professional development practices and the opportunities to implement digital teaching practices among research participants.

To understand the value of Digital India policy in schools among research participants, it was asked if the participants feel the implementation of DI policy is an important development for the schools. To this, most of the participants responded with strongly agree with 57.6% and 39.5% agreed to this. Most of the participants strongly agree and agree to availability of digital infrastructure in their schools with 51.7% and 44.8% respectively. As stated before on the mandatory DIKSHA training course for CBSE affiliate schools, majority of the participants strongly agree that their school understands their professional developmental needs (54.5%) and has made compulsory for them to take professional courses on DIKSHA (50%).

Question	Response: Strongly Agree	Response: Agree
My school provides opportunity to share and implement digital teaching practices with other colleagues.	51.1%	47.1%
My school acts on the feedback I provide about my digital teaching practices	40.3%	58%
My school encourages me to create lessons that make use of digital technologies.	52.3%	47.1%

3. Teachers' experiences and perceptions of digitalisation

The aim of this section was to understand teachers' digital practices, their perceptions of using digital technology and in what ways and how working using digital technology has impacted their teaching. The question on how COVID-19 has had an impact on their teaching using digital technology was also included.

Digital education principles	Personal beliefs	Impact by
Creative	Visibility to others	COVID-19
Collaborative	Limiting autonomy	Digital India Campaign
Inclusivity	Digital skills	
Autonomous	Confidence	
Connectedness	Personal Choice	
Engagement	Seeking help	

The table above highlights the themes of the questions, and the result analysis also depends on the themes highlighted in the questionnaire. The first theme is how the participants think their teaching practices within the context of digital participatory web that includes creativity, collaboration, autonomy, engagement at the heart of digital education. The majority of the results on this theme for all the questions were either 'strongly agree' or 'agree' highlighting the understanding of the principles of web among research participants. However, how the principles are being implemented is the question that will be analysed at depth during semi-structured interviews.

The second theme was the personal belief and experiences on digital education. Majority of the participants agree (49.7%) that teaching with digital technologies makes their practice visible and 52% of the participants agree that teaching with technology makes them vulnerable towards their superior. Although, 18 participants out of 178 neither agree nor disagree and 18 participants disagree with the statement. When asked if digital technology would not be their first choice, majority of the participants disagree (37%) but also 29.1% agree to the statement. However, a similar question on ignoring teaching with digital technology, the majority of the participants disagreed (58%), highlighting that majority of the participants believe that they cannot ignore technology while teaching. Most of the participants strongly agreed (27.6%) and agreed (63.8%) on feeling confident using digital technology. In terms of autonomy, although most of the participants strongly agree that teaching with digital technology limits their autonomy, there are 50 participants who even disagree with this.

The last theme was about the impact of teaching using digital technology due to unforeseen circumstances and the policy initiatives. Majority of the participants agree and strongly agree that COVID-19 has accelerated their teaching using digital technology with only one respondent to neither agree and disagree and one respondent disagreeing. Similarly, majority of the respondents agree and strongly agree that Digital India Campaign has affected their teaching using digital technology.

Appendix 6: Ethical Approval form

The following project has received ethical approval:

Project Title: *Teachers' agency in private and public education within the context of digitalisation: Case study of urban and rural Punjab, India ;*

Start Date: *22 March 2021;*

End Date: *22 October 2021;*

Reference: *EDU-2021-01-22T14_23_53-fghp25*

Date of ethical approval: *19 March 2021.*

Please be aware that if you make any significant changes to the design, duration or delivery of your project, you should contact your department ethics representative for advice, as further consideration and approval may then be required.

If you have any queries regarding this approval or need anything further, please contact ed.ethics@durham.ac.uk

Ethical Assessment Form

The purpose of ethical review is to ensure that any ethical risks are managed appropriately, and to protect those involved. It is not intended to prevent work, but to ensure that risks have been suitably identified and addressed in the design of the project. This form is intended to assist review in line with the University's ethics policy, to identify possible risks and to gather further information where needed. The form will automatically direct you to the most appropriate review panel (if required).

In the first section you will provide the key project information, and you will then be asked to confirm whether your project involves any considerations which the University has identified as areas of potential ethical risk. If you select any of these areas you will be directed to some further screening questions to identify whether your project involves any significant risk areas. If your project does not involve any significant risk areas your project will not require any further review: you will be directed to the declaration and the process will be complete.

If your project does involve a significant risk area, you will be asked to complete some further questions relevant to the risks you have selected. Once you submit the form, it will be directed to the relevant review process. This process will vary according to the type of risk, and you can find further information at

<https://www.dur.ac.uk/research.innovation/governance/ethics/process/>.

All fields are required, unless indicated as 'Optional'.

Overview

This section is designed to collect the key project information.

Applicant BHATIA, PRIYANKA

Preferred Name

This will be used in emails sent to you by the system.

Applicant Email

Department/School to which this application relates. Education

Applicant's primary Department/School (if different to above). (Optional) Education

Status Postgraduate Research

Student ID (Optional) 000852053

Supervisor or module leader COSTA, CRISTINA I.

Title of Project Teachers' agency in private and public education within the context of digitalisation: Case study of urban and rural Punjab, India

Type of Project Research / Scholarship

Expected Start Date 22/03/2021

Expected End Date 22/10/2021

Does the project involve external funding? ☐ Yes ☒ No

Ethical Considerations

The purpose of this section is to highlight whether your project involves any of the potential risk areas identified by the University. If you're not sure then select the area(s) that you think may apply and review the further screening questions.

Does the project involve any of the following? (please tick all that apply):

- ☒ a) Living human participants/subjects, data about living individuals¹, or human tissue from living or deceased subjects.

¹This includes both primary data (i.e. data you intend to collect directly) and secondary data (i.e. data already collected by others).

- ☐ b) NHS or Social Care, including staff, patients, data or facilities.

- ☐ c) A 'protected animal' as defined by the Animals (Scientific Procedures) Act²

²The [Act](#) defines protected animals as: 'all living vertebrates, other than man, and any living cephalopod. Fish and amphibia are protected once they can feed independently and cephalopods at the point when they hatch. Embryonic and foetal forms of mammals, birds and reptiles are protected during the last third of their gestation or incubation period.'

- ☐ d) Study of an organisation categorised as terrorist or violent extremist, or viewing or usage of materials that are subject to statute (e.g. Official Secrets Act / Counter-Terrorism and Security Act) or otherwise illegal.

- ☐ e) Environmental implications, including any significant potential risk to a physical environment or material culture (including artefacts).

- ☒ f) International partners or work undertaken outside of the European Economic Area (EEA).

- ☐ g) Outputs which may be subject to export controls and which could: breach the UK's international commitments; present a risk to security; raise other significant ethical concerns, e.g. abuse of human rights, terrorism, contribution to conflict; or hamper sustainable development.

- ☐ h) Source of funding / resource (e.g. materials) or collaborator which raises ethical concerns. This includes (but is not limited to) organisations engaged with or closely connected to any of the following: arms manufacture, fossil fuel extraction, tobacco, alcohol, gambling or pornography.
- ☐ i) Any actual, potential or perceived conflict of interest.
- ☐ j) Other (please give details in the relevant section of the form)
- ☐ k) None of the above

Do any of the following apply to this project? (*You should take into account your own activity for the project, and that of any other Durham University staff or students involved*)

- A member of staff or postgraduate research student will travel outside the UK for the purposes of this project.
- An undergraduate or taught postgraduate student will travel more than 60 miles from Durham for the purposes of this project (or more than 60 miles from their home, if based at home while undertaking research).
- An undergraduate or taught postgraduate student will undertake offsite work for the purposes of this project involving an overnight stay (other than in their own home).

☒ Yes - one or more applies

☐ No - none of these apply

You will need a completed risk assessment in line with the University's [guidance on approval and management of off-site activities](#). Any proposal with a residual risk rating of Medium or High will require further review and approval. Once you have obtained ethical approval, you will also need to obtain authorisation via the University's [online travel insurance system](#) before travel.

In completing your risk assessment you should consider any specific risks arising from undertaking the proposed activity in the intended location, especially where activities are to take place overseas and risks may be higher than you would encounter if you were undertaking the same activity within the UK.

What is the residual risk rating for the proposed travel and activity?

- ☐ High
- ☐ Medium
- ☒ Low

Please upload your completed offsite risk assessment
[F42OffsiteRiskAssessmentandEmergencyPlan.docx](#)

Purpose of application

Please select the option which best applies:

- ☒ New project
- ☐ Amendment to a project which has received ethical approval
- ☐ Full application following provisional ethical approval / pre-funding application
- ☐ Continuation of a project which has received ethical approval (request for renewal)
- ☐ Other (please specify)

Project Summary

Please provide a summary of the project, including its purpose, rationale, design and methods, making clear any expected benefits (this should be written in a way that would be intelligible to non-specialists).

Digital India Campaign was introduced by Prime Minister of India, Narendra Modi in 2015 with an aim to make India and its citizens empower digitally. The campaign led to many initiatives also within the education sector like digitalisation of content, online portals for teacher training, online labs for students, online school evaluation and many more. The aim of this research study is to explore the ground realities of such policy initiatives enacted within the Indian education.

In India there are broadly three types of schools: 1) public (state), 2) semi-private or private aided schools, and 3) private schools or private unaided. The public (state) schools are government funded and are run by either central or state government (Anderson & Lightfoot, 2019) and all the decisions with regard to teacher recruitment, curriculum and other decisions are by the government. Private aided (semi-private) schools are private schools with partial or 95% funding from the government (Tilak & Sudarshan, 2001). Although they are known as private aided schools, the decisions of the schools with regard to teacher recruitment, teacher salary and other financial decisions are taken up by the state or central government. Private schools or private unaided schools in India are funded and managed privately (Chaudhry & Uboweja, 2014). Although, the private schools have autonomy in making decisions regarding school fees, teachers' salaries, recruitment processes and other school related decisions. Private schools or private unaided schools have to abide by a specific curriculum body (national or international) after grade 8th. The majority of the schools in India are either public or private unaided schools with only 5.6% of the total schools in India are private aided schools (Government of India, 2020).

Unlike the common perception in the west that private schools denote exclusivity, in India, private unaided schools are not meant only for the elites (Kingdon, 2020; Härmä, 2011), but are diverse, in both urban and rural areas. The private unaided schools are diverse depending on the spatial locations and the fee structures. For instance, some of the private unaided schools in rural areas take minimal tuition fees and are known as the low-fee private schools (Srivastava, 2013). The low-fee private schools (LFP) are categorized as schools that target disadvantaged groups and charge monthly tuition fees not more than a daily wage earnings of a laborer at primary and junior level and two days' earning at secondary level (ibid.), which are considered even less than some government schools per-pupil-expenditure (Kingdon, 2017). So private schools in India are diverse catering to different social groups of Indian society.

Digital India Campaign and the new policy developments seem to be prioritising digital technology especially in rural schools (MHRD 2019a, MHRD, 2019b). However, in India, research on the digital has unveiled digital divide not only in terms of access, but also digital inequalities that are far more complex and engrained in societal and cultural inequalities than those assumed by the lack of access to the Internet or technological devices. These inequalities are also social, cultural and educational (Deursen & Van Dijk, 2015; Van Dijk, 2005).

The purpose of this research study is to understand teachers' agency and their professional identities within the context of such initiatives. With varying cultural and digital practices in both public and private schools in India, the study aims to investigate teachers' digital teaching and learning practices within the policy initiatives in both public and private (unaided) schools in India. The following is the research question the study aims to answer.

RQ: How initiatives under the Digital India Campaign shapes teachers' professional agency?

SQ: How teachers identities construed and enacted in public and private schools within the policy

initiatives?

In order to answer the research questions for the study, exploratory multiple-case study methodology will be adopted. The case study approach investigates a contemporary phenomenon in its real-life context (Yin, 2011), and multiple-case study approach develops a deep understanding of the contrasting conditions of the different research sites (Yin, 2018), which can be 'temporal, geographical, organizational, institutional and other contexts' (Hitchcock & Hughes, 1995, p. 319).

Given the large geographical area of India, the study will only focus on northwest state, Punjab. The research participants will be the teachers, head teachers and educational technology counsellors (if any) to understand the nuances of teachers' digital practices that in turn shapes teachers' professional agency and identities impacting the application of the policy initiatives. The research participants will be selected using the purposive sampling of public and private schools in rural and urban areas of Punjab. Four research sites will be chosen for the research study:

- 1. Private school in Rural Punjab*
- 2. Private school in Urban Punjab*
- 3. Public school in Rural Punjab*
- 4. Public school in Urban Punjab*

The study will adopt a mixed method approach where the teachers, head teacher and the technology counsellor of each research site will be first invited to take part in an online survey which will include likert scale questions about their digital teaching and learning practices. All the teachers, educational technology counsellor and the heads of the four research sites will be invited to take part. The questionnaire will include questions related to the use and availability of digital educational infrastructure, digital resources, teachers' perceptions to such resources, impact on their practices and school ethos. The analysis of the questionnaire data will inform the development of a semi-structured interview guide. Following the questionnaire, approximately 20 teachers including the head teacher and the technology counsellor from each research site will be randomly selected to be invited to participate in an in-depth semi-structured research interview to understand the nuances of policy-practice relationship. Unless, the conditions are offered to conduct interview face to face in safety, all the research interviews will be conducted online using Microsoft Teams. Additionally, school policies and documents from each research site will also be analysed.

The analysis of the results will provide the policy practice relationship of implementation of the initiatives under Digital India Campaign and the impact of the same on teachers' agency and professional identities across different type of schools in India. This will be implied to understand the realities of the policies among teachers in different schools and how it has impacted their teaching practices.

References:

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- Härmä, J. (2011). Low cost private schooling in India: Is it pro poor and equitable? International journal of educational development, 31(4), 350-356.*
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- Government of India (2020). Number of Schools. Lok Sabha. Retrieved from <https://www.staffnews.in/wp->*

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Van Dijk, J. A. (2005). *The deepening divide: Inequality in the information society*: Sage Publications.

Yin, R. K. (2011). *Applications of case study research*: sage.

