



RESEARCH PROPOSAL **PRESENTATION**

By: Praticha Gurung (2427814)
Doctoral Candidate
University of Wales Trinity Saint David, London Campus

Date: 04 December 2025



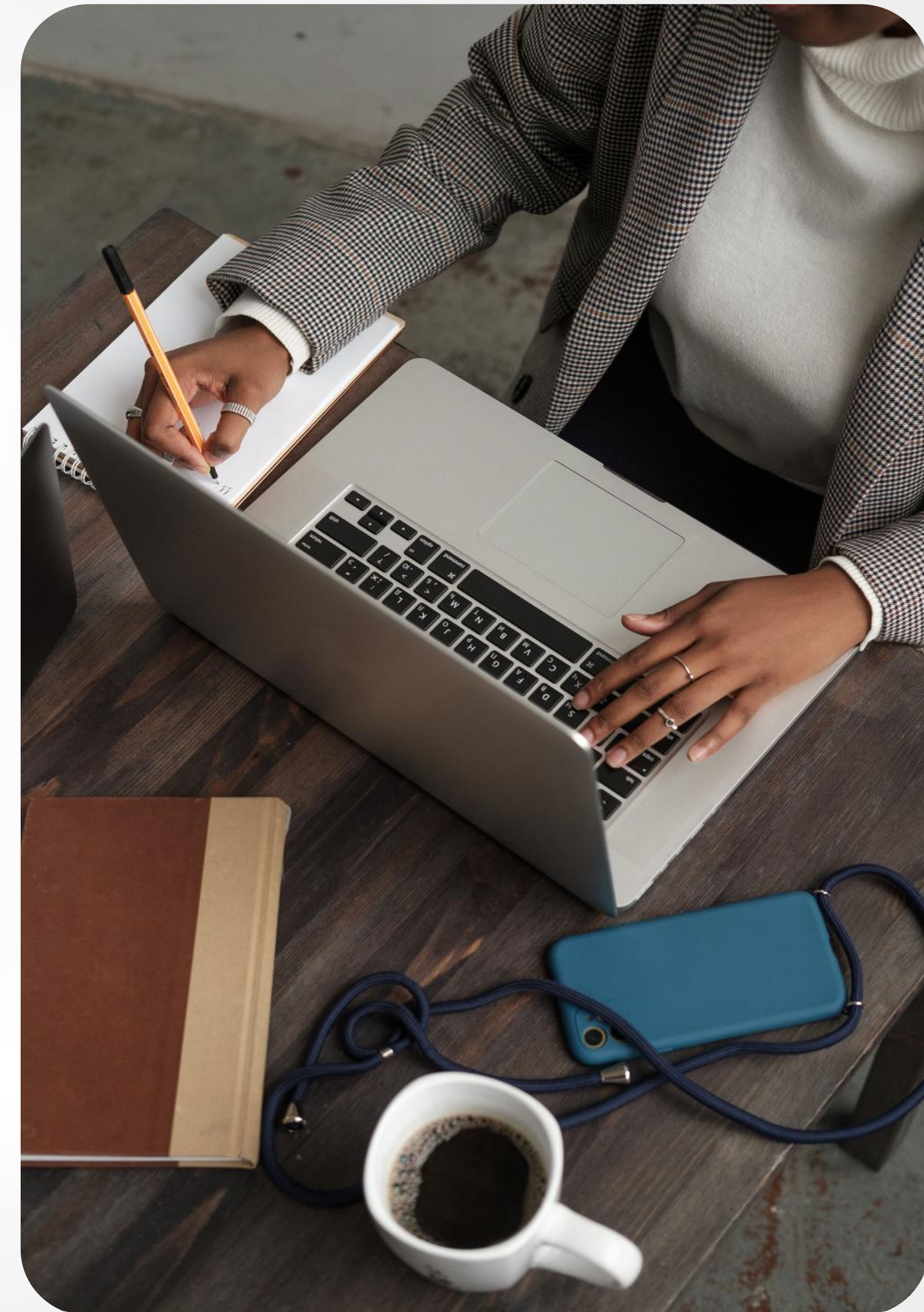
Comprehending The Role of ICT in Bridging Rural-Urban Educational Divide in Secondary Education: A Case of Nepal



