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Swasti Karmacharya

Children's Rights to Education in the Digital Era: Barriers of the Digital Divide for Children of Low-Income Families in Nepal

APMA, Master's Programme in Human Rights and Democratisation in Asia Pacific

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Biography

Swasti Karmacharya is a young child rights professional with interests in child rights research and programming. She is passionate about researching on issues relating to the sexual exploitation and abuse of children, and children's right to education. She also advocates for ensuring child participation in all programmatic activities concerning children.

Abstract

Human rights in Nepal recognises education as a fundamental right for all individuals. The pathways to achieve undisrupted access to education particularly for children from low-income families are still bounded by poverty and emerging barriers, such as digital divide. Thus, the objective of this research was to identify and critically examine the relationship between the barriers of digital divide and children's right to education, especially in the context of COVID-19 pandemic which has placed further challenges on the education system.

This qualitative research employed a narrative inquiry approach by using key informant interviews (KII) as its research method. The total sample size of this research was 19 key participants including parents of children from low-income families, public school teachers, non-governmental organisations and subject matter experts from Kathmandu, Nepal. The data were analysed by using narrative analysis.

The research findings showed that digital divide significantly impacted children's access to education, including the divide in ownership, access to digital devices and infrastructures. Possessing relevant knowledge, skills, adequate exposure and experience to efficiently use the digital technologies for learning purposes were equally crucial in determining the impacts of digital divide. Moreover, the compounded impacts of digital divide in education and COVID-19 further perpetuated systemic inequalities and reinforced forms of privilege and exclusion within the Nepalese education system. The existing regulatory frameworks of Nepal also proved to be doing very little to address the problems associated with educational inequity and consequent disparities. This research concluded that children from low-income families were continuously challenged by existing and emerging barriers, thus hindering their access to education.

Implication of the thesis

This research highlights the gaps in knowledge, understanding and awareness on the prevalence and impacts of digital divide on children's access to education in Nepal. This research helps raising awareness on the necessary actions needed by relevant duty bearers and stakeholders to ensure children from all backgrounds realise their education rights in an equitable manner in Nepal.

Keywords: *children's right to education, access to education, digital divide, barriers of the digital divide, educational inequalities.*

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It has indeed been an incredible three years. Looking back to the time when I applied for the APMA programme, I do not quite remember what got me to decide on this topic. Fast forward to today, this has been one of my biggest achievements. The entire journey has been bittersweet, but it challenged me through and through and it fuelled me with a sense of purpose. I emphasise on 'purpose' because with every page I felt getting closer to realising where my passion truly lies and in realising of my zeal to achieve it. And, henceforth, I have been holding onto that feeling and only moved forward.

I extend my sincere gratitude to the people I crossed paths with during this time and who provided me with utmost guidance and company. I would like to thank both my advisors, Professor Wasantha Seneviratne and Ajarn Mark Capaldi, for always putting trust in my work and guiding me throughout. I would like to thank my dear friends near and far for supporting me with their company and words of encouragement.

Finally, this would not have been possible without the relentless support from my baba, ama and didi who have always had my back, never doubted of the things that I could achieve and for always, always letting me carve my own sense of purpose. Thus, I am eternally grateful towards my family for letting me find my rhythm and dance to my own tunes.

The experiences collected over the course of this programme has indeed been very wholesome and meaningful for me. Learning for me was encountering and being friends with some of the kindest souls. Learning took place in cafés and in the nooks and corners of the university and Salaya. Learning was in the form of conversations that were personal, academic and sometimes even silence. And, for all this, I am forever grateful.

Table of Abbreviations

ASEAN	Association of Southeast Asian Nations
CESCR	Committee on Economic, Social and Cultural Rights
CRC	Convention on the Rights of the Child
ICT	Information and communication technology
ICESCR	International Covenant on Economic, Social and Cultural Rights
INGO	International non-governmental organisation
ISP	Internet Service Provider
IT	Information technology
KII	Key Informant Interview
MoE	Ministry of Education
NGO	Non-Governmental organisation
SSDP	School Sector Development Plan
ST	Scheduled Tribe
UDHR	Universal Declaration of Human Rights

UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund

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1. Introduction

1.1 Background and rationale

Education, as a human right, is universal and inalienable, indivisible, interdependent and interrelated. Every individual across the world is entitled to receive education, the act of which cannot be compromised or denied at any cost. Additionally, the fulfilment of the right to education is instrumental in strengthening and achieving other universal human rights, such as the right to freedom of expression, right to information, right to employment.[1]

Article 26 of the Universal Declaration of Human Rights (UDHR) recognises the right to education and states the importance of it in the 'full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms'.[2] The General Comment No 13 on the Right to Education furthers the importance of education by reinforcing the indispensability of education in the realisation of other human rights, by acknowledging it as an 'empowerment right by which economically and socially marginalized adults and children can lift themselves out of poverty and obtain the means to participate fully in their communities', and most importantly by recognising

[1] UNFPA, 'Human Rights Principles' (UNFPA, 2005) <www.unfpa.org/resources/human-rights-principles#:~:text=Human%20rights%20are%20universal%20and,religious%2C%20cultural%20or%20ethnic%20background> accessed 5 March 2022

[2] UN General Assembly, Universal Declaration of Human Rights (adopted 10 December 1948) UNGA Res 217 A(III) (UDHR) <www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_217(III).pdf> accessed 6 December 2021

education as 'one of the best financial investments States can make'.[3] The Convention against Discrimination in Education additionally reinstates in its preamble that any kind of discrimination in education is deemed a violation of rights and illuminates emphasis on 'equality of opportunity' in education.[4]

However, despite such recognitions and commitments made by various international human rights standards and instruments, the pathway to achieving equal and undisrupted educational opportunities is still an ongoing challenge. For a vast majority of the population who have been living at the extreme edge of poverty, been continually exposed to the unequal impacts of systemic inequalities and whose basic human rights are not adequately protected, the access to education is bounded by existing and emerging barriers. These barriers indisputably act as a multiplier for exacerbating inequalities, with the most vulnerable and disadvantaged population getting directly exposed to the unequal impacts of unequal access and distribution of resources, as well as the unequal impacts of policies and responses.

1.1.1 Digital divide: an existing and an emerging barrier to access education

A fundamental barrier in accessing education for individuals, in particular children from low-income households, is the barrier posed by the digital divide. The concept of the digital divide is widely conceptualised and understood as the discrepancy or gap that exists between those having easy access and those who do not, with regard to technology, including but not limited to the internet and devices.[5] Hence, with the increasing use and integration of digital technologies for educational purposes, an issue of

[3] UN Committee on Economic, Social and Cultural Rights (CESCR), 'General Comment No 13: The Right to Education (Article 13 of the Covenant)' (8 December 1999) UN Doc E/C.12/1999/10 <https://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=4slQ6QSmlBEDzFEovLCuW%2BKyH%2BnXprasyMzd2e8mx4cYlD1VMUKXaG3Jw9bomilLKS84HB8c9nIHQ9mUemvt0Fbz%2F0SS7kENyDv5%2FbYPWAxMw47K5jTga59puHtt3NZr> accessed 6 December 2021

[4] Convention against Discrimination in Education (adopted 14 December 1960, entered into force 22 May 1962 in accordance with Article 14) <https://unesdoc.unesco.org/ark:/48223/pf0000183342> accessed 6 December 2021

[5] JAGM van Dijk, 'Digital divide research, achievements and shortcomings' (2006) 34(4-5) Poetics 221 <www.sciencedirect.com/science/article/pii/S0304422X06000167>.

growing concern within the premise of the digital divide pertains to the inaccessibility to digital learning resources and platforms, both at home and at schools, for students who cannot afford, avail and access these resources.

As global efforts continue to make education equitable and accessible for children, the emphasis is placed on the use of digital technologies, in particular the internet and other online resources, in an attempt to connect children (from even the most remote sections) to education.[6] But, with the strong prevalence of the digital divide within the education system, the opportunities of accessing education continue to remain inequitable and limited, both reinforcing the impacts of educational inequalities and hindering children's access to equitable learning opportunities.

The key findings from UNICEF's (United Nations Children's Fund's) 2017 *The State of the World's Children* report states digital divide being much more than the question of accessibility. The report sheds light on the 346 million individuals who are far away from the reach of the internet and bear the brunt of the digital divide. The impact of the digital divide on education was felt on children's learning experiences since the kind of digital devices, skills and language they possessed to navigate through the internet were the key determinants. Additionally, the digital divide also bolstered the prevailing economic divide, benefitting only those children from affluent backgrounds whilst those coming from poor families continued to be categorised as the most disadvantaged.[7] The inconsistencies in the distribution, access and use of such facilities thus not only limits the accessibility to quality education but also deprives the marginalised from realising their right to education.[8]

The digital divide, apart from its inherent association with accessibility to information and communication technologies, also reflects the strong relationship with other social inequalities. The discrepancies in the intellectual capacity of the user and the

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6 UNESCO, 'UNESCO COVID-19 Education Response: How many students are at risk of not returning to school?' (UNESCO, 2020) <https://unesdoc.unesco.org/ark:/48223/pf0000373992> accessed 10 January 2022

7 UNICEF, The State of the World's Children 2017 Children in a Digital World (UNICEF December 2017) <www.unicef.org/reports/state-worlds-children-2017> accessed 11 January 2022

8 K Brown Bomah, 'Digital Divide: Effects on Education Development in Africa' (ResearchGate, 16 December 2014) <www.researchgate.net/publication/275350414_Digital_Divide_Effects_on_Education_Development_in_Africa>

readiness to efficiently use these technologies also amplify the impacts of the digital divide.[9] Therefore, the evolving nature and purposes of technology, albeit beneficial, continues to be an impediment towards poorer communities who lack the exclusive access to digital infrastructures, services and the likely benefits of it, thereby increasing the levels of social inequality between the rich and the poor.

The pursuit to democratising knowledge via technological means comes with the inevitable challenge of confronting and making way through the technological, knowledge and practice divide, which unequivocally targets the most vulnerable and disadvantaged groups. In addition to the challenge of reducing the technological divide, is the challenge of mitigating or reducing the knowledge divide which is not only an additional barrier but also a difficult task to tackle since equipping schools with high-technology facilities is not adequate in itself to fully guarantee children's easy access to education and relevant information. Children's pre-existing knowledge and skills to use it, the availability and access to the same kind of facilities at home, and whether or not their families can afford purchasing internet services and devices for long-term are a few of the fundamental hurdles that disable children particularly from low-income households (whether in rural or urban settings), to acquire and give continuity to meaningful learning opportunities. Therefore, the issue of the digital divide might be mitigated to some extent in the presence and use of such educational resources at schools but such efforts can still be undermined due to the already existing digital disparity prevalent at home.[10]

1.1.2 COVID-19: an added challenge accentuating and exacerbating the impacts of the digital divide

An additional barrier to the existing challenges of the digital divide has been the direct repercussions of the COVID-19 virus outbreak on the education system. The first half of the pandemic resulted in the disruption of about 90% (more than 1.5 billion) of the children's education globally, with 111 million from

[9] B Sorj, 'The Dimensions of the Digital Divide' in B Sorj (ed), Confronting Inequality in the Information Society (Centro Edelstein 2008).

[10] J Liu, 'Bridging Digital Divide Amidst Educational Change for Socially Inclusive Learning During the COVID-19 Pandemic' (2021) 11(4) SAGE Open 1 <https://journals.sagepub.com/doi/10.1177/21582440211060810> accessed 30 November 2021

the least developed countries and an additional 140 million living in economically poor households due to COVID-19.[11] With the indefinite closure of schools and swift transition to online learning, about 463 million students worldwide were estimated to have no access to online or remote learning, leading to a complete disintegration from educational activities. A 2020 UNICEF global analysis report on the reach of remote learning founded that globaly more than 70% of students from rural areas were without any reach of digital means with the digital and broadcast remote learning coverage differing significantly from almost zero per cent to 100% in low and middle-income countries.[12]

Another report from UNICEF on the assessment of the multi-dimensional impacts of COVID-19 on children indicated that long-term closures of schools could result in a permanent loss in learning with higher probabilities of children not returning back to school depending on their age, gender, disability and socio-economic status. The compounded impact of COVID-19 hence is most likely to reverberate into children's future affecting potential educational and employment opportunities, and indefinitely increasing poverty and inequalities.[13] Likewise, an additional 20 million school-going girls were estimated to be out of school as a result of school closures in low and lower-middle income in the current crisis.[14]

The onset of online learning was indeed the only available alternative that ensured a possibility of continuing education in the COVID-19 situation. However, challenges remained in making education digitally accessible for everyone, especially for children from poor households whilst estimating their digital connectivity

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11 UNICEF, Averting a lost COVID generation: A six-point plan to respond, recover and reimagine a post-pandemic world for every child (UNICEF November 2020) <www.unicef.org/media/86881/file/Averting-a-lost-covid-generation-world-childrens-day-data-and-advocacy-brief-2020.pdf> accessed 26 March 2022

12 UNICEF, 'COVID-19: Are children able to continue learning during school closures?' (UNICEF, 26 August 2020) <https://data.unicef.org/resources/remote-learning-reachability-factsheet/> accessed 23 September 2021

13 UNICEF, Averting a lost COVID generation: A six-point plan to respond, recover and reimagine a post-pandemic world for every child (UNICEF November 2020) <www.unicef.org/media/86881/file/Averting-a-lost-covid-generation-world-childrens-day-data-and-advocacy-brief-2020.pdf> accessed 26 March 2022

14 Malala Fund, 'Girls' Education and COVID-19: What past shocks can teach us about mitigating the impact of pandemics' (Malala Fund, 2020) <https://downloads.ctfassets.net/0oan5gk9rgbh/1BICFBep6mQw2nQsTtL0uW/280b49837bbd0dcb165e2a6f3cbabfe9/0oan5gk9rgbh_6TMYLYAcUpjhQpXLDgmdIa_3e1c12d8d827985ef2b4e815a3a6da1f_COVID19_GirlsEducation_corrected_071420.pdf> accessed 11 January 2022

at home during the pandemic. Additionally, questions over the feasibility and effectiveness of online classes amidst the increasing problem of the digital divide and COVID-19 was also a challenge for the educational institutions. Therefore, the analysis of the issue of the digital divide within the pedagogy should be done in par with the evolving dynamics of the digital technology and within the context of existing social inequalities to better understand the long-term impacts of these inequalities on something as fundamental as education.

1.1.3 Contextualising the digital divide within Nepal's divided educational landscape

A landlocked country between China and India, Nepal continues to remain a country characterised by poverty and a slow-growing economy. The challenging topography, susceptibility to natural hazards and unstable political landscape have posed to be great barriers towards achieving sustainable development.[15] The 2011 National Population and Housing Census, the most recent nation-wide census conducted by the Central Bureau of Statistics, indicated Nepal's total population (at the time of the census) to be approximately 26.4 million with about 29% of the total population to be multidimensionally poor as per the 2018 Multidimensional Poverty Index.[16] Although the national poverty incidence rate was found to have significantly declined to 25.2%, disparity in the poverty levels between rural and urban Nepal was still highly significant. According to the 2011 National Living Standards Surveys, urban poverty was estimated to be 15.5% whereas rural poverty was 27.4%.[17]

Following the discussion of the increasing digital divide, its impact on education and on reinforcing inequalities, the 2011 Census report reflects a stark difference between the ownership of digital technologies among the urban and rural population, which however might have also changed since then. Access to computer,

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[15] World Bank, 'Climbing Higher: Toward a middle-income Nepal' (World Bank, May 2017) <https://documents1.worldbank.org/curated/en/358501495199225866/pdf/115156-CEM-PUBLIC-SAREC-70p-Country-Economic-Memorandum-19-May-2017.pdf> accessed 31 January 2022

[16] World Bank Group, 'Poverty & Equity Brief: Nepal' (World Bank Group, October 2020) <https://databankfiles.worldbank.org/public/ddpext_download/poverty/987B9C90-CB9F-4D93-AE8C-750588BF00QA/SM2020/Global_POVEQ_NPL.pdf> accessed 31 January 2022

[17] Asian Development Bank, 'Country Poverty Analysis: Nepal' (Asian Development Bank, 2021) < www.adb.org/sites/default/files/linked-documents/cps-nep-2013-2017-pa-detailed.pdf> accessed 20 August 2021

the internet and mobile phones within the urban population was 23.66%, 12.11% and 84.07% respectively. Whilst in rural population, the ownership rates for the same were 3.37%, 1.24% and 59.98% respectively.[18] The huge gap in both access to and ownership of the digital resources thus reflect the broader concerns pertaining to poverty which again negatively impact individuals coming from low-income households who cannot afford to bear the costs of the evolving digital technologies for a prolonged period of time. As a result, this inevitably boldens the pre-existent socio-economic differences between the affluent and the poor, thereby becoming a prime issue of economic inequality.[19]

While the undermining socio-economic conditions of the family can be an obvious and a direct impediment for children to access and efficiently participate in educational practices,[20] other inter-related factors that need equal attention are the literacy rates of children and parents, quality of teachers, as well as the availability and conditions of Information Technology (IT) infrastructures at schools. The 2011 Census report indicates that the overall literacy rate was 65.9% in 2011 (for population aged five years and above) with the highest rates of 86.3% reported in Kathmandu district as compared against the mountainous Humla district which had the lowest literacy rate of 47.8%.[21] Such a huge gap in the literacy rates within the regions is further broadened by the discrepancies in the digital literacy rates across the country, which is not recorded in the 2011 Census report but is evident by the limited number and use of IT infrastructures available and operating efficiently in public schools.

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[18] Central Bureau of Statistics, 'National Population and Housing Census 2011' (Government of Nepal - National Planning Commission Secretariat, 2011) <https://unstats.un.org/unsd/demographic-social/census/documents/Nepal/Nepal-Census-2011-Vol1.pdf> accessed 3 March 2022

[19] B Sorj, 'The Dimensions of the Digital Divide' in B Sorj (ed), Confronting Inequality in the Information Society (Centro Edelstein 2008).

[20] UNICEF, 'Education Budget Brief' (UNICEF, 2021) <www.unicef.org/nepal/media/13271/file/Education%20-%20Budget%20Brief.pdf> accessed 31 January 2022

[21] Central Bureau of Statistics, 'National Population and Housing Census 2011' (Government of Nepal - National Planning Commission Secretariat, 2011) <https://unstats.un.org/unsd/demographic-social/census/documents/Nepal/Nepal-Census-2011-Vol1.pdf>.