Yin, R. K. (2017). *Case study research and applications: Design and methods*: Sage publications.

Where applicable, please upload relevant supporting documentation, e.g. a copy of the project proposal detailing methods and reporting strategies.

Existing or external ethical approval

Do any of the following apply to your project?

- The project requires ethical approval from an external body
- The project has already received ethical approval from an external body
- The project is part of a larger project or activity which has already received ethical approval from the University

☐ Yes

☒ No

Screening Questions

The purpose of this section is to identify whether your project involves any of the higher risk factors relating to the areas you have selected. If you are unsure whether any of the factors apply, then seek further advice from your departmental ethics convenor, or from Research and Innovation Services (research.policy@durham.ac.uk)

HUMAN PARTICIPANTS / DATA / TISSUES

Please indicate which of the following are involved in your project (tick all that apply):

- ☒ a. Human participants / subjects. This includes primary data collection e.g. through interaction, observation or provision of data by individuals.
- ☐ b. Secondary data that includes data relating to living individuals
- ☐ c. Physical samples from humans / Human tissue

Does the project involve any of the following risk factors?

- a) The intentional recruitment of participants in any of the following categories / raising the following issues: 
- Children or Minors

☐ Yes

☒ No

- participants aged 15 years or under;
- participants aged 16-18 years;
- Vulnerable adults*;
- People in custody or on parole;
- Welfare recipients;
- People engaged in illegal activity (e.g. drug taking);
- Communication issues may arise due to the language in which the study is conducted;
- Small sample sizes where anonymisation is impractical.

** Vulnerable adults are defined as those who are relatively or absolutely incapable of protecting their own interests, or those in unequal relationships; e.g. people with learning or communication disabilities; people with dementia; participants who are subordinate to the researcher(s) in a context outside the research.*

b) The project requires the co-operation of a 'gatekeeper' for initial access to the groups or individuals to be recruited (e.g. students at school, members of a self-help group, residents of a nursing home).

☐ Yes

☒ No

c) Participants will take part in the study without full knowledge and consent at the time. *(Please note that this includes observation of public behaviour, whether covert or overt, in any space other than those where people would expect to be observed by strangers. It also includes collection of data without consent from interactive online spaces such as chat rooms and forums.)*

☐ Yes

☒ No

d) Deliberately misleading participants.

☐ Yes

☒ No

e) A potentially sensitive topic, including e.g. collection or analysis of data relating to racial/ethnic origin, politics, religious beliefs, Trade Union membership, physical or mental health, sexual activity or orientation, illegal activities.

☐ Yes

☒ No

f) Risk to participants of physical or psychological harm, discomfort, stress, anxiety or any other negative consequence, beyond the risks encountered in their normal life.

☐ Yes

☒ No

g) Participants will receive financial or other inducement (other than reasonable expenses and compensation for time) to participate.

☐ Yes

☒ No

h) The project involves a physical intervention or use of physical human samples or genetic/biometric data (including DNA).

☐ Yes

☒ No

This could include (but is not limited to):

- Drugs, placebos or other substances (e.g. food, vitamins) administered to participants;
- Invasive, intrusive or potentially harmful procedures of any kind;
- Prolonged or repetitive testing;
- Blood or tissue samples (including saliva or waste products) obtained from participants;
- Other human tissue in scope of the HTA and not covered by an existing HTB approval*
- Collection or analysis of genetic data (including DNA);
- Collection or analysis of biometric data.

* Refer to [Human Tissue Authority guidance on relevant material](#)

i) Collecting / processing special category data without explicit consent	☐ Yes ☒ No
j) Transferring or transporting special category data outside the European Economic Area (EEA) (either travelling with data, or sending data to a third party outside the EEA)	☐ Yes ☒ No
k) Members of the public who are acting as researchers or as co-producers in the design or delivery of the research (e.g. participatory research, citizen science).	☐ Yes ☒ No

INTERNATIONAL

Does the project involve any of the following? *(Please select any that apply, otherwise select 'none of the above')*

- ☐ a) A cultural framework unfamiliar to the individual undertaking the work, where there is a resulting risk to the conduct of the project, or the viability of any future research.
- ☐ b) Additional ethical or legal requirements with which you will need to comply in the country (countries) involved in the project, which are outstanding or which may not be met.
- ☐ c) Work undertaken overseas governed by standards which are NOT equivalent to (or higher than) those in the UK.
- ☐ d) Other significant issues relating to local practice or political sensitivities
- ☒ None of the above

Project Funding

Please add any further information regarding project funding. If the project is not in receipt of external funding, please indicate how any costs will be met. *(Optional)*

The research project is self-funded.

Project Detail

Where will the work be undertaken? *(please tick all that apply)*

- ☐ On University premises
- ☐ Outside the University, within the UK
- ☒ Outside the UK

Please specify the location(s) outside the University where the work will be taking place

Four schools will be the research sites for the research study and will be selected across northwest state of India, Punjab. The research sites will be:

1. Private school in urban Punjab

2. Private school in rural Punjab
3. Public school in urban Punjab
4. Public school in rural Punjab

The research participants in all the research sites will be teachers, headteachers, and the technology counselor.

Please list other members of the project team at Durham.

If you have more than one supervisor, please include your additional supervisor(s) below.

<i>Name</i>	<i>Department</i>	<i>Project Role</i>
RAAPER, RILLE	<u>20</u>	2nd Supervisor

Does your project involve external collaborators?

☐ Yes

☒ No

What are the intended methods for dissemination of project findings, e.g. Dissertation, Academic Journal, Conference?

PhD thesis, Academic Journal and Conferences

Project Involving Human Participants / Data / Tissue

NB If your project involves secondary data, or tissue samples obtained via a third party, please consider the data subjects or donors as 'participants'

Who are the participants?

1. Teachers from four research sites
2. Headteachers from the four research sites
3. Educational Technology counselor from the four research sites

How many participants are involved?

Approximately 200 for the survey and 20 for interviews from each research site

Please describe how potential participants will be

- a) identified, including how you will select them (your sampling strategy) and any criteria for selection e.g. inclusion / exclusion criteria;
- b) recruited, including who will contact them and method of contact.

The research study will use a purposive sampling to select the research sites. The criteria for selection of research site will be:

- 1. The teachers in the research site should be using digital technologies for teaching and learning purposes.*
- 2. The research site, public schools, should be part of Punjab ICT Education Society (Government of Punjab) which aims for schools to have compulsory computer education for all the students from grades 6th to 12th.*
- 3. The particular research site should fit in the with the demographic criteria of research sites. For instance, urban private school should be a private school in urban area of Punjab, referenced using demographics of Punjab.*

The survey will include all the teachers, educational technology counsellor (if any) and head teachers of all the research sites which will be approximately 200 participants per research site. This will vary depending on the research site. Additionally, approximately 20 teachers using random sampling from all the research sites will be invited for in-depth semi-structured interview to explore teachers' agency and shaping of their professional selves.

The researcher will contact the research participants via email or using What's app depending on the convenience of the research participants. All the interviews will take place online. The researcher will not conduct face to face interviews unless the conditions offered to conduct interviews are safe with all the necessary precautions in place to prevent and avoid spreading of the virus.

Please describe what the participants will be required to do. Please include:

- what is the activity (e.g interviews, questionnaires, other activity);
- where this will take place;
- how long are the sessions (for multiple sessions: how many sessions and total duration of participation in the study);
- any reward or remuneration for participants.

If the activity involves a sensitive topic or any risk to participants, please make clear what this is and how any risks will be mitigated.

Upon selection of the research sites, the research summary would be sent to the head/ management of the school along with the Participant Information sheet for both questionnaire and interview to invite the teachers, head teachers and educational technology counsellor (if any) of the school to participate in an online survey. The survey will be shared both in English and Punjabi language.

Following the survey, approximately 20 teachers from each research site along with headteacher and educational technology counsellor (if any) will be randomly selected and will be recruited for a semi-structured in-depth research interview.

The interview will take place online using Microsoft Teams. The researcher will not conduct face to face interviews unless the conditions offered to conduct interviews are safe with all the necessary precautions in place to prevent and avoid spreading of the virus. The research interview will be conducted one to one interview for approximately 60 minutes.

Durham University's guidelines on conducting research during the Covid-19 pandemic will be followed at all times. There will be no reward for participants and all the information will be share via participant information sheet prior to the interview.

Please upload copies of any data collection tools to be used (e.g. questionnaire, survey, example interview questions).

[Sample questions.docx](#)

What types of data will be collected/analysed? (*select relevant types below*)

Interview notes or transcripts

Other (please specify)

Audio / video recording

Research site documents like school policies, websites or other school documents.

INFORMATION AND CONSENT

In this section you should ensure that you provide a full justification of any non-standard consent arrangements. If your project will involve covert observation or deception, please provide detail on the reasons for this and how it will be managed. If your project involves long term contact with participants, please indicate how continued informed consent will be ensured.

	Yes	No	Not Applicable
a. Will you give participants a written summary of your project, including how you will store and use any information given to you? (This is normally provided in an information sheet)	☒	☐	
b. Will you give participants an oral verbal summary of your project, including how you will store and use any information given to you?	☒	☐	☐
c. Will you obtain written, informed consent from participants for participation and for all intended uses of the data arising from the project?	☒	☐	
d. Will you tell participants that their involvement is voluntary and that they may withdraw from the research at any time (without their having to give any reason and without any repercussions)?	☒	☐	
e. Will any monitoring or recording devices be used openly and only with the permission of participants?	☒	☐	☐
f. With questionnaires or interviews, will you remind participants of their option of omitting questions they do not want to answer?	☒	☐	☐
g. Will you automatically anonymise information in your work, or will you explicitly give all participants the right to remain anonymous?	☒	☐	
h. Will you offer to provide participants with a lay summary of the research findings?	☒	☐	☐

Please provide any further relevant information regarding the information to be provided to participants, the arrangements for obtaining consent, and the basis for processing personal

data.

An information sheet and privacy notice will be given to each potential informant providing details on the research and how information will be used. The research participants will sign the consent form to indicate that they have understood the project and give consent. Consent will also be requested verbally at the beginning of each interview.

Please indicate what documents will be provided for participants, and upload copies of all relevant documents, including your consent form, privacy notice, information sheet and debriefing sheet (where applicable).

☒ Information Sheet

[Participant Information Sheet \(Survey\).docx](#)

[Participant Information Sheet \(Interviews\).docx](#)

☒ Separate Privacy Notice

[Privacy Notice.docx](#)

☒ Consent Form

[Consent form for Interviews.docx](#)

[Consent form for Survey.docx](#)

☒ Debriefing Sheet

[Debriefing Sheet.docx](#)

☐ Other documentation for participants

Please indicate how you will ensure confidentiality and security of personal data, including at what stage your participants' data will be anonymised. NB. If non anonymised personal data will be released e.g. attributed verbatim quotes, then the circumstances and methods for obtaining consent must be highlighted.

The confidentiality of the research sites and the research participants will be remained throughout the research process. The participants will be made aware of this verbally as well as in participant information sheet shared prior to the survey and interview. The survey will not collect personal details and contact information of the participants and any information that will lead to the identity of the participants. Personal data collected will be limited to grade and subject they teach and length of time in post.

All the data collected via research interviews will be transcribed and anonymised right after the interview will end. Following transcription, audio/ video recordings will be deleted. The data will be fully anonymised and will have no way of linking responses back to an individual. All interview data will be anonymised as soon as it is transcribed, and all quotes from the interviews will be presented with the use of pseudonyms with codes for each research site and participants in the final dissertation and any publications arising from the research. Following transcription, all audio and video files will be deleted.

All data will be stored in Durham University computer cloud storage, OneDrive- Business, the license owned by Durham University which complies with the General Data Protection Regulation (GDPR). The data will only be accessible through the researcher's password-protected computer and all the files stored will also be password protected. This will only be accessible to the researcher. The pseudonyms will be given to each research site and research participants so that they are unidentifiable when

sharing the quotations/ verbatim from the research interviews.

What will happen in the event that a participant withdraws their consent (and what will happen to the data for that participant)?

All the data related to the research participant will be deleted and destroyed from all the records.

Conflicts of Interest

A conflict of interest is defined as a relationship or interest that could lead to bias or perceived bias in the design or delivery of the work.

Please provide details regarding any conflict of interest involved in the project: *(Optional)*

Conflict of Interest

Management Strategy

If the management strategy has been approved, please provide details (i.e. approved by, date of approval)

Please upload any relevant documentation

Other Issues

Please provide any relevant information not addressed elsewhere in this form. If your project raises any ethical issues not covered above, please provide a full description of the issues and how you intend to deal with them. This should include any issues relating to source of funding / resource or collaborator (where applicable). *(Optional)*

Governance

PROJECT RISK ASSESSMENT AND INSURANCE

Some departments require evidence of a project risk assessment and confirmation of insurance cover as part of the ethical review process. Please check your departmental guidance before completing this section.

Will you provide the following as part of this application?

	No: Not required or not applicable	Yes: I will upload relevant documentation	Yes: I will provide further details below
a) Risk assessment regarding risk to participants and/or the project team	☐	☒	☐
b) Indication of insurance cover <i>This is required for activities not covered by standard University insurance. If in doubt consult the guidance on insurance and / or contact University insurance staff (please upload a copy of their response).</i>	☒	☐	☐

[F2GeneralRiskAssessment.docx](#)

DATA MANAGEMENT PLAN

Have you completed a data management plan for this project?

☒ Yes

☐ No

If yes, please upload a copy of your data management plan.

[Teachers' agency in private and public education within the context of digitalisation Case study of.pdf](#)

OTHER PERMISSIONS AND LICENCES

Please provide details of any other permissions or licences required for the project (e.g. DBS check, SSI licence, permission from colleges for involvement of their students etc)?

Permission needed	Granting body	Status	Date of approval
		Select...	

Please upload any relevant documentation e.g. evidence of permission.

