

Digital Literacy in Pedagogy: Opportunities and Challenges in Community Schools of Kageshwori Manohara Municipality, Kathmandu

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Abstract

The research tries its best to examine and explore the condition of today's digital education in teaching field and spreads its chances and difficulties in community schools of Kageshwori Manohara. The increment of the digital resources in educational sector has revolutionized teaching and learning practices, making digital literacy a compulsion. This study aims to investigate the level of digital literacy among teaching faculties and students, recognize the chances given by digital means in classroom teaching and assess the challenges faced during implementation. A mixed-methods research approach was entertained, including teacher practitioners, schools administrative and students from selected schools. Data were gathered through different open-ended questionnaires and closed ended questionnaire, interviews and classroom observations.

The article reaches in the findings that digital literacy scaffolds teaching learning succession, encourages student engagement, supports access to resources based on education and enhances innovativeness in the art of teaching.. The research finalizes that while digital literacy offers important opportunities for rectifying teaching and learning in schools, addressing basic infrastructural, technical and training based difficulties is needed for its remarkable unification. The outputs under digital literacy have importantly scaffolded teaching and learning chances in schools, but lack of basic infrastructure, limited access in training and not equal approach to technology remain main problems. The community schools have keen interest to launch the digital resources for the quality education with the demand of time. Though community schools have done progress in extracting technological resources, challenges related to infrastructure, training and equitable access continue to disturb effective implementation.

Keywords: *Community schools and teaching-learning, digital literacy, digital pedagogy, ICT integration*

Introduction

Digital literacy has developed an essential competency in the current educational system. It develops the knowledge, skills and attitudes needed to effectively access, evaluate, create and communicate information through digital resources tools and technologies

Digital literacy has emerged a necessary competency in the twenty-first century education system. It encompasses the knowledge, skills, and attitudes needed to effectively access, evaluate, create, and communicate information through digital resources tools and technologies. In contemporary pedagogy, digital literacy is not limited to the use of computers and the internet; rather, it boosts critical thinking, collaboration, creativity, and responsible participation in digital environments. The rapid advancement of information and communication technologies (ICTs) has transformed teaching-learning practices globally, making digital literacy an important component of quality education.

In Nepal, the integration of digital technologies into education has got increasing attention, particularly after the COVID-19 pandemic, which highlighted the necessity of digital competence among teachers and students. The Government of Nepal has introduced various ICT-related policies and programs to scaffold digital teaching and learning in schools. However, the effective implementation of digital pedagogy remains uneven, especially in community schools where infrastructure, resources, and digital competencies vary significantly.

Kageshwori Manohara Municipality, located in Kathmandu District, has experienced fast educational extension and increasing access to technology. The municipality consists of more than ninety schools, including a significant number of community schools serving diverse socio-economic groups. The municipality also demonstrates a relatively high literacy rate compared to many other local governments in Nepal. Despite these favorable conditions, community schools continue to face challenges in integrating digital literacy into classroom pedagogy due to inadequate technological infrastructure, limited internet connectivity, insufficient digital devices, and varying levels of teachers' digital competence.

Digital literacy offers several opportunities in community schools' pedagogy. It can support learner-centered instruction, improve access to educational resources, promote collaborative learning, support differentiated instruction, and enhance students' critical and creative thinking skills. Furthermore, digital tools enable teachers to employ newness in teaching strategies that increase student engagement and learning

outcomes. Schools that effectively integrate digital technologies can better prepare students for participation in a knowledge-based and digitally connected community.

Nevertheless, several challenges disturb the successful implementation of digital literacy in the art of teaching. These include not enough ICT infrastructure, inadequate professional development chances for teachers, limited economical resources, disparities in students' access to digital devices, and a lack of institutional support. Such challenges contribute to a digital divide that affects the quality and equity of educational opportunities in community schools.

Given these opportunities and challenges, it is essential to investigate the current status of digital literacy in pedagogy within community schools of Kageshwori Manohara Municipality. This study aims to explore how digital literacy is being integrated into teaching practices, identify the opportunities it creates for effective learning, and assess the hurdles that limit its implementation. The findings are expected to contribute to educational policy, teacher professional development, and the promotion of effective digital pedagogy in community schools.

Digital literacy has developed as a basic skill for more effective participation in academic sectors, employment, and community in the recent era. It indicates to the capacity to access, assess, create and communicate information using digital resources in a clear, safe, ethical and good way.

As the academic system increasingly interlink information and communication technologies, digital literacy has become essential for scaffolding teaching and learning environment. promoting critical thinking, and preparing students for the demands of the digital age. According to UNESCO (2026), digital literacy and media-information literacy enable learners to critically assess information, ensure digital safety, and participate responsibly in digital environments (UNESCO, 2026).

The concept of digital literacy in pedagogy has evolved over several decades as technology became integrated into education.

Table 1

Development in Digital Literacy

Period	Development in Digital Literacy
1960s to 1970s	Early computer-supported teaching developed in schools and higher education. The primary focus was majorly on basic computer operation and programming.