Public schools across the country, whether situated in urban or rural areas, are deprived of basic facilities such as electricity, leaving many schools to be perpetually disconnected from the digital resources.[22] This fundamental lack therefore prevents schools from establishing IT facilities such as computers for students and teachers to use and benefit from for teaching-learning purposes. In cases where such facilities are made available, they are of very poor quality and teachers are not skilled and trained enough to acclimatise themselves and use it in classroom settings with students. Therefore, the lack of resources and support to public schools (predominantly technical and financial) from the government coupled with the lack of awareness on the use of digital technologies for learning purposes amongst both the students and teachers further adds to the problem of inaccessibility to education for under privileged children.[23] Hence, the significant difference in the quality and delivery of these facilities between rural and urban areas, and further between private and public schools, largely contribute to the issue of digital divide in education and of the concentrated benefits to only those who can afford accessing the required resources for a prolonged time.

The COVID-19 pandemic inevitably propelled the issue of school dropouts. Some of the reasons leading to this can be children getting out of the habit of learning and going to schools, the high priority placed on survival resulting in parents expecting older children to take on income-generating activities, and even due to reasons of forced marriage of girl children.[24] In the specific context of Nepal, the school dropout rates between pupils from rural and urban areas, and specifically between the rich and the poor are already wide. As per the 2011 dataset, the percentage of primary school children (of ages five to nine) who were out of school

[22] H Dhital, 'Opportunities and Challenges to Use ICT in Government School Education of Nepal' (2018) 6(4) International Journal of Innovative Research in Computer and Communication Engineering 3215 <www.researchgate.net/publication/324860589_Opportunities_and_Challenges_to_Use_ICT_in_Government_School_Education_of_Nepal> accessed 7 November 2021

[23] Ministry of Communication and Information Technology, '2019 Digital Nepal Framework: Unlocking Nepal's Growth Potential' (Government of Nepal, 2019) <https://nepalindata.com/media/resources/items/15/bEN_Digital_Nepal_Framework_V7.2March2019.pdf> accessed 3 March 2022

[24] UNICEF and UNESCO, 'Situation Analysis on the Effects of and Responses to COVID-19 on the Education Sector in Southeast Asia: Sub-regional Report' (UNICEF and UNESCO, August 2021) <www.unicef.org/eap/media/9316/file/Southeast%20Asia%20Situation%20Analysis%20of%20the%20Impacts%20of%20COVID-19%20on%20Education.pdf> accessed 1 October 2021

from rural and poor income backgrounds were 20% as compared against the 18% of children from urban and rich households. The same dataset however indicated a huge difference for secondary school children (of ages ten to 16), with about 15% of children from rural and 21% from poor backgrounds out of school as compared to the 9% of students from urban and 4% from high economic backgrounds.[25] Hence, the strain on the livelihoods and economies of low-income households in Nepal due to the COVID-19 pandemic can result in parents not being able to financially support their children and provide them with the required medium for online learning. This could then lead to children either dropping out of school or children helping their families in income generation or both.[26]

If in the yester years, physically attending schools was a challenge due to either poverty or geographical differences or both, today, the challenge is coupled with the inaccessibility to digital resources, which is increasingly being used to increase educational connectivity and to reduce the literacy gap. However, transitioning to online modes of learning and assuming that all children across the country have the same access and will equally benefit from such an alternative mode of learning is an incredible challenge to tackle, especially with the rising prominence of the digital divide in a developing country like Nepal.

1.2 Statement of the problem

Problems associated with inaccessibility to digital means of learning, on a macro level, highlights the explicit relationship between education and poverty. While education is a tool to eliminate poverty, poverty on the other end is the key factor in restricting access to education.[27] The cycle of inequality and inaccessibility to education continues in an endless loop, affecting children's

[25] fhi360, 'Nepal: National Education Profile 2019 Update' (fhi360, 2018) <www.epdc.org/sites/default/files/documents/EPDC_NEP_2018_Nepal.pdf> accessed 19 September 2021

[26] S Dawadi, R Giri and P Simkhada, 'Impact of COVID-19 on the Education Sector in Nepal - Challenges and Coping Strategies' (2020) Sage Submissions <https://files.eric.ed.gov/fulltext/ED609894.pdf>.

[27] T Pokharel, 'Poverty in Nepal: Characteristics and Challenges' (2015) 11 Journal of Poverty, Investment and Development 44 <https://dms.nasc.org.np/sites/default/files/documents/Poverty%20in%20Nepal.pdf> accessed 28 June 2022

opportunities to engage and participate both academically and professionally.[28] This would therefore generate an understanding that inaccessibility to the basic digital resources for learning purposes (due to poverty) would deprive children from poorer households, residing either in urban or rural settings but more so in rural areas, the opportunity to get exposed to and access quality education, which they rightfully deserve as per the 2015 Constitution (all national laws and policies related to the right to education are presented in Annex B) and existing human rights standards. Further, this cycle would deprive these children to participate in better academic and employment opportunities that would support in achieving a better living standard for their future. Hence, the cycle of poverty, inequality and inaccessibility reflects the inherent biasness of the system that favours the rich over the poor, further boldening the demarcation between the haves and the have nots, even in such a fundamental thing as education.

Further, the aggravating impact of COVID-19 on children's accessibility to education has resulted in the issue of the digital divide in education taking significant prominence, reflecting major concerns over not only the shortfalls of digital learning but also on the challenges placed on the overall education system. Closely considering the prevalence of the educational discrepancies even before the COVID-19 crisis, the disruption caused due to the pandemic is anticipated to be on an even unprecedented scale, disproportionately affecting the most marginalised.

Hence, the adverse impacts of prolonged disruption in learning that the majority of disadvantaged children have to encounter as a result of the inaccessibility to digital learning needs better research, especially in Nepal where the baseline knowledge and understanding is already very scarce.

[28] A Menocal, 'Mind the gap: can democracy counter inequality?' in International Institute for Democracy and Electoral Assistance, The Global State of Democracy: Exploring Democracy's Resilience (1st edn, International IDEA 2017) <www.idea.int/gsod-2017/files/IDEA-GSOD-2017-CHAPTER-6-EN.pdf> accessed 12 December 2021

1.3 Research questions and objectives

1.3.1 Research questions

01 — What are the barriers of the digital divide in education which hinder pathways to accessing education that impact the long-term learning experiences for children from low-income families in Nepal during COVID-19?
02 — How does the digital divide affect forms of privilege and exclusion within the education system, in the specific context of COVID-19?
03 — How does the education system of Nepal address and respond to the issue and impacts of educational inequity due to the digital divide on children from low-income families in Nepal?

1.3.2 Research objectives

01 — The overarching objective of the study is to identify and critically examine the relationship between the barriers of the digital divide and children's right to education, especially in the context of the COVID-19 pandemic which has placed further challenges on the education system.
02 — The specific research objectives are as follows.
03 — To identify and examine the barriers of the digital divide on children's accessibility to education and long-term learning experiences during COVID-19.
04 — To analyse the impact of the digital divide in the perpetuation of existing forms of privilege and exclusion within the education system during COVID-19.
05 — To critically evaluate the existing national policies and procedures relating to education in Nepal and analyse it in reference to children's access to equitable learning opportunities and outcomes due to the digital divide.

1.4 Hypothesis

The hypothesis of the research is that the digital divide and its existing barriers (technological, knowledge and practice divide) severs pathways for accessing education for children from low-income families. Additionally, the impacts of the digital divide can also be observed in bolstering existing forms of privilege and exclusion within the education system of Nepal.

1.5 Significance of the study

Literature review on the phenomenon of the digital divide and precisely of its prevalence and impacts on education indicate that it is a topic that has not yet been rigorously explored and researched in Nepal. The lack of knowledge on the digital divide, the lack of understanding on the short and long-term impacts of the digital divide on education and minimal understanding of the relationship between the phenomenon and children's accessibility to education (and, as a consequence, the negative impact on their academic experiences and achievements) is therefore prevalent. Therefore, the study and its proposed findings are pivotal in providing detailed understanding of the concept, in providing an analysis of the prevalence and manifestation of the digital divide within the educational setting, and of the challenges that children from low-income families get exposed to with the increasing use of digital technologies for learning purposes, especially in terms of equal opportunities of accessibility.

Discussing the issue of the digital divide in light of the COVID-19 pandemic, the study also gives insights into the additional challenges to continuing education for children especially from low-income families. Hence, the study will further contribute by identifying and understanding the exacerbated conditions of accessing learning opportunities for children from low-income families (during a crisis situation) who are and/or were already struggling with attending schools due to either poverty or geographical differences or both. By doing so, the study explores the broader concerns pertaining to equity and disparities in education, while closely examining the challenges associated with inaccessibility, adaptation and usage of the digital resources for marginalised children. This is of significant importance not only during COVID-19 but at a time when traditional modes of learning continue to transform with the increasing integration and use of technologies to ensure children's undisrupted connectivity and continuity to education and to reduce the literacy gap on a macro level.

By adopting a human rights-based approach to education, the study addresses and emphasises the importance of ensuring all children of their right to access education, right to quality education and respect for human rights in education.[29] At an individual level, the proposed study will be of significance in increasing the knowledge and awareness of the research participants on the rights of the children and of their right to education, on the short and long-term impacts of disrupted learning experiences for children's holistic development, and in emphasising the roles of parents, teachers and duty-bearers in both safeguarding and promoting children's right to education at home and at school. At a macro level and in addition to making data available for further research and awareness, the study will be vital in developing policy recommendations targeted towards relevant duty-bearers to address the gaps in the present education system and of the challenges encountered by children from low-income families in the context of the digital divide. The study will also contribute by reemphasising the roles of the duty-bearers in monitoring the effective implementation of national policies and acts relating to children's right to education.

1.6 Unit of analysis

Barriers of the digital divide for children from low-income families to access education

[29] UNESCO, 'A human right-based approach to education for all: A framework for the realization of children's right to education and rights within education' (UNESCO, 2007) <https://unesdoc.unesco.org/ark:/48223/pf0000154861> accessed 30 January 2022

1.7 Conceptual framework

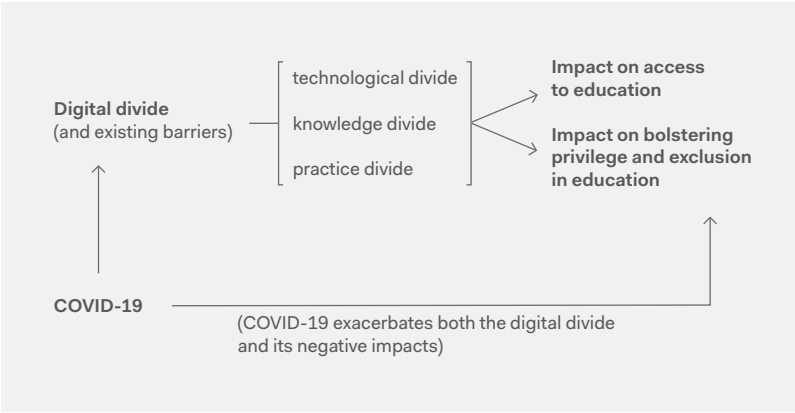

Figure 1. Conceptual framework showing the relationship between barriers of the digital divide and children's inaccessibility to education in the context of COVID-19

In order to examine the relationship between the barriers of the digital divide and children's accessibility to education, the study establishes an understanding of the concept of the digital divide, which is widely conceptualised and understood as the discrepancy or gap that exists between those having easy access and those who do not, with regard to technology, including but not limited to the internet and devices.[30] As discussed in existing literatures, in addition to the differences in the access and availability of the infrastructure (technological devices, hardware/software and other mediums of internet connectivity), the discrepancies can also attribute to the gaps in knowledge and skills that is required to appropriate and adapt to the new technologies.[31]

Beyond examining the blanket term of the digital divide, the study identifies three related barriers of the digital divide (ie technological divide, knowledge divide and practice divide) to further analyse how these specific barriers impact on deterring children's access to education as well as on strengthening the existing forms

[30] JAGM van Dijk, 'Digital divide research, achievements and shortcomings' (2006) 34(4-5) Poetics 221 <www.sciencedirect.com/science/article/pii/S0304422X06000167>.

[31] R Cullen, 'Addressing the digital divide' (2001) 25(5) Online Information Review 311.

of privilege and exclusion within the education system of Nepal. The barriers will thus be studied separately and conjointly to better understand the impacts of the digital divide on education for children from low-income families in Nepal.

Hence, for the purpose of the study, technological divide refers to the discrepancies in accessing the physical infrastructures such as the internet (cable and/or wireless) and devices (laptops, mobile phones and/or personal computer). Additionally, physical infrastructures can also include the differences in the geographical terrain which can be an inherent challenge to ensure better connectivity and access to internet services in rural areas of Nepal. Likewise, knowledge divide refers to the lack of prior understanding and exposure to the knowledge and skills to efficiently use the digital technologies and resources predominantly for learning purposes by both children and parents from low-income families in Nepal, as well as teachers who are expected to use the same digital means to educate children. Finally, the third concept of practice divide attributes to the general attitude and/or approach towards using digital technologies specifically for learning purposes (such as the expected benefits and challenges of using such technologies, motivation to use digital technologies for learning purposes both at home and at school) and the differences and/or similarities in using the digital technologies for teaching and learning purposes (such as the access to basic knowledge and understanding of online learning, the application of knowledge and skills to navigate through the digital technologies and spaces for academic purposes, and the language and measures used to interpret/translate online contents that best fits with one's existing knowledge and understanding).

The study additionally identifies the COVID-19 pandemic as an additional barrier, which resulted in the transition to online learning, and consequently exacerbated both the digital divide and its negative impacts on accessing education and reinforcing inequalities. Considering that the issue of the digital divide gained prominence within the education system of Nepal during this period, identifying and analysing the far-reaching impacts of the digital divide on access to education was thus crucial in further examining how the exacerbation of both the systemic inequalities and inequalities digital divide inevitably exacerbated educational inequalities as well. Besides the investigation of this relationship, the context of COVID-19 was also important in examining

people's understanding of the digital divide and its impacts on education, to discuss the existing and emerging issues of educational inaccessibility and inequity (also within the parameters of online learning), and finally to raise discussions on the practical effectiveness and implementation of existing laws to mitigate the skewed impacts of educational inequity and inequalities.

1.8 Organisation of thesis

The research study comprises of six chapters which are arranged in the following order: introduction, research methodology, literature review, analysis of findings (presented in two different chapters) and conclusion.

The introduction chapter begins with an elaborate discussion on the phenomenon of the digital divide with an emphasis on its manifestation in pedagogy and the challenges it imposes on accessing education. Additionally, the introductory sections also shed light on the exacerbated impacts of the digital divide due to the global outbreak of COVID-19 and the shift to online learning. The discussion of the issue is further expounded in particular sections of statement of the problem, which aims to contextualise the problem with close reference to the education system in Nepal, followed by the research questions and objectives, hypothesis, significance of the study, unit of analysis, conceptual framework and organisation of the thesis.

The second chapter on research methodology gives a background into the key research type and approach, provides details of the research design and participants, research tools and also discusses the limitations of the research as well as ethical issues. This is followed by the third chapter of the literature review which is a consolidation of existing academic research relevant to the topic of the digital divide that has been critically reviewed and analysed. This chapter discusses the phenomenon of the digital divide, the prevalence of the digital divide in education, the increasing prominence of the digital divide due to COVID-19 and the significant gap in the knowledge and understanding of the issue in Nepal.

The analysis of the research findings has been presented in two different chapters (Chapters 4 and 5) with the aim of addressing the three specific research questions. Chapter 4 discusses findings on the first research question focusing on identifying the barriers of the digital divide in education and its impact on accessing education for children from low-income families in Nepal during COVID-19. Chapter 5 addresses the second research question on analysing whether or not the digital divide reinforces privilege and exclusion within the education system.

Finally, the conclusion of the research is the sixth chapter, which provides the summary of previous chapters as well as an overall analysis of the research findings. This chapter revisits the research questions and objectives, and discusses whether the findings confirm to the hypothesis or not. This chapter also includes policy recommendations targeted towards key duty-bearers, reinforcing the discussion on the scope and future research needs on the issue.

2. Research methodology

2.1 Research type and approach

The overarching objective of the research is to critically examine the correlation between the barriers of the digital divide and the accessibility to education for children from low-income families in Nepal. The study having already identified three key barriers of the digital divide, that is technological, knowledge and practice divide, the researcher aimed to further draw on the lived experiences and narratives of parents and public-school teachers to substantiate on the challenges for children to access education due to the pre-existing and emerging impediments. In light of the pandemic, the study also aimed to identify and examine any additional difficulties for children that exacerbated their learning conditions and experiences, for example due to the abrupt shift to online classes.

Qualitative research produces findings that are reflective of the experiential descriptions collected from the participants in order to produce deeper knowledge and understandings of the topic under investigation.[32] Hence, the research was qualitative in nature and chiefly examined the prevalence of the digital divide within the education system in Nepal, and the impact of the phenomenon on children's accessibility to education as well as on their learning experiences.

The research employed a narrative inquiry approach to better understand and describe the personal and/or collective challenges experienced by the research participants with using the internet and digital technologies for learning purposes, during the

[32] D Polkinghorne, 'Qualitative Research' in J Thomas and M Hersen (eds), *Handbook of Clinical Psychology Competencies* (1st edn, Springer 2010).

lockdown period. This approach is particularly used to explore and understand the similarities and/or differences in the individual experiences within a particular social and cultural context.[33] By collating knowledge on the direct and/or indirect impacts imposed by the barriers of the digital divide on children's access to learning opportunities, the study thus aimed to navigate children's rights to education in the digital era, with contemporary challenges obstructing children from low-income families to meaningfully exercise their right.

2.2 Research design and participants

Non-probability sampling methods in qualitative research focuses on highlighting the key characteristics of the particular demography, which does not have to be statistically representative unlike quantitative research.[34] The present study, also qualitative in nature, employed the criterion-based sampling method to select the research participants. The selection of the research participants was based on the similarities in socio-demographic characteristics, exposure to the internet and related infrastructures, experiences with the impacts of the digital divide and relative understanding of the issue being studied. This method in particular helped the researcher to identify the similarities and differences in the experiences of the research participants with the digital divide based on the key concepts and questions that the research wanted to explore.