Supporting Documentation

Before submitting this form, please ensure that you have included all relevant supporting documentation

Currently attached documents:

[Data collection tool](#)

[Off-site activity Risk Assessment](#)

[Consent Form](#)

[Consent Form](#)

[Information Sheet](#)

[Information Sheet](#)

[Privacy Notice](#)

[Debriefing Sheet](#)

[Project risk assessment](#)

[Data Management Plan](#)

[Sample questions.docx](#)

[F42OffsiteRiskAssessmentandEmergencyPlan.docx](#)

[Consent form for Interviews.docx](#)

[Consent form for Survey.docx](#)

[Participant Information Sheet \(Survey\).docx](#)

[Participant Information Sheet \(Interviews\).docx](#)

[Privacy Notice.docx](#)

[Debriefing Sheet.docx](#)

[F2GeneralRiskAssessment.docx](#)

[Teachers' agency in private and public education within the context of digitalisation Case study of.pdf](#)

Please tick to confirm:



I have uploaded all relevant documentation

Declaration

Thank you for completing the University's Ethical Review Form. Please be aware that if you

make any significant changes to your project you should complete this form again as further review may be required. Please complete the declaration to submit your application.

I confirm that:

- ☒ I acknowledge my obligation to (and rights of) any participants, and my responsibility to be up to date and comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data.
- ☒ The information contained within this application is accurate and complete.
- ☒ Any risks that may arise in conducting this project have been identified to the best of my ability.
- ☒ I undertake to abide by the [University's ethical guidelines](#) and the ethical principles underlying good practice provided in the guidelines appropriate to my field.
- ☒ The project will be undertaken in line with all applicable University, funder, legislative and local standards and regulations.
- ☒ If the project is approved, I undertake to adhere to the study protocol, the terms of this application and any conditions set out by the ethics committee.
- ☒ No work will begin until all appropriate permissions are in place.

To be completed by the supervisor:

As supervisor, I am satisfied with the content of this form and any accompanying documents.

☒ Yes ☐ No

Please add any comments below.

Form Administration

Form version 5

Application Reference

EDU-2021-01-22T14_23_53-fghp25

Form url

https://durhamuniversity.sharepoint.com/teams/researchoffice/ethics/FormRedirect.html?qdd=%2fteams%2fresearchoffice%2fethics%2fEDU%20Forms%2fEDU-2021-01-22T14_23_53-fghp25.xml

Appendix 7: Participant Information Sheet for Questionnaire

Participant Information Sheet (Survey)

Date: 22nd January 2021

Project title: Teachers' agency in private and public education within the context of digitalisation: Case study of urban and rural Punjab, India

Researcher(s): Priyanka Bhatia

Department: School of Education

Contact details: priyanka.bhatia@durham.ac.uk

Supervisor name: Dr Cristina Costa and Dr Rille Raaper

Supervisor contact details: cristina.costa@durham.ac.uk,

rille.raaper@durham.ac.uk

You are invited to take part in a study that I am conducting as part of my PhD at Durham University.

This study has received ethical approval from the Ethics Committee at School of Education of Durham University.

Before you decide whether to agree to take part it is important for you to understand the purpose of the research and what is involved as a participant. Please read the following information carefully. Please get in contact if there is anything that is not clear or if you would like more information.

The rights and responsibilities of anyone taking part in Durham University research are set out in our 'Participants Charter':

<https://www.dur.ac.uk/research.innovation/governance/ethics/considerations/people/charter/>

What is the purpose of the study?

The aim of this study is to explore teachers' agency and their professional identity in both public and private schools in India within the context of Digital India Campaign. The study will be completed by October 2022.

Why have I been invited to take part?

You have been invited to take part because this project requires understanding of the digital practices of teachers and you are the target audience for this research study. You are a part of the research site chosen for the research study.

Do I have to take part?

Your participation is voluntary and you do not have to agree to take part. If you do agree to take part, you can withdraw at any time, without giving a reason. Your responses will be anonymised and will not be identifiable.

What will happen to me if I take part?

If you agree to take part in the study, you will be asked to fill an online survey which will include questions about your digital teaching experiences and practices. The survey will be anonymous, and you can say omit any question that you do not wish to answer. You can withdraw from the study anytime without giving any explanation. The survey will not collect your personal information like name, address or contact details.

Are there any potential risks involved?

There are no potential risks involved in undertaking survey as part of the research, however, as with any online related activity the risk of a breach is always possible. The answers in this study will remain confidential and all the information collected will remain anonymous.

Will my data be kept confidential?

All information obtained during the study will be kept confidential. If the data is published it will be entirely anonymous and will not be identifiable as yours.

Full details are included in the accompanying Privacy Notice.

The data you provide is fully anonymous and will not collect or ask you to provide any personal data. There will be no way of linking the responses back to you. The online survey will not collect the IP address from which the survey will be completed.

All data will be stored in Durham University computer cloud storage, OneDrive-Business, the license owned by Durham University which complies with the General Data Protection Regulation (GDPR). The data will only be accessible through the researcher's password-protected computer and all the files stored will also be password protected. This will only be accessible to the researcher (myself).

What will happen to the results of the project?

The results and the data analysed will be presented in my PhD thesis which will be completed by October 2022. No personal data will be shared, however anonymised (i.e. not identifiable) data may be used in publications, reports, presentations, web pages and other research outputs. At the end of the project, anonymised data may be archived and shared with others for legitimate research purposes.

All research data and records needed to validate the research findings will be stored for 10 years after the completion of PhD thesis, October 2022.

Durham University is committed to sharing the results of its world-class research for public benefit. As part of this commitment the University has established an online repository for all Durham University Higher Degree theses which provides access to the full text of freely available theses.

The study in which you are invited to participate will be written up as a thesis. On successful submission of the thesis, it will be deposited both in print and online in the University archives, to facilitate its use in future research. The thesis will be published open access.

Who do I contact if I have any questions or concerns about this study?

If you have any further questions or concerns about this study, please speak to me or my supervisor. If you remain unhappy or wish to make a formal complaint, please submit a complaint via the University's [Complaints Process](#).

Thank you for reading this information and considering taking part in this study.

Appendix 8: Participant Information Sheet for Interviews

Participant Information Sheet

Date: 22nd January 2021

Project title: Teachers' agency in private and public education within the context of digitalisation: Case study of urban and rural Punjab, India

Researcher(s): Priyanka Bhatia

Department: School of Education

Contact details: priyanka.bhatia@durham.ac.uk

Supervisor name: Dr Cristina Costa and Dr Rille Raaper

Supervisor contact details: cristina.costa@durham.ac.uk,
rille.raaper@durham.ac.uk

You are invited to take part in a study that I am conducting as part of my PhD at Durham University.

This study has received ethical approval from the Ethics Committee at School of Education of Durham University.

Before you decide whether to agree to take part it is important for you to understand the purpose of the research and what is involved as a participant. Please read the following information carefully. Please get in contact if there is anything that is not clear or if you would like more information.

The rights and responsibilities of anyone taking part in Durham University research are set out in our 'Participants Charter':

<https://www.dur.ac.uk/research.innovation/governance/ethics/considerations/people/charter/>

What is the purpose of the study?

The aim of this study is to explore teachers' agency and their professional identity in both public and private schools in India within the context of Digital India Campaign. The study will be completed by October 2022.

Why have I been invited to take part?

You have been invited to take part because you are the target audience for the research project. You are a part of the research site chosen for the research study.

Do I have to take part?

Your participation is voluntary and you do not have to agree to take part. If you do agree to take part, you can withdraw at any time, without giving a reason.

What will happen to me if I take part?

If you agree to take part in the study, you will be invited to take part in a one to one 60 minutes interview. The interview will be arranged online at a convenient time. No face-to-face interview will take place unless the conditions offered to conduct interview face to face are in safety with all the necessary precautions. You can say no to any questions that you do not wish to answer.

Are there any potential risks involved?

There are no potential risks associated undertaking online interviews for the research study.

Will my data be kept confidential?

All information obtained during the study will be kept confidential. If the data is published it will be entirely anonymous and will not be identifiable as yours.

The data you provide is fully anonymous and I will have no way of linking responses back to an individual. All interview data will be anonymised as soon as it is transcribed, and all quotes from the interviews will be presented with the use of pseudonyms in the final dissertation and any publications arising from the research. Following transcription, all audio and video files will be deleted.

All data will be stored in Durham University computer cloud storage, OneDrive-Business, the license owned by Durham University which complies with the General Data Protection Regulation (GDPR). The data will only be accessible through the researcher's password-protected computer and all the files stored will also be password protected. This will only be accessible to the researcher (myself).

Full details are included in the accompanying Privacy Notice.

What will happen to the results of the project?

The results and the data analysed will be presented in my PhD thesis which will be completed by October 2022. No personal data will be shared, however anonymised (i.e. not identifiable) data may be used in publications, reports, presentations, web pages and other research outputs. At the end of the project, anonymised data may be archived and shared with others for legitimate research purposes.

All research data and records needed to validate the research findings will be stored for 10 years after the completion of PhD thesis, October 2022.

Durham University is committed to sharing the results of its world-class research for public benefit. As part of this commitment the University has established an online repository for all Durham University Higher Degree theses which provides access to the full text of freely available theses. The study in which you are invited to participate will be written up as a thesis. On successful submission of the thesis, it will be deposited both in print and online in the University archives, to facilitate its use in future research. The thesis will be published open access.

Who do I contact if I have any questions or concerns about this study?

If you have any further questions or concerns about this study, please speak to the researcher or their supervisor. If you remain unhappy or wish to make a formal complaint, please submit a complaint via the University's [Complaints Process](#).

Thank you for reading this information and considering taking part in this study.

Appendix 9: Consent form for interview

Consent Form for Interviews

Project title: Teachers' agency in private education within the context of digitalisation: Case study of urban and rural Punjab, India

Researcher(s): Priyanka Bhatia

Department: School of Education

Contact details: priyanka.bhatia@durham.ac.uk

Supervisor name: Dr. Cristina Costa and Dr. Rille Raaper

Supervisor contact details: cristina.costa@durham.ac.uk, rille.raaper@durham.ac.uk

This form is to confirm that you understand what the purposes of the project, what is involved and that you are happy to take part. Please initial each box to indicate your agreement:

I confirm that I have read and understand the information sheet dated, ___/___/22 and the privacy notice for the above project.	
I have had sufficient time to consider the information and ask any questions I might have, and I am satisfied with the answers I have been given.	
I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project.	
I understand that anonymised (i.e. not identifiable) versions of my data may be archived and shared with others for legitimate research purposes.	

I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason.	
I consent to being audio recorded / being video recorded and understand how the recordings will be used in research outputs.	
I understand that my words may be quoted in publications, reports, and other research outputs. I consent my words to be used anonymously.	
I agree to take part in the above project.	

Participant's Signature_____ Date_____ (NAME IN BLOCK LETTERS)_____ Researcher's Signature_____ Date_____ (NAME IN BLOCK LETTERS)_____

Appendix 10: Screenshots of webpages of DIC



[HOME](#) / [APPROACH & METHODOLOGY](#)

Approach & Methodology

Approach & Methodology for Digital India Programme are :

Ministries/Departments/States would fully leverage the Common & Support ICT Infrastructure established by GOI.

- Ministries / Departments / States would fully leverage the Common and Support ICT Infrastructure established by Gol. DeitY would also evolve/ lay down standards and policy guidelines, provide technical and handholding support, undertake capacity building and R&D etc.
- The existing/ ongoing e-governance initiatives would be suitably revamped to align them with the principles of Digital India. Scope enhancement, Process Reengineering, use of integrated & interoperable systems and deployment of emerging technologies like cloud & mobile would be undertaken to enhance the delivery of Government services to citizens.
- States would be given flexibility to identify for inclusion additional state-specific projects, which are relevant for their socio-economic needs.
- e-Governance would be promoted through a centralised initiative to the extent necessary, to ensure citizen-centric service orientation, interoperability of various e-Governance applications and optimal utilisation of ICT infrastructure/ resources, while adopting a decentralised implementation model.
- Successes would be identified and their replication promoted proactively with the required productisation and customisation wherever needed.
- Public Private Partnerships would be preferred wherever feasible to implement e-governance projects with adequate management and strategic control.
- Adoption of Unique ID would be promoted to facilitate identification, authentication and delivery of benefits.
- Restructuring of NIC would be undertaken to strengthen the IT support to all government departments at the Centre and the State levels.

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Web Information Manager

Senior Director

DIC and Chief Operating Officer, NeGD
Ministry of Electronics & Information Technology (Government of India)
Electronics Niketan, 6 CGO Complex, Lodhi Road, New Delhi-110003
portal[at]digitalindia[dot]gov[dot]in
+91-11-24301931

Hey, I am PAi, Personal AI from NPCI.
You can ask me questions about digital payments.

Do you know!
How can I cancel my Debit Card?



[HOME](#) / [VISION & VISION AREAS](#)

Vision & Vision Areas

The vision of Digital India Programme is to transform India into a digitally empowered society and knowledge economy.

Vision Areas of Digital India

The Digital India programme is centred on three key vision areas:

a) Digital Infrastructure as a core utility to Every Citizen

- Availability of high speed internet as a core utility for delivery of services to citizens
- Cradle to grave digital identity that is unique, lifelong, online and authenticable to every citizen
- Mobile phone & bank account enabling citizen participation in digital & financial space
- Easy access to a Common Service Centre
- Shareable private space on a public cloud
- Safe and secure cyber-space

b) Governance & Services on Demand

- Seamlessly integrated services across departments or jurisdictions
- Availability of services in real time from online & mobile platforms
- All citizen entitlements to be portable and available on the cloud
- Digitally transformed services for improving ease of doing business
- Making financial transactions electronic & cashless
- Leveraging Geospatial Information Systems (GIS) for decision support systems & development.

c) Digital Empowerment of Citizens

- Universal digital literacy
- Universally accessible digital resources
- Availability of digital resources / services in Indian languages
- Collaborative digital platforms for participative governance
- Citizens not required to physically submit Govt. documents / certificates

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[HOME](#) / INTRODUCTION

Introduction

Digital India is a flagship programme of the Government of India with a vision to transform India into a digital society and knowledge economy.