Period	Development in Digital Literacy
1980s	Individual access to computers became accessible in educational sectors. Digital education was largely understood as computer literacy, learning how to apply hardware and software.
1990s	The overall access of the Internet changed educational practices. Digital literacy spreaded to involve information searching, virtual communication, and accessing digital resources.
1997	Paul Gilster made it famous the term digital literacy, defining it as the capacity to comprehend and utilize information from several digital resources.
2000–2010	Schools increasingly integrated ICT into teaching and learning. Researchers focused critical thinking, information education, and accountable use of modern digital technologies.
2011–2020	Mobile devices, social media, cloud computing, and online learning platforms spreaded digital literacy frameworks. Digital pedagogy became a main focus in teacher education.
2020–2022	The COVID-19 pandemic rapidly went to digital teaching and learning worldwide. Teachers and students relied completely on digital platforms, mainly focusing both chances and challenges in digital literacy.
2023– Present	Primary focus has shifted toward Artificial Intelligence (AI) literacy, digital citizenship, media literacy, data literacy, cybersecurity awareness, and the effective pedagogical use of developing technologies. Organizations such as UNESCO foster digital literacy as a key competency for lifelong learning and sustainable development.

Transforming pedagogy: The Digital revolution in Higher Education (2024) examines how digital learning reshapes classroom interaction, collaboration and institutional culture after devastating medical crisis in the world.

Assessment of digital competencies in higher education faculty (2024) explores Artificial intelligence (AI-related) competencies and multimodal digital teaching practices among community school teachers. The growing importance of digital literacy in education is closely linked with the rapid development of Information and Communication Technology (ICT). Information and Communication Technology (ICT) has enabled innovative teaching methods such as e-learning, blended learning,

and online collaboration, which enhance student engagement and promote active learning.

Nepal Examination Board (NEB) in Nepal, community schools are therefore expected to adopt modern teaching approaches that integrate digital technologies, including Learning Management Systems (LMS), multimedia resources, virtual classrooms, and online assessment tools. These practices not only enhance teaching effectiveness but also improve student engagement and learning outcomes. However, despite policy initiatives and institutional commitments, the implementation of digital literacy in pedagogy remains inconsistent across community schools of Manohara area.

Until today, there is no officially published comprehensive report by the National Examination Board targeted on "digital literacy in public schools in Kageshwori Manohara" However, several recent government and institutional reports, studies, and education initiatives give updated information about the condition of digital literacy, ICT integration and technology use in community schools of the municipality.

Statement of the Problem

In the 21st century, digital literacy has become an essential component of effective teaching and learning, particularly in schools' education system. The integration of Information and Communication Technology (ICT) into pedagogy is widely recognized as a means to enhance instructional quality, student engagement, and learning outcomes. Despite this global trend, the effective implementation of digital literacy in educational institutions, especially in developing countries like Nepal, remains a significant challenge.

In Nepal, the introduction of the quality education system by the National school examination has emphasized the integration of ICT and innovative teaching practices as key indicators of quality education. Quality enhanced community schools in Kathmandu Valley are expected to adopt modern pedagogical approaches, including digital learning platforms, e-resources, and technology-enhanced teaching strategies. However, achieving certification does not necessarily guarantee the effective implementation of digital literacy in classroom practices. There is a noticeable gap between policy expectations and actual pedagogical practices in many secondary schools.

One of the major problems is the inadequate level of digital competence among teachers and students. Many educators lack sufficient training and confidence to integrate digital tools effectively into their teaching, which limits the potential benefits

of digital pedagogy. Similarly, students may face challenges in accessing and utilizing digital resources due to socio-economic constraints, leading to unequal learning opportunities.

Furthermore, infrastructural limitations, such as unreliable internet connectivity, insufficient digital devices, and lack of institutional support, hinder the effective use of technology in teaching and learning processes. Even in secondary schools, where certain standards of quality are expected, these practical constraints often reduce the effectiveness of digital initiatives. In addition, traditional thinking-based teaching methods continue to dominate classroom practices, limiting the shift toward interactive and technology-driven pedagogy.

Another critical issue is the lack of empirical evidence regarding the actual practices and impact of digital literacy in community schools in Kathmandu Valley. While policies and frameworks emphasize the importance of ICT integration, there is limited research examining how digital literacy is implemented in real classroom settings and how it influences teaching effectiveness and student learning outcomes. This lack of evidence makes it difficult for policymakers and educational institutions to design targeted interventions and strategies for improvement.

Objectives of the Study

The main objectives of my research are:

- To assess the level of digital literacy among teachers of Kageshwori Manohara area
- To find out the opportunities and challenges that occur in their professional life.
- To analyze the use of digital resources or tools and some other technologies like computers, mobile, sound system, laptops, different chips, memory cards, video recorder, audio recorders, smart boards, interactive boards, overhead projectors, language labs etc. in teaching and learning environment.
- To explore the challenges faced by the selective schools from the delimited areas.

The researcher has asked to self that the level of digital literacy among teachers and how the digital tools are integrated into teaching and learning process by identifying the challenges which hinder the effectiveness of its use in digital pedagogy. As the researcher, through the field observation like direct visit to computer lab, language lab, digital library and direct talks with stakeholders of the digital expert in the schools are carefully observed and studied.

Literature Review

In this section the researcher is engaged through the several educational secondary documents like brochures, pamphlets, manuals, magazines, journals and several periodicals found in the educational section of the municipality. Based on those resources we have reviewed the further studies under digital tools and resources used in these schools.