The researcher had a set of pre-identified criteria to select the primary target groups, that is parents, public school teachers, field workers and subject matter experts residing in Kathmandu, Nepal. In particular, parent respondents were selected on the basis of meeting any or all of the following conditions: first, the total family income being less than US Dollar 500 per annum (Nepalese Rupees 63,000 approximately); second, either or both of the parents not having permanent employment; third, either or both of

[33] N Sharp, R Bye and A Cusick (eds), 'Narrative Analysis' in *Handbook of Research Methods in Health Social Sciences* (Springer 2019).

[34] J Ritchie and others, 'Designing and Selecting Sample' in J Ritchie and others (eds), *Qualitative Research Practice: A Guide for Social Science Students and Researchers* (SAGE 2014).

the parents not owning a smart phone and not having a stable internet connection and other supporting infrastructures installed at home and finally, their child had to be attending public schools in or around Kathmandu, Nepal.

In the case of field worker and subject matter expert respondents, they were selected on the basis of their experience of working in the field of education (especially in public schools located either in urban or remote parts of Nepal or both), and also from their experiences of working with children from low-income families.

The research consisted of a total of 19 research participants comprising of four parents from low-income households, four public school teachers, six field workers and five subject matter experts affiliated with different non-governmental organisations (NGOs) and international non-governmental organisations (INGOs) in Nepal.

Table 1. *List of research participants and interview date*

Research participants	Name / respondent code	Organisation	Interview date	Mode of interview
Parents	Parent respondent 1	Domestic help	20 June 2022	Zoom (connected with help from someone from place of work)
	Parent respondent 2	Factory worker	25 June 2022	Viber
	Parent respondent 3	Kitchen helper in an NGO	2 July 2022	Facebook Messenger
	Parent respondent 4	Domestic help	3 July 2022	Zoom (connected with help from someone from place of work)
Public school teachers	Teacher respondent 1	Not disclosed	20 May 2022	Zoom and Viber
	Teacher respondent 2		22 May 2022	Zoom
	Teacher respondent 3		28 May 2022	Viber
	Teacher respondent 4		29 May 2022	Viber

Research participants	Name / respondent code	Organisation	Interview date	Mode of interview
Field workers	Field worker respondent 1	Canopy Nepal	02 May 2022	Zoom
	Field worker respondent 2	Teach For Nepal (TFN)	10 May 2022	
	Field worker respondent 3	Collaborative Schools Nepal	12 May 2022	
	Field worker respondent 4	Canopy Nepal	18 May 2022	
	Field worker respondent 5	Teach For Nepal (TFN)	23 May 2022	
	Field worker respondent 6	Vision Dolpo	20 June 2022	Whatsapp
Subject matter experts	Subject matter expert respondent 1	Kids of Kathmandu	25 April 2022	Zoom
	Subject matter expert respondent 2	Samriddhi School	25 April 2022	
	Subject matter expert respondent 3	Plan International Nepal	18 May 2022	
	Subject matter expert respondent 4	Changing Stories Nepal	25 May 2022	
	Subject matter expert respondent 5	United Nations Educational, Scientific and Cultural Organization (UNESCO) Kathmandu	27 May 2022	

2.3 Research tool

The research referred to both primary and secondary sources of data. Primary data was collected via in-depth interviews with the targeted research participants (parents, public school teachers, field workers and subject matter experts based in Kathmandu, Nepal) and secondary data was collected from existing literatures (academic and grey literatures) as relevant to the issue and context being studied.

The research administered key informant interviews (KII) as the primary interview tool to collect data from the different target groups with the aim of acquiring detailed understandings on the challenges and impacts brought about by the digital divide on

accessing education by children from low-income families. The researcher also aimed to collect responses with reference to the COVID-19 lockdown to understand the impact on accessing education during situation of crisis.

The interviews were conducted online (with the researcher based in Thailand at the time of data collection) via online communication platforms such as Zoom, Facebook Messenger, Viber and WhatsApp. Depending on the access and convenience of the research participants, the interviews were scheduled for approximately one hour with follow-up questions communicated via text messages and/or phone calls at a later time.

The interview questions were all open-ended and semi-structured (in Annex A) and designed to discuss the barriers of the digital divide in education for children from low-income households, the personal experiences with using the internet (particularly for online learning) and the direct and/or indirect impact of the barriers on children's accessibility to equitable learning opportunities and outcomes. For parents, public school teachers and field workers, the interview questions focused primarily on identifying and addressing the challenges faced by children, parents and teachers while transitioning to online classes, in particular the challenges while accessing and/or availing the internet and supporting infrastructures at home, navigating through the instructions of using the required online platforms and the overall experience with online classes. For subject matter experts, the questions were directed more towards discussing the feasibility of online learning in Nepal, the short and long-term impacts of the digital divide on the learning experiences and outcomes of children from low-income families, the gaps in addressing and responding to the barriers of the digital divide in education, setbacks in mitigating and/or reducing the policy-implementation gap, and discussing opportunities for an equitable education in Nepal, keeping in close consideration the rights of the child to education and in the digital environment.

Apart from the collection of primary data, the study also referred to existing literatures on topics related to the prevalence and impacts of the digital divide on education for children from low-income households and/or rural areas. The study aimed to draw analysis of the issue and of the implications from a global, regional (referring to countries from South Asia) and national perspectives in order to identify the similarities and differences on

the prevalence and impact on children's access to education. Additionally, with the study discussing the issue in the specific context of COVID-19, the review included the analysis of literatures on the inaccessibility to remote learning and the exacerbated learning conditions during the lockdown for children from low-income families.

2.4 Research limitations

The limitations of the study are detailed as follows.

I. The interviews with all 19 research participants were conducted online via Zoom, Facebook Messenger, Viber and WhatsApp due to the risk involved in traveling to Nepal during the pandemic and uncertainties in lockdown measures. This not only posed challenges in reaching out directly with the research participants but especially with parents of children who did not have internet access at home and were affected by the digital divide. Hence, parent respondents had to be reached out through the researcher's personal connections and needed assistance to connect online for their interview.

II. The study did not include children as primary research participants due to ethical reasons (appropriate age for participation) as well as due to possible reasons of their inaccessibility and/or unavailability to the online mediums which is primarily what the research aimed to address. Hence, the responses shared by parents of children, teachers and field workers albeit insightful may not fully justify or capture the direct experiences/challenges of children.

III. The study being qualitative in nature involved limited participation from parents from low-income families, public school teachers, field workers and subject matter experts, all residing in Kathmandu. Hence, the sample size for the study were decided based on the availability and suitability with the scope of the research. The findings of the study thus only represent a small section and cannot be generalised to a wider national scale.

IV. The study did not examine in-depth about other key related issues and/or of groups affected by the digital divide in education such as the gender digital divide, children with disabilities, children from different ethnic communities, children out of school, and the impact on, for example, child, early and forced marriage as a result of school dropouts.

2.5 Research ethics

The researcher was adequately trained on conducting research with human participants, before commencing with the KIIs for the study. The ethics committee from the Institute of Human Rights and Peace Studies, Mahidol University conducted a two day 'Ethical Research for Human Rights Seminar/Workshop 2021' where they thoroughly briefed and discussed the key ethical issues in human rights research, importance of analysing the risks and benefits of the study, drafting mitigation plans and maintaining sensitivities while working with vulnerable groups. Based on the workshop, the researcher additionally prepared interview guidelines (in Annex B) for conducting KIIs.

Prior to the interview, the researcher reached out to field workers and subject matter experts via email and to parents and public-school teachers through Facebook Messenger/Viber to brief them on the scope/objectives of the research, their role as research participants and to confirm their interest to participate in the research. Upon confirming, interview dates with the participants were scheduled depending on their availability. Informed consent from the research participants were obtained both written and verbally, depending on the participants' preference. The researcher ensured that the contents elaborated in the consent forms and during the time of the interview were communicated in a manner specific to the understandings of the participants and were encouraged to ask questions in case of any doubts.

The informed consent forms had detailed descriptions of the study with the proposed research objectives, the roles of the participants and the researcher, the right of the participants (in particular the right to withdraw from participation and withdraw the provided information at any time during and/or after the study),

the risks and benefits of the study, risk mitigation plan and provided descriptions on how the identities and responses of the participants would be anonymised and kept confidential throughout the duration of the research.

Since the interviews were conducted online, few of the potential risks of the research were related to maintaining confidentiality and anonymity, and data storage. Additional consent to record the session was asked to those research participants with whom interviews were held online on Zoom. The researcher mentioned that turning the video camera on during the time of the interview was on their own discretion and not mandatory. All of the recordings were downloaded from Zoom on the researcher's personal computer, transcribed and saved on a password protected folder. For research participants being interviewed via Facebook Messenger, Viber or WhatsApp, the researcher made written notes of their responses, which were later transcribed and saved as a soft copy on the same password protected folder. The research participants were informed prior that the recordings and transcriptions would only be used for the purpose of data collection and analysis, with the recordings being deleted upon completion of the research.

For all research participants, the researcher used code numbers instead of their names while quoting their responses in the research in order to keep the identities anonymised.

3. Literature review

3.1 Introduction

Research and discourses on the issue of the digital divide and discourses on the myriad impacts of the phenomenon have originated and been mostly prevalent in the global north. On the contrary, in global south, the study of the issue is only emerging and still widely untapped. Yet, despite the discrepancy in research, existing and emerging literature that have extensively studied about the digital divide and its close relationship with the socioeconomic differences between the rich and the poor, have identified the digital divide as a serious catalyst of perpetuating socioeconomic inequalities. The evolving definitions and understandings of the issue have also broadened to encompass the intellectual and usability divide, thereby indicating that the digital divide is not just an issue of inaccessibility to the physical resources of digital technologies but much intricate than perceived.

Hence, the purpose of the chapter is to establish an elaborated understanding of the phenomenon based on the comprehensive review and consolidation of relevant existing studies to signify the escalating severity of the issue, as well as of the prevalence and impact on the education system. The chapter begins with a section discussing the digital divide as a phenomenon and of its close relationship with facets of inaccessibility, inequality and exclusions. The following section dwells onto the far-reaching impact of the digital divide on the education system and how problems associated with inaccessibility reduces the learning opportunities for groups without access. The third section of the chapter discusses the increasing impacts of the digital divide in light of the COVID-19 pandemic and the disproportionate impacts on

disadvantaged children due to the transition to online learning. Finally, the concluding section highlights the gaps in the knowledge and understanding of the digital divide in the Nepalese context, as also reflected by the lack of research on the topic.

3.2 The phenomenon of the digital divide: mapping through the trajectory of (in)accessibility and (in)equality

The overarching definition of the term digital divide centres around the discrepancy or gap between those having easy access and those who do not, with regard to technology, including but not limited to the internet and devices.[35] However, with the constant evolution in understanding and conceptualisation of the term, it now encapsulates the disparity in the knowledge, skills, usage, motivation and attitude towards the appropriation of the evolving digital technologies and its purposes, further bolstering the reality of skewed benefits and lopsided impacts of inaccessibility.[36]

At a time when internet-based gaps were not well studied, findings from two large representative surveys administered in Switzerland in 1999 and 2000 found that income, sex and age were key determinants of the gaps in access to the internet apart from education-based gaps.[37] Likewise, another study from 2002 also identified four key barriers to accessing information on the internet, which surprisingly seems no different than the prevailing challenges posed by the divide today. The challenges were identified as having a lack of computer skills and negative attitudes among older and less educated people, additional barrier to accessibility due to the higher prices of the new media, lack of user friendliness of the internet and new media, and finally the gaps in

[35] JAGM van Dijk, 'Digital divide research, achievements and shortcomings' (2006) 34(4-5) Poetics 221 <www.sciencedirect.com/science/article/pii/S0304422X06000167>.

[36] JAGM van Dijk, 'Digital Divide: Impact of Access' in P Rossler (ed), *The International Encyclopedia of Media Effects, 4 Volume Set* (John Wiley & Sons 2017) <www.utwente.nl/en/bms/vandijk/publications/digital_divide_impact_access.pdf> accessed 2 September 2022

[37] H Bonfadelli, 'The Internet and Knowledge Gaps: A Theoretical and Empirical Investigation' (2002) 17(1) European Journal of Communication 65 <www.researchgate.net/publication/249720563_The_Internet_and_Knowledge_Gaps> accessed 9 January 2022

the use of the internet and its link with the level of education.[38] Almost two decades later, the same problems continue to be associated with accessing, owning, using and benefitting from the digital technologies across the different demographics.

The digital differentiation approach postulates that even with the internet gaps possibly reducing other gaps, notably internet skill or internet usage, is bound to escalate, with the understanding of the issue transcending beyond the narrow meaning of sheer accessibility.[39] Literatures on the topic of digital divide also present discussions on the identification and/or prevalence of the social gap between the information rich and the information poor (information regarding using the internet and digital technologies), with the underlying assumption that possessing information and knowledge inevitably translates to possessing social power that result in an increase of social inequalities.[40] Likewise, the knowledge gap hypothesis suggests that the manner in which information is disseminated and accessed has more often than not been unequal, with individuals from well-educated and affluent backgrounds more likely to access, interpret and efficiently use the available information as compared against those placed on the opposite end.[41] Hence, the differences in the level of income or economic status and education also determined the accessibility and usability of digital technologies thereby establishing strong linkages between higher income and higher probabilities of accessibility.

Social inequalities and exclusions (due to existing structural inequalities), and the disproportionate impacts of it on the vulnerable groups, have always been a grave human rights issue. The nexus between the digital divide and social inequalities and

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[38] H Bonfadelli, 'The Internet and Knowledge Gaps: A Theoretical and Empirical Investigation' (2002) 17(1) European Journal of Communication 81 <www.researchgate.net/publication/249720563_The_Internet_and_Knowledge_Gaps> accessed 9 January 2022.

[39] J Peter and P Valkenburg, 'Adolescents' Internet use: Testing the "disappearing digital divide" versus the "emerging digital differentiation" approach' (2006) 34(4-5) Poetics 293.

[40] H Bonfadelli, 'The Internet and Knowledge Gaps: A Theoretical and Empirical Investigation' (2002) 17(1) European Journal of Communication 65 <www.researchgate.net/publication/249720563_The_Internet_and_Knowledge_Gaps> accessed 9 January 2022

[41] M Badiuzzaman and others, 'The Latent Digital Divide and Its Drivers in E-Learning among Bangladeshi Students during the COVID-19 Pandemic' (2021) 12(8) Information 287 <www.researchgate.net/publication/353357422_information_The_Latent_Digital_Divide_and_Its_Drivers_in_E-Learning_among_Bangladeshi_Students_during_the_COVID-19_Pandemic>.

exclusion continues to breed on this notion with the increasing use and incorporation of digital technologies in various aspects of daily life. Hence, the digital divide is or should be approached as a serious matter due to its adverse impact on exacerbating existing inequalities and exclusion, resulting in inaccessibility to not just digital technologies but more broadly on crucial life opportunities such as education, employment and economic progress,[42] resulting in the inequalities between social groups to become more wide than narrow.

Thus, the close relationship between the digital divide and social inequality cannot be overlooked in the study of the issue as literatures have increasingly demonstrated that digital technologies may act as catalysts to perpetuate and/or reinforce social inequalities that are already embedded in the socio-economic sphere.[43] Ensuring access to digital mediums and/or encouraging digital integration for various life purposes is simply not sufficient to reduce the digital divide, since social inequalities now mirror and manifest through the digital divide as well. Hence, addressing fundamental inequities and inequalities play an equally important role in addressing the multidimensional impacts of the digital divide as well as in attempts to mitigate and/or reduce the impacts for the socially and digitally excluded groups in the digital era.

3.3 Digital divide in education: a multiplier for exacerbating educational inequalities

An integral part of contemporary educational practices has been the increasing use and integration of evolving digital technologies such as the internet and electronic devices. As beneficial as this integration has proven in providing unparalleled access to indefinite sources of information and knowledge, the access, however, is limited to a few. Hence, a vast majority are exposed to bear

[42] T Molala and J Makhubele, 'The Connection Between Digital Divide And Social Exclusion: Implications For Social Work' (2021) 9(4) Humanities & Social Sciences Reviews 194 <www.researchgate.net/publication/354050437_THE_CONNECTION_BETWEEN_DIGITAL_DIVIDE_AND_SOCIAL_EXCLUSION_IMPLICATIONS_FOR_SOCIAL_WORK_Digital_divide_and_Social_Exclusion> accessed 9 January 2022

[43] N Tewathia, A Kamath and P Ilavarasan, 'Social inequalities, fundamental inequities, and recurring of the digital divide: Insights from India' (2020) 61 Technology in Society 101251.

the burden of the digital divide, even within the education system,[44] as the unequal access to technologies have resulted in students especially from low-income and rural areas to be at the margins of being digitally excluded, greatly contributing to their learning setbacks.[45] Study conducted in Turkish primary schools found direct impact of lack of both the internet and digital technologies at homes with students' academic assessment, demonstrating the relationship between the low socio-economic status of the family, purchasing capacity and accessibility to internet and related devices.[46]

The issue of the digital divide has been elaborately studied and defined through different lenses with findings suggesting its far-reaching impacts on people from low socio-economic backgrounds. Even in the context of education, the inaccessibility to stable and reliable digital resources for remote/online learning purposes has proven to be impeding the academic experiences, participation, progress and outcomes for students from low-income families who are without any access from the very onset.[47] Thus, the digital divide, on a larger spectrum, will continue to be an obstacle for achieving educational equity since existing frameworks fail to recognise the reverberated impacts of the 'socio-economic and socio-cultural barriers' due to the implementation of technology-led educational practices for populations already bearing the brunt of an unequal society.[48]

Digital technologies can be instrumental in promoting equal learning opportunities, yet it can also alter the learning opportunities and experiences depending on factors such as socio-economic status and geographical locations also contributing to reasons for inaccessibility to digital learning devices.[49] Assimilating digi-

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[44] K Brown Bomah, 'Digital Divide: Effects on Education Development in Africa' (*ResearchGate*, 16 December 2014) <www.researchgate.net/publication/275350414_Digital_Divide_Effects_on_Education_Development_in_Africa> accessed 5 July 2021

[45] M Kinal, 'The digital gap and the digital exclusion of students from rural areas' (2021) 18(4) Eastern Humanist Yearbook 53 <http://wrh.edu.pl/wp-content/uploads/2021/12/055_WRH_18_4_wrh_2021_no4_Kinal.pdf> accessed 13 January 2022

[46] H Gunduz, 'Digital Divide in Turkish Primary Schools: Sakarya Sample' (2010) 9(1) The Turkish Online Journal of Educational Technology 43 <https://files.eric.ed.gov/fulltext/EJ875762.pdf> accessed 26 October 2021

[47] H Morgan, 'Alleviating the Challenges with Remote Learning during a Pandemic' (2022) 12(2) education sciences 109 <www.mdpi.com/2227-7102/12/2/109%20> accessed 21 February 2022

[48] T Brian, 'Educational equity and the application of technology: A critical approach' (2021) (10) Scope: Contemporary Research Topics (Teaching and Learning) 83.