E-governance initiatives in India took a broader dimension in the mid 1990s for wider sectoral applications with emphasis on citizen-centric services. The Government included, inter alia, some major projects, such as railway computerization, land record computerisation etc., which focused on IT systems. Later on, many states started ambitious individual e-governance projects aimed at providing electronic services to citizens.

Though these e-governance projects were citizen-centric, they could make less than the desired impact due to their limited features. The challenges revealed major gaps that were thwarting the successful adoption of e-governance along the entire spectrum of governance. They called for comprehensive planning and implementation for the infrastructure required to be put in place, interoperability issues to be addressed, and a citizen-centric government.



e-Kranti : National e-Governance Plan 2.0

The national level e-governance programme called National e-Governance Plan (NeGP) was initiated in 2006. There were 31 Mission Mode Projects (MMPs) under the NeGP covering a wide range of domains viz. agriculture, land records, health, education, passports, police, courts, municipalities, commerce, etc. Mode Projects have been implemented and started delivering either full or partial range of envisaged services.

Considering the shortcomings in National e-Governance Plan that included lack of integration amongst Government applications and lack of process re-engineering, scope for leveraging emerging technologies like mobile and cloud etc., the Government of India approved the 'Transforming e-Governance for Transforming Governance'.

All new and ongoing e-governance projects as well as the existing projects, which are being revamped, should now follow the key principles: 'Government First', 'Integrated Services and not Individual Services', 'Government Process Reengineering (GPR) to be mandatory in every MMP by Default', 'Mobile First', 'Fast Tracking Approvals', 'Mandating Standards and Protocols', 'Language Localization', 'National GIS (Geospatial Information System) for Electronic Data Preservation'.

The portfolio of Mission Mode Projects has increased from 31 to 44 MMPs. Many new social sector projects namely Women and Child Development, Health, Education, etc.

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Social Media

[!\[\]\(b64b40baaee5acddc1eab8538ba84754_img.jpg\) Digital India @ Facebook](#)

[!\[\]\(84f47badaad7772cd95667a7c387a639_img.jpg\) Digital India @ Twitter](#)

[!\[\]\(28f72b996fc97883dfd9d4e8b1b16b4e_img.jpg\) Digital India @ Youtube](#)

[!\[\]\(5d954b3e270654ad8ab0d5913161c03c_img.jpg\) Digital India @ LinkedIn](#)

[!\[\]\(aff7c69c44a5e015f18c35867ef3f5c3_img.jpg\) Digital India @ Instagram](#)

[!\[\]\(c15650232aa6660c9deb34f3b82dcb72_img.jpg\) Digital India @ KOO](#)

[HOME](#) / PROGRAM PILLARS

Program Pillars

HOW DIGITAL INDIA WILL BE REALIZED: PILLARS OF DIGITAL INDIA

Digital India is an umbrella programme that covers multiple Government Ministries and Departments. It weaves together a large number of ideas and thoughts into a single, comprehensive vision so that each of them can be implemented as part of a larger goal.

Each individual element stands on its own, but is also part of the larger picture. Digital India is to be implemented by the entire Government with overall coordination being done by the Department of Electronics and Information Technology (DeitY).

Digital India aims to provide the much needed thrust to the nine pillars of growth areas, namely Broadband Highways, Universal Access to Mobile Connectivity, Public Internet Access Programme, e-Governance: Reforming Government through Technology, e-Kranti – Electronic Delivery of Services, Information for All, Electronics Manufacturing, IT for Jobs and Early Harvest Programmes. Each of these areas is a complex programme in itself and cuts across multiple Ministries and Departments.

Broadband Highways

This covers three sub components, namely Broadband for All – Rural, Broadband. [...]

Universal Access to Mobile Connectivity

This initiative focuses on network penetration and filling the gaps in connectivity in the country. [...]

Public Internet Access Programme

The two sub components of Public Internet Access Programme are Common Services Centres [...]

Electronics Manufacturing

Target NET ZERO Imports is a striking demonstration of intent.[...]

Early Harvest Programmes

Early Harvest Programme basically consists of those projects which are to be implemented within short timeline. [...]

Implementation Approach

All the initiatives, including establishing and expanding core ICT infrastructure, delivery of services ...etc under the Digital India programme have definitive completion time targets. Majority of the initiatives are planned to be realized within the next three years. The initiatives planned for early completion (“Early Harvest Programmes”) and citizen communication initiatives (“Information for All”) have already started going live and are being completed.

The Digital India programme aims at pulling together many existing schemes. These schemes will be restructured, revamped and re-focused and will be implemented in a synchronized manner. Many elements are only process improvements with minimal cost implications. The common branding of programmes as Digital India highlights their transformative impact. While implementing this programme, there would be wider consultations across government, industry, civil society, and citizens to discuss various issues to arrive at innovative solutions for achieving the desired outcomes of Digital India. DeitY has already launched a digital platform named as “myGov” (<http://mygov>) to facilitate collaborative and participative governance. Moreover, several consultations and workshops have been organized to discuss the implementation approach of the Digital India.

e-Governance – Reforming Government through Technology

Government Process Re-engineering using IT to simplify and make the government processes . [...]

eKranti – Electronic delivery of services

Over the years, sustained efforts have been made at multiple levels to improve the delivery of public services. [...]

Information for All

Open Data platform facilitates proactive release of datasets in an open format by the ministries/departments [...]

IT for Jobs

This pillar focuses on providing training to the youth in the skills required for availing employment opportunities in the IT/ITES sector. [...]

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Appendix 11: Interview guide for teachers

Introduction

- Intro and consent form sign
- Filled the questionnaire
- Ice breaker- tell me about yourself – your teaching journey
 - Subject
 - Grades
 - Years of experience teaching and in school

Digital India campaign

- Are you aware of the initiatives under Digital India campaign? In what ways do you think you embrace digital India campaign?
 - Challenges with the initiatives/ your struggles with the initiatives
- What are your responsibilities/ duties in your school to implement the initiatives under the digital India campaign? Can you give examples.

Understanding of teaching using technology

- How did you come about teaching with digital technology?
 - How do you think it has developed with time- how does it make you feel
 - Example of a lesson plan/planning- your reasons to plan lessons using technology or any elements that you consider while planning your lesson using digital technologies
- What do you feel about digital technology?
 - Things you like about teaching using technologies

- Do you think does it limits you as a teacher- autonomy, practice visible to other, vulnerability, student engagement
- Is there anything that you would want to improve in your teaching using technologies and how does that make you feel
- What things you think you have to worry about when you are teaching using digital technology?
- What would be your ideal scenario to teach using technology for your students?
- How do you think your future goals align with your teaching using digital technologies?

School

- In what ways you think school prepared you for covid or before covid and now how the practices has enabled you to use technology in your teaching?
 - Like any system of sharing practices among colleagues- what can you do? Can you do this or not?
 - Training that have helped you and you're teaching with technology
 - Content support from your school
 - Digital Learning management system
 - Any practices that you would like your school to adopt
- How the school and teaching is not different after covid? How do you think your practices have changed post covid? Do you think policy initiatives have any influence on your practices now?

Appendix 12: Sample of interview transcript of teacher

Speaker 2¹⁴: Are you a student of (name of the school)?

Speaker 1¹⁵ Ma'am, I'm a student in Durham. Durham University. Yeah. I'm not.

Speaker 2: No I said, are you a student of (name of the school)?

Speaker 1 No No ma'am. No, no, I wasn't. Ma'am, I am from Jalandhar.

Speaker 2: Okay. Yeah. I was trying to recollect whether I've seen you somewhere and I wasn't able to make it. No, that's why I asked.

Speaker 1 No. Yeah, okay, I visited school ma'am so maybe once or twice, but. Okay.

Speaker 2: Fine.

Speaker 1 So, so ma'am just to start off, can you ma'am tell me something about yourself about your teaching journey? What subject do you teach and, and grades and like years of experience in the school? Just generally.

Speaker 2: I was lucky enough to get a job immediately when I left my you know, when I finished my education. I am MA BEd and I joined this school right from its inception. I joined it in 2004. So, it's a long journey, a journey with many ups and downs. And I've learned a lot because I think I was a young girl of 24 when I joined the school, so as years rolled by, so did

¹⁴ Interviewee: Teacher

¹⁵ Interviewer: Researcher

my experience, and I've grown a lot. I teach English when I joined, I joined as a TGT English and I was taking primary classes, but very soon, I think within just a period of six months, I was promoted. And currently I'm PGT English. I'm the school editor. And I have other tasks as well under me.

Speaker 1 If you don't mind, can you briefly tell any any like your ups and downs, whatever you've learned, if you can sum it up.

Speaker 2: Every year has been brought a new challenge. Sometimes the challenges were with the type of students we have. Sometimes the challenges were in the you can say the administration part and COVID brought lots many challenges you know, once COVID dropped in, I had never thought that I would be so computer savvy. I used to use technology but that was just for you know making the results and all. Even that for that we used to be dependent on our friends like okay, yeah, like for friendship's sake like can you do it, but when COVID put that pile on the head, it was like everybody has to do their task. Everybody's having sufficient amount. So I think I learned a lot during COVID. Because that was the best learning phase, learning online, using those online platforms and I had never really in my wildest of dreams ever thought. Because we had done our schooling and education via the chalk duster method only. So, technology as it ushered in. I still remember the role of the computer teachers, how hard they worked at that time, you know, to teach us and it was really appreciable. That was the best learning phase. I think rest we kept learning with years, we learned a lot in because every year, every batch gives gives you a new experience. So, right now also, the post COVID period is also teaching us a lot because we need to retain our patience to such an extent that there we have to meet the impatient and restless students. Which is is tough, which is more challenging than learning technology, I think.

Speaker 1 Yeah. So ma'am, I think you've briefly summed up what I wanted to ask but then we will go slowly and deeply with all these questions, also. Ma'am, just wanted to know that are you aware of Digital India campaign? And like, yeah. Right.

Speaker 2: Yes yes I am aware

Speaker 1 And ma'am in what ways do you think you embrace digital India policy?

Speaker 2: See, I've gone online, netbanking, which I never tried. Which I've never dared to do, you know, because I was really scared. I forget passwords, so but I have all those passwords saved on my number and I feel my life has become so convenient. I don't need to go to the bank. I digitalized myself. So many tasks are done at just a click. Started with online shopping, although that experience is not that good. But yes, India is going digital and there are scams as well, but I think everything has its negatives and we have to live with that.

Speaker 1 And ma'am how do you, is there any like initiatives that you're using on Digital India in your school?

Speaker 2: In our school, you know, they're trying to digitalize everything. Now fees is not accepted in cash. Children have to learn how to pay it online. Every information about the school is online. Like I'm the editor, I make the prospectus that is sent online. That newsletter is e-newsletter. We no longer have those paper newsletters. So we have digitalized ourselves. We have cut the cost of paper and you know extra expenses of paying to the publishers and so it's all one gone.

Speaker 1 Yeah, yeah. And ma'am are using like, DIKSHA, epaathshala, all these?

Speaker 2: That is being used to a great extent. Nowadays we're not asking the kids to buy expensive books, they don't need them. So, every time we do a chapter, I think we have so much of e-material that we send them online. I think ample of lesson plans are available on DIKSHA, and NISHTHA which is providing us platform to learn as well. So we are learning so much through those webinars.

Speaker 1 and ma'am do you any challenges or like you know any issue using those platforms? Like what issues usually come.

Speaker 2: Yeah, definitely. Challenges are definitely there. See, we are new to the system. It's been, although we've been using computers since the beginning only but not to that extent as we are using now, right. So, challenges are always there, but I'm really lucky to be a part of this (school name) you know. I think the teachers here, the computer staff in this school is amazing, super amazing. Like they are, you can say rockets. They are like, I don't think there is anybody in the school, to whom you can go and they just switch you out. They definitely give you a solution. So we are learning, the things we don't know that we ask. When we ask them, then they help us out. It's all done. Everything gets finished.

Speaker 1 That's good. Yeah, yeah.

Speaker 2: Yeah. So its easy.

Speaker 1 How generally how, what are your experiences using technology? How do you come about using digital technology?

Speaker 2: I will tell you, we start right from the morning. The attendance is filled there, we have to do the results over there. We have to, I have to whatever I have to write it has to go on the portals, the write ups that I give any achievement every morning we have an achievement of the school, which has to go on Facebook and start and I have to write it so when it's posted, I'm learning. It's a part and parcel of this whole programme right now at present. I think, the way it has been digitalized now, I've never thought it will go all that you know, everything on the system. Yeah, it has become handy, everything is on the phone only.

Speaker 1 Yeah, yeah and how does it make you feel like what do you think about all this?

Speaker 2: I think it's amazing. Life has become compact and everything is brought down to this small phone. I want to pray I turn it on. I want to listen to music, I turn it on. I take a class I turn it on, webinar or anything. Every information is right here. So everything is in my hand only. So it's knowledge has become so handy. So quick, everything. It's amazing.

Speaker 1 Yeah. Okay. But ma'am, how do you think as a teacher, how do you think what how this challenges as a teacher because now everything, all the information everything is there in your hand. So, what is the role of the teacher's responsibility and how do you think that has changed?

Speaker 2: There has been 2-3 challenges. One is meeting the internet glitch, you know, internet is not that accurate in India. At one point or the other, it betrays you, so you're in the middle of something, it will go off and then the moment it runs down, you're all at sixes and sevens, and then you have to start with your own lecture, but okay, it's done. Then, second thing the children have become so accustomed to using phone that it has become challenging. Now they carry the phone. If it's not allowed they bring it stealthily in the classes and carrying those checking so that work on a teacher's part has increased so much and we have to always be alert that no one is taking our photo, no one is having phone in their hands. What are they doing, are they putting your snap on Snapchat as streak, everything is happening. It's part of the job. We're meeting those challenges. We are doing it. Bearing with them.

Speaker 1 Yeah, yeah. And ma'am, how do you think the responsibility of a teacher has changed now? Like teaching in a environment like this?

Speaker 2: A lot. I think we are more of watchdogs than teachers now. We are not. We are not into like the moment we are seeing monitoring the students, minding them, trying to you know bring back their minds because the exposure to technology has taken them in the wrong direction as well. Right. I think, as teenagers they don't know what is the right usage of technology. So that exposure, give them a bad exposure and bringing them back and cleaning all that garbage that has gone in the heads is a tough job. I don't know how many years it will take back to bring back those normal children in the classes. But right now it's really a task, really a task.