Digital literacy has emerged as a fundamental concept in contemporary education, particularly in the context of rapid technological advancement and the increasing reliance on digital tools in teaching and learning processes. In the 21st century, the ability to effectively use digital technologies is no longer optional but a necessary skill for both educators and learners. Digital literacy extends beyond basic computer skills and encompasses a wide range of competencies, including the ability to access, evaluate, create, and communicate information using digital platforms in a responsible and ethical manner. The concept of digital literacy was initially associated with technical proficiency, such as operating computers and using software applications.

Furthermore, digital literacy contributes to the development of learner-centered education by enabling students to take an active role in their learning process. Through digital platforms, students can access a wide range of educational resources, participate in online discussions, collaborate with peers, and engage in self-directed learning. This shift from teacher-centered to learner-centered pedagogy enhances students' autonomy, motivation, and engagement. In addition, digital literacy supports inclusive education by providing opportunities for students from diverse backgrounds to access learning materials and participate in educational activities.

However, the concept of digital literacy also highlights the challenges associated with the digital divide, which refers to the gap between individuals who have access to digital technologies and those who do not. In many developing countries, including Nepal, disparities in access to digital devices, internet connectivity, and technological infrastructure create barriers to the effective implementation of digital literacy in education.

In the context of secondary school education in Nepal, particularly in NEB-certified community schools, digital literacy is increasingly recognized as a key indicator of educational quality. The National examination board emphasizes the integration of Information and Communication Technology (ICT) in teaching and learning processes as part of its Quality based teaching framework. This highlights the importance of digital literacy in achieving academic excellence and maintaining institutional

standards. However, the effective implementation of digital literacy in pedagogy requires continuous efforts in terms of capacity building, infrastructure development, and policy support.

In conclusion, digital literacy is a multidimensional concept that encompasses technical, cognitive, and socio-emotional competencies required for effective participation in digital environments. It plays a vital role in transforming traditional teaching and learning practices into more interactive, flexible, and learner-centered processes. As education systems continue to evolve in response to technological advancements, digital literacy will remain a critical component of pedagogical innovation and educational quality, particularly in the context of secondary education system such as NEB-certified community schools in Kathmandu Valley.

Recent reports after 2024 focuses that digital literacy has become a fundamental component of modern education and lifelong learning. UNESCO and UNICEF reports highlight that digital literacy now extends beyond basic ICT skills to include critical and creative thinking, media and information literacy, online security, ethical technology use and digital communication and networking along with competencies. In Nepal, digital literacy initiatives have expanded through community learning centres (CLCs), ICT integration policies and teacher training programmes. However, challenges such as unequal internet access, limited digital infrastructure, insufficient teacher competency and socio-economic disparities continue to affect effective digital learning implementation in community schools and non-formal education sectors.

Digital literacy has become a crucial component of contemporary pedagogy, enabling teachers and students to access, evaluate, create, and communicate information through digital technologies. In Nepal, the integration of digital literacy into teaching and learning gained momentum after the COVID-19 pandemic, particularly in community schools where technology-based learning emerged as both a necessity and an opportunity. Recent studies emphasize that digital literacy not only improves students' academic engagement but also supports learner-centered, collaborative, and innovative pedagogical practices.

Phunyal (2024) investigated teachers' experiences of ICT use in Nepalese community schools and found that digital technologies enhanced teaching effectiveness, student participation, and access to educational resources. The study reported that teachers viewed ICT integration positively; however, inadequate digital skills, unreliable internet connectivity, insufficient electricity supply, and weak administrative support remained significant barriers to effective implementation.

Similarly, Katel (2024) examined ICT integration in English Language Teaching (ELT) in Nepalese secondary schools and found that digital tools increased student motivation, language proficiency, and interactive learning opportunities. Nevertheless, disparities in technological access, insufficient teacher training, and poor infrastructure created challenges in achieving equitable digital learning experiences among students.

Research conducted by Kandel and Khanal (2024) on smartphone use in Nepalese community schools revealed that smartphones can support self-directed learning, access to educational content, and language development when proper guidance is provided by teachers. The study further highlighted that student perceived digital devices as valuable learning tools despite social and institutional restrictions on their use.

Recent literature on technology-enhanced pedagogy also emphasizes the role of constructivist learning approaches. Diyal (2024) argued that integrating ICT with constructivist pedagogy promotes active participation, collaboration, critical thinking, and personalized learning. However, the effectiveness of such integration depends largely on teacher competency, institutional readiness, and technological infrastructure.

The emergence of Artificial Intelligence (AI) in education has further expanded the scope of digital literacy. Bohara and Rana (2024) reported that Nepali teachers recognized AI as a transformative educational tool capable of enhancing teaching and learning processes. Yet, many teachers lacked sufficient awareness and professional training to utilize AI effectively in classroom instruction.

Internationally, studies on digital literacy and educational technology continue to highlight the issue of the digital divide. Mirazchiyski (2024) noted that unequal access to digital resources, devices, and technological skills remains a major challenge in educational settings, particularly among disadvantaged communities. This digital divide directly affects students' opportunities to benefit from technology-enhanced learning.