[49] J Adhikari, A Mathrani and C Scogings, 'Bring Your Own Devices classroom' (2016) 13(4) Interactive Technology and Smart Education 323.

tal technologies within the education system can be even more arduous for developing countries due to the minimal infrastructure and resources to harness online learning, coupled with the incapacities of students and teachers to make the transition without having any knowledge, skills and prior experience/opportunities.[50] For developing and underdeveloped countries, deteriorating socioeconomic conditions, increasing poverty of families together with low digital literacy, minimal or no internet penetration and absence of robust educational strategies will continue to widen and accelerate the impacts of the digital divide in education for the marginalised.[51] Therefore, challenges of the digital divide in education pertains to both mitigating the impacts of the digital divide for students with no access and finding the most appropriate pathway to integrate digital technologies that benefit all students equally across.

Poor infrastructure, low quality of computers, lack of basic information and communication technology (ICT) skills and zero access to internet connections in rural areas across the Association of Southeast Asian Nations (ASEAN) region were identified as key indicators of the digital divide despite the increasing economy and development of ICT infrastructures for education programmes.[52] Centralised focus on integrating and equipping urban schools with skilled human resources for facilitating the use of technologies and limited support provided to rural schools for the same kind of integration continues to be a critical problem in reducing the digital divide in education. Differences in the availability of and access to advanced technology and facilities in urban and rural schools in southern Taiwan have also resulted in impacting the learning experiences of children from rural schools

[50] J Kalolo, 'Digital Revolution and its impact on education systems in developing countries' (2019) 24 Education and Information Technologies 345.

[51] V Samane-Cutipa and others, 'Digital Gaps Influencing the Online Learning of Rural Students in Secondary Education: A Systematic Review' (2022) 12(7) International Journal of Information and Education Technology 685 <www.researchgate.net/publication/360837686_Digital_Gaps_Influencing_the_Online_Learning_of_Rural_Students_in_Secondary_Education_A_Systematic_Review> accessed 9 July 2022

[52] P Prajaknate, 'Information Communication Technologies (ICT) for Education Projects in ASEAN: Can We Close the Digital Divide?' (2017) 2 Sustainable Development Goals in the Asian Context 107.

who did not have prior opportunities to use such tools for learning purposes. Additionally, the experiences of the teachers from rural schools were also impacted as they failed to understand and use high-technology for teaching purposes.[53]

Therefore, the high prevalence of digital divide in education and the prolonged learning impacts on students from disadvantaged backgrounds poses critical questions on the influence of technology on promoting equal educational opportunities. Technological innovations and its increasing use can undoubtedly exacerbate inequalities that are already pertinent in the majority of poverty-stricken households yet targeted policies can aid in mitigating these obstructions.[54] Restricted access to education due to technological and/or economic disparities or both can thus curtail students from both short and long-term learning opportunities, the impact for which is even more extreme for students living in rural areas and in poverty.[55]

3.4 COVID-19 and the prominence of the digital divide: unprecedented disruption in children's education and visibility of skewed vulnerabilities

A direct impact of COVID-19 was on accessing and continuing education by adopting new measures of learning. UNICEF findings indicated a glaring figure of approximately 463 million (about 31%) of school-going children not reached by remote

[53] P Wang, 'Examining the Digital Divide between Rural and Urban Schools: Technology Availability, Teachers' Integration Level and Students' Perception' (2013) 2(2) Journal of Curriculum and Teaching 127 <https://files.eric.ed.gov/fulltext/EJ1157686.pdf> accessed 9 June 2022

[54] B Jacob and others, 'Can Technology Help Promote Equality of Educational Opportunities?' (2016) 2(5) The Russell Sage Journal of the Social Sciences 242 <https://files.eric.ed.gov/fulltext/ED577325.pdf> accessed 6 February 2022

[55] V Samane-Cutipa and others, 'Digital Gaps Influencing the Online Learning of Rural Students in Secondary Education: A Systematic Review' (2022) 12(7) International Journal of Information and Education Technology 685 <www.researchgate.net/publication/360837686_Digital_Gaps_Influencing_the_Online_Learning_of_Rural_Students_in_Secondary_Education_A_Systematic_Review>.

learning practices due to the lack of necessary assets or policies to suit their needs during the pandemic, and with three out of four children from rural and poor households not reached by any means of remote learning.[56]

Major barriers for children in Nigeria to access online learning materials during the pandemic in addition to the challenges of the digital divide was accessing electricity, devices, phone credit and internet data, and poor internet connection. Moreover, enrolment in either government or private schools also seemed to directly influence their access to online learning.[57] Pre-existing situations of inaccessibility for children from low-income households in a Sierra View mobile park in Silicon Valley was worsened because of COVID-19 as they did not have access to proper internet connections, did not do well in academica and received very minimal support from teachers.[58] Hence, poor socio-economic conditions of families were a significant barrier for children to access education, with the situation exacerbating due to COVID-19.

Studies conducted in different regions of Asia also indicated the prevalence of the digital divide within the education system and of the exacerbated challenges that COVID-19 placed on children from low-income households who were largely affected by the inaccessibility to digital technologies for learning purposes. Students in the rural area of Sabah, Malaysia, had significantly low levels of class attendance due to the unavailability of

[56] UNICEF, 'COVID-19: Are children able to continue learning during school closures?' (*UNICEF*, 26 August 2020) <https://data.unicef.org/resources/remote-learning-reachability-factsheet/> accessed 23 September 2021

[57] O Azubuike, O Adegboye and H Quadri, 'Who gets to learn in a pandemic? Exploring the digital divide in remote learning during the COVID-19 pandemic in Nigeria' (2021) 2(2) International Journal of Educational Research Open 100022 <www.sciencedirect.com/science/article/pii/S2666374020300224> accessed 26 September 2021

[58] C Kim and A Padilla, 'Technology for educational purposes among low-income Latino children living in a mobile park in Silicon Valley: A case study before and during COVID-19' (2020) 42(4) Hispanic Journal of Behavioral Sciences 497 <www.researchgate.net/publication/346693148_Technology_for_Educational_Purposes_Among_Low-Income_Latino_Children_Living_in_a_Mobile_Park_in_Silicon_Valley_A_Case_Study_Before_and_During_COVID-19> accessed 2 November 2021

digital devices at home.[59] Findings from a study conducted among low-income families in China estimated that rural students had 61.3% lower probability rates in owning the required resources to access online learning at home in comparison to urban student counterparts.[60]

Specific to the South Asian region, survey findings of a research in India found that the sudden transition to online modes of learning posed greater challenges to marginalised groups such as the Scheduled Caste, Scheduled Tribes, Other Backward Class, females and students located in rural areas, with high prices for high-speed internet and devices, inadequate physical infrastructure (such as ownership of personal devices), poor internet connectivity and lack of government's provision of high-quality free facilities to disadvantaged students being the key restrictive factors.[61] Therefore, a huge number of already disadvantaged students from marginalised communities and remote areas were the most disadvantaged during the pandemic, resulting in the digital divide bolstering the already existent inequalities in accessing education in India.[62]

Studies conducted in Bangladesh also identified the increasing digital divide during the pandemic, with the majority of students from rural areas being the most affected group. Results from one of the studies indicated high data prices and poor network infrastructures as critical barriers of attending online classes which disrupted their quality of access.[63] Another study found environmental and situational (difficulties in concentrating during online class, prolonged feeling of stress, lack of good internet

[59] S Surianshah, 'Digital Divide in Education during COVID-19 Pandemic' (2021) 55(3) Jurnal Ekonomi Malaysia 103 < www.researchgate.net/publication/355978349_Digital_Divide_in_Education_during_COVID-19_Pandemic_Jurang_Digital_dalam_Pendidikan_semasa_Pandemik_COVID-19> accessed 18 December 2022

[60] J Gu, 'Family Conditions and the Accessibility of Online Education: The Digital Divide and Mediating Factors' (2021) 13(15) Sustainability 8590 <www.mdpi.com/2071-1050/13/15/8590> accessed 26 October 2021

[61] M Goswami, 'Impact of Online Learning in India: A Survey of University Students during the COVID-19 Crisis' (2021) 9(4) Asian Journal for Public Opinion Research 331 <www.ajpor.org/article/27445-impact-of-online-learning-in-india-a-survey-of-university-students-during-the-covid-19-crisis> accessed 4 December 2021

[62] S Khan and L Mohakud, 'Covid-19 and Digital Divide in Higher Education: Exploring the Indian Scenario' in D Adawal and D Behera (eds), *The Novel COVID -19: The Human Rights Issues in India* (1st edn, Academic Excellence 2020).

[63] M Badiuzzaman and others, 'The Latent Digital Divide and Its Drivers in E-Learning among Bangladeshi Students during the COVID-19 Pandemic' (2021) 12(8) Information 287 <www.researchgate.net/publication/353357422_information_The_Latent_Digital_Divide_and_Its_Drivers_in_E-Learning_among_Bangladeshi_Students_during_the_COVID-19_Pandemic> accessed 9 January 2022

connectivity and services, and lack of social interaction), e-learning (difficulties in familiarising with online learning technologies and systems, difficulties to understand the content, lack of interaction with teachers, inadequate support to students, increased workload and difficulties in performing the required tasks, and psychological (feelings of anxiety, demotivation and negative emotions) barriers to be the key challenges for students.[64]

3.5 Dearth of knowledge and understanding: gaps in research and knowledge in Nepal

In the context of Nepal, the lack of knowledge and research on the issue of the digital divide and of its impacts is extremely stark. Nonetheless, the pandemic did bring the issue to the forefront, raising concerns about the challenges of online learning, especially for those already facing several barriers to give continuity to their education, as they lack the basic access to internet services, compatible devices and the idea to navigate through the alien concept of online learning.

Although there is very limited research on the topic, findings largely suggested the lack of widespread availability and optimum use of ICT for learning practices in rural Nepal, in addition to the poor conditions of these facilities where available. The barrier to effective online learning for students largely stemmed from the lack of knowledge to use ICT for educational purposes, inadequate expertise of educators to use such facilities and financial issues of both children and schools to accommodate internet facilities.[65] A 2020 UNICEF report showed that only three out of ten children in Nepal had access to online learning with only 80% using online platforms for learning purposes,[66] indicating that even in cases where internet is installed at homes, it is only used for recreational purposes and never for learning.

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[64] M Islam and T Habib, 'Barriers of Adopting Online Learning Among the University Students in Bangladesh During Covid-19' (2021) 4(1) Indonesian Journal of Learning and Advanced Education 71 <https://journals.ums.ac.id/index.php/ijolae/article/view/15215> accessed 9 January 2022

[65] T Dahal, 'ICT Resources Availability in Rural Community Schools in Nepal: An Exploration and Analysis' (2021) 3(1) Artech Journal of Art and Social Sciences 1 <https://artechjournals.com/uploads/documents/file_807_157.pdf> accessed 15 November 2021

[66] UNICEF, 'COVID-19 child and family tracker: Findings' (*UNICEF*, April 2022) <www.unicef.org/nepal/reports/covid-19-child-and-family-tracker-findings> accessed 6 April 2022

Another issue surrounding the impact of COVID-19 has been the issue of reinforced social inequalities through online learning in Nepal. Students from low socio-economic status from rural areas, less proficient in digital skills and English language, were further marginalised and experienced inequalities in accessing and participating in online learning during the pandemic. Hence, the challenges of online learning doubled for children from low-income households as the inaccessibility to online resources and internet connectivity was amplified with the complete absence of knowledge to navigate through online learning platforms and experiences,[67] further marginalising children who are not aware of the know-hows to use advanced technologies.

Hence, the digital divide in light of the pandemic seemed to be broadening with the increasing discrepancies in terms of the availability and access to equitable learning opportunities, further demarcating the social lines between the advantaged and disadvantaged children, and between those living in urban and rural areas.[68]

These findings help in identifying not just the problems associated with increasing digital integration for educational purposes but also helps in understanding the ways in which the same integration reinforces social discrimination and exclusion in the society. The literature review thus suggests a significant gap in the amount of research done on the issue of the digital divide in Nepal, and to understand the prevalence and impact on different demographics and areas of the society. Therefore, by identifying existing and novel barriers set forth by the digital divide, the study aimed to shed light on how these dividing factors hinder children from low-income families from accessing quality education in the digital age and fully enjoying their right to education.

[67] K Khati and K Bhatta, 'Challenges of Online Education during COVID-19 Pandemic in Nepal' (2020) 4(1) International Journal of Entrepreneurship and Economic Issues 45 <www.researchgate.net/publication/343097680_Challenges_of_Online_Education_during_COVID-19_Pandemic_in_Nepal> accessed 7 November 2021

[68] S Dawadi, R Giri and P Simkhada, 'Impact of COVID-19 on the Education Sector in Nepal - Challenges and Coping Strategies' (2020) Sage Submissions <https://files.eric.ed.gov/fulltext/ED609894.pdf> accessed 7 November 2021

4. Digital divide and the ripple effect: insights into the technological, knowledge and practice divide

4.1 Introduction

While the prevalence of the digital divide may have always been present in the society, the indefinite nation-wide lockdown, closure of schools and sudden transition to online learning during the pandemic galvanised the attention of the general public, academics and the government. As reflected across the responses from the research participants, the two-year lockdown period not only made the issue of the digital divide (more so in education) more apparent but also showed the unpreparedness of the government and educational institutions, the inadequacy of the Nepalese education system and revived discussions on educational inequity and inequalities, and the disproportionate impacts for disadvantaged children.

Considering the untapped knowledge regarding the digital divide in Nepal, this chapter elucidates findings pertinent to the first research question in an attempt to identify and examine the barriers of the digital divide in education, and the impact of those barriers on accessing education and on the long-term learning experiences for children from low-income families in Nepal. The section thus aims to understand the multidimensionality and complexity of the digital divide that transcends beyond the obvious binary division between those who have access to digital technologies and those who do not.

4.2 Technological divide: digital exclusion and challenges for the 'have nots'

The emergence of the term digital divide originally stemmed to describe the gap or inequalities between those having access and those not having the same kind of access to digital technologies, predominantly the internet but not limited to it.[69] The technologies can also include computers, smart phones and other internet infrastructures (such as Wi-Fi router, broadband connections, etc). However, as established through the literature reviews, digital divide cannot be understood in isolation from the structural socio-economic disparities. On the basis of this fundamental understanding, the concept of the digital divide thus revolves around the divide between those with greater socio-economic advantage and those without, indicating that the former will then almost always have easy and undisrupted access to digital resources, while the latter with very minimal or no access.

In the particular context of education through digital means, however, the issue of the digital divide poses serious questions over the notion of accessibility and availability of 'education for all', which is widely proclaimed in both the international human rights standards and the regulatory frameworks of Nepal. Hence, one of the key concepts of the barriers of the digital divide that the research aimed to examine was the technological divide, which included both the accessibility and availability of the digital technologies and other internet infrastructures for learning purposes.

> Digital divide is a very new term to grasp for all of us. But it made it crystal clear that the learning opportunities for children from low-income families are none, with families already struggling to make ends meet and with absolutely no support from the government to provide quality education to their children.[70]

[69] JAGM van Dijk, 'Digital divide research, achievements and shortcomings' (2006) 34(4-5) Poetics 221 <www.sciencedirect.com/science/article/pii/S0304422X06000167> accessed 2 September 2022

[70] Interview with Field worker respondent 1, Canopy Nepal (Zoom, 2 May 2022).

The examination of this concept is of key importance considering that the notion of accessibility as per the Committee on Economic, Social and Cultural Rights (CESCR) General Comment No 13 of the Right to Education (Art 13) also includes 'physical accessibility' which states 'education has to be within safe physical reach, either by attendance at some reasonably convenient geographic location (e.g., a neighbourhood school) or via modern technology (e.g., access to a "distance learning" programme)'.[71] As a state party to the UDHR, the International Covenant on Economic, Social and Cultural Rights (ICESCR)[72] and the Convention on the Rights of the Child (CRC),[73] Nepal is obligated to fulfil the stated commitments to make education, including distant education, accessible for children across. However, the collective responses from parents, field workers from NGOs and public-school teachers highlighted the huge dearth of these infrastructures both at home and at public schools making it extremely challenging for students from low-income households to continue learning without any disruption. Being on the flip side of the digital divide therefore posed serious obstructions for children from low-income families in not only getting access to the learning platforms but also in their meaningful participation in learning activities and outcomes.

4.2.1 Working from home but without any digital means

Access to digital technologies and reliable internet connection are two of the most important prerequisites of online learning, the importance of which was realised when the practice of 'work from home' came into effect during the COVID-19 lockdown. However, all of the four parents who were interviewed for the research rented one room and lived with their family, worked primarily as domestic helpers or in a factory/warehouse

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[71] UN Committee on Economic, Social and Cultural Rights (CESCR), 'General Comment No 13: The Right to Education (Article 13 of the Covenant)' (8 December 1999) UN Doc E/C.12/1999/10 <https://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=4slQ6QSmlBEDzFEovLCuW%2BKyH%2BnXprasyMzd2e8mx4cYlD1VMUKXaG3Jw9bomilLKS84HB8c9nIHQ9mUemvt0Fbz%2F0SS7kENyDv5%2FbYPWAxMw47K5jTga59puHtt3NZr> accessed 6 December 2021

[72] International Covenant on Economic, Social and Cultural Rights (adopted 16 December 1966, entered into force 3 January 1976) 993 UNTS 3 (ICESCR).