<https://cdn.slidesharecdn.com/>

Introduction

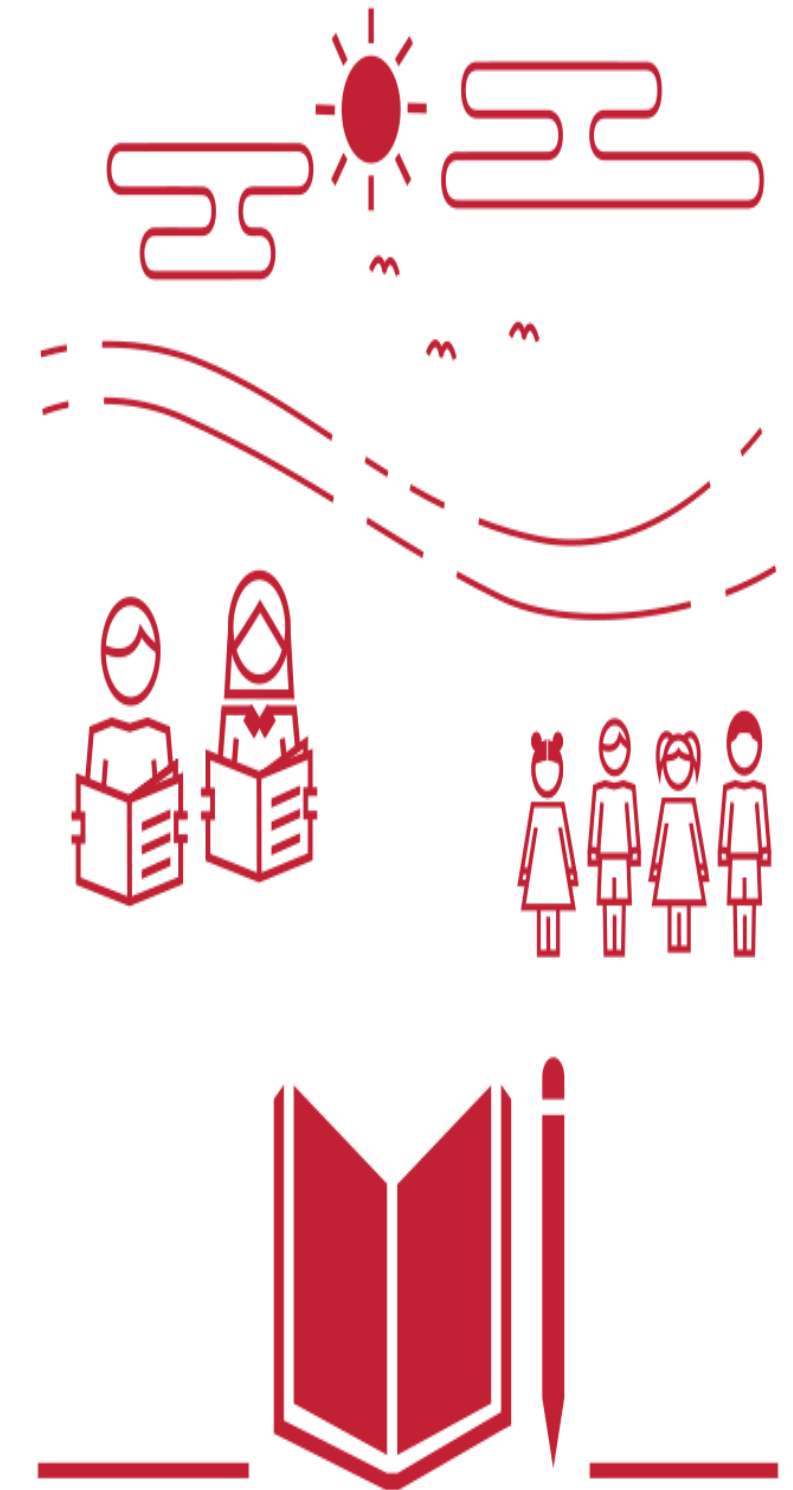
- ICT refers to smart technologies, such as smartphones, tablets, and smart TVs that enhance daily life by making it more efficient, convenient and accessible(Henderson, 2020).
- ICT plays a key role in making education more effective and accessible for all learners (Kumar & Gautam, 2023)
- ICT has the potential to provide access to equal education in both rural and urban areas (Khan et al., 2019).
- Digital technologies improve learning quality, increase engagement, and make educational resources more accessible (Ahmad et al., 2024).
- However, the benefits offered by ICT in education are not equally realised by urban and rural counterparts, resulting in poor educational outcomes (Hamid and Sueb, 2025).
- ICT helps rural students connect with educators and peers worldwide, overcoming the geographic disparity (Airen, 2024; Herselman and Britton, 2002)
- ICT alone cannot ensure equitable education; it must be supported by strong policies, adequate funding, and effective implementation (Bharti et al., 2024)