Methodology

This research journey has observed different variables like dependent and independent to reach in the conclusion by analyzing the cause and effect of digital resources and its uses in the classrooms of community schools. Based on the dependent and independent variables the research has been supposed to be valid. we, as the researchers found out that as the independent variables or cause of digital knowledge has direct impact on the fast learning. As the digital knowledge increases with ICT training the developing

efficiency in teaching learning process. The adequate digital tools and resources have ease and access to digital use of learning. The more interactive classrooms through ICT expert, the highness of digital can lead the literacy a more lacking on digital knowledge just creates confusion over global issues. Whatever we saw the digital resources in the course of visiting the respondents in the research area were laptops, computers, projectors, smartphone, digital interactive board, overheard projectors, sound speakers, mikes, amplifiers, language labs with high technologies, internet access zones having mobile chargers, pen drive and chips.

The collected data were analyzed using a mixed-methods approach, combining quantitative and qualitative techniques to examine digital literacy and its impact on pedagogy in quality-based community school of Kageshwori Manohara of Kathmandu Valley.

Questionnaire data were analyzed using descriptive and inferential statistics. Percentages, mean scores, and standard deviations summarized respondents' demographics, digital literacy competencies, ICT usage, and perceptions of digital pedagogy. Correlation analysis examined relationships between digital literacy, ICT integration, teaching effectiveness, and student learning outcomes.

Semi-structured interviews were analyzed thematically. Transcripts were coded to identify recurring ideas and grouped into themes such as institutional support, pedagogical challenges, and perceived impacts on teaching and learning. This process provided in-depth insights complementing the quantitative findings.

A convergent mixed-methods design was used to triangulate quantitative and qualitative data, ensuring validity and comprehensiveness. Quantitative results offered measurable evidence of digital literacy and ICT usage, while qualitative data captured nuanced experiences of teachers and administrators. This approach enabled a holistic understanding of how digital literacy affects pedagogy and learning outcomes in Quality based community schools.

The study entitled “Digital Literacy in Pedagogy in Public Schools in Kathmandu” employs a mixed-method research method to obtain a comprehensive understanding of teachers' digital literacy practices and their integration into classroom pedagogy. Both quantitative and qualitative methods are used to explore the existing status, challenges, and opportunities of digital literacy in public schools. Quantitative data are collected through structured questionnaires distributed to teachers from selected community schools in Kathmandu in order to measure their level of digital competency, access to ICT resources, frequency of technology use, and pedagogical application of digital tools.

Simultaneously, qualitative methods such as semi-structured interviews, focus group discussions, and classroom observations are conducted with teachers, headteachers, and ICT coordinators to explore their experiences, perceptions, institutional support, and practical challenges in implementing digital pedagogy. The combination of these methods allows the researcher to triangulate findings and develop a deeper and more reliable understanding of digital literacy practices in school education. Quantitative data are analyzed through descriptive and inferential statistical techniques, whereas qualitative data are interpreted using thematic analysis to identify recurring themes and patterns related to digital literacy in pedagogy

The research design for the study on digital literacy in pedagogy in public schools in Kathmandu is based on an explanatory sequential mixed-method design under a pragmatic research paradigm. This design is suitable because it enables the researcher to investigate both the quantitative and qualitative dimensions of digital literacy practices in classroom pedagogy. In the first phase, quantitative data are collected through structured questionnaires from teachers of selected public schools in Kathmandu to examine the level of digital literacy, availability of ICT resources, frequency of technology use, and teachers' digital competencies in instructional practices. After analyzing the quantitative findings, the second phase employs qualitative methods such as semi-structured interviews, focus group discussions, and classroom observations to gain deeper insights into teachers' experiences, perceptions, challenges, and opportunities regarding the integration of digital tools in pedagogy. The design helps to triangulate data and provide a comprehensive understanding of how digital literacy influences teaching and learning in community schools. Furthermore, the study applies descriptive and thematic analytical techniques to interpret the collected data systematically and meaningfully.

The following community schools were selected in terms of digital literacy status and have been analyzed through the questionnaires:

The participants were selected from Gagal Fedi Harsa Basic School, Chalantar Basic School, Ananda Bhairav Secondary, Kanti Bhairav Secondary, Nepal Rastriya Nirman School and Gandhi Secondary School represent a relatively experienced and academically qualified teachers. The Most respondents belonged to the 36 – 45 age group, while one participant from Kanti Bhairav Secondary was above 46 years of age.

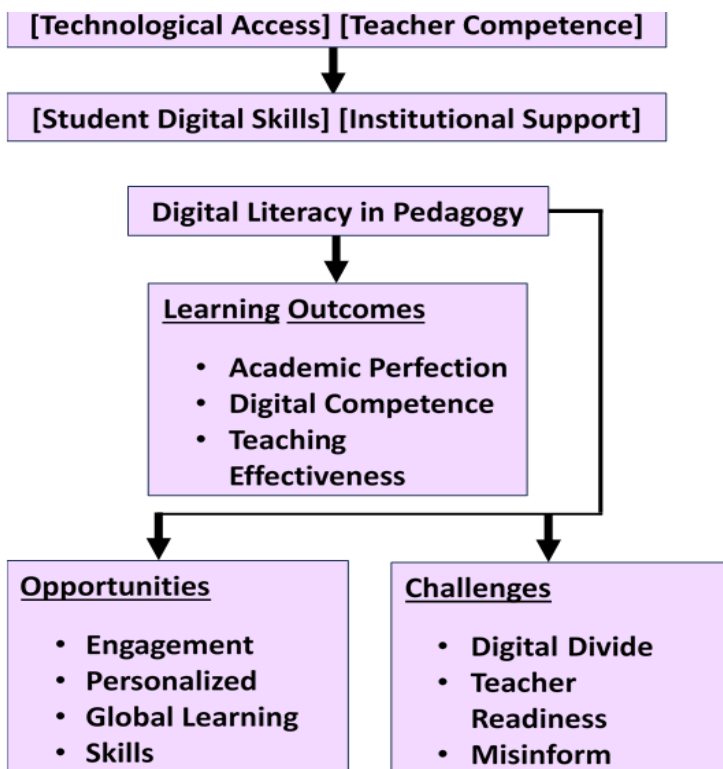
The research design for this study is descriptive-analytical in nature, integrating both quantitative and qualitative approaches to comprehensively examine the role of