[73] Convention on the Rights of the Child (adopted 20 November 1989, entered into force 2 September 1990) 1577 UNTS 3 (CRC) <www.ohchr.org/sites/default/files/crc.pdf> accessed 6 December 2021

and mentioned not having any internet connection at home prior to or during the COVID-19 lockdown. Additionally, the majority of the students and their families that the field workers and school teachers worked and interacted with belonged to disadvantaged backgrounds and had migrated to Kathmandu for better living prospects. Hence, in the absence of a permanent living space and employment in Kathmandu, securing internet connection at homes was neither considered a viable option nor prioritised by parents.

> The concept of work from home does not work well in areas such as education. We cannot just ask children and teachers to take online classes when they do not have the required access, means, understanding or the support. This one-size-fits- all approach with online learning failed in education.[74]

Table 2. *A case load projection of the number of children from different age groups and education levels that will be affected and/or in need of support during COVID-19. (Source: COVID-19 Education Cluster Contingency Plan 2020, Nepal Education Cluster)*

Level	Affected population	Projected increase in drop-out (in the three scenarios)			Children with internet access	Children with access to media	Children with no access to media	Children most vulnerable / at risk
		1	2	3				
3-4 year (ECED/PPE)	973,900	77,912	194,780	292,170	128,044	474,102	280,080	129,599
5-9 years (grade 1-5)	3,672,155	282,737	706,843	1,060,264	462,869	1,789,717	1,078,690	468,202
10-12 years (grade 6-8)	1,820,943	160,700	401,751	602,626	233,073	886,417	523,772	207,304
13-14 years (grade 9-10)	1,027,512	33,593	83,983	125,974	132,151	500,890	294,331	119,862
15-16 years (grade 11-12)	631,536	20,237	50,593	75,889	83,257	307,143	181,086	70,123
Total	**8,126,046**	**575,179**	**1,437,949**	**2,156,923**	**1,093,394**	**3,958,270**	**2,357,959**	**995,090**

[74] Interview with Subject matter expert 4, Changing Stories Nepal (Zoom, 25 May 2022).

The projected numbers in the figure above were estimates of the total number of children (from 3 to 16 years old) who will be affected and/or in need of support during the COVID-19 lockdown. Through these estimates, the Ministry of Home Affairs were able to develop three specific scenarios related to education in the context of the pandemic and extended closures of schools. The first scenario saw school closures up to mid-July 2020, followed by closures up to September 2020 and for the majority or entire duration of the 2020/2021 academic year. Based on the estimates, the number of school drop-outs was expected to increase to 2,156,923 if schools remain closed for the entire 2020/2021 academic year.[75] However, there is no updated data on the number of school drop-outs before, during and after the pandemic, to either confirm or reject the speculation, as well as to find out if the reason for children dropping out of school was due to the inaccessibility to resources for online learning.

Specific to the expected number of children with and without access to the internet and necessary media (the report identifies these media to be mobile phones and not smart phones, computer, television and/or the radio), the expected number of children with access to only the internet was 1,093,394, access to only media was 3,958,270 and without access to media was 2,357,959.[76] However, a problem with this projection is that it is unclear if those with internet access also have access to media and vice versa, and there is no approximation of the total number of children all over Nepal having access to both the internet and the media to compare the discrepancy with. This statistic also does not include children having access to smart phones, which was identified as a pre-requisite by the research participants for taking online classes.

When asked during the interview how their children attended classes during the lockdown and the challenges they encountered with online classes, all of the parent respondents stated not having the means to provide access to their children for online learning which resulted in them missing out on school for as long as

[75] Nepal Education Cluster, 'COVID-19 Education Cluster Contingency Plan' (*Ministry of Education*, March 2020) <https://planipolis.iiep.unesco.org/sites/default/files/ressources/nepal_covid-19-education-cluster-contingency-plan.pdf?_gl=1*b60tor*_ga*Mzg1Mjk5OTMwLjE3MDk4MTgyMDY.*_ga_LJPXKL54R2*MTcwOTgxODM1OC4xLjEuMTcwOTgxODM3Ni4wLjAuMA>

[76] ibid.

a year. In particular, parent respondents 1 and 3 mentioned their child missing one year and ten months of online classes respectively, as a result of not having both neither the necessary device nor the internet. For example, the daughter of parent respondent 1 was in grade five when the lockdown started and missed the entire of grade six. This resulted in the child not only missing out on a year of school but also resulted in her not being able to catch up with the lost subject matter and performing low in the examinations in grade seven.

> My daughter could not attend online classes for almost a year because I did not have a mobile phone. During this time, she would either play in the room or I would take her with me to work. But after one year of missing out on school, she started to complain and asked me to buy a mobile for her online class.[77]

While the abovementioned estimation may have been helpful in establishing the expected scale of the problem, the objectives laid down in the Contingency Plan does not seem to be convincing in its interventions to roll out online classes for all children. Albeit this was an emergency plan that was developed in a short period of time, with no knowledge on the prognosis of the virus and was solely based on the COVID-19 Strategic Preparedness and Response Plan operational guidelines developed by the World Health Organization, it nevertheless also reflects that such a large scale survey on access to basic infrastructures (that is required for education) had never been done in Nepal, thus also reflecting the gap in any concrete plans to make learning (including online) feasible and accessible for all.

4.2.2 Balancing the increasing cost of technology with the imbalanced economy of the family

Closely tied with the concept of 'physical accessibility' is another very important concept of 'economic accessibility' which as defined in the CESCR General Comment No 13 of the Right to Education (Art 13) states:

[77] Interview with Parent respondent 1, Domestic help (Zoom, 20 June 2022).

> education has to be affordable to all. This dimension of accessibility is subject to the differential wording of article 13 (2) in relation to primary, secondary and higher education: whereas primary education shall be available 'free to all', States parties are required to progressively introduce free secondary and higher education.[78]

Although the primary idea behind this is to encourage state parties to progressively make education free across all levels of education, it cannot be discounted that the existing and emerging modes of education also needs to be affordable for everyone. Thus, economic inaccessibility and unaffordability was identified as one of the main reasons why children from low-income families could not have access to the digital means. As discussed further, the findings very much reinforce the relationship between economic disparity and digital disparity.

All of the parent respondents stated using either their neighbour's or landlord's internet service (Wi-Fi) or purchased daily/weekly mobile data packages for their children's online classes. While parent respondents 3 and 4 reported paying Nepalese Rupees 500 (approximately USD 3.95) per device per month for using the internet from their neighbour, parent respondents 1 and 2 used their landlords' Wi-Fi for free of charge. This additionally showed that the challenge of inaccessibility experienced by children and parents from low-income households was intricately connected with the economic bearings that came attached with trying to mitigate the digital divide at home. Thus, the intertwined relationship between economic and digital disparity within the purview of the digital divide cannot be overlooked.

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[78] UN Committee on Economic, Social and Cultural Rights (CESCR), 'General Comment No 13: The Right to Education (Article 13 of the Covenant)' (8 December 1999) UN Doc E/C.12/1999/10 <https://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=4slQ6QSmlBEDzFEovLCuW%2BKyH%2BnXprasyMzd2e8mx4cYlD1VMUKXaG3Jw9bomilLKS84HB8c9nIHQ9mUemvt0Fbz%2F0SS7kENyDv5%2FbYPWAxMw47K5jTga59puHtt3NZr> accessed 6 December 2021

> Most of the students of our school come from extreme underprivileged backgrounds. They do not even have a proper home to stay here and live in small makeshift houses. Parents only sent their kids to school after finding out that we provided free lunch. So, how can we assume that they will have the money for internet or to buy a smart phone?[79]

As per the internet price plan of WorldLink, an internet service provider (ISP) in Nepal, the monthly plan for Wi-Fi costs Nepalese Rupees 1,200 (approximately USD 9.48), Nepalese Rupees 4,050 (approximately USD 31.98) for three months, and Nepalese Rupees 14,400 (approximately USD 113.71) for a year. While the primary challenge for parents may have been to provide access to internet connection, which is already an expensive investment, another unavoidable challenge was that of buying a smart phone to ensure that their child could fully attend online classes. As stated, the internet (and/or mobile data connection) and electronic devices are the basic requisites for online learning, yet they are also services that are expensive and not easily affordable for all in Nepal. Parent respondents 1 and 4 had to buy a new smart phone for their child, which cost them Nepalese Rupees 12,000 (approximately USD 94.87). This was an additional expense for the parents (yet a necessary one), especially since the parents did not work and were struggling to sustain through the economic and health crisis during the COVID-19 lockdown. With no support from the national and local government, parents had to manage by themselves to provide for their child because they had already missed out a lot and had 'started to forget everything that they had learnt in the previous year'. Parent respondent 4 stated that her daughter's school principal gave her one tablet device for temporary use but had to provide a security deposit of Nepalese Rupees 30,000 (approximately USD 236.89). Hence, the predicament for parents to ensure their children's education whilst balancing through the pre-existing economic hardship was a determining factor in children continuing with online education during the pandemic.

[79] Interview with Field worker respondent 3, Collaborative Schools Nepal (Zoom, 12 May 2022).

> Before the lockdown I used to work in four houses and in total earned about 14,000 rupees a year. But during the lockdown I just worked in one household and earned 5000 rupees. At such a time when I had to struggle to provide food to my child and myself, I had to find ways to buy expensive phone so that my daughter could continue with her online class.[80]

One of the field worker respondents shared that the majority of the students they were supporting from their organisation came from low-income families with just one parent working as a daily wage labourer. With just one smart phone at home, parents also had to take it with them to work, which meant that even in case where it was available, children did not have access to it during the time of their classes, because of the overlap in the working hours of parents. Parent respondents 2 and 3 had just one smart phone which had to be shared for their own personal use, especially while going to work, and for their children's online classes. Parent respondent 2 further shared that his two sons had to share the same phone at different class timings throughout the day. At times this prevented them from either attending the class on time or made them miss out completely as by the time the class ended for one of his sons the phone battery would have died and sometimes there would be no electricity to charge the phone.

4.2.3 Unheard and unheeded challenges of teachers

> Just as students from public schools faced challenges with accessing online learning, it was the same for teachers. Teachers from public schools themselves do not own the resources nor have the exposure to online learning. So, the digital divide between teachers from public and private schools were also very apparent.[81]

Responses shared by all of the teacher and field worker respondents indicated that the impact of the digital divide was also evident in the context of public-school teachers as compared to teachers from private schools. When asked about the challenges

[80] Interview with Parent respondent 1, Domestic help (Zoom, 20 June 2022).
[81] Interview with Field worker respondent 4, Canopy Nepal (Zoom, 18 May 2022).

with conducting online classes for teachers, all of the teacher respondents mentioned that they themselves did not own a workable smart phone and/or had internet connection at home, at least during the first year of the lockdown. Teacher respondent 1 shared that in the school where she worked many teachers did not own a smart phone that was compatible with Zoom, and had to buy new devices from their own personal cost, which was not reimbursed later by their schools. Likewise, teacher respondent 2 responded that the situation was very similar to that of their students with the majority of the public-school teachers also having migrated from rural areas in the pursuit of better employment opportunities and who lived in dire economic situations in the capital.

> Most of our teachers who did not have a smartphone bought a new one with their own money and were not reimbursed. These teachers are also struggling financially and have migrated to Kathmandu from their villages. While the challenges for students are given utmost priority, the same should be done for teachers' as well.[82]

The compulsion to have all the resources ready before attending online class thus proved to be a huge barrier for children, parents and teachers, both technologically and economically. Field worker respondent 1 emphasised that public schools were not ready for the transition to online classes, which was imposed without any prior assessment by the government on the groups and areas' accessibility to and availability of these infrastructures, but most importantly checking on the preparedness of public schools, where majority of the country's school going population is admitted to.

4.2.4 Failure of online learning due to geographical and infrastructural challenges

An added problem was caused due to the frequent electricity outages and unstable/weak internet connection resulting in disturbances in both children's and teacher's full attendance and participation in online classes. The majority of the field workers and teachers stressed the disruption during class due to sudden

[82] Interview with Teacher respondent 1, public school in Kathmandu (Zoom and Viber, 20 May 2022).

power cuts and unstable internet connection especially of those students who had migrated back with their families to their village during the pandemic. Therefore, the analysis of the concept of technological divide in the research also included the examination of the inherent challenges posed by the differences in the geographical terrain of the country that hindered connectivity to basic infrastructures such as electricity, mobile and/or internet network tower, further amplifying the impacts of the digital divide.

> Many of our students who were in high school and whose exams were nearing would tell us that they would have to travel all the way up to a hill or go to a shop where they could at least catch a radio signal. Since their villages were located in the most remote corner, there were no fully-functioning mobile network or electricity tower in place.[83]

As per field worker respondent 6 who worked in the Upper Dolpo region of Nepal (district located in Western Nepal), the topography of the region made it impossible to not only have fixed mobile or internet networks but a stable power supply as well. In such a context, where something as essential as the electricity could not be accessed, conducting classes online as an alternative with or without the COVID crisis could never be a viable option. Whereas this was the challenge for the most remote corner of the country, the same challenge seemed to be equally relevant in Kathmandu and neighbouring cities as well. Parents and teachers complained of power cuts during class timings and frequent lag in internet connection, which prevented both children and teachers to attend the class for the entire hour. This not only disrupted their teaching-learning experience, but also of others who attended the class thus reducing the effectiveness of the already ineffective mode of online learning for children from poor households.

[83] Interview with Field worker respondent 4, Canopy Nepal (Zoom, 18 May 2022).

> Our school hardly runs for 5 months because of the extreme cold weather and difficult geography, making it hard for us to finish even 50% of the curriculum. So, when it is challenging for the students and teachers to run physical classes, how do we run online classes? Government's digital learning initiative does not reflect the needs and concerns of our students, who are living in isolation from the Capital.[84]

4.3 Knowledge divide: the 'Zoom' dilemma for children, parents and teachers

Another key aspect of the digital divide that the research aimed to examine was the prevalence of the knowledge divide, referring closely to the lack or complete absence of prior understanding, knowledge and skills to efficiently navigate and use the internet and digital technologies. The understanding of the digital divide has thus evolved to highlight the perceived divide in terms of the access and/or possession of specific digital literacy skills which is central in determining who benefits the most from using the digital technologies. Hence, for the purpose of the research, the understanding of the digital divide also included the examination of the knowledge divide to understand how the lack of digital understanding and skills could be an additional barrier to access education for children from low-income households who may not be fully aware of the know-hows to use new technologies, in comparison to counterparts from private schools.

This new level of knowledge disparity reflects the unevenness in the ability to assimilate and implement knowledge and skills as a result of the uneven access and ownership of digital technologies. Therefore, the growth and use of new technologies continue to act as a catalyst for knowledge divide, and more broadly the digital divide, further defining the lines between those having both the knowledge and mediums of digital technology and those without.

[84] Interview with Field worker respondent 6, Vision Dolpo (WhatsApp, 20 June 2022).

Additionally, understanding the association between digital literacy and the basic literacy plays a crucial role in analysing the prevalence and impacts of the knowledge divide.[85] The intellectual skills of the user to familiarise to the evolving digital technologies for different purposes may also be determined by the basic literacy that is accessible and acquired at home and/or at school. Thus, having access to digital technologies may not be the only cogent solution to reducing the impacts of the digital divide. The responses from the research participants indicated that not having the required skill sets to use the digital technologies, despite having the resources was an added challenge that impacted the educational experiences for both children and teachers. The responses also indicated an increase in the educational inequalities or differences due to the onset of online learning, as the children and teachers' basic literacy skills had not equipped them with the necessary computer skills, and this was evident in children's academic performance.

4.3.1 Lack of knowledge and skills: a significant barrier to assimilate online learning

According to the responses gathered from the field workers and school teachers, the mode of learning in public schools had always been conventional through the use of textbooks. Even in cases where schools did have a few computers in the computer lab, it was either only used for administrative purposes or stored. Considering that both the students and teachers at public schools had been equally unexposed and were unfamiliar to the use of technology and online resources for educational purposes, this automatically made it challenging when making the switch to online classes via Zoom during the COVID-19 lockdown. However, it was found to be even more difficult for teachers because they neither had any personal experience (apart from using Facebook and YouTube) nor received any prior training from the school and/or the government to equip them with the digital skills to deliver curriculum online. All of the teacher respondents shared the difficulties they faced starting with creating a Google mail account, setting their password, signing in and opening Zoom links, even before the difficulties they experienced with teaching online.

[85] B Sorj, 'The Dimensions of the Digital Divide' in B Sorj (ed), *Confronting Inequality in the Information Society* (Centro Edelstein 2008).

> The school system also includes teachers who have been teaching for a very long time. Most of the teachers at our school are close to their retirement and have never used computer for teaching. It took a very long time for our teachers to learn to teach online, as they did not even know how to open Zoom links.[86]

While all of the four teacher respondents stated having experienced difficulties with figuring out how Zoom worked, this was additionally emphasised by all of the field workers who continued assisting the teachers during the lockdown period. Since the teachers had never taught online or used computer and/or smart phone for the same, the field workers had to teach them everything from the basic level through Zoom, which placed additional challenge for both groups. The field workers reported of taking one to two months' time to teach the teachers step-by-step starting from downloading Zoom, creating a Zoom account, muting and unmuting audio, turning on and off the video, and sharing the screen. In addition to providing technical support to teachers, the field workers also developed online curriculums during COVID-19 for the respective schools and provided trainings to teachers on implementing it via Zoom. However, besides what was taught to them, they found that the teachers did not know or tried on their own to find out about other Zoom functions that allowed them to make the class more interactive and engaging for students.