Speaker 1 Yeah. Um, do you have any example to share like any, any particular example in this context?

Speaker 2: Yeah, early morning only I had a case in my class where three four teachers were harassed to such an extent like one child has a phone. He did not give it to me during the checking. He, he hid it somewhere and then some teacher was taking the period in the third period and you know, she found out because the child was taking a pic. So she took the phone put it on her dice while teaching when her you know she was faced towards the board. Somebody picked it up from there. And then they started playing pass the parcel and they wasted 40 minutes of four teachers, but they didn't give the phone and to whoever we were going, they were passing on to the next one. So, the whole class had a full drama of 40 minutes, where the teacher was literally in tears that give back the phone. They said we gave it to you, we want it from you. So, the teacher was like, I don't have the phone. You guys have the phone. Everybody was refusing this, and we don't have it, nobody admitted and ultimately there is one 'narak' (good student) that every teacher has. So I had one so I called him out. He told me the name and I found the phone. We found it in the dice again. But yes, so such things happen. Actually, the students are distracted from studies, they don't want to study they are wasting time and they feel that it's more interesting. They don't want to study and we can't do anything, we can't help it. It's part of their bringing up.

Speaker 1 why do you think this is the case?

Speaker 2: See CBSE at fault. I I see I feel whenever you present an Indian dish in a foreign utensil in a foreign platter, you're going to ruin it, right. It's going to be ruined, that is what is happening. The system, the Western system is being brought in the Indian platform which is wrong. If we are bringing from outside, no corporal punishment, then are we bringing up Indian kids like there where, where every parent has to undergo a session before being parent? That is how their parenting should be. Are the teachers being trained in that manner? Where every child will genuinely. If suppose, I've been to many countries, up travelled and I've seen the kids there. Our kids are far much I won't say smarter they're clever. They're shrewd. Children there are smart, but they are very innocent. See that's the difference in their bringing up the child there, if he's having cold, he'll say I have cold ma'am. Here, if the child wants to bunk, he'll say I have cold. So that shrewdness. What we are doing is we are saying we are imposing no corporal punishment on these children, and these are those kids, who if there won't be any police at the traffic lights, they will cross the green

light. So these children deserve corporal punishment. And when this message goes to the kids, we are spoiling actually we in trying to bring up the foreign systems, we have ruined the Indian system also. Kids were not like that. We had kids like I've been in this school for 19 years. All my previous batches have gone abroad. They've settled and they say ma'am, when you used to hit we've learned the real lessons of life. But where are we now? So that is spoiling the case. That is the biggest problem that we are facing. And see the problem will not be for our teachers because teachers have to take these children for two years/ one year. They are big problem for the parents, they are going to be the sufferers. That's it? I have some other task, do you have more questions.

Speaker 1 I'm sorry, ma'am. Yes ma'am.

Speaker 2: I think I have given such long answers.

Speaker 1 It's okay ma'am. You have time, right?

Speaker 2: Just a second. Can I pause you for a second.

Speaker 1 So, do you remember what you think, teaching with technology for example, limits

Speaker 2: *Muted* no. So, teaching with technology, sorry I have so many tasks.

Speaker 1 No worries, ma'am. You think teaching with technology limits your autonomy as a teacher? Ma'am, what other challenges you think can come up when you are teaching like dealing with such kids, for example.

Speaker 2: In during the online classes because you know what the problem was with senior students was they did not turn on the video because they were all in beds. They didn't turn on the video. Some were playing games. They did not answer and the moment you asked a question and were a bit harsh, they used to just leave the class. So we did not know, Now what we are doing is I'm teaching offline, but I'm sending them online content. Those who

are interested and willing to get some extra knowledge they're going to scroll otherwise the others can just neglect it. So, it hardly matters. So now I'm not losing my patience to that extent as I, we used to lose as teachers, you know, during the online classes. That was a challenge. That time it was very tough. They never heard us, and all the chapters we had to go back and repeat them when they came back physically. So all the syllabus double. So, the thing they're not trained, they're not tuned to the system. That's why.

Speaker 1 Yeah. Do you think your school prepared you during COVID or before COVID?

Speaker 2: A lot, they did a lot. I think our principal's effort from the beginning only she was always like do like this, like that we used to say, why ma'am is always making us do extra things, but I think she was honing our skills. So we've learned a lot she's taught us a lot. I think 70% preparation was already done before COVID. So we were ready for the time. We didn't meet so many challenges as compared to other schools. So, people there had more fuss, we didn't have that.

Speaker 1 what practices in your school that you really like and that has shaped your you think that has shaped your teaching?

Speaker 2: See, we are trained in advance. Our principal is proactive. Everything is done before time. The moment CBSE, because she's one of the CBSE planners because she's into that system. So, the moment one thing is introduced there, we have a full-fledged you know, two three hours session on that and we are made well versed with that. So, we are made well versed in that system and by the time it starts coming into the schools, we know it and it's there in our system. So that's the best part being pre prepared.

Speaker 1 What what do you feel about the digital India like you know, the policies and the CBSE policies that they are initiating with technology and other aspects?

Speaker 2: I have an amazing experience you know because I think India needs to get into the race of a developed country and for that we need to go digital and very soon that time is going to come.

Just a second. I have some students. My kids I was telling them I've given you as example. Should I show her the live example, they ran away.

Speaker 1 Yeah. So what do you think about the policies that are initiated by CBSE for this for this digital?

Speaker 2: They are amazing. They are worth you know, but if they made right use, you know, sometimes when I attend the webinar, I've seen people doing what the moment the webinar starts, they start asking for the attendance list. So, they do only for the attendance, which is wrong. I think the real benefit should be drawn from those things if things think so not be done only for the heck of it. See again, we talk of the Indian system, they have made Indians stand on a foreign system, it's not gonna be successful. They need a strict vigilance. Not only students, the teachers, every sector. So when there is an option that we can do away with it, people do away with the things which is wrong. Honestly, sincerely if you work, then that is what makes the difference.

Speaker 1 Yeah, and Ma'am, what other ways do you think policy can improve in like, you know, in bringing like change or that digital change at a root level?

Speaker 2: I think since ages Indian education system has been known for discipline. Right away if you go far back to Dronacharya (ancient teacher) and you talk of teachers, the gurus that we had, students, only those students were able to polish who could you know who were just brushed and had to face the harsh realities of life. So once that discipline comes back to the system, everything is going to be perfect. So that discipline cannot be brought back with the words. No, they don't understand words. I think the same kids, the same kids are super amazing the moment they move to Canada and US why? Because they know if they throw something on the road, they will be punished. They will be penalized. If they violate a rule, a ticket is going to drop at their place. So that means they know but what are they waiting for, that question mark, that needs to be put on them.

Speaker 1 and ma'am in terms of practices like you know, digital practices and teaching with technology. What do you think, would your your ideal scenario of teaching would be like the like your comfort your space and your the best way to teach using digital technology also?

Speaker 2: See, I think digital technology should be used for children who really want to study. When we are enforcing our lessons on someone that is ineffective, be it on physical platform or online platform like I can speak only if you're willing to listen. If you're not interested, I won't speak. So that should be the case in the classes as well. Digital technology should only be used in teaching where the group is, you know, interested and keen to. Food in a platter suits only those who are really hungry. For others, it's all garbage. They are not going to like the food.

Speaker 1 Like how do you think you can like is there any way you can make students engage in an online platform like through a different lesson planning or through a different medium like anything you can do?

Speaker 2: Real life examples like movies. I often give examples of movies to the kids, web series. The ones that is latest, so I tell them, have you seen it? Like that movie had this seen. So we feel, atleast someone will see it because I think what life can teach no book can teach. So life lessons are essential in your live teaching. So that they become a part of their life.

Speaker 1 And Ma'am, do you plan your own lessons or like, you know, like you mentioned earlier that you share the content before? You you create your own content? Do you use any medium?

Speaker 2: I create sometimes. There's so much available, so we can just share that. Because I use my novelty only in the physical class. I share the real, everything goes very spontaneous. You know, when I'm teaching, say if I'm having two sections of the same class, my lessons are never similar. Some examples might come to me and I'm in the second meeting.

Call disconnects and joins again

Speaker 1 Hello you're on mute. I can't hear you. Can you can you unmute yourself?

Issues with speaker, Speaker 2 was unable to unmute herself, rejoins again

Speaker 1 Yes, ma'am. I can hear you. No. So sorry, ma'am.

Speaker 2: Can you please hurry up because I have a few tasks on hand.

Speaker 1 Yes. Yes. So ma'am, just what do you what would your ideal teaching scenario would be?

Speaker 2: Hybrid mode where I can use as per the convenience and as per the audience before me. Yeah. I'm comfortable with both. So we have smartboards in the class we can go side by side as per the requirement of the class.

Speaker 1 and you use any medium to like to share the content?

Speaker 2: We have the class groups. We have the, we meet children on Zoom platform. We meet them on Google meet. So, we have certain platforms where we can have the online class whenever we are not able to have an offline. So, we have it once or twice a month.

Speaker 1 Okay, okay. Um, um, last question, what do you think the future should be for like, you know, for teachers in terms of teaching with technology?

Speaker 2: I think if the complete technological mode has to come then there is no requirement of human teachers. The robots can do the work. There is no need but I don't think anything and anyone can replace a physical teacher, because when we took the feedback from the children as well, they said, we weren't able to understand a lot. And we weren't able to ask questions, you know, so, physical teacher is very much required and handy. Moreover, I think they're more used to the system. Yeah, they find it....

Speaker 1 And I'm sorry, one last question, ma'am. What lessons have you learned after COVID now you're teaching after, post COVID times, what lessons are what changes in your practice do you think you have developed?

Speaker 2: Everyday day is a challenge. Every day you're a wrestler, you're thrown out where there are so many zombies, and you to fight them and struggle for your life. Struggle for survival, I would say every day because there are very few who are really you know, gems and they want to study who come to school with a motive with a focus but many of them have, you know, they found easy way out because the thing is, they can go technologically and they can study and that's an easy way of scoring marks, because they found many unfair means as well. So, every day brings a new challenge.

Speaker 1 How do you deal with such students then; do you do what methods do you think should be like you should include or your school's responsibility or your responsibility?

Speaker 2: Everybody is on their toes. I think at this moment, not only the teachers, everybody every parent is you know, facing a if we call the parents they also suffering. If we talk to the head, they are also suffering. So everybody is sitting on a time bomb, don't know who's gonna explode when. So we are waiting, don't know when it's gonna. Let's wait for it. Let's hope it never explodes. The day you're safe, you're safe, the day you're dead, dead.

Speaker 1 Yeah, do you have any future career aspirations or like down the line?

Speaker 2: I think I've spent my whole life teaching I don't know what else would I do. But yes, one day when I leave I'll be a chef. That's what's my one of the ambition. Whenever I leave teaching, I'm gonna start with cooking. Explore myself in that field, atleast I can take out my frustration on all those utensils that I have. I can throw them, the containers here and there, which I can't do with the kids.

Speaker 1 Okay, so that's, that's it ma'am, thank you so much for your time. Thank you and have a good day, ma'am. Take care.

Speaker 2: Bye child.

Appendix 13: Interview guide for heads

Introduction

- Intro and consent form sign
- Ice breaker- how's your day going?
- Tell me about yourself – your journey of being a headteacher
 - Years of experience as a head in the school

Digital India campaign

- Are you aware of the initiatives under Digital India campaign? In what ways do you think your schools embraces digital India campaign?
 - Challenges with the initiatives/ your struggles with the initiatives
- What are your responsibilities/ duties in your school to implement the initiatives under the digital India campaign? Can you give examples.
- Any initiatives that have you taken in your school to implement digital policies?

Understanding of teaching using technology

- What do you feel about digital technology?
 - Things you like about teaching using technologies
 - Do you think it limits teachers' autonomy, practice visible to other, vulnerability, student engagement
- How did you come about teaching with digital technology?
 - How do you think it has developed with time in you school- how does it make you feel
 - Examples of how this has evolved in your school

- Any elements that you think are important while planning your lesson using digital technologies
- Is there anything that you would want to improve in your school or the way teachers are using technologies and how does that make you feel
- What things you think you have to worry about when teachers are teaching using digital technology?
- What would be the ideal scenario for teachers to teach using technology in your students?
- How do you think your future goals align with the teaching using digital technologies?
- Future of digital technology

School

- In what ways you think you prepared your teachers for covid or before covid and now how the practices has enabled the uptake of technology in the teaching in your school?
 - Like any system of sharing practices among colleagues- what can you do? Can you do this or not?
 - Training that have helped your teachers teaching with technology
 - Content support provided by the school
 - Digital Learning management system
 - Any practices that you have implemented, and you would like to adopt in your school
- What practices you think make your school unique in terms of using technology in teaching and learning?
- How the school and teaching is different after covid? How do you think your practices have changed post covid?
- Do you think policy initiatives have any influence on your practices now?

- To what extent you think your leadership style has had an impact on using technology in teaching and learning in your school? Any lessons that you have learned and would want to share.

Appendix 14: Sample of interview transcript of head

Speaker 1¹⁶: So, first of all mam tell me about yourself. How is your day going and then how was your day today and then how your journey started as being a principal?

Speaker 2¹⁷: Okay so starting from today's schedule. Today was a PTM at my school so it was really hectic as a lot of issues were there; actually we are going to start our PT1 periodic test and we had asked the parents to come visit us and just know about how the syllabus is going on and what is the blueprint of the exam or the papers we are going to conduct. So that general information we wanted to share with them. That was it. We have collaboration with so many; I have a vision that the government institutions around me must come to school and if they have any kind of information or awareness of people then they should tell us so today some bank people came and there was a kind of awareness campaign from there side about how to open a; they were telling about certain policies and that was it.

Speaker 1: Okay.