digital literacy in pedagogy within quality-based community schools in Kathmandu Valley. A descriptive approach allows for systematic observation, measurement, and documentation of the current status of digital literacy among teachers and students, as well as the integration of digital tools in teaching and learning processes. The analytical dimension facilitates the examination of relationships between variables, such as digital literacy levels, ICT integration, teaching effectiveness, and student learning outcomes.

In case of survey there are some phases to carry out like survey first interview and in phase two focus group discussion.

The design we follow is mixed, it depends on the rationale of the research journey. the population of the study concerns the teachers in the selected schools like Gagal fedi Harsa basic school, Chalantar Basic school, Ananda Bhairav secondary, Kanti Bhairav secondary, Nepal Rastriya Nirman School and Gandhi Secondary School within Kageshwori Mahohara municipality.

Figure 1
Conceptual Framework

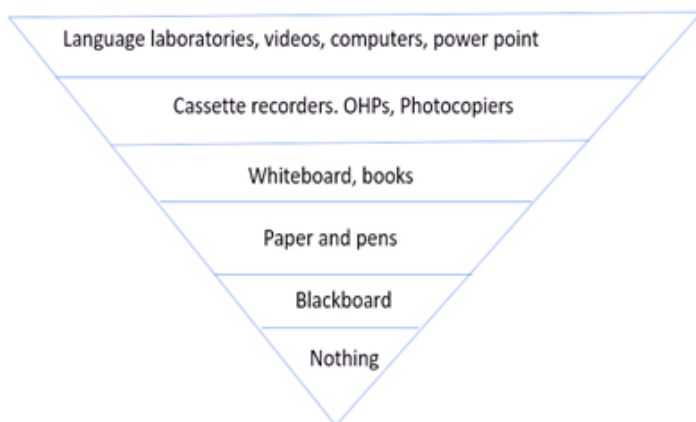


To describe above conceptual framework, we can come in the opinion that the technological access in community school classroom along with teacher competence provide good result in school achievement. The digital skills with students with the support of institution can do progress in digital literacy in pedagogy, so that the digital competence and teaching effectiveness can be flourished. so, the teacher should be engaged ethnographer to accept the digital divide.

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Figure 2

The Technology Pyramid



Source : Reversed Pyramid (Jill and Charles Hadfield 2003)

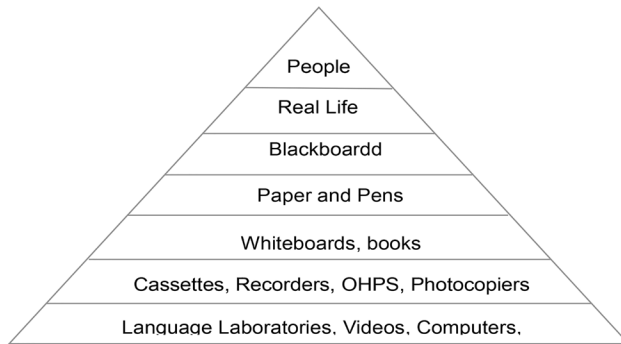
The Technology pyramid mentioned above describes that in the today's digital technological era, the community schools are further conducting the use of language laboratories, videos, computers, PowerPoint etc. are in prior basis.

Likewise, the cassette recorders, OHPs and photocopies are comparatively less in use. similarly, blackboard, whiteboard, paper-pencil work are slowly replaced by modern digital tools but are still used in the context of Nepalese classrooms. It shows the digital resources are slowly and gradually grooming in the community schools too.

‘Other Way up’ Resources Pyramid (Routes of Learning and Discovery)

Figure 3

Resources Pyramid



Source : (Hadfiled and Hadfield 2003:34)

While interpreting the aforementioned framework, in the classroom the teacher used to focus on people first with their real life and blackboard and paper work was highly focused but language laboratories and videos with computers were less used or were less accessible so the quality of teaching through the use of digital resources were so much lacking.

The qualitative component involves semi-structured interviews with selected faculty members and administrators to capture in-depth insights into the challenges, opportunities, and institutional practices related to digital pedagogy. Thematic analysis will be employed to interpret these qualitative data, highlighting common themes, perceptions, and experiences that may not be fully captured through quantitative measures.

This convergent mixed-methods design allows for triangulation of data, ensuring greater validity and reliability of findings. While quantitative data provide measurable evidence of digital literacy levels and ICT.