Background of Study

- Education is a basic human right (UNESCO)
- Article 31 of Nepal's constitution mandates free education up to the secondary level (MOEST, 2019)
- Promoting lifelong quality education is the UN's SDG goal number 4 (United Nations, 2023)
- Growing attention towards ICT in the education sector, both in developed and developing nations (Dibaba, 2017; Gebremeskel et al., 2016)
- Nepal's 2019 education policy underscores the importance of ICT in shaping contemporary learning (MOEST, 2019).
- However, there is a gap in the secondary school completion rate between rural (14%) and urban (33%) areas of Nepal (UNICEF 2022)
- Moreover, there is a gap in access to digital connectivity, accounting for 34% in rural secondary children compared to 57% in urban pupils (UNICEF 2022)

4 QUALITY EDUCATION



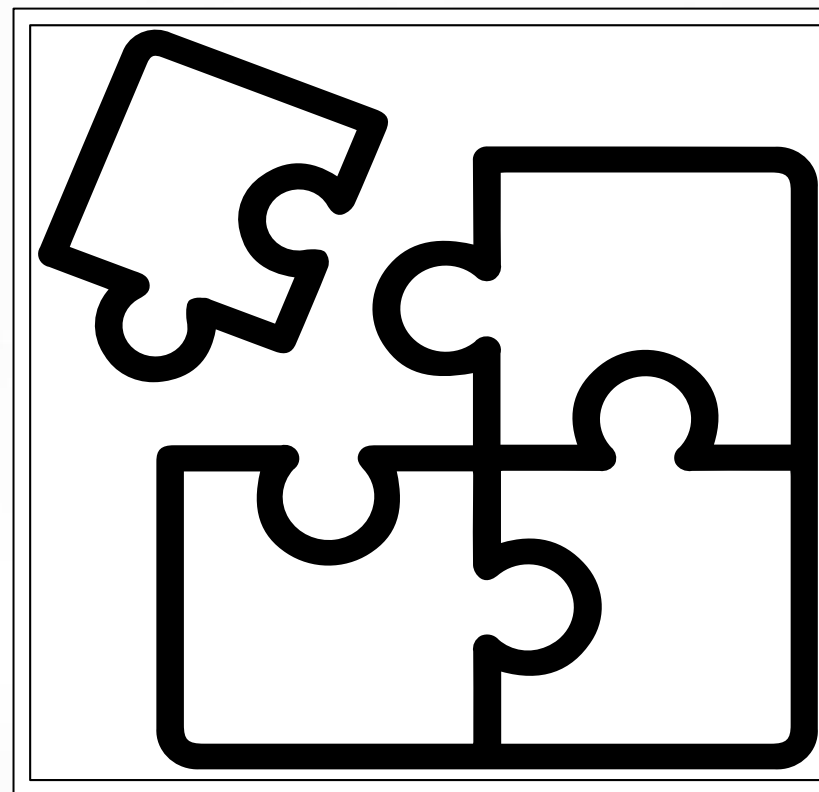
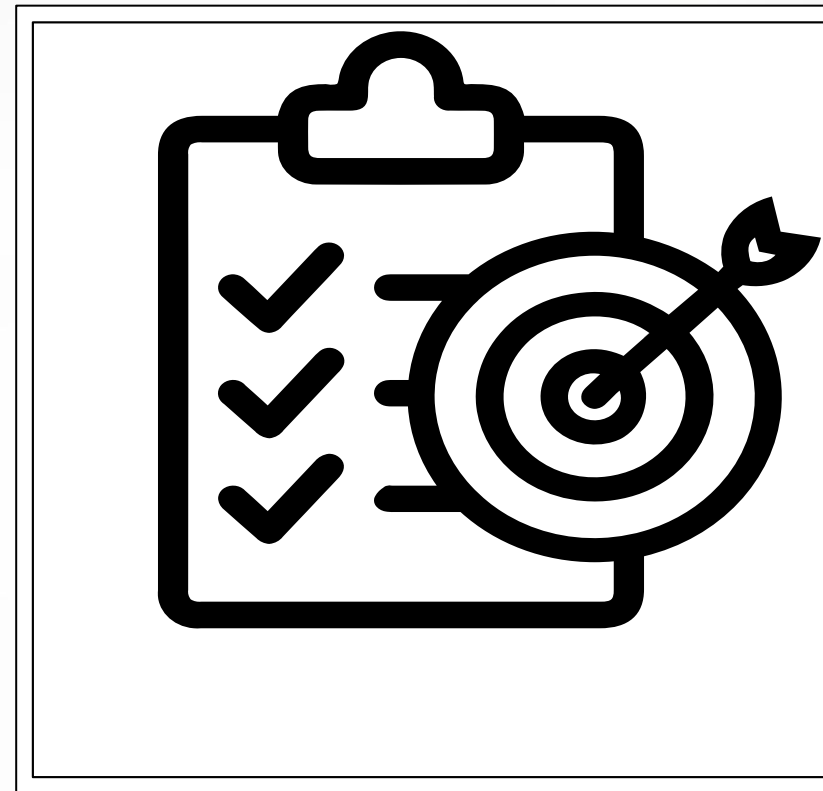
Problem Statement

- Transformative role of ICT in education by enhancing student motivation, participation, and achievement (Bharti *et al.*, 2024)
- ICT is not a panacea, nor an alternative to teachers (OECD, 2006)
- ICT in Education Master Plan 2013–2017, Higher Education Policy (2015), Digital Nepal Framework (2019), and National Education Policy (2019) are some of the examples (Joshi and Khatiwada, 2024)
- Despite such initiatives, their implementation is inadequate and unsustainable (Rana, 2018)
- Moreover, although education is a basic human right, there is an educational disparity between urban and rural areas (Wood, 2023).
- An investment in technology possesses the capacity to address the rural-urban education differences (Wood, 2023).



Research Objectives

- To examine the use of ICT in Secondary education in Nepal
- To analyse the perceptions of key stakeholders towards the role and extent of ICT in secondary education
- To explore challenges and constraints faced by Nepal while integrating ICT into the education sector
- To critically assess the past ICT investments and activities related to ICT use in education in Nepal



Research Questions

- How are ICTs used to support secondary education in Nepal?
- How is the role and extent of ICT use in secondary level education perceived by the main stakeholders
- What are the common challenges and constraints faced by Nepal in this area?
- What are the lessons learned from the past decade's investment and activities, successes and failures, related to ICT use in education in Nepal?