Speaker 2: And about my journey as a principal. I am M.SC in Bio chemistry so I have done my masters in it and I never wanted to be a teacher so being a principal was not even in picture. So, I always wanted to be a researcher because when I was young I had read one chapter on Dr. Har Gobind Singh Khurana and his work on DNA so I was very much impressed from that personality and I just wanted to work on DNA so first I just opted for genetics, something happened there in that department so I switched to M.SC bio chemistry. I have done my Masters in Bio chemistry. I was also a lecturer in a college then

¹⁶ Interviewer: Researcher

¹⁷ Interviewee: Head of the school

things; my journey has been in that way. I had to be a school teacher and then I did my B.ED. and then my M.Ed. I was working as a principal and after sometime I just thought that I have some visions to start my own school so that is how I started my own school. So in that way I became a principal. You can call me as accidental principal as well.

Speaker 1: Yeah so mam how many experience in total you have as a head in your school?

Speaker 2: I joined there in 2016 when application process started in my school and otherwise I have worked as a principal before that in 2006. I started my journey as a principal from 2006 only. You can calculate the number of years. I don't know.

Speaker 1: Yeah, it's okay mam. It has been a long journey.

Speaker 2: Yes long journey.

Speaker 1: So mam, are you aware of the initiatives through digital India campaign like e-pathshala, Diksha, Nishtha and what do you think about those initiatives and how is your school embracing them?

Speaker 2: So, these are very good initiatives because there wasn't much work done on CPD before. We had continuous professional development for 32 hours but during national education policy 2020 they had made it like 50 hours which were compulsory for every teacher to have this professional development program and they have to generate their certificates and now in this part there are a lot of constraints like you know there are a lot of resources which you have to manage while giving these trainings and all that and with the E-trainings; I mean lot of things have been sorted out like Diksha is there which is a pace learning portal so on Diksha FNL which is foundation literacy and a lot of importance is given to it because in NAP 5 years are the foundational years that are considerate because previously CBSE didn't consider kinder Garten and were taking School till plus two only. Now FNL is such a big aspect where state or centre both support it and it is in our concurrent list as well in our constitution about education so they had set FLN properly and all FLN modules are on Diksha. If you ask me as a principal, sometimes I feel very hopeless and

very; that how will I manage all this but those modules are available on FLN so even if a new teacher comes; today also after my PTM we sat on analysis so I asked the new teachers to do FLN who have recently joined us. So, this is a very good portal than Swam. There is an official YouTube of NCERT where they have uploaded lessons and its planning, if we have any problem then we; they have also uploaded the whole books so that one can read from there. Then apart from Nishtha we have e-pathshala and it also has all NCERT books in it and the biggest problem is Priyanka that sometimes books are not available in the market. Sometimes hard copies get very rare like we still haven't received books for 6th class. We are arranging it from Chandigarh. 15 books are still pending and PT is approaching so I know that sometimes hard books are not available but because of e-pathshala we download those books and we can run with our syllabus. So this is a very; the benefit of pace learning is that teachers are always you know heavily burdened so with pace learning they get a chance whenever they get time so with their own pace they are generating their studies. So, definitely there is no doubt that E-learning has empowered teaching a lot especially professional development.

Speaker 1: So mam, are there any challenges or any struggles that requires more effort to initiate for these initiatives?

Speaker 2: Yes, I wanted that; we also have ID's on CBSE digital education. in and they have briefly given two programmes and two homework that is on storytelling and one was on the digitisation for all digital tools like mentimeter and kahoot, polls or many other but I think number one as per me is that teachers need to be very self-motivated while using these kind of portals or platforms so self-motivation is lacking somewhere because I know they are; they have a lot of work from school.

Speaker 1: Yeah.

Speaker 2: Secondly, in some cases devices are lacking because when you are back at home then you have to do school work and your child work also on the same device so lot of other things and these phones are; they are major part of; they are family members in a way.

Speaker 1: Yeah.

Speaker 2: In every home so I just feel they don't have enough devices and some places don't have proper internet or have some constraint and data issues are also there as it is used up quickly so these are some factors otherwise I don't feel that there is any major challenge in it. First thing is motivation only.

Speaker 1: Okay, so as the compulsory training is now for 50 hours what is your opinion on that? Do you think it is a good decision or what is the feedback of your teachers to you about it? What do you think? What is the impact of it here?

Speaker 2: In India what I feel; especially I will talk about in the context of Punjab so in Punjab teaching is considered as that if you don't have any other work just do teaching, that kind of mindset is there mostly in rural area like my school is in rural belt so we have a very big problem to find good teachers. So teachers should be very much; teaching is done by heart. You need blood and bones to become a teacher so 50 hours are very much compulsory because when you are doing these courses or B.ED.; to be honest Priyanka there is a lot of difference in theory and practical everywhere. You read something in theory but when you are in the pavilion and you are in the game only then you get to know all the pros and cons of how I have to; so your mind starts working there and these professional development trainings are definitely important and they are meant to be and they are being drafted in such a way that one should get empower once; their teaching skill improves so I think these are very much important. Its 50 hours but I think most of the time very few are able to complete till 50 hours because they are majorly; some are generic and some must be specific and subject oriented as well. That depends on their subject and how much training they need in it. If you talk about AI artificial intelligence which is there so you need a lot of training there. If I talk about myself as a principal there were no trainings for principals but last to last year they had started pedagogical leadership programs and we get training there. Our teachers go out to learn Kahoot or Canvas but the principal does not know anything. So thats how they started empowering the principals as well. This is a good thing that even we are considered to get some training. They promoted us from teaching to co-ordination and they just make you a principal. All together it is a different job and it is a pole apart job.

Administration is a totally different thing from teaching. So we generally need a lot of training and I just feel that all that should be given in small doses if that was okay.

Speaker 1: Okay so mam, what all are your responsibilities as a head in terms of implementing digital initiatives in your school? How did you manage all the implementation?

Speaker 2: You are focusing on digital only otherwise CBSE is providing in person trainings as well. They organise number of trainings in different kind of schools and they charge for it and it becomes a problem for us to commute there sometimes because we are in a very rare or far away from the city so digital platform is a saving line for us always. It is like our lifeline so whenever any teacher is enrolled or they come to my school. They get appointed as a teacher in our school so the firstly there Diksha ID is generated and then FLN, expansion and module. These are the three programmes which are very important in Diksha and we stress on them to complete it but these days they are not available maybe because there courses are suspended as of now. I don't know what is happening. They have a lot of subject oriented information so we ask teachers to go and work there and then show us their generated certificates and sometimes we ask them to stay back; in summer vacations some of the teachers are asked to prepare some of the lectures on particular like FLN or at present we have NCF. National curriculum framework is a very much important document which has to be needed by each teacher. We asked them to read and if they can't then we make its crux or PPT made available to the teachers to read so that we can have a discussion on NCF. So as a head, what I need; what my duties are to make the teacher aware, develop a timeline, prepare a road map for how much work they should complete in that timelines. So that is it. We overview it and they have also been given a page behind their personal diaries which they can show us that how many certificates they have generated so far.

Speaker 1: Okay so now some questions would be around teaching with technology? What do you feel, how do you like digital technology in teaching and in learning. If you could share some points that you like or dislike. I just want to know your general opinion.

Speaker 2: As a person when I watch all this palthera information and knowledge. I generally feel very much lame that why were these options not available in my time. Sometimes I feel if I had something like this then maybe I would have done something differently. It is a human psychology because but I know that we have been raised in a very controlled environment and ad we knew how to filter things. maybe we had a value system then so; but now we feel that if you will give a lot of exposure of technology then a child's creativity gets compromised you know when Wright brothers were there, they might have thought of to construct a plane so how did they think of that idea, I believe it is all in here so this is our super computer and it has been compromised like if I talk about now most of the time when I write a text so we have a dictionary built in because of which I am forgetting many words. Not just pronunciation but even the spellings so when you are being exposed to these kind of technologies, if that exposure exceeds then our inbuilt capabilities as we made these things so they get compromised somewhere. So technology is always a supplementary to everything. We do need that supplementary everywhere especially in education when we are working in any inbuilt capability of a child or if we are working on their diversification so teaching by just one form of technology there is not good. You need a diverse kind of pedagogies and diverse kind of learning outcomes so I don't feel that; many schools have become digital totally and I don't feel this is good. I feel like that okay.

Speaker 1: So mam do you think like if a teacher uses technology to teach; do you think technology limits a teachers autonomy or if it makes them vulnerable and it has a different impact on student engagement, do you think when teachers uses technology to teach then all these factors come across.

Speaker 2: I got it and this is a very good question you have asked. It is like two sides of a coin so now if I talk about teacher being creative and if they have such calibres so then they feel like why are they being asked to do all this most of the time because last two years we had a third party in our school that was lead schools; thats a curriculum built by them and they had given us the lead and tabs, all the lessons plans were there and all the assessments everything was there so teachers pressure did lighten up but the creative teachers always felt trap that we have to work in the same pragmatic way. I can do much better than what they are telling me to do and they were considering the context of the classroom. So that

context has not been able to remapped by the digitisation platforms but if a teacher is not good and is in a compromised stage, if they have less subject knowledge or he or she is in an initial phase and exception phase where they have just started so there technology helps them a lot. In my experience, what I have observed so as a school policy we have to oversee which teacher needs; if a teacher comes to me and tells me that I don't feel that this assessment that they have given is more of thought questions and my students are not been able to do this kind of assessment so I just want to make it a bit light. We give them the chance to go by themselves. We need flexibility everywhere be it pragmatic or a client side line approach is not good so that is what I thought.

Speaker 1: So mam, do you still use lead?

Speaker 2: No, I left that because lead was expensive. The location where I am in, if I talk about my clientele or parents they don't have that kind of pockets otherwise they had two good programs, one was alga because I saw that English is taught as a subject. It was teaching; they had made an English lab where they were teaching English as a language in a very good way and second was CCS computer and competition skills so they were starting it accordingly and it was a very interesting program. It was activity based and practical based. Again it was a bit costly and we need a support system in that which was not very effective from their side in the second year. Our co-ordinator in the first year was very active and she was very giving but we didn't find it good in the second year. So, we just dropped.

Speaker 1: So mam, you stopped this program from April this year?

Speaker 2: Yeah, this year.

Speaker 1: Okay so mam, any; how do you think about teaching in technology? What is your ideal scenario of teaching by using technology?

Speaker 2: If we talk about technology, Khan academy had changed the gate where it was needed. Even I have done some of the courses from Udemy and coursera then some are Ivy League Universities; I just forgot the name. Edx is a platform where ivy league universities

are there so I usually do courses from that sites. They have done such good and valid research with data base that you always get a very legitimate kind of knowledge and it's not they have just copy pasted the content because that information will somewhere come in conflict and if we talk about in schools, teachers should be guided and a culture should be generated that how much one should use it. It also depends on person to person, individual's approach and also collective approach of people. Collective approach includes child as a centre here and we are in a rural area so if I will do more digitisation here than in the end; parents are fed up from phones. Kids are doing; they don't have that kind of awareness that what kind of time table should be made for the child or how to invigilate them so that will be a struggle for us as well. We are as a formal agency, we don't have that much access where we could go door to door and guide them how they should do it. We can't give instructions to the parents in that way so I feel that technology should be used that much only as it is required supplementary but that is an inseparable part now and it is a very very must thing. If we talk about SST, it has been such a monotonous subject in Indian schools. If we study ancient history in it then we are taught about Harappa so when we had to teach their civilisation or their construction that was very very much mugging up but when technology is there and they are telling in a story telling way and they are showing in 3D that they had bathrooms or city plan is shown in that way and everything so the child is able to understand all that in minutes. So what I have felt that in some subjects like science it is very good or maths also, it is very good but only for those topics where it is needed otherwise personal touch is much needed.

Speaker 1: Yeah so mam do you think; what all things do teacher have to think about if they use technology? Do you think their role as a teacher change if they use technology in their classrooms or in teaching or learning?

Speaker 2: As a teacher, one should be very empathetic. First role is of empathy that if I am teaching something be it me. If I have to teach classification so when I am teaching classification of Bio. It is a very vast chapter and to teach it or to makes its notes. It is a struggle again and I will have to write them down but on a platform if I have pre prepared notes available. I have some PPT's made by the MBS people or some other legitimate platforms so I can use them and I can show them on different kind of 3D, Animation that we

could not even think about. Now we have DNA structures available so it really depends a lot on the teacher. Either a teacher can just show it and then read the chapter. I am going to say this word again that it should be supplementary. It should be used as a supplementary only and keep a personal touch there but if it is a technical subject then I think it will be used more there but if you are teaching a subject like literature which requires more of a human role then I don't feel technology is going to play any role there as you are available there and it depends on you.

Speaker 1: Yeah and what elements do you think are important like you said personal touch but what are other such elements that teachers should consider when they plan their lesson with technology?

Speaker 2: Again source that is there, it depends on which source we are getting our material from that is very much important. As I said that Udemy is good or Addax is good but there are a number of other platforms where you will get all these things but it depends on how the information; if I talk about age group which is targeted here that is also a factor. If we are talking about young kids. I will go for animations. If it's adolescent group and I have to show them something which can move to critical thinking then I can show them a movie by a certain good director. It is; many things we have to consider like age. It is same as we make a lesson plan in school so we are going to check out certain factors while choosing technology as well like what is the age group or which class is it, what is the context; if I am narrating a story and in that story I put a front story as well where objects are not matched by the child; a village child won't understand what is an apple pie. So we will have to map all these things and it also depends on time as a factor and how we can use it. Lesson plan is always based on time. You have to choose a video as per the time available. You have to curtail the things according to your classroom so that is again a teacher's role.

Speaker 1: Yeah and what do you think down the line in future how will the role of teachers change?