Study Area

The study is focused on quality-based teaching secondary schools like Gagal fedu Harsa basic school, Chalantar Basic school, Ananda Bhairav secondary, Kanti Bhairav secondary, Nepal Rastriya Nirman School and Gandhi Secondary School within Kageshwori Mahohara municipality which serve as the central hub of basic and

secondary education in Kathmandu Valley. These schools cater to a diverse student population from urban, semi-urban, and rural areas, offering programs in different multidisciplinary subjects.

Community schools in Kageshowri Manohara play a crucial role in providing accessible and affordable basic and higher education, particularly to students from middle- and lower-income families. Managed locally and affiliated with national education board system, these schools emphasize inclusivity, social responsibility, and quality education. The NEB of Nepal has implemented the Quality equation system to ensure academic excellence, institutional accountability, and continuous quality improvement in basic and secondary school education institutions. Quality certification requires community schools to maintain standards across curriculum delivery, teaching-learning processes, ICT integration, research activities, and infrastructural facilities.

In the context of digital literacy, quality teaching and learning are based on this municipality represents a significant site of the schools for research due to their dual characteristics: a commitment to quality standards and the challenges of resource limitations. These institutions have increasingly adopted digital tools such as learning management systems (LMS), multimedia teaching aids, online resources, and virtual classrooms to enhance pedagogical practices. However, the extent of digital literacy integration among teachers and students varies significantly, influenced by factors such as technological infrastructure, teachers' digital competence, institutional support, and student access to devices and internet connectivity.

The selection of this municipality as the study area is appropriate for several reasons. First, the Municipality hosts a concentration of quality based-certified community schools, making it feasible to conduct comparative and comprehensive analyses. Second, it reflects both urban advantages such as better ICT infrastructure and accessibility and challenges, such as high student-to-teacher ratios and socio-economic disparities among students. Third, given its centrality in Nepal's secondary school education landscape, insights drawn from Kageshwori Manohara Municipality in Kathmandu can provide practical implications for other community schools across the country.

Overall, the study area offers a representative context to examine the role of digital literacy in transforming pedagogy. By focusing on community schools in Kageshwori Manohara municipality the research aims to capture both the successes and challenges in integrating digital tools into teaching and learning, thereby contributing to evidence-

based strategies for enhancing educational quality in Kathmandu.

Nature and Sources of Data

To complement the quantitative findings, qualitative data were collected through semi-structured interviews with selected teaching staff members, heads of the schools, and schools' administrators.

Interviews were guided by an interview schedule with closed ended and open-ended questions, allowing participants teachers to elaborate on their experiences and perspectives. The qualitative data were analyzed using thematic analysis, identifying recurring patterns, themes, and narratives related to digital literacy practices, infrastructural support, and pedagogical innovations.

In addition to primary data, relevant secondary data were collected from institutional records, direct visit and talks with the stakeholders. This information helped contextualize the study within national quality learning standards and global trends in digital pedagogy.

Population and Sample

The population of this study comprises altogether six schools of the of NEB-certified community schools of Kageshwori Manohara municipality in Kathmandu. The total population includes teaching staff members involved in teaching and administrative activities, as well as students enrolled in schools' programs across these schools. This population is particularly relevant for examining digital literacy in pedagogy, as both teachers and students actively engage in the teaching and learning process, and their interaction with digital tools reflects the level of ICT integration in basic and secondary education.

A purposive sampling technique has been employed to select participants for the study, focusing on individuals who are directly involved in digital pedagogical practices and ICT-enabled learning environments. The sample includes teachers with varying years of experience and exposure to digital tools, as well as students from different disciplines and academic levels. Specifically, 12 teachers and 30 students from six quality certified community schools of Kageshwori Manohara municipality of Kathmandu were selected as respondents. The sample size was determined to ensure representativeness while maintaining manageability for both quantitative and qualitative data collection.

The sample for the qualitative component consists of six basic and secondary

community schools and its members and head teachers along with information officer, selected through purposive sampling based on their experience in implementing digital teaching practices and overseeing ICT integration. This approach ensures in-depth insights into institutional practices, challenges, and strategies related to digital literacy in pedagogy.

By combining a representative quantitative sample with targeted qualitative participants, the study aimed to provide a comprehensive understanding of digital literacy dynamics and its impact on teaching and learning processes in community schools.

Data Collection Methods

To achieve the objectives of this study, a combination of quantitative and qualitative data collection methods was employed to capture a comprehensive understanding of digital literacy in pedagogy within community schools in Municipality area. The mixed-method approach ensured both breadth and depth of data, enabling the triangulation of findings for enhanced validity and reliability.

The primary quantitative data were collected through structured questionnaires administered to head teachers and other administrative staffs.

The questionnaire items included multiple-choice questions, Likert-scale statements, and ranking-based queries. The survey was administered to a purposively selected sample of teachers and students across several quality-certified community schools in Kathmandu Valley. The quantitative data were later analyzed using descriptive statistics (percentages, mean scores, and standard deviations) and inferential statistics (correlation analysis) to identify trends and relationships.