Significance of the Study

- ICT in education, especially in rural areas, is vital for promoting equitable and inclusive learning(Airen, 2024).
- Many developing countries consider ICT as a potential solution to reduce inequality in education, including Nepal (Bharti et al., 2024; Panyajamorn *et al.*, 2018).
- The integration of ICT has introduced new dimensions in education that require ongoing improvements in instructional methods and curriculum development
- Developing countries face a unique mix of challenges and opportunities when using technology to support education (Begum and Gul, 2025)
- Hence, the role of ICT in secondary education, particularly in a rural context, needs to be understood
- The outcomes of this study will serve as a knowledge contribution to existing literature.
- Findings of the study will help stakeholders formulate and implement ICT integration policies into education to enhance equity and improve the learning experience of both urban and rural students.



Preliminary Literature Review

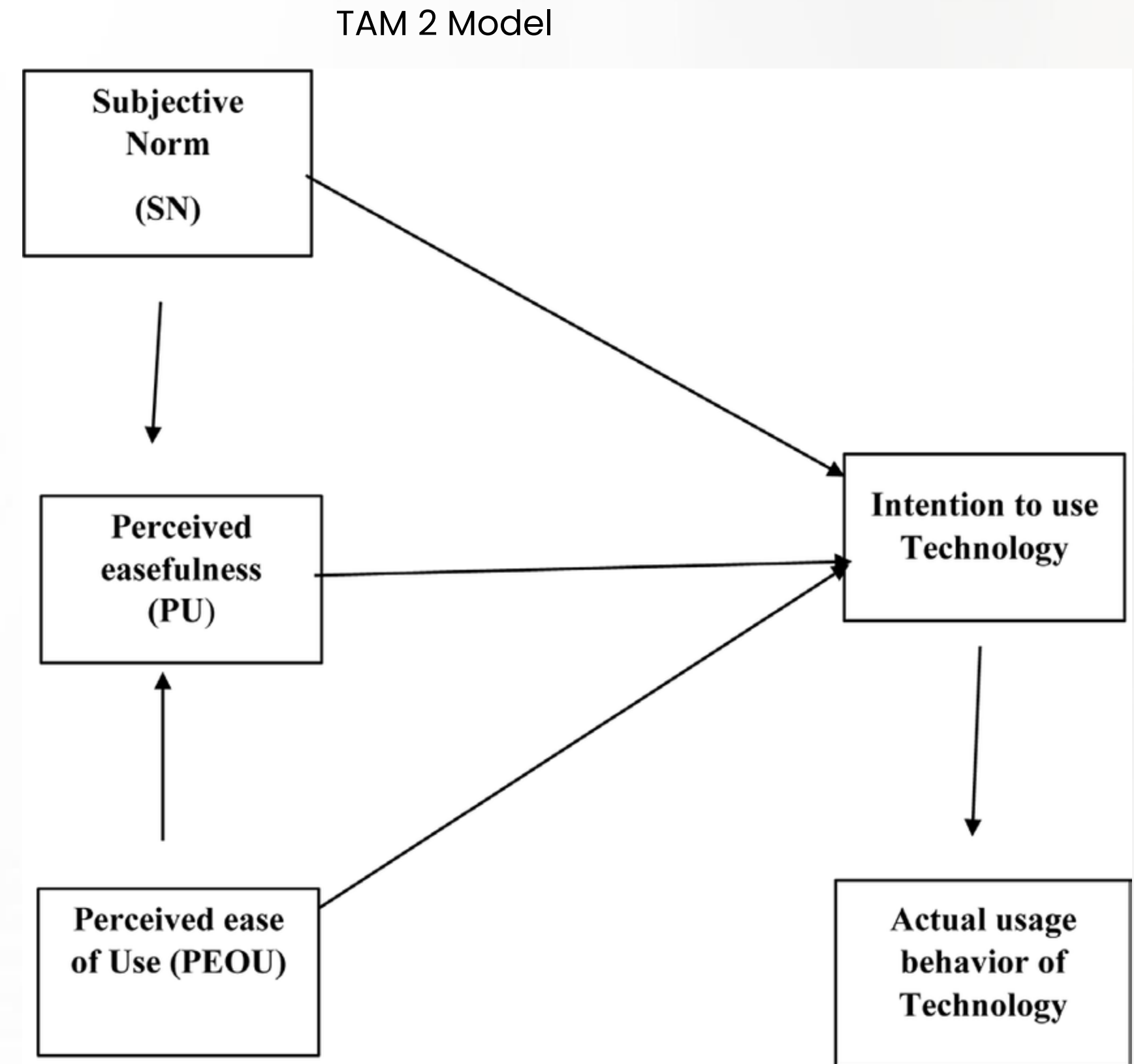
- a **transformative impact** on education by **enhancing** student **motivation**, **participation** and **achievement**. However, **careful planning** and oversight are **required** to ensure appropriate utilisation (Bharti et al., 2024)
- Through online platforms, mobile applications, and digital classrooms, teachers can build interactive learning experiences that help to eliminate challenges faced by students in rural communities (Airen, 2024)
- ICT in classrooms **improves** student **engagement**, **self-directed learning** and **knowledge sharing**; in contrast, the lack of software, insufficient training, lack of learning tools and resources and the attitude of teachers are some of the **challenges** (Henderson, 2020)
- While digital technology has the potential to transform education in Nepal, **regional inequalities hinder its full benefits**, as **urban schools** are **better positioned** to leverage digital tools compared to **rural and remote** schools (Rahman, 2025).
- Hamid et al. (2025) highlight that **continuous professional development**, improved confidence in using technology, wider digital access, and supportive policies are crucial for advancing digital learning.