Speaker 2: So, interestingly Priyanka when I was doing my M.Ed. this was there. We did a play on this topic change in the role of teacher so in ancient times, teacher was guru and shishya where they used to have discussions. If I don't feel that Priyanka is; suppose you are my student and she is feeling that I am not right then you can come and you can raise a question so that was there but when we reached modern times, guru and shishya became guru and chela where chela is always the one believing on the guru's sayings 100% but if we come in to modern time then we are the; you might not like this term. We are sellers now. We personalise things that do this or that but we are more in to the corporate world now and education is an industry now. Every element has their own shops and own things so this is happening because of time but as a teacher I am okay with this because this is time and it was always in thought that it will happen but what will be the role of teacher. I think it will be the same that is to work on a child. The child will be the centre and it depends on the teacher how they will teach them. They could take them to enquiry based learning or use different pedagogies, if you have CBE that is competition based education; if you could map the child then you can diversify your content and you can deliver it and your assessment will also be good and you will also have learning outcomes. So the role of the teacher will be the same but extra efforts will be added there. You have to be checked out and you have to be more and more cautious and more and more alert while delivering the lesson plan in your class.

Speaker 1: Do you think technology will change all this a lot in the next couple of years in the way of how teachers teach?

Speaker 2: Priyanka, I feel that in coming years; take it as an evolution if the human race survives though I don't know when will apocalypses strike like they are showing that it will be apocalyptic but there would be two poles. There will be some people who will be against technology and some schools will come forward who will try to revive gurukul system again and there are some already in place and they are against technology and they will go to jungles like Japanese people are doing that so this will happen and maximum a big pole will be there bending towards technology because we people always are; most of the chunk will go towards that because there is a lot of techno craze. Kids by default are more trained technologically. They are in to it so this impact will be there like there is Byju's or many

other companies and they are in this business now. So they are producing their own content in their own way. I have seen that these businesses solve maths; now Asians have one aspect that our maths is very strong why because fundamentally we know about it a lot. If we talk about we 6 but if I see how they teach maths outside they have short methods. They didn't take this in to deep learning because they are not in to the fundamental or basics. Now Auda classes are given here where they are saying that in one hour they will teach us all these tricks; they have taken out those tricks as well. The problem will arise here that we talk about deep learning but it is somewhere non existential now. If we talk about our grandparents, their maths; they used to do decimals multiplication like point 5 table and what not on just their fingers. We have forgotten those things just because of technology. This impact will be there.

Speaker 1: Anything that you want to improve in your school? Any such practices? In the way where teachers are using technology at present, how do you want to improve that and how does it make you feel about that?

Speaker 2: My approach has always been middle path. I am not an extremists in any way. I am not in right or in left. I always go for mix of everything. So, experiential learning is always a point where everything will work but we can't separate them from technology now and technology is kind of helpful where a person; to explain a 3D image to a child we always struggled to arrange for such object. So there they can just type or show them that way. Virtual things or AI is there; I saw augmented reality so many class rooms are doing wonders but extra exposure should not be given but only that much which can be digested easily. It depends on the digestion. It shouldn't be done in such way that kids get addicted to it. So, I feel both should work together then it will be better but again it will depend if I talk about kids in your school they have devices, they have extra knowledge with them. They have a lot of other; there must be someone at their home to give them extra shots but it is not the same in rural areas so we have to check it out that where it will work.

Speaker 1: Yeah, mam last couple of questions. What practices do you think that makes your school unique in using technology for the ways of teaching and learning like any such practices that are followed in your school that makes your school unique in this context?

Speaker 2: We opened with Khan academy and we started with flipped classrooms technology so when flipped classrooms began I started working on it at the same time so the kids; they practice these kind of things with technology and then our practices in school is that we have been; we are applying for ISA now so ISA's action plan could be on zoom more rather than; as we are not that resourceful that we can organise a student exchange program so here we got access to work with the international people. Technology gave us that. Secondly, coding also; just because of the lesson planning available on technology because of which we understood coding otherwise I can't afford a teacher for technology then we have a lot of action plans on sustainability so the goals we have to understand sustainability; the sustainable goals or STG's are there we involve technology in that and then story telling we have hoops or Pratham resources available to us of story weavers. They have done such amazing work, we are also doing spell bee here and thirdly, we face a lot of problem with language so for language we have hired one teacher from South. They are giving lessons on online classes. With the help of technology we are working on our low key areas to improve them in that way.

Speaker 1: Okay and how do you think you prepared your teachers during COVID and before that as well. How was the situation and how is the situation now after COVID? So now as teachers are coming what do you think about COVID times?

Speaker 2: If you talk about my school, we worked so hard during COVID. We did so much work. COVID was; lockdown was announced on 28th March in India so we went online on 6th April. Why, because we were practicing it already; as I told you that we were working with Khan classrooms then we used Skype for flipped class rooms. We were not using zoom and all that and ultimately we got to know about zoom in 2 days and it is very handy. Zoom was very handy. We didn't have that much money that we could buy Microsoft team and it was a bit of; we did take some trainings of it and shared with everyone but on parents part we knew that they won't be able to use it. They didn't have laptops or Desktop. They only had phones and I felt that it is not possible on phone so we stayed with zoom only and teachers also; I didn't think; there must be 3-4 teachers only who were not interested to work on this platform so they left as they thought they won't be able to do it because it is

very tiring to sit on screen and pay attention to all the kids. You are asking them all to come and attend the class then lot of other things were going on in the classroom and then there was discipline as well. Class management was totally hampered by online classrooms and after that when we continue and the session gets over but if we talk about now we are mixed. If we feel that suddenly vacations will be declared or anything then we will just ask parents to shift online and do something there and parents also do that. We did a lot; we have done tie up with a Nepal's school as they had an ISA so they partnered with us and we organised many programs with them. It was very interesting we got to learn so much from them and they also learnt from us so in that way kids also enjoyed a lot. Many constraints; there were many children who were not performing in the classroom, they were shy, they were not being; might be the teachers were not asking them to participate but online they shed their shyness and they removed their shell and they became performers. We saw these things also as per my research. It is okay now but digital Ness is still there in trainings and classrooms have LED's so in some class rooms like I mentioned about story weavers. We have story telling in one class room which is run on screens then we have some of the resources from NCERT official channel so we use that. We have some resources of Anulodya Vidyalaya so we use that as they have formed some lesson plans because 5E was closed so now they have made it competency based and we also have to map the learning outcomes so we have those lesson plans and generally we use our screens.

Speaker 1: Okay any such practices in your school which supports teachers for their technology support or if they are facing any struggle, so do you have any such system of practices in school?

Speaker 2: We have given them tabs and the resources are all available in their tabs. Suppose If I am taking English of class 10th along with English of class 8th and I am a subject committee member for 6th class and I have to go to HOD for that so all these resources are available on their tabs because it's a; CBSE wants to; there is an instructional plan for 120 days but if we go class wise where we have APP (Annual pedagogical planning) of $5+3+3=4$. It has day plannings of 120-180 days so if these day plannings are run digital then that is much better because if we have that lesson plan and we run with it; sometimes we get unexpected holidays like last April we had 12 holidays including Sundays so we were very

much; we didn't give 1st may holiday or Buddha Purnima holiday so we availed that because of technology it was easy to deliver those lesson plans. We have projector in two rooms in our school and we have LED's in others so they can use offline but the problem for us is that we are able to work less online because we don't have broadband so most of the time we usually go for offline. Whatever offline material we get we create that and work with that.

Speaker 1: Okay so mam last question what do you think that how did your leadership style impacts your teachers in terms of using technology or how has it impacted your school and what are some of the lessons you learnt in your journey and how do you want to improve?

Speaker 2: This is not; I never went in to self-assessment till now but this question is somewhat self-appraisal as well. Okay, so yes I am a; as I have just told you to consider me as an accidental principal so I feel that I am always in a learning journey. Whenever I get a chance to learn anything I always go for it like during pedagogical leadership classes, I was the one coming first there out of all the polls and surveys they did. Because I have learnt it all on CBSE digital Edu dot in as I told you that I use ADAX for my professional development. There are some CBSE workshops so I usually go there and I just want to improve myself so the culture is that as a principal if some of them idealise me then they learn like if I talk about SIA program. CBSE has just started innovation counsels and for that they have given 12-15 hours training which had 5 modules related to design thinking so I did that myself and along with me 4 teachers also did the same. So, I handle innovation counsel in my school myself so my teachers also learn from it. As we have rural development or entrepreneurship program with IIT Ropar and my kids have gone there for idea generation and they have also learnt how to make a business plan so it is a very slow kind of impact but it's certainly; I can see it being a science student or as an action research if I just want to share with you so teachers as I said to some to complete certain courses so they usually do it. They usually use these tabs and during assessment I get to know who all have not done it and who have done it so this is how my leadership and if I talk about impact they are learning maybe out of compulsion or by heart that depends on them because when they will move further in life, some will become HOD and some will be somewhere else so they will see the importance there. It will take time I mean as that impact is very slow but it is there and then again the

point of self-motivation is there. If teachers come in self-motivation then they will do it otherwise I don't know if these kind of things I can measure yet.

Speaker 1: And mam do you think; up to what extent these policies initiatives like Diksha or Nishtha and all these things that have started how much it had influenced teachers practices?

Speaker 2: This is again a; we have not been able to measure that impact yet nor by the CBSE but it should have been done and for that what they are doing. They have started school program essay by the name of QQ in which they are putting schools on self-assessment. They had given one rubric; not rubric exactly it's a rating scale so we every school has to go there and check every 3rd year they have to go to this report card and assess where they stand. There are four cycles such as review, revisit. We have to make all these things and then see so the first in that is coloristic area which is given 25% so curriculum framework and leadership modules are also in it. So if we talk about first it is only about NCF. What do the leader of NCF know about NCF, what do teachers know about NCF, is your curriculum of the school and your APP mapped with NCF or not. All these aspects if we measure only then we will get to know what is the impact but that impact is of the school as a whole. As per your question which is about the teachers, so I don't feel that we can map it just yet. Very honestly, I would tell you that this mapping has not been done yet and after your question I am definitely going to develop some tools through which we can measure the impact of the same because we have to go to learning outcomes. Where will we get these learning outcomes if the teacher is able to deliver properly. If we need technology there then I won't compromise and we will get technology there. Being a rural school, we do have some challenges there. But let's see how we are going to overcome these challenges.

Speaker 1: Mam, do you think there is influence or not. Maybe impact could be little more in a broad sense or time taking to reach there but mam do you think these policies have some influence or these digital courses that teachers do on their teaching?

Speaker 2: See, Priyanka you are going to observe a crisis in Punjab in the next 2-3 years in teaching as we won't get teachers, lot of migration is going on. So, if I look at technology they are using it in a different way like if we ask them not to use a WhatsApp group and make a broadcasts group instead still they are using WhatsApp groups then if we have asked them to not send PDF and ask students to research themselves and design questions as per that but they send PDF just to get over with their work. I just want to share that some malpractices are also there because of technology on the part of a teacher, that is more where we are not able to stop them much because they have their own kind of; they give such answers that sometimes you feel one should not argue with them but yes technology is not used as per where it's needed in my school to be very honest. I don't know what is happening in other schools but being in a very inception ways; we are still in inception phase after the pandemic we are again gotten down 4-5 stairs and started again but I have seen it that everybody wants to get the results very soon and because of that they use technology in a way which is a wrong practice and they are shaping in to a different way so this is like that.

Speaker 1: No, it's okay; do you think this has impact of related to any LEAD program which has encouraged them in this way or do you think it's mostly; just to understand that what are the LEAD experiences or encourage them.

Speaker 2: I am not getting it, sorry?

Speaker 1: So mam, like you said that some technology practices have not been used in that level so do you think the LEAD program that you started, it has stagnant the growth of teachers instead of taking the forward. I am just trying to understand the role of LEAD as you felt what all could have been improved and all.

Speaker 2: There is nothing like that as that program was very very good and it was developed on certain areas. It was not good in certain subjects like if you talk about SST, NCERT is giving three books of SST and then they also had some. Students were getting confused while doing question answers. Hindi was not being drafted good but science was good though it was like if CBSE is lacking behind three modules where they wanted to teach

classification only to the students but they were taking them to creativity so there was a bit mismatched. Only two modules were good and that was ALGA and CCS. Our teachers were struggling for CCS and their education was not up to that level that they could study CCS although we are giving that training to them but teacher didn't have that mindset because of which we had to struggle otherwise ALGA was quite good. The problem there was that as a leader I have to look over the committee who develops curriculum, they have to see what all can be adapted from this so we took the whole program which hampered everything by the middle and the students were struggling to understand SST, Hindi. When we take any program, they come and give us demo so in the demo they always show the best part and we also have that much time only so we also see that and feel it's done but when the program runs for a whole year then we got to know where we have trapped ourselves, so school is that kind of process where we can't change something again and again because it is a day plan if it would have been something at home then it would be easy. This is a process where if something has started then it is very difficult and challenging to stop it.

Speaker 1: And what is the feedback of teachers now that they have their own autonomy to plan their lessons and how to go about their class.

Speaker 2: ALGA teachers feel bad as they were getting to learn so much. They felt that they didn't have a chance to learn like that as their story telling was way too good about climates, character or events and a whole chart was prepared in it and everything and it had a lot of things like grammar we have studied but never used it and they were using it now so they were feeling very; their classrooms were become happy classrooms and they were feeling very good so they are missing that and science people are also missing it as it had a chapter; I am just telling you about it as a case study. We did a class observation where teacher asked 7th grade about optic, they were clear that how a beam works and how a virtual image is made so they were; they had concept clarity with it. If a teacher is now making drawing in 2D then they are struggling and the students are again mugging up but some teachers are happy like our Hindi teacher is happy that it is not there and so are the SST teachers as they didn't want it so there is a mixed kind of response. They mourn the best features of the program but the one bothered us, they are happy its gone.

Speaker 1: Yeah and mam any other feedback in terms of technology or how a teachers aspect should be cleared on how to use technology and if I missed a question and you felt something among your teachers?

Speaker 2: What I feel Priyanka, we are assessing and training for 50 hours in school to teachers but before this the colleges who make teachers should assess these teachers. They need to address the B.ED curriculum and they should put technology there and train them there then the teacher should come to us after learning it all for extra. I am saying it again that there is a lot of difference in theory and practical but they must know the name of some aspects that they studied like we studied the theory of constructivism or the theory of Lavagas as I raised my children on the same theory. So, these things are there that where should we apply them but before that when teachers are constructed. When this happens then all these things that we are assisting them with as a school. It should be added in your research that teachers should have Prior knowledge and who will give this knowledge, the places where teachers study and do B.ED. They are standing the same and they are not knowing about MEP, any digital platform. They know nothing at all so if I go to some of the B.ED colleges. They are not considering it and they are not changing their curriculum so teachers are still the same.