Data Analysis Method

An Educational Scenario of Digital Resources found in the Municipality:

The digital resource status of community schools in this municipality is developing gradually but the major lacking still exists in these educational hubs. Multimedia teaching tools like projectors and smart boards along with computer education classes. However, these conveniences after limited mainly to larger and better funded schools. Some of the public school include limited basic ICT curriculum and occasional projector use as well as digital attendance or school administration system. Future of such schools are bright if the following digital facilities are provided. Robotic classes, computer labs, science labs, multilingual learning and technology -oriented education systems.

Positive developments seen in this area as in the case of digital resources are for the increasing awareness of digital system of education, growing need for computer education, gradual need for computer literacy and the spread of ICT-based educational activities. similarly, the three schools are beginning to use online or virtual learning tools, digital attendance systems educational software and multimedia presentation.

Five Themes are developed after the careful analysis of the data collected in terms of the use of digital resources in public schools:

a. Adequate Resources are Found in the Schools

The next research zone is to gather information from the respondent of the stakeholder of the school. from which the information has been summarized after digging out the thick description though the questionnaire and live discussion about the digital literacy implemented in pedagogy and its current opportunities and challenges found in the school premises over teaching and learning system.

- The Gandhi secondary school has used smartboard for class 8 to 10 students, similarly the Gagal fedi basic school has used no computers but single mobile is used by the teacher while teaching in the class.
- Lack of enough digital devices with its inadequate literacy rate is one of the major challenges that the one of the schools named Gagal fedi face such problem.
- The teaching and learning are improved if the digital literacy in pedagogy is implemented seriously and effectively.

b. Technologically Poor School Can't Give Any benefit for the Qualitative Result of the School

The school named Gagal fedi in its history was great and outstanding in the past but due to different factors the number of students is gradually decreasing. In the past, there were classes from one to eight, then it became class one to five, and then one to three, but these days the students are limited just in early child development (ECD), the number of students is only eleven. all are from Karnali not from the nearby locality. the total staff in that school are only two, one is head miss Parbati and other is non staff. The head miss teaches the students through mobile to clarify some of the difficult topics with surfing google for making difficult content easy to the students. There were about six to seven computers in the past but all are damaged and not repaired due to the lack of money. the head miss has reported that she wants to either merge her school in other school or make it better in the future by such opinions are reported to the school management committee (SMC) but due to the zero number of students enrolment through the local area the SMC has also been time and again dissolved. the causes of decreasing number of students in the schools are the following:

- small kids want to join with senior ones who study in big schools
- they want to go in the well convenient field work and educational excursion with their relatives and with their brother and sister. The head teacher of the school has requested the personnel of education section of Kageshwori Manohara municipality to getf training-based course on ICT.

c. Desire for Using Digital Resources in the Classroom but the Lack of Budget

The next respondent from Rastriya Nirman secondary school has given the detail information about digital literacy-based pedagogy and its challenges and opportunities. She has some bitter experience in her school that digital resources are not adequate. if the school gets support the teaching will be more effective and technology friendly.

The genuine opinions like the lack of adequate digital resources are delivered by the respondent like, due to lack of support, lack of facilities, lack of maintenance of the old computers. She opines that, "of course, the quality of education can be improved by the digital knowledge."

Regular ICT training, the access of digital resources training courses was given but digital resources are not adequate.

d. Economically and Technologically Poor should be Provided Adequate Resources that Only can Sustain the Number of Students

Some suggestions given by the respondents of the Chalantar Basic school that the school which is economically and technologically poor should be provided adequate resources that only can sustain the number of students.

The school runs the classes from ECD to class five. The teaching staff are all females, 11 in number. These teachers have keen interest to build and run school management well. There are some damaged computers having lack of maintenance and well managed one projector was provided by Provincial government, ministry of social development. there is one smart board which is commonly used for all seniors' students and small kids at the time of teaching and learning. the projector is used once a week. the main gate of school is being fixed at the front side. the school family does not feel secured without gate. due to this factor the guardians of the kids are interested to send their children in other well convenience schools. some of the guardians are obliged to admit in the school due to their poor economic condition. There is no any provision of van and bus in the school so that the students are sent in other schools on the way to pitched road nearby their home. most of the students are from beyond the local areas who are temporarily settled from Okhaldhunga, Kavre, Sindhupalchok and

Ramechhap. The head teacher of the school is obliged to buy her own laptop for her convenience. the students who are from good economic and family background are admitted in other school where the students are more and from diverse group.

In 2082 there were 106 students but dramatically the number of students decreased during the time of winter season. currently, the newly admitted students are altogether 95 in number and the target is to make the students 110. the school admiration issues the books developed and produced by curriculum development center (CDC), and the visual and difficult topics are taught through some of the projectors and smart board, especially for class nine and ten.

A majority of the respondents possessed Master's degrees and had more than fifteen years of teaching experience, reflecting substantial professional expertise. Access to digital resources appeared comparatively satisfactory in most schools, although Gagal Fedi Harsa Basic School lacked such facilities. Similarly, internet connectivity ranged from average to very good, with Ananda Bhairav most teachers reported having personal access to digital devices, indicating a growing inclination toward technology integration in education. The respondents frequently experienced language barriers while utilizing digital resources and instructional technologies.

The researched community schools which have been enlisted on the basis of different necessary factors is mentioned on the following table concisely.