> Towards the end of 2020, the teachers were somewhat familiar with using Zoom but they were still not aware about other features such as using the in-built feature of whiteboard to teach. They were still using the back cameras of their mobile phones while flipping through the pages or to show how to solve a math problem.[87]

Subject matter expert respondents 1 and 4 shared their concern over the impact of the incapacities of the teachers' digital skills on their content delivery and on children's acquisition of those contents. The lack of the use of digital infrastructures for

[86] Interview with Teacher respondent 2, public school in Kathmandu (Zoom, 22 May 2022).
[87] Interview with Field worker respondent 4, Canopy Nepal (Zoom, 18 May 2022).

teaching in public schools coupled with the lack of timely trainings for public-school teachers and effective monitoring can thus result in a setback for both teachers and students in acquiring new knowledge and skills that are on par with the evolving educational requirements. Subject matter expert respondent 3 stated that for everyone to equally benefit from online learning opportunities, it was imperative to first learn the fundamentals to use these digital technologies and provide training using a bottom-up approach.

While children were able to quickly learn about Zoom through the basic instructions they received from the field workers of the different organisations, all of the parent respondents also shared their children having learnt to use Zoom by asking their friends from school. However, as per the responses from teacher respondents, it was the parents of children who found it difficult to even send a photo of their child's homework through Viber or Facebook Messenger. With teachers struggling themselves, they had an extra task to make sure that parents understood the instructions for submitting homework and checking any other instructions. Most teachers and field worker respondents shared that other than receiving and making direct calls, parents did not know how to download the application or even knew about where to download the application from. Field worker respondent 3 shared that many parents of children from their school did not even know how to purchase and turn the mobile data off when not in use.

4.3.2 Overestimating or underestimating children's learning capacities?

The 2021 report by Human Rights Watch 'Years Don't Wait for Them' highlights the de-prioritisation of young children's education during school closures, often overlooking it as 'unnecessary or unfeasible to provide', and speculating that young children will be able to 'bounce back' and quickly catch up as they move onto higher classes.[88] Similar references were made by all of the teacher respondents when asked about the challenges they encountered

[88] Human Rights Watch, '"Years Don't Wait for Them": Increased Inequalities in Children's Right to Education Due to the Covid-19 Pandemic' (*Human Rights Watch*, 17 May 2021) <www.hrw.org/report/2021/05/17/years-dont-wait-them/increased-inequalities-childrens-right-education-due-covid#:~:text=The%20125%2Dpage%20report%2C%20%E2%80%9C,on%20learning%20during%20the%20pandemic.> accessed 29 January 2022

while taking online classes with primary level students. They shared that students below grade five did not have any online class during the entire lockdown period as the school authorities made speculations of the incapacity and difficulties for both children and their parents to understand the instructions for online classes which was also to be communicated via telephone calls. Based on the assumption that most of the parents were illiterate and the difficulty to garner the attention of primary school children for a sustained period of time online, teacher respondent 2 shared her school having decided that online classes would not be as beneficial and thus was not put in to priority as compared against higher level classes.

Yet, teachers also strongly believed that these children still had enough time to do well in higher levels as compared against students from grades eight or ten who would soon be appearing for state board examinations. Subject matter expert respondent 4, who specialises in remedial education, however shared serious concern over the impact of this on the quality of the education as children move from primary to secondary and onto higher levels. She further added that the majority of the primary level students she supported through her organisation lacked the foundational knowledge and skills (in terms of literacy, numeracy and basic comprehension) required to advance to higher classes, and that intervention in higher levels might be too late to yield a positive learning outcome for students.

> A huge problem in the education system is that we do not focus on the learning-level of the students but on the grade-level. Another problem is that teachers do not provide adequate remedial assistance to students who are already performing below average in the primary levels. We cannot simply overestimate children's ability to catch up when they lack the very foundational knowledge.[89]

[89] Interview with Subject matter expert 4, Changing Stories Nepal (Zoom, 25 May 2022).

4.4 Practice divide: motivation versus hesitation

An emerging level in the study of the digital divide is the gap identified in terms of the usability of the internet and digital technologies, which could more or less be based on factors such as gender, age, educational levels and prior digital experience.[90] This new facet of usage gap implies that even if the differences in the physical access to digital technologies may decline over time, differences in terms of the digital skills and usability may continue to prevail further illuminating the inequalities of digital divide. The analysis of the concept also goes on to associating the differential use of the internet with the already existent knowledge gap and linking the perceived real-life benefits of using the internet with the inequalities established by the digital divide. Based on this, the benefits of using the internet are achieved more by groups from a higher socio-economic status as they possess both the physical access to use and the relevant digital skills to translate the online resources into tangible and favourable outcomes.[91]

The study of this final barrier of the digital divide was therefore necessary to first identify the technology readiness (such as the confidence, motivation, attitude and approach) of children, parents and teachers towards the use of the internet and digital technologies for educational purposes. Second, to examine whether the lack of prior familiarity and practice added to the pre-existing impacts caused by the technological and knowledge divide to access education and finally to examine whether the usability of the internet and digital technologies was a determining factor in students' meaningful learning experiences and outcomes.

4.4.1 Language of the internet and ensuing impact of the language divide

One of the fundamental problems for children, parents and teachers with online learning was the difference between the language of the internet (which is predominantly English) and the language they used to communicate in, which was different

[90] A Van Deursen and J Van Dijk, 'The digital divide shifts to differences in usage' (2014) 16(3) New Media & Society 507 <www.researchgate.net/publication/259703073_The_digital_divide_shifts_to_differences_in_usage> accessed 10 January 2022

[91] A Van Deursen and E Helsper, 'The Third-Level Digital Divide: Who Benefits Most From Being Online?' (2015) 10 Communication and Information Technologies Annual 29 <www.emerald.com/insight/content/doi/10.1108/S2050-206020150000010002/full/html> accessed 10 January 2022

depending upon their ethnicity and geographic locations. The global impact of the availability of online information in English language poses serious questions about the democratisation of knowledge as well as accessibility for those belonging to rural and low-income fractions of the society.[92] Field worker respondent 5, who worked at a public school in Dhanusha (district located in the outer Terai region), stated that his students struggled to read and write in English since they did not use or have any exposure to English language. Additionally, since it was in the Terai region, Maithali was their first language, followed by Hindi and then Nepali. Hence, with students learning all subjects in either Maithali or Nepali and pre-dominantly using Maithali for daily conversations, their English was found to be extremely weak. In such a context, where teaching children in-person using Nepali language was difficult for teachers, the foreign language of the internet did not make it any easier for both the students and educators to navigate the language of the web.

The language discrepancy not only reflects the lack of online information and contents curated specifically for those lacking proficiency in English language or for those coming from non-English speaking areas, but accentuates the skewed benefits of the internet and the impacts of the digital divide. Apart from the challenges with the English language divide, subject matter expert 1 added that the divide was also caused due to the unfamiliarity with Nepali language. The government's initiative with distant learning contents which was televised and broadcasted through radio programmes was predominantly in Nepali language, again raising concerns over the reach and access of it by children who only use their indigenous language for communication. The same issue was also shared by teacher respondent 3, who had majority of students in their school belonging to the Tamang ethnic community and by field worker respondent 6 whose students only spoke in Tibetan language and were not familiar with Nepali language.

[92] B Sorj, 'The Dimensions of the Digital Divide' in B Sorj (ed), *Confronting Inequality in the Information Society* (Centro Edelstein 2008).

4.4.2 Negative influence of digital incompetence to approaching online learning

While teachers also had to bear the brunt of the language divide, they shared having experienced additional difficulties in learning a completely new method of teaching after 30 to 40 years of teaching, which made them apprehensive to pursue online learning at the beginning. Subject matter expert 2, vice-principal of a school in Kathmandu, shared that teachers at his school did not show any interest in participating in computer trainings and that they reported facing difficulties in learning and implementing it at the same time with their students. Teacher respondent 3 also shared the demotivation and reluctancy of her colleagues to learn and conduct online classes because of their perceived lack of knowledge and unfamiliarity with using the technology. So, even if they had internet connection and a smart phone to teach, they did not feel confident in their content delivery and their collective responses reflected the unanimous agreement on having proceeded with online classes because they were 'left with no choice' and did not get to voice their opinion on it.

> Over the 30 years of my teaching experience, I have never used computer for teaching and was overwhelmed at the beginning. But as teachers, we felt the burden to continue despite the challenges we faced because we do not have the option to leave our job just because we find online teaching difficult.[93]

In the case for parents, however, their unawareness of the many different functions of the internet was far more less in comparison than that of children and teachers combined. All four parent respondents shared not knowing anything about online communication platforms such as Viber or Facebook Messenger, which was used to receive information about class timings and upload pictures of assignments. Hence, all of the parents shared having not paid much attention to their children's online class activities and let their children figure it out on their own. Parent respondent 3 in particular responded feeling embarrassed to ask the teachers how to log into Zoom and shared feeling pressured

[93] Interview with Teacher respondent 2, public school in Kathmandu (Zoom, 22 May 2022).

because she was not literate herself: 'The teachers would send message on my Viber before class time, send Zoom links and would ask us to send pictures of homework. But I would just let my sons to do what had to be done because I did not know how to'.[94]

4.4.3 Surfacing issue of the gender digital divide hindering children's learning opportunities

Another significant issue that was discussed during the interviews was the issue of the gender digital divide that reflected the negative attitude of parents and community towards young girls using mobile devices and internet for both recreational and learning purposes. Subject matter expert 3, who works for Plan International Nepal, an INGO focusing on children's rights and equality for girls in Nepal, discussed the gender 'unfriendliness' nature of the internet and digital technology that is mostly catered towards males who have much easier access to owning and using the internet (and digital platforms) for a wider range of activities than females. This inevitably raises concerns over the inequitable access to digital resources which is underpinned by the inequitable access to education and discriminatory social norms against girls and women.[95]

While this was not the case for the rest of the respondents who resided mostly in Kathmandu, the stark difference in the personal ownership and use of mobile phones, and the internet between boys and girls was evident in remote areas. As per field worker respondent 5, female students from the classes that he taught in (grades eight to ten) did not have their personal mobile phone as compared against their male counterparts who did. So, when they first started with creating Facebook groups to share reading materials and class timings, the majority of the female students did not join because they neither had a phone of their own nor a Facebook account. Hence, the lack of exposure and ownership made it challenging for the female students to follow through the instructions online because they were deprived from any kind of

[94] Interview with Parent respondent 2, Factory worker (Viber, 25 June 2022).

[95] UNICEF, 'What we know about the gender digital divide for girls: A literature review' (*UNICEF,* 2018) <www.unicef.org/eap/media/8311/file/What%20we%20know%20about%20the%20gender%20digital%20divide%20for%20girls:%20A%20literature%20review.pdf> accessed 10 January 2022

access to online spaces. He further added that in the case of male students, they would not attend class if they did not wish to but for female students they would not attend because they were not allowed to.

> In one of the interviews with a teacher, she talked about one young girl who eventually stopped attending classes during COVID-19 because she was not allowed by her parents to use mobile phones for any purposes. One of the reasons also being that people from the community had this belief that girls would talk to boys on the internet and elope. For this reason, her parents always took the phone with them on the field.[96]

Field worker respondent 2, who in addition to her work in the education sector had also researched digital inequalities and academic achievements in Nepal, stated that the inherent gender-based discrimination and practices in Nepal multiplied the probability and impacts of digital exclusion and inequity further increasing the educational and achievement gap between male and female students, having a more permanent impact on their inclusion and participation in future academic and/or employment prospects.

4.5 Conclusion

As defined by scholars and reflected in the research findings, the impacts of the digital divide were felt the most by those without any access to digital technologies, which included both the physical infrastructures and the knowledge and skills to efficiently use it. Thus, the overall findings for the first research question indicated that children from low-income households, who were already deprived of the access and ownership of digital learning resources (both in terms of physical hardware and knowledge and skills), experienced the disproportionate impacts of the barriers of the digital divide, resulting in significant disruptions in their learning experiences as well as decline in their learning outcomes.

[96] Interview with Field worker respondent 2, Teach for Nepal (Zoom, 10 May 2022).

The barriers of the digital divide (technological, knowledge and practice), whether independently or conjointly, thus seems to be highly prevalent in the education system of Nepal, with the impacts not only affecting the educational experiences of children from low-income families but also that of teachers from public schools, who are more or less exposed to similar experiences as the children. The findings suggested that the issue of the digital divide was widely unknown and unaddressed prior to the COVID-19 situation, which resulted in the difficult transition to online learning, benefitting only those pupils who came from families who could easily afford and avail the digital technologies. Therefore, while reflecting on the impacts of the emerging barriers of the digital divide on children's accessibility to education and on their learning experiences, it was established that inaccessibility to education was heavily determined by the socio-economic conditions of the family, area of residence, access to other supporting infrastructures (such as electricity, mobile networks), literacy and digital literacy skills (of children, parents and teachers), prior exposure and experience of using the technologies for learning purposes, and the motivation to use these new technologies.

Thus, the findings discussed in this chapter not only elaborated the experiences of children, parents and teachers with the digital divide and the impacts of each of the barriers on accessing online learning opportunities but it also created a strong footing to question the notion of equitable learning opportunities for children from disadvantaged backgrounds, which is marred by inherent structural inequalities.

5. Access to education for children: blurred lines between right and privilege

5.1 Introduction

A news report by *The Kathmandu Post*[97] published early into the pandemic in 2020 shed light on the lack of internet access and computers in a majority of the rural and/or poor households and public schools, leaving room for scepticism over the reachability of online learning in Nepal, and of the viability of it not only during the time of the pandemic but in the foreseeable future too.[98] Extracts from another news article by the *Post* also gave insights into the challenges of young children, especially those already living in poverty, to be present in online classes due to the inaccessibility to both the internet as well as the necessary digital devices at home. The same article also highlighted the financial distress of parents (working mostly as daily wage workers) upon losing their job and not being able to neither pay house rent nor being financially capable to meet with the increasing cost of essentials. In such a context, children's education and fulfilling the demands of online classes were not necessarily prioritised.[99] Hence, the financial challenges that was doubly experienced during the pandemic

[97] A leading national English newspaper in Nepal.

[98] B Ghimire, 'Digital divide too wide for online classes to succeed in Nepal' (*The Kathmandu Post*, 28 May 2020) <https://kathmandupost.com/national/2020/05/28/government-has-proposed-conducting-online-classes-but-a-majority-of-schools-and-students-don-t-have-computers-and-internet> accessed 15 June 2021

[99] A Ojha, 'Children from low-income working class families can't join online classes' (*The Kathmandu Post*, 9 June 2020) <https://kathmandupost.com/national/2020/06/09/children-from-low-income-working-class-families-can-t-join-online-classes> accessed 15 June 2021

by the families already struggling and living at the margins only widened the economic gap between the haves and the have nots, with the consequences heavily echoing into the lives of children and in their pursuit to access education as well.

On a macro level, the unequal distribution, unavailability and inaccessibility to any kind of learning resources (which by law should be equally distributed and made available) by a certain population of vulnerable children more widely shows the inattentiveness of the concerned duty-bearers towards their needs and concerns, resulting in significant setbacks in their learning. The swift motion of the government to online learning proved to be yielding benefits to only those who came from economically stable families, had ownership of the required digital devices, had access to stable internet connection at home and possessed the knowledge and skills to navigate without any disruption. While on the contrary, those who could not be reached by either traditional media or digital learning or both, were left with no choice but to miss out on a prolonged period of learning.

Closely considering the differences in the Nepalese demography (particularly in terms of digital, economic and educational disparities) and the close interconnectedness between these and on factors of accessibility to education, the research thus aimed to critically analyse the role of the concerned actors in failing to effectively and non-discriminatorily implement the laws and policies to achieve equality in something as rudimentary as education. This chapter is thus dedicated to address the second research question which revolves around inquiring into the impact of the digital divide in perpetuating and/or reinforcing forms of privilege and exclusion within the perceived 'equal and equitable' education system. The analysis of the findings is done in close references to relevant laws and policies related to education to further highlight the gaps in implementation and the unintended consequences on the infringement of children's right to education.

5.2 Rights-based education in Nepal: a distant dream for children without access

> People do not know about the right to education and what it entails. The language of the laws and policies poses a significant barrier for a layman to understand, and an associated problem with this is that it prevents people from becoming aware of the importance of education.[100]

The right to education is a constitutional right of every Nepalese citizen, whether a child or an adult. While article 31 (part 3 on the fundamental rights and duties) of the 2015 Constitution of Nepal postulates that 'every citizen shall have the right of access to basic education', article 39(2) additionally makes a declaration that 'every child has the right to education'. The constitution also places additional responsibility on the state to provide and fulfil the right to 'compulsory and free education up to the basic level and free education up to the secondary level'.[101]

In the specific context of children, the preamble of the 2018 Act Relating to Children states that 'it is expedient to make amendment and consolidation of the laws relating to children in order to maintain the best interests of the children, by respecting, protecting, promoting and fulfilling the rights of the child'. This not only places additional responsibility but also makes it imperative that the state take all the necessary measures to fulfil its obligations towards children, including the fulfilment of their right to education. Article 15 (chapter 2 on the rights of the child), in addition to the provision of free and compulsory education up to the basic level and free education up to the secondary level, elucidates that every child shall receive those in a child friendly environment, and in an age-appropriate manner that is in accordance with their level of development. Further, it also confers the 'right of every child to acquire education through proper study materials and teaching method according to his or her special physical and mental condition, pursuant to the prevailing law'.[102]

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[100] Interview with Field worker respondent 1, Canopy Nepal (Zoom, 2 May 2022).

[101] The Constitution of Nepal (20 September 2015) <https://lawcommission.gov.np/en/wp-content/uploads/2021/01/Constitution-of-Nepal.pdf> accessed 3 March 2022

[102] The Act Relating to Children, 2075 (2018) (18 September 2018) <www.lawcommission.gov.np/en/wp-content/uploads/2019/07/The-Act-Relating-to-Children-2075-2018.pdf> accessed 3 March 2022

Apart from the national policies, there is also the School Sector Development Plan (SSDP) 2016 – 2023 developed by the Ministry of Education (MoE) under the Government of Nepal which additionally aims to make the education system more inclusive and equitable in order to mitigate 'the disparities suffered by children from disadvantaged groups, children with disabilities and children from remote areas',[103] who have the lowest levels of access, participation and learning outcomes. However, despite the elaborated provisions and plans for children's education, the stark discrepancy between the written law and the effective implementation of it seems to be placing an additional challenge for children, especially from poor and disadvantaged backgrounds, to enjoy their fundamental right to equal educational access and opportunities. Thus, the pandemic not only mirrored the incapacities of the concerned regulatory bodies to provide adequate support to students from underprivileged backgrounds but made the incongruencies between children's rights in theory and practice more glaring, thereby indicating that the stated legal provisions for 'rights-based education' is inadequate[104] to address and respond to the specific needs and concerns of marginalised children.