Speaker 1: Yes that is there. So, as you have gotten many fresh teachers so how; it must have been difficult for them to understand all these things.

Speaker 2: Exactly and that is what I am saying why to struggle that much if they had been through; if someone has gotten a degree they had spent their time and money, they have done the hard work there so why can't they learn all these things which we need now. Why they are stuck with the same thing which is such an old syllabus so all these things make them struggle. We keep on training them but our problem is that in 2-3 years unmarried girls get married or some migrate so then they move with all our efforts and training and then we get a new person to train so we are standing at the same place again. So this is how we always feel that; sometimes you feel cheated that we worked so much on this person and now she is leaving like; so these are the things. I just recommend to you if you could add these things in this.

Speaker 1: I will add that yeah. Yes mam. I have one last personal question to you. What is your future goal like alliance with teaching with technology in the professional or personal. Do you have any personal or professional goal in the near future regarding your school or the teachers?

Speaker 2: Yes, I have. I just want to work on meta physical things. We are accessing what will be the role of technology in it, we are exploring it because what I feel the technology that should be used is being used by our school but if we say we can empower globally like in AI. I am unable to start AI in my school. I don't have that much fund that I upgrade my lab that much and apart from that if I talk about other labs like virtual labs that CBSE is providing. We don't have that. The clientele that we cater, in that way we are doing enough of it and we are not getting demand. Parents are not demanding and if we try to make them aware, they are not having that kind of mindset because this work is to be done on global skill so we are just focusing on skill and wherever technology is there in skill we are going to use that. Rest the technology that is needed to deliver subject and its content we are doing it. We are doing it and that is it. I just feel like improvisation happens with time. We will see how we; I believe in collaborations and we are collaborating with too many digital platforms like orange slate which is providing some kind of professional trainings on very low rates so we are working with them. There is one more new company with whom we are having training of two and half hours day after tomorrow of teachers. They are going to do that. We are many platforms for students. For younger students we are using sesame street and there are lot of other resources. I usually search for them you know. I search a lot and we try to deliver them as per their needs.

Speaker 1: Yes mam, any personal goal that you have for your future? Is there anything that is aligned apart from?

Speaker 2: With technology?

Speaker 1: Yeah, within the technology or within digitalisation you can say?

Speaker 2: I think I just want to learn a lot. I learnt something on CANVA also like how to make flyers so I got creative there. I can do that. I have learnt Kahoot also so as such I don't have any kind; I do want to learn data analysis like how to play with data if I have 400 students then how can I use it analytically or for parents. I try to understand these things and I just want to work on these aspects because as a leader I want to understand that if I have data then how can I use that data so that I can have good results and also how I can use data in community building. I just want to work on that. I also want to learn Blockchain. I am not sure what it is but I have heard this name too many times. So, I just want to learn about these things. These are my personal goals.

Speaker 1: Yeah, that is good mam. I wish you all the best and that will be the end of my interview mam. Thank you so much for helping me over this.

Speaker 2: Thank you Priyanka.

Speaker 1: And I will share my result analysis and as promised mam when I finish my P.HD I will; I am a supervisor with LEAD so we will help you and your teachers and we will train them or whatever support you want from us in terms of digital education training or whatever we will do that. So, yeah.

Speaker 2: Thank you so much. I desperately need that. When will your P.HD get over.

Speaker 1: Mam, I aim to submit it by September-October but I will submit; like as soon as I finish the result analysis I will message you because I don't want to mess with the ethical reasoning thereby I can't do that before but yeah once that is done then as promised I will reach out to you again and we will work together for your teachers and for your School.

Speaker 2: I would love that. I will wait for that day.

Speaker 1: Yes mam.

Speaker 2: Thank you Priyanka.

Speaker 1: Thank you so much mam.

Speaker 2: And all the best.

Speaker 1: Thank you.

Speaker 2: I wish you finish your P.HD with flying colours.

Speaker 1: Thank you mam.

Speaker 2: When you will come to me, I will address you as Dr. Priyanka.

Speaker 1: Hopefully mam, yeah.

Speaker 2: Okay.

Speaker 1: Thank you so much mam.

Speaker 2: Okay.

Speaker 1: And you have a great day mam and all the very best mam for all your goals.

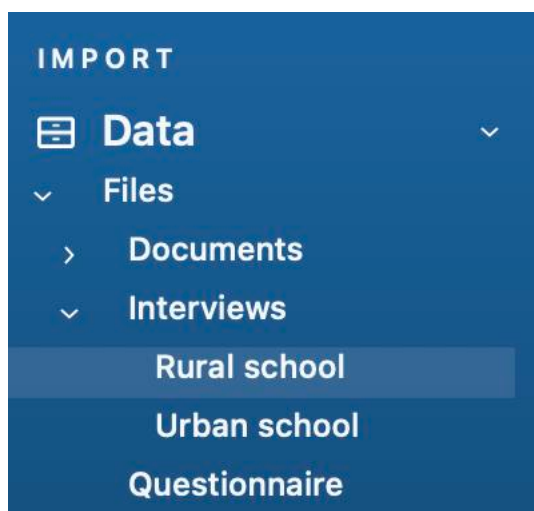
Speaker 2: Thank you and same to you.

Speaker 1: Take care mam, bye.

Speaker 2: You too, bye.

Appendix 15: NVivo screenshots

The way data sets were categorised.



The webpages of DIC for policy analysis.

IMPORT

Data

Files

Documents

Shortlisted Docum...

Interviews

Questionnaire

File Classifications

Externals

ORGANIZE

Coding

Cases

Notes

Sets

EXPLORE

Queries

Visualizations

Name	Codes	References
Approach & Method...	3	8
epathshala ministry...	6	9
GISmapping Ministry...	3	4
ICT_ The Curricula f...	5	20
Introduction – Digital...	2	3
NEP 2020	14	124
NISHTHA_ About	1	1
PM e-Vidya - DIKSHA	6	8
Program Pillars – Dig...	4	11
Saransh	5	8
Shaala Sidhdhi	4	7
vision and vision areas	7	22

Data set for Rural School

IMPORT			
Data			
Files			
Documents			
Interviews			
Rural school			
Urban school			
Questionnaire			
File Classifications			
Externals			

Name	Codes	References
Beena R [2]	17	118
Head R [17]	35	192
Meena R [1]	29	48
Nivedita R [0.2]	21	54
Preeti R [4]	15	30
Principal's Message...	0	0
Rama R [5]	15	25
Rana R [7]	26	49
Reena R [12]	28	57
Teena R [1]	28	54

Data set for Urban School

IMPORT			
Data			
Files			
Documents			
Interviews			
Rural school			
Urban school			
Questionnaire			
File Classifications			
Externals			
ORGANIZE			
Name		Codes	References
Anjali U [22]		47	47
Archie U [20]		46	46
Bita U [16]		30	30
Gita. U [15]		28	28
Head U [30]		29	29
Mita U [8]		44	45
Nita. U [21]		32	32
Radha U [12]		44	44
Ram. U [12]		25	25
Rita U [19]		32	32
Sita U [14]		31	33
Veena U [5]		26	26

Appendix 16: Contract with the transcription company



Onestop Lexical Hub,

Mithakali,

Ahmedabad -380006

Gujarat

MUTUAL NONDISCLOSURE AGREEMENT

This Mutual Nondisclosure Agreement (this “Agreement”) is made as of this 5th day of December, 2022 (the “Effective Date”) by and between [●], a company incorporated in accordance with the laws of India, having its registered office at [Ahemdabad] (“Onestop Lexical Hub”), and [●] Ms. Priyanka Bhatia (“Counterparty”).

STATEMENT OF PURPOSE

In connection with the evaluation of a possible business transaction between Company and Counterparty regarding [Insert Brief Description of Transaction] as well as the performance of any agreement reached between the parties relating thereto (“Purpose”), each party may disclose to the other certain Confidential Information (as defined below). A party disclosing Confidential Information under this Agreement is referred to herein as a “Disclosing Party,” and a party receiving Confidential Information under this Agreement is referred to herein as a “Receiving Party.”

AGREEMENT

In consideration of furnishing the other party with Confidential Information, the mutual covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Company and Counterparty each agree as follows:

1. Definition of Confidential Information. As used in this Agreement, the term “Confidential Information” shall mean all technical, business, financial and other information furnished by or on behalf of a Disclosing Party to a Receiving Party, or otherwise learned by the Receiving Party in relation to the Disclosing Party’s business or technology. Information disclosed verbally or visually that is to be considered Confidential Information must be identified as such at the time of disclosure and confirmed in writing by the Disclosing Party within 30 days after such disclosure. Confidential Information includes information belonging to a third party that may be disclosed only under obligations of confidentiality. Notwithstanding the foregoing, Confidential Information shall not include information that the Receiving Party can demonstrate: (a) at the time of disclosure hereunder is generally available to the public; (b) after disclosure hereunder, becomes generally available to the public without breach of this Agreement by the Receiving Party; (c) was disclosed to the Receiving Party by a third party that had the unrestricted right to disclose such information; or (d) is or has been developed by the Receiving Party (as evidenced by the Receiving Party’s contemporaneously maintained written records) independently of the disclosures by the Disclosing Party.

2. Treatment of Confidential Information.

a. The parties acknowledge that each party considers the Confidential Information it discloses to be valuable, confidential and a trade secret. The Receiving Party agrees to use such information solely for the Purpose, and not for the Receiving Party’s own or any third party’s benefit, without the prior written approval of an authorized representative of the Disclosing Party.

b. Each party agrees that the Confidential Information received from the other party shall not be directly or indirectly disclosed or made available to any third party, except that a Receiving Party may disclose the Confidential Information or portions thereof to those of its directors, officers, employees, contractors, representatives and agents (collectively, the “Representatives”) who need to know such

information for the Purpose. Prior to disclosing any Confidential Information to any Representative, the Receiving Party will inform such Representative of the confidential nature of the Confidential Information and will require such Representative to agree to be bound by confidentiality terms substantially equivalent to the terms of this Agreement. If the Receiving Party is required to disclose any Confidential Information to comply with law, the Receiving Party shall give the Disclosing Party reasonable prior written notice to permit the Disclosing Party to challenge or limit any such legally required disclosure.

3. Ownership of Confidential Information. Company and Counterparty each agrees and acknowledges that all Confidential Information of a Disclosing Party hereunder shall remain the sole property of the Disclosing Party to whom it relates. Nothing in this Agreement shall be deemed a license to the Receiving Party to use the intellectual property of the Disclosing Party.

4. Return of Confidential Information. At the request of a Disclosing Party, the Receiving Party will promptly return to the Disclosing Party all of the Disclosing Party's Confidential Information, together with all copies thereof and all notes, drawings, abstracts and other information relating to the Confidential Information prepared by the Receiving Party or any of its Representatives, regardless of the medium in which such information is stored, and whether or not then in the possession of the Receiving Party or in the possession of any of the Representatives. Further, upon request of a Disclosing Party, the Receiving Party will provide the Disclosing Party with a statement, signed by a duly authorized representative of the Receiving Party, verifying that the Receiving Party has complied with the terms of this Agreement. Notwithstanding the foregoing, to the extent it would be unreasonably costly or cumbersome, the Receiving Party shall not be required to delete intangible copies of Confidential Information that have been made a part of the Receiving Party's (or its Representatives') routine systems back-up files and/or procedures which are not readily accessible to the Receiving Party or its Representatives, provided that any intangible copies which are retained pursuant to this sentence shall be deleted or destroyed in accordance with routine procedures and shall remain subject to the obligations of confidentiality and non-use until the date of deletion or destruction.

5. No Representations. Company and Counterparty each understands and acknowledges that neither party is making, nor will either party make at the time of delivery of the Confidential Information, any representation or warranty, express or implied, as to the accuracy or completeness of the Confidential Information, and neither Company nor Counterparty, nor any of their respective officers, directors, employees, stockholders, owners, affiliates, agents or representatives will have any liability to the other party or any other person resulting from the use of the Confidential Information.

6. Term. Confidential Information and the Interview transcription files will be deleted within 15days of submission.

7. Miscellaneous.

a. Company and Counterparty each agrees that money damages will not be an adequate remedy for any breach of this Agreement and that a Disclosing Party shall be entitled to equitable relief, including an injunction and specific performance, in the event of any breach or threatened breach of this Agreement, in addition to any other remedies available to the Disclosing Party at law or in equity. Company and Counterparty each waives the defense that an adequate remedy at law exists for any breach or threatened breach of this Agreement.

b. This Agreement constitutes the entire agreement between the parties and supersedes all previous agreements, understandings and communications between the parties related to the subject matter and may be modified only in a writing signed by duly authorized representatives of each of the parties. Failure to insist upon strict compliance with any provision of this Agreement shall not be deemed waiver of such provision or any other provision hereof. If any provision of this Agreement shall be held by a court of competent jurisdiction to be illegal, invalid or unenforceable, the remaining provisions shall remain in full force and effect.

c. This Agreement shall be binding upon and shall inure to the benefit of the parties and their respective successors and permitted assigns; provided, however, that this Agreement may not be assigned by either party without the prior written consent of the other party.

d. This Agreement shall be governed by the laws of India, without regard to its conflict of law provisions. Each party agrees to submit any claim or dispute under this Agreement exclusively adjudicated by the courts situated at Delhi, and each party irrevocably agrees to submit to the sole jurisdiction of such courts and to waive any claims that such courts constitute an improper venue.

e. The execution of this Agreement shall not create any agency, partnership, joint venture, association or any other relationship between the parties other than as independent contracting parties.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date.

[●].

[COUNTERPARTY NAME]

By: Onestop Lexical Hub

[●]

NaSpe Shruti Adani
aker 1

[●]

Title: Founder

Date: 5/12/2022

By: Student at Durham University

NaSpe Priyanka Bhatia
aker 1

Title: PhD Student at Durham University

Date: 10/12/2022

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