Table 1
Status of Digital Resources in Schools

Schools' Name	Teachers	Gender	Age Group	Role	Teaching Experience	Level of Education	Digital Resources	Connectivity	Personal Access	Language Barrier
Gagal Fedi Harsa Basic School	Parbati Thapa	Female	36-45	Teacher	above 15 years	Higher Secondary	No	Average	No	sometimes
Chalantar Basic School	Gita Ghimire	Female	36-45	Teacher	Below Five years	Masters Degree	Yes	Good	Yes	sometimes
Ananda Bhairav Secondary	Sabina Bhandari	Female	36-45	Teacher	above 15 years	Masters Degree	Yes	Very good	Yes	Always
Kanti Bhairav Secondary	Dinesh Prasad Timsina	Male	46 above	Teacher	above 15 years	Masters Degree	Yes	Average	Yes	sometimes
Nepal Rastriya Nirman school	chiranjibi Nepal	Male	36-45	Teacher	above 15 years	Masters Degree	Yes	Good	Yes	Often
Gandhi Secondary School	Bibek Kumar Khadka	Male	36-45	Teacher	above 15 years	Masters Degree	Yes	Good	Yes	Often

Source :Field Observation, 2026

There are six major major selected schools named Gagal fedi, chalantar, Ananda bhairav, kanti bhairav, Nepal Rastriya nirman and Gandhi secondary schools respectively. as the researcher I kept on touch with the head teacher as well as information officer named parbati Thapa from gahal fedi, gita Ghimire from chalantar, sabina bhandari from Ananda bhairav, dinesh prasad from Kanti Bhairav, Chiranjibi Nepal from Nepal Rastriya Niraman and Bibek kumar from Gandhi secondary school. out of them three head teachers were females and three were males. the age group of the teachers in Kanti Bhairav was above 46 but remaining other head teachers from five different schools were between the age group of 36 to 45 years, all of them were teachers. The teacher of Chalantar had below five years experiences of teaching and the other five Schools' teachers teaching experience was above 15 years. Five schools with the head teachers had earned master's degree except the teacher of Gahal fedi basic school. out of six schools on the above table there were some facilities of digital resources except one school that is Gahal fedi. the connectivity of network I could observe in three was good, in two there was average and in one there was very good. so, we can say that there is fluctuation in the connectivity level of digital resources. so due to this case the students can't get enough digital literacy through pedagogy. In most of the cases, there is personal excess of mobile and other digital resources except Gahal fedi school. The language barrier could be found sometimes in Gahal fedi and Chalantar schools while using digital resources, In Ananda bhairav has always faced digital language barrier. Similarly, in Nepal Rastriya and Gandhi secondary schools had faced the language barrier while using digital tools and resources.

Ethical Considerations

Ethical principles were strictly observed during data collection. Participants were informed about the purpose of the study, assured of confidentiality, and their voluntary participation was emphasized. Informed consent was obtained before administering questionnaires or conducting interviews. Data were anonymized to protect individual identities and were used solely for research purposes.

Conclusion

Digital literacy in pedagogy presents significant opportunities for transforming community schools in Kageshwori Manohara Municipality, enhancing learning quality, promoting inclusion, and preparing students for a digital future.

However, systemic challenges such as infrastructure gaps, teacher preparedness, and socio-economic inequalities must be addressed to fully realize these benefits.

Digital literacy has become an essential component of effective pedagogy in community schools, enabling teachers and students to engage with technology for

teaching, learning, communication, and knowledge creation. The findings indicate that digital literacy offers significant opportunities for improving educational quality through enhanced access to learning resources, interactive teaching methods, learner-centered instruction, collaboration, and the development of twenty-first-century skills. Digital tools can support innovative pedagogical practices, increase student engagement, and bridge educational gaps by providing broader access to information and learning opportunities.

Despite these benefits, the study reveals several challenges that hinder the effective integration of digital literacy in community schools. Inadequate technological infrastructure, limited internet connectivity, insufficient digital devices, lack of continuous professional development for teachers, and financial constraints remain major barriers. Furthermore, disparities in digital access among students, limited technical support, and varying levels of digital competence among teachers continue to affect the successful implementation of digital pedagogies.

Overall, the study concludes that while community schools possess considerable potential to transform teaching and learning through digital literacy, realizing this potential requires coordinated efforts from policymakers, educational leaders, local governments, and school communities. Strategic investments in infrastructure, sustained teacher training, equitable access to digital resources, and supportive educational policies are essential for fostering digitally competent teachers and learners. Addressing these challenges will enable community schools to maximize the opportunities offered by digital literacy and promote inclusive, effective, and sustainable educational development.

Expected Outcomes and devastating danger due to digital tools in the sector of human being creativity and originality.

Human memory and creativity are declining when AI is given the task of thinking. Researchers have expressed concerns that the increasing use of large language models (LLMs) could lead to a decline in human memory and creativity.

Various studies have shown that overreliance on AI could negatively impact intellectual abilities such as critical thinking, especially in the younger generation. Experts suggest that continuous mental challenge is necessary for long-term brain health and that AI should be used in a balanced way. Researchers have expressed concern as large language models (LLMs) increasingly take over human intellectual functions, warning that there will be a price to pay for this "outsourced" trend. In the process, our brain, creativity, and intellectual health will benefit.

The study is expected to reveal the current status of digital literacy and its influence on pedagogy. It will identify key challenges and provide practical recommendations for improving digital teaching and learning practices in community schools.

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