Preliminary Literature Review

- The integration of ICT into education helps to promote active learning and critical thinking, equal education opportunities, and the development of lifelong skills (Foutsitzi and Caridakis, 2019).
- The scarcity of resources and inefficient policy implementation strategies hinder the integration of ICT into the Nepalese education sector (Dhital, 2018)
- The integration of ICT in the education sector is in an emerging stage; however, due to limited infrastructure and traditional pedagogical practices, the practical application is limited (Lim *et al.*, 2020)
- ICT contributes to facilitating effective, high-quality learning when traditional methods are not enough (Sond, 2025)
- highlight technology as a key factor in enriching teaching and learning for both teachers and students

Theoretical Underpinnings

- The Pedagogical Content Knowledge (PCK) developed by Shulman (1986)
- Technological Pedagogical Content Knowledge developed by Mishra and Koehler (2006)
- SAMR model presents four levels of technology integration into education (Puentedura, 2006)
- Diffusion of Innovation (DOI) by Rogers (2003)
- Technology Acceptance Model(TAM) by Davis (1989)
- This study will apply the Unified Theory of Acceptance and Use of Technologies by (TAM 2) by Venkatesh et al. (2003)



Source: Research Gate

Gap

Existing literature focused on **teachers' competence** in using ICT tools in education (Simkhada & Gelal, 2023), **issues and challenges** of ICT use in schools (Acharya, 2025; Joshi & Khatiwada, 2024), **the teacher's perception** of using ICT (Rana et al., 2022; Rana, 2024; Thapaliya et al., 2024)

Moreover, the studies focused on rural and urban schools separately, based on a small localised context.



External Variables (Nepal Secondary Education Context)

- ICT infrastructure
- Teacher ICT skills & training
- School leadership support
- Government policies & investments
- Curriculum alignment
- Social influence (peers, community, administration)
- Challenges & constraints
- Lessons from past decade



Social Influence & Cognitive Processes (TAM2)

- Subjective Norm
- Image
- Job Relevance
- Output Quality
- Result Demonstrability



Perceived Ease of Use (PEOU)

Perceived Usefulness (PU)



Actual ICT Use in Secondary Education

Conceptual Framework

Research Design: Mixed Method

Population and sample size:

- The population of the study will be all the schools in rural and urban areas
- The sample will be the selected school (1 urban and 1 rural) for the study

Sampling Technique: Stratified (to avoid selection bias)