While all of the four parent respondents were unaware of the laws and policies dedicated to children's rights to education, they shared similar concerns over their children having missed out on a year of schooling, which was not adequately handled by neither the school nor the local or the national government. In particular parent respondent 1 shared her grief of not receiving any kind of support from the school or the local government regarding her child's online classes. She shared that the teachers only made phone calls and asked her why her child was not present in online classes. With parents themselves uneducated and struggling through the crisis, all of them shared similar responses of not knowing what to do and feeling helpless. Whilst such a lack of direct support from the government for low-income families contradicts with what is postulated in article 4(1) (chapter 2 on access of citizens to education and liability of the state) of the 2018 Act

[103] Ministry of Education, 'School Sector Development Plan 2016 - 2023' (*Government of Nepal*, October 2016) <www.doe.gov.np/assets/uploads/files/3bee63bb9c50761bb-8c97e2cc75b85b2.pdf> accessed 3 March 2022

[104] D Jnawali, 'Rights-based education in Nepal: Existing status and challenges' (2014) 8 The Third Pole: Journal of Geography Education 1.

Relating to Compulsory and Free Education,[105] it also raises critical questions against the accountability of the local level government (as per article 22(1) and (2) chapter 2 of the 2018 Act Relating to Compulsory and Free Education)[106] in ensuring that public schools are functioning (without disruption) in a capacity that caters to the holistic needs of children from low-income families but more broadly are equipped with all kinds of educational resources that supports the educational experience of the children.[107]

Subject matter expert respondent 5, previously affiliated with the MoE and currently a Senior Education Consultant at UNESCO Nepal, emphasised the weak nationwide implementation of the policies due to the unheeded problems of resource allocation, delivery mechanism and zero to none monitoring and evaluation plans. He further added that despite the constitutional mandate, the lack of political awareness, willingness and accountability has made it increasingly tough to ensure that all children have equal access to the same learning opportunities and resources. Similarly, subject matter expert 3 emphasised the proactive role that duty-bearers need to start taking in amending the laws and policies to include the emerging challenges such as the digital divide in education and also to specifically address the needs of the marginalised.

> Kathmandu is not Nepal. Nepal is also the villages in the far west and east, it is also the areas in the most remote mountainous, hilly and terai regions. But the problems of rural areas and of children living in these areas, are nowhere near government's priority.[108]

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[105] Art 4(1) of the 2018 Act Relating to Compulsory and Free Education states 'the Government of Nepal, Provincial Government and Local Level shall have the liability to provide every citizen with education up to the basic level, and the responsibility to make necessary arrangements in this respect'.

[106] Art 22(1) of the 2018 Act Relating to Compulsory and Free Education states 'the Local Level may provide educational materials, including copies, pens, to the children who are economically destitute and admitted to the public school to acquire education up to the basic level'. Similarly, art 22(2) states 'the Local Level shall make provisions for necessary lab, materials for extra-curricular activities, sports materials, sports infrastructures, computers and the access to information technology, as prescribed, for the sake of the public schools providing education up to the basic level'.

[107] The Act Relating to Compulsory and Free Education, 2075 (2018) (18 September 2018) <https://lawcommission.gov.np/en/?cat=629#:~:text=Chapter%2D3%20Compulsory%20and%20Free,age%2C%20through%20every%20Local%20Level.> accessed 3 March 2022

[108] Interview with Field worker respondent 1, Canopy Nepal (Zoom, 2 May 2022).

In an article titled 'Recognizing and Overcoming Inequity in Education', Sylvia Schmelkes presents four important explanations for educational inequity,[109] which also resonated with the research findings. First, the government's efforts of allocating and providing the same resources to everyone is not enough as there are those in need who require more. Second, teachers play an important role in the learning experiences of children and so any deficit in the support and training for them would naturally impact the learning outcomes of children. Third, the differences in the language of instruction at school and the native language of children affects their learning retention. And finally, stereotypical behaviour and stigma against disadvantaged children affects their willingness to learn and stay at school.

Recognising and addressing educational inequity was thus important in reinforcing four key points particular to this research study. First, the inherent gaps in the education system of Nepal are largely determined by existing structural inequalities. Second, gaps in education and structural inequalities have been bolstered by the emerging issue of the digital divide, which more or less is also determined by the prevailing socio-economic disparities. Third, the government plays an inactive role in mitigating the learning gaps due to the subsequent lack in addressing fundamental inequities through the inadequate implementation and amendments of relevant laws and policies. And finally, the compounded impacts of the aforementioned points on the impediment on children's rights to education is therefore inevitable.

5.2.1 (De)Prioritising public schools and risking quality of education for children

The negative mindset of people towards public schools is a serious issue in our country. While private schools advertise about their infrastructures, facilities for students and teachers, and have huge investments, public schools are left in the dark with the government not doing anything to improve the quality of education and facilities.[110]

[109] S Schmelkes, 'Recognizing and overcoming inequity in education' (*UN Chronicle*, 22 January 2020) <www.un.org/en/un-chronicle/recognizing-and-overcoming-inequity-education> accessed 21 February 2022

[110] Interview with Subject matter expert 1, Kids of Kathmandu (Zoom, 25 April 2022).

All of the field worker respondents who have had direct experiences of working with children from low-income households in remote areas expressed their frustration over the lack of infrastructural and technical support to public schools from the government, lack of timely and updated trainings to enhance capacities of public school teachers, centralised efforts of the government and, most importantly, over the exclusion and inequitable educational opportunities for children from disadvantaged families. During the interview with the teachers from various public schools around Kathmandu, they expressed their grievances towards the government for not doing anything to improve the bleak conditions of public schools and help their students get quality education in the same manner as students from private schools do.

In particular, teacher respondent 3 expressed her complaints over the role of the government in deteriorating rather than improving the conditions of public schools. She stated that her school did not even have a proper science and computer lab for students to practically learn about the subject matter with classrooms also additionally lacking proper lighting, tables and benches for students to comfortably learn in. Apart from this, she added that the government annually provided Nepalese Rupees 20,000 (approximately USD 157.15) for school management which was inadequate to run the school for an entire year, along with the low allowances for teachers and support staffs of the school, which was also not enough to motivate them to do well in their stated job. The recent budget brief for Fiscal Year 2021/22 also indicated that the proposed education budget, which is 11% of the total budget fell short of the government's target of 15%,[111] with the brief not specifying the amount allocated for public schools. However, these suggests that the national authorities (Government of Nepal, provincial and local level governments) have failed to allocate adequate amount of budget for education, across the country but more so for public schools who are already bearing the ramifications of subpar financial support. This strongly reflects the lack of political willingness and accountability of the national

[111] UNICEF Nepal, 'Education Budget: FY2021/22' (*UNICEF Nepal*, September 2021) <www.unicef.org/nepal/media/14421/file/Budget%20Brief%20-%202021-22%20-%20Education.pdf> accessed 31 January 2022

authorities in fulfilling the state obligations relating to the appropriation of budget and grant for education as per article 30(1) Chapter 5 (Appropriation of Budget and Grant for Education) of the Act Relating to Compulsory and Free Education, 2075 (2018).[112]

> Just getting free education is not their right. The environment where they learn and the access to all the important facilities that contribute to creating that environment is equally important. But, for our students sadly, it is completely absent. So, the discrimination for our students starts from the very basic level, and it is them who have to face the consequences of an unjust society.[113]

Additionally, field worker respondent 6 shared the complete neglect from the government towards schools located in the most remote and geographically challenging areas such as Dolpo. He mentioned of his school not receiving any kind of support from the government, including not receiving educational textbooks and materials on time for students due to the isolated location of the school and neglect from the government. With no support from the government, he stated that his school has to rely on external projects for funding and the few staff to travel to-and-fro Kathmandu to get the materials which takes them about one to two months.

> Since our school is located in a geographically isolated and difficult part of the country, the one or two teachers who are appointed by the government also do not come. Who would want to be appointed at a remote location with no electricity and no mobile connection? So, instead of complaining we manage within ourselves to take classes for our students.[114]

[112] Art 30(1) of the 2018 Act Relating to Compulsory and Free Education states that 'The Government of Nepal shall appropriate grant amount for the purpose of basic and secondary education every year, out of its budget, to every Local Level on the basis of the number of schools and students and the results achieved by the students'.

[113] Interview with Teacher respondent 3, public school in Kathmandu (Viber, 28 May 2022).

[114] Interview with Field worker respondent 6, Vision Dolpo (WhatsApp, 20 June 2022).

The collective responses indicated the lack of priorities for public schools (whether located in rural or urban area), which seemed to be the root cause of the ever-widening educational gap between the rich and the poor, and between those in public and private schools. Hence, even if the law on paper guarantees equality and equity in education, it appears to be extremely discriminatory in practice, showing the government's failure to fulfil all of its stated positive obligations as per the constitution, the 2018 Act Relating to Children as well as the UDHR, CRC and ICESCR to which Nepal is a state party to. Not only has the government failed to fulfil its obligations and hold itself accountable, but has directly or indirectly contributed to creating educational inequity and inequalities, thereby violating children's fundamental right to education.

5.2.2 The private-public school divide

Looking into the exponential growth of private schools in Nepal, Joshi highlights key findings from her research analysis, some of which are central to the discussion around the 'private-public school divide' being explored in this section. First, unlike private schools, public schools significantly lagged in instructional practices (such as remedial education), which unfortunately did not fall under the attention of low-income parents. Second, the stigma surrounding public schools (for example the association with social prestige) was a barrier in gaining recognition amongst parents. Third, political interference particularly in teaching profession in public schools was found to be impeding the reformative efforts of public schools as well as in altering parental perceptions.[115] Thus, a broader implication of this divide attributes to the unending social inequalities determined by school choice which is also strongly determined by the ability of parents to pay.

On the same vein, the research participants also raised this issue when discussing about the exclusion and inaccessibility to education, stressing the divide between private and public schools as one of the principal causes in segregating children based on their socio-economic status. As a result, it was found to be deeply impacting the learning experiences, participation and outcomes

[115] P Joshi, 'The consequences - and causes - of private school growth: A look at Nepal' (*UNESCO*, 4 February 2020) <https://world-education-blog.org/2020/02/04/the-consequences-and-causes-of-private-school-growth-a-look-at-nepal/> accessed 18 December 2021

of children in public schools and reduced any opportunities to access the same kind of quality education and learning resources. Field worker respondent 3 added that the increasing failure of public schools in Nepal based on factors such as the significant differences in the overall academic results, high absenteeism and dropout rates of children was largely reflecting the failure of students attending public schools.

> Private schools may be very nice but they do bring a huge difference in the society. We tend to make comparisons based on the results and knowing the inefficiencies of public schools, parents will continue to admit their kids in private schools. And the government will also not to do anything as long as private schools continue producing good outcomes. But this is not the solution. All children regardless of the kind of school they go to should receive the same quality of education and be able to access it without any difficulties. For as long as the competition between private and public schools remain, under privileged children will not be able to get away from the vicious cycle of inaccessibility and poverty.[116]

A baseline survey was conducted with over 28,000 students from both public and private schools in Tulsipur (a sub-metropolitan city in Lumbini province, Western Nepal) to examine the learning achievement levels of students (from grade one to eight). Findings from the report *Tulsipur: Annual Status of Education Report 2019* found a significant gap in the learning achievements of public and private school students, with only 30% of the students from public schools passing the School Leaving Certificate examinations in grade 10 as compared to the 90% pass rates of private schools. Additionally, high student absenteeism rate was found in public schools (27.5%) than in private schools (9%). The report also found that only 6% of public-school students had access to the internet as compared to the 17% from private schools.[117]

[116] Interview with Field worker respondent 3, Collaborative Schools Nepal (Zoom, 12 May 2022).

[117] Teach For Nepal, 'Tulsipur AESR 2019' (*Teach For Nepal*, 2019).

While the progress of public schools and their students remain minimal or even stagnant, private schools continue to garner financial investments from private entities that cater to removing any challenges to support school management, to provide children with easy access to new learning materials, and to provide trainings to teachers to improve their skill sets. However, this is also possible (and expected) due to the high tuition fees charged to students by private schools, which in the case for public schools is completely free of cost. The latter, according to both teacher and field worker respondents, decreased the government's accountability to prioritise public schools, made parents inattentive towards their child's education and demotivated teachers to efficiently perform their duties. Therefore, such a distinction implies that despite the law clearly stating that every child receives the same kind of education, in practice the delivery of the provisions has failed to reach children from low-income households who are already living with the dramatic impacts of economic inequalities. As compared to their 'privileged' counterparts, these children continue to be backwards with their opportunity to access education continuing to be pushed farther away from them, blurring the lines between the right and privilege to education.

While problems in providing equitable access to education have always prevailed, the emerging issue of the digital divide resulted in the scope of the problem to further expand. The issue of the digital divide came into the forefront when the government made it compulsory for all educational institutions to commence online learning during the COVID-19 lockdown. But, in doing so, the government overlooked the statistics of nationwide internet penetration, accessibility to digital technologies, availability of other supporting infrastructures such as electricity, mobile networks and affordability of all these infrastructures across the country. According to the data presented in the COVID-19 Education Cluster Contingency Plan (at the time of the publication of the report), only 13% of schools and 55% of the households across Nepal had access to internet facilities. In addition, only 51% of the total Nepalese students could access communication media such as radio and television, not including the internet, and that the remaining 45% of students were estimated to be unlikely to access

any online or traditional media on a regular basis.[118] This unequivocally resulted to be problematic for children who did not have any kind of access to alternative learning modalities and resources. As also stated in the Child and Family Tracker survey report by UNICEF Nepal, out of the 6,000 families who were part of the survey, only 27% of children had access to online classes with significant difference between those enrolled in private (43.5%) and public schools (18%).[119]

The government made a reactive decision failing to identify the close relationship between economic, digital and educational disparity. As contested by the subject matter experts, the swift and reactive decision to transition to online modes of learning during the pandemic not only reflected an unequal and inequitable education system but also reinforced the disproportionate impacts of the digital divide for children from low-income households. The field worker respondents additionally critiqued the distant learning initiatives that the government broadcasted via television and radio programmes which were still out of reach for children living in poverty and for whom these commodities were still unaffordable.

The lack of attention and underinvestment in public schools from the government thus shows the lack of awareness and interests of the government to identify the learning needs of the marginalised, to plan targeted policies to reduce the impacts of educational inequity for children from disadvantaged backgrounds and the lack of commitment to curate enabling pathways for these children to meaningfully participate in equal learning opportunities. Education is every child's right, and it falls on the government to ensure that the written principle yield tangible outcomes. However, in the context of Nepal, the insignificant role of the government has deepened the lines between the haves and the have nots, leaving a huge population of children behind.

[118] Nepal Education Cluster, 'COVID-19 Education Cluster Contingency Plan' (*Ministry of Education*, March 2020) <https://planipolis.iiep.unesco.org/sites/default/files/ressources/nepal_covid-19-education-cluster-contingency-plan.pdf?_gl=1*b60tor*_ga*Mzg1Mjk5OTMwLjE3MDk4MTgyMDY.*_ga_LJPXKL54R2*MTcwOTgxODM1OC4xLjEuMTcwOTgxODM3Ni4wLjAuMA> accessed 20 January 2022

[119] UNICEF Nepal, 'Continuing children's education in Nepal during the COVID-19 pandemic' (*UNICEF Nepal*, 2021) <www.unicef.org/nepal/media/14216/file/Child_and_Family_Tracker_-_Education.pdf> accessed 6 April 2022

> We heard that some private schools even provided laptops for teachers but in our case, we had to buy with our own money. There is no kind of support whether financial or others neither to the school nor the students or us from the government.[120]

Reiterating back to the discussion on the impacts of the barriers of the digital divide, the responses seem to have clearly indicated that children's inaccessibility to the internet and digital technologies for learning purposes have either created or reinforced social exclusions within the education system. The exclusion not only deprived children from low-income households to meaningfully participate and get access to education during the two-year COVID-19 lockdown, but it raised questions on the long-term impact of this new form of digital discrimination. As majority of the research participants mentioned about the close relationship between economic and digital disparity and of the combined impact on accessing education, the mutual and reciprocal influence of these inequalities, seem to be of significance in the study of the digital divide.[121] In tandem with the existing inequalities, the division between public and private schools also made it apparent that online learning was an alternative accessible and beneficial only to those who can access and afford, whether students or teachers. Subject matter expert respondent 4 added that with children being deprived of the access to basic resources, not being equipped with the knowledge and skills to take online classes, it would be challenging to prepare these 'left out' children to be part of a digitally-driven workforce in the future and to reduce the achievement gap.

'When these children fail to receive good quality education, they cannot breakaway from the vicious cycle of poverty.'[122]

[120] Interview with Teacher respondent 4, public school in Kathmandu (Viber, 29 May 2022).

[121] M Ragnedda, *The Third Digital Divide: A Weberian Approach to Digital Inequalities* (1st edn, Routledge 2017).

[122] Interview with Subject matter expert 4, Changing Stories Nepal (Zoom, 25 May 2022).

5.3 Conclusion

Structural and systemic inequalities and the embedded biasness echoes throughout the Nepalese society. Discrimination based on caste, gender, class and ethnicity have been passed on through generations and manifested in every aspect of society, including education. This stark disparity and discrimination, albeit something that was already prevalent, gained significant prominence upon the COVID-19 lockdown because it raised doubts on the effectiveness of the laws and policies, and on the roles of the different levels of the government in maintaining equality in education.

Although, the laws clearly dictate the idea of 'education for all', the research findings stated the complete opposite with education and related resources being easily accessed by only those coming from affluent backgrounds. The findings confirmed that the far-reaching impacts of the digital divide inevitably reinforces forms of privilege and exclusion in an already biased society, and are catalysts to further marginalisation. The responses, thus established that the provisions (if not explicitly), implicitly perpetuates forms of discrimination due to which children from underprivileged backgrounds and especially if attending public schools neither have undisrupted access to education nor get the opportunity to benefit from it. Therefore, the responses reflected the dissatisfaction and frustration towards the government and other actors who are responsible to fulfil the mandate but in reality are only executing plans that are not well strategised or envisioned.

6. Conclusion and recommendations

'Knowledge is power. Information is liberating. Education is the premise of progress, in every society, in every family.'

– Kofi Annan

With the aim of navigating through the impacts of the digital divide on children's accessibility to education, the research had hypothesised that the digital divide and its existing barriers (technological, knowledge and practice divides) severed pathways for accessing education for children from low-income families. Confirming the hypothesis, the overall research findings indeed suggested that not all children in Nepal have the same level of access to the same kind of resources that are conducive for their learning experiences (referring to both online and offline modes of learning). Through the first research question, which aimed to identify the impacts of the barriers of the digital divide on children's accessibility to education, it was clearly determined that as much as the prevalence of the digital divide was widely apparent within the communities and families in Nepal, it was made clear that the digital divide did not just refer to the divide in ownership and access to digital devices and infrastructures. Rather this was just a single aspect to determine the inclusion and exclusion criteria for online learning. Instead, it was established that while having undisrupted access and ownership of the internet and required digital devices was a fundamental criterion in reducing the digital divide, possessing relevant knowledge and skills and having adequate exposure and experience to efficiently use these digital technologies for learning purposes were also equally important in determining access to undisrupted learning experiences through digital means for children.

Part of the hypothesis also stated that the impacts of the digital divide can also be observed in bolstering existing forms of privilege and exclusion within the education system of Nepal. This was also confirmed through the ensuing discussions on the second research question, which investigated the impact of the digital divide in perpetuating and/or reinforcing forms of privilege and exclusion within the perceived 'equal and equitable' education system. The analysis of the primary data from research participants, which was done in close references to the regulatory frameworks of Nepal naturally pivoted to generating important discussions around the inherent systemic inequalities and economic disparity and its influence on increasing the digital divide. The findings derived from the second research question thus established that in the context of the digital divide, fundamental inequalities were further accentuated, with the internet playing a key role in 'not only actively reproducing social inequalities, but also potentially accelerating' it.[123] With reference to the regulatory frameworks, it was further proven that the prevailing plans and policies did very little in addressing the problem of educational inequity and the consequent disparities as evident through the learning conditions and experiences of children from low-income families enrolled in public schools.

Referring closely to their experiences with online learning during the COVID-19 lockdown, children from low-income households and enrolled in public schools were significantly impacted by the digital divide, preventing them from not only accessing the required digital resources but, in a broader sense, denying them the opportunity to participate in class and educational activities without any disruptions. Interestingly, besides children, public school teachers also seemed to be impacted by the digital divide, which inevitably impacted on children's learning experiences as well.

The analysis of the research findings thus determined that as a result of the barriers of the digital divide and related determinants of accessibility, many children's access to quality education, long-term learning experiences and achievements had indeed been severed, with no plans from the government to help

[123] JAGM van Dijk, 'Digital divide research, achievements and shortcomings' (2006) 34(4-5) Poetics 221 <www.sciencedirect.com/science/article/pii/S0304422X06000167> accessed 2 September 2022

children recover from the lost time. As emphasised across the research findings, the lack of access to both quality education and the means to achieve it in the foundational years of learning, reverberates into children's future academic and economic opportunities as well. Hence, the findings from the research were strongly based on the idea that as long as there prevails unequal and inequitable access to learning opportunities (which is determined by inherent systemic inequalities and emerging inequalities such as the digital divide) the divide in education will almost always disbenefit children from low-income families.

At the very core of this research paper thus lies the notion of educational equity and the narratives of the research participants have continuously circled around this idea. And so, to conclude the research paper, it seemed vital to revisit the findings and analyse it within the purview of educational equity. However, the findings of the present research are also limited in scope thereby establishing the need for future research on the topic of the digital divide in education and its consequent challenges in achieving educational equity. To better understand the implications of these findings, future research could address the broader implications of systemic inequality coupled with emerging forms of inequalities (such as the digital divide) on access to education. Future investigation on the topic is of great significance as discourses around the diminishing digital divide, and as a corollary its diminishing impacts, is plausible to surface with increasing internet penetration. However, this also gives opportunities to study the manifestation of the phenomenon in low- and middle-income countries, where despite the increasing internet penetration, the digital divide is still very wide resulting in a new form of 'digital discrimination' that disproportionately affects individuals from low-income families, including children.

Based on these conclusions, the research finally provides recommendations to the relevant duty bearers and different stakeholders, who directly or indirectly possess decision-making power over the promulgation and execution of all of the provisions concerning education and in ensuring that children's rights to education are fulfilled.

Recommendations for the national duty-bearers: federal, provincial, local level governments

The Federal Government of Nepal should be accountable and consistent in allocating adequate amount of the national budget to the public education system of Nepal through close liaison with the provincial and the local governments, to ensure that at least the basic infrastructures and learning resources are in place to create a conducive environment for children in public schools.

The federal government should also appoint focal persons within the responsible ministries to ensure vigilant monitoring of the budget implementation by not just the local government but also by the public schools for improving the infrastructure and quality of education of schools, in developing periodic plans for training teachers on using technology facilitated teaching resources, and in ensuring that the curriculum for children in public schools are not significantly different than private schools and are exposed to similar learning experiences to mitigate the educational disparities.

The provincial and the local governments should be more consistent in carrying out community, district and/or province level surveys on the quality of public schools, which may include but not limited to the total number of students and teachers, access and availability to basic learning infrastructures at the school and if necessary at homes (such as electricity, well-furnished classrooms, computer labs, internet) and the number of advanced trainings to teachers etc to collect reliable information on the conditions of public schools which can be used to identify potential gaps in funding or areas requiring urgent attention.

The government, which also includes the MoE, should also be more attentive in planning and implementing educational plans and policies in an equitable and decentralised manner across the private and public schools, however with more focus on the latter. This includes but is not limited to revisiting the budget plan allocated for public schools to ensure that the financial and infrastructural resources provided by the government is adequate to equip new learning tools and resources for students, pay close attention and amend plans and provisions that may indirectly place marginalised group of children at a setback from the outset, ensure that public schools are consistently supported through training and/or resources to execute alternative modes of learning for students.

Recommendations for stake holders: private actors, NGOs, schools

- NGOs working closely in the area of education, in particular with children from economically marginalised families, should bolster their coordination efforts with the families, public schools and the government and play a key role in bringing attention to the problems from the ground to the concerned duty bearers and other stakeholders.
- NGOs should also extend coordination and engagement with private sector entities to garner financial support for improving the infrastructures of public schools in a targeted area, which in turn can pave pathways of minimal access for children from low-income families to quality education.
- Private sector entities, such as ISPs or mobile service operators, should develop internet packages for students at minimal cost to ensure that all children can afford such services at all times to access online learning resources. This, however, should also be a long-term education plan and should be monitored by the government as well.
- Private schools should also coordinate with public schools located in the same area to create opportunities where teachers from private schools can exchange teaching methods with limited resources, or help public school teachers to use the internet for designing interactive curriculum or in using online platforms for teaching purposes.

Recommendations for future research

- Future research on the topic of the digital divide in the context of education can further investigate the emerging issue of 'digital discrimination' in education, and the intersectionality with existing forms of discrimination and exclusion for children, in particular children with disabilities in Nepal.
- Future research on the topic can do an in-depth analysis of the topic of the digital divide with reference to the core principles of education, ie availability, accessibility, acceptability and adaptability, and also in reference to the international human rights standards and the national legal framework of Nepal to provide a critical legal analysis on the topic.

- Future research can also adopt a comparative research analysis approach to reflect on the issue of the digital divide in education in similar other low-and-middle income countries to gauge in-depth knowledge and understanding of the widespread prevalence of the issue and its cross-cutting impacts on children's access to education.

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Annex A - Interview questions

Interview questions for parents, teachers and field-workers

I. How familiar are you with the practice of online learning and using digital technologies such as laptop, internet (web), applications, for teaching-learning purposes? Have you experienced challenges yourself in navigating the internet? (even more so for teaching-learning purposes)

II. In what ways and how do you think your own level of knowledge, understanding and skills regarding digital technologies influences or has influenced that of your children/students?

III. Have your children/students experienced any kind of challenges in accessing and/or continuing education due to the increasing use of digital resources for learning purposes, at home and/or at school? If yes, please elaborate on the challenges.

IV. How do you think have such challenges with accessibility impacted the learning experiences and outcomes for children? Do you think this can pose long-term challenges for your children's/students learning opportunities and experiences?

V. As parents/teachers, what and how have you helped children in mitigating the impacts of the challenges posed by the digital divide in accessing equal opportunities of education?

VI. Do you think the sudden outbreak of the COVID-19 pandemic, closure of schools and sudden shift to online learning placed additional challenges for your children/student to access education? If so, could you elaborate how.

VII. How are your children/student overcoming such additional challenges that have caused huge disruption and gap in their education? What are some of the complaints that they share with you to solve the problem?

Interview questions for subject matter experts

I. How has the COVID-19 pandemic, (indefinite closure of schools and rapid transition to online learning), worsened the existing challenges of the digital divide for children from low-income households, who are already deprived of the access to digital technologies? What does this mean for the future of their educational experiences and achievements?

II. What is your perspective/opinion on the increasing use of digital technologies for learning purposes within the education system in Nepal? How effective and/or feasible is online learning in a developing country like Nepal, where the digital divide is a growing issue?

III. How does the prevalence of the digital divide within the pedagogy exclude children from low-income households causing further marginalisation? How does such an exclusion impact them?

IV. Has the government and relevant actors (including current national laws and policies) taken adequate measures to address the issue of digital divide in education and ensure equal access to education for all children across the country, especially for disadvantaged children? Could you -elaborate with some examples/incidents that you have come across.

V. What do you think can be done by the government and other key actors, with the limited resources and capacities available, to improve the situation and to ensure that all children get the education that they rightfully deserve?

VI. In the absence of an effective framework specifically on online learning, does Nepal have the proper capacity to be able to shift to online modes of learning for a prolonged period of time?

Annex B - National legislation and liabilities on children's right to education in Nepal

National laws and policies	Summary of relevant articles
2015 Constitution of Nepal	Article 31 (Part 3 on the Fundamental Rights and Duties) postulates that 'every citizen shall have the right of access to basic education', in addition to placing the responsibility on the state to provide and fulfil the right to 'compulsory and free education up to the basic level and free education up to the secondary level'. Further, the constitution recognises the right to 'get free higher education' for individuals coming from economically disadvantaged backgrounds.
The Act Relating to Children, 2075 (2018)	Article 15 (Chapter 2 on the Rights of the Child) in addition to the provision of free and compulsory education up to the basic level and free education up to the secondary level, elucidates that every child shall receive those in a child friendly environment, and in an age-appropriate manner that is in accordance with their level of development. Further, it also confers the 'right of every child to acquire education through proper study materials and teaching method according to his or her special physical and mental condition, pursuant to the prevailing law'.
The Act Relating to Compulsory and Free Education, 2075 (2018)	The enactment of this Act aims to expedite the process of formulating and implementing 'legal provisions relating to compulsory and free education, in order to ensure easy and equal access and continuity of all to education'. With a prime focus on equal access and continuity to education, article 3 (Chapter 2 on Access of Citizens to Education and Liability of the State) explicitly states that it is the right of every citizen 'to become literate, to get early childhood development and education, basic education, secondary education and higher education'. In the pursuit of providing free education to all children, the act has complementary provisions such as the provision of providing textbooks (article 21) and other educational materials (article 22) for free. Article 21 makes it mandatory for the Government of Nepal 'to provide the Local Level with the amount as prescribed for the textbooks to the children of every public school who acquire education of the basic level or secondary level'.

National laws and policies	Summary of state obligations
2015 Constitution of Nepal	Article 49 (Part 4 on the Directive Principles, Policies and Obligations of the State) explicates the responsibility of the state to mobilise all means and resources as and when required 'to implement the principles, policies and obligations'. Specific to the policies relating to the basic needs of all citizens, which also includes education, the state authorities are to regulate and manage private sector investment in education whilst also enhancing national investment in the education sector. Additionally, the responsibility to also make higher education 'easy, qualitative and accessible, and free gradually' is also vested on the state. The latter also reflecting the 'progressive realisation' of the right to education indicating the government's vision to make education at all levels gradually free and accessible for a wider range of people, including the economically and socially marginalised.
The Act Relating to Children, 2075 (2018)	Article 16 (Chapter 3 on Responsibility towards Children) outlines the obligation of the state to 'make necessary arrangement for the basic needs including maintenance, protection, health and education of children in need of special protection, on the basis of the available means and resources'.
The Act Relating to Compulsory and Free Education, 2075 (2018)	Article 4 (Chapter 2 on Access of Citizens to Education and Liability of the State) of the 2018 Act Relating to Compulsory and Free Education adds that it is the liability of the Government of Nepal, provincial government and the local level to provide education as well as take up the responsibility to make the necessary arrangements to fulfil the obligation. While it is the responsibility of the state to provide education up to the secondary level, the local level is responsible to make provisions for compulsory basic level education for children, including for unforeseen events such as natural disaster or unexpected incident. Articles 14 and 15 (Chapter 3 on Compulsory and Free Education) also focuses on the requirement to have necessary provisions for alternative education (non-formal and open education) in case of either the child being unable to acquire basic level education 'due to the unavailability of the school which is convenient to them' or because they cannot regularly study even upon getting admission to a school. Such a provision was made considering the continuity of education to secondary level through the local level. Additionally, the local level is expected to 'provide the school concerned with the amount for the purchase of the textbooks before the commencement of an academic session', and then it is the responsibility of the school to purchase the necessary textbooks and provide it to the students at the time of admission.

	Similarly, article 22 further places responsibility on the local level to provide educational materials such as 'copies, pens to the children who are economically destitute and admitted to the public school to acquire education up to the basic level'. Educational materials also include the provisions of providing 'necessary lab, materials for extra-curricular activities, sports materials, sports infrastructures, computers and the access to information technology, as prescribed, for the sake of the public schools providing education up to the basic level'.
2017 Local Governance Act	The act identifies the local government as a key entity in institutionalising the stated legislations as well as in 'ensuring people's participation, accountability and transparency'. Some of the key plans related to basic and secondary education that needs to be fulfilled by the local level are quality enhancement of schools and reading materials distribution; educational infrastructure, maintenance, operation and management of community schools; management of free education, student motivation and scholarships; coordination and regulation of education programmes up to secondary level; teaching learning, training for teachers and staff, capacity development. Additionally, the local level is also responsible for the 'formulation, implementation, monitoring, evaluation and regulation of policies, laws, standards and plans for early childhood development and education, basic education, parental education, informal education, open and alternative continuous learning, community learning'.

National plans and procedures	Summary of National Plans for Education
The SSDP 2016-2023	Developed by the MoE under the Government of Nepal elaborately shares the aim of improving the quality of education by enhancing the quality of learning environment, the relevance of the curriculum, and by improving the teaching-learning methods (including textbooks and assessments). In addition, it also aims to make the education system more inclusive and equitable in order to mitigate 'the disparities suffered by children from disadvantaged groups, children with disabilities and children from remote areas', who have the lowest levels of access, participation and learning outcomes. The focus of the SSDP is to make the necessary educational reforms in tandem with the new constitutional mandate of a federal government, and is also closely aligned with the United Nations Sustainable Development Goal 4 (SDG 4) of 'Ensuring equitable and inclusive quality education and promoting lifelong learning opportunities for all'. Through this seven-year plan the government aims to achieve the overarching objective of accelerating the development works of all relevant entities to improve the quality of all levels of education, increase efficiency to guarantee equitable access and participation to education, and reach out to 'children and youth from communities and groups with limited access to the education system'. With a focus on equitable access to education for targeted children, the SSDP strategises the development of annual Equity Strategy Implementation Plans (ESIPs) to increase the enrolment of children in basic education by bolstering various support and incentive schemes including conditional cash transfer, poverty cards, and mobile education in remote locations. In order to reduce the number of drop-out rates of children after basic education and increase access to secondary education, the plan also entails providing needs-based scholarship to students coming from low-income families. The document identifies targeted groups as children who are exposed to multiple barriers to access and participate in learning due to their economic status, gender, abilities, location, caste, ethnicity and other vulnerabilities. These children are also identified as having low learning outcomes in comparison to those with high access and participation.
Information & Communication Technology (ICT) in Education Master Plan 2013-2017	The plan acts as a blueprint for the effective planning and implementation of strategies to achieve the overarching objective of 'integrating ICT in teaching and learning process across all education sub-sectors so that access to education will be expanded, quality of education will be enhanced and equity will be promoted'. Recognising the long-term benefits of integrating ICT in education, the plan nevertheless also points that the limited access to ICT by students in urban areas in comparison to students studying in remote areas with very minimal access of the same is contributing to the problem of the digital divide. Therefore, the focus of the plan is founded on ensuring equitable access to quality education

by streamlining ICT initiatives into the broader academic curriculum and by mitigating the gaps of the digital divide. The four key components of the Master Plan are Development of Infrastructure including connectivity, Development of Human Resources, Development of Digital Learning Materials and Enhancement of Education System.
In order to achieve the specific objectives of each component, the MoE and other supporting agencies are responsible for developing specifications for mandatory ICT laboratory and internet connectivity at all schools to enable ICT based teaching-learning for students and teachers. In case of rural areas without stable electricity supply and internet connection, the government is to provide additional support for power supply such as installing solar panels and providing alternative resources. Additionally, the plan also prioritises the skill enhancement of teachers to equip them with the required skills and qualifications to use ICT for teaching students, such as developing curriculum, digital learning materials. The use of ICT in education is also to expand the learning materials from textbooks to online repositories that would help students to enhance the learning experiences of students across the country.

The 2007 National Curriculum Framework for School Education in Nepal

Article 4 (Chapter 2 on Access of Citizens to Education and Liability of the State) of the 2018 Act Relating to Compulsory and Free Education adds that it is the liability of the Government of Nepal, provincial government and the local level to provide education as well as take up the responsibility to make the necessary arrangements to fulfil the obligation. While it is the responsibility of the state to provide education up to the secondary level, the local level is responsible to make provisions for compulsory basic level education for children, including for unforeseen events such as natural disaster or unexpected incident.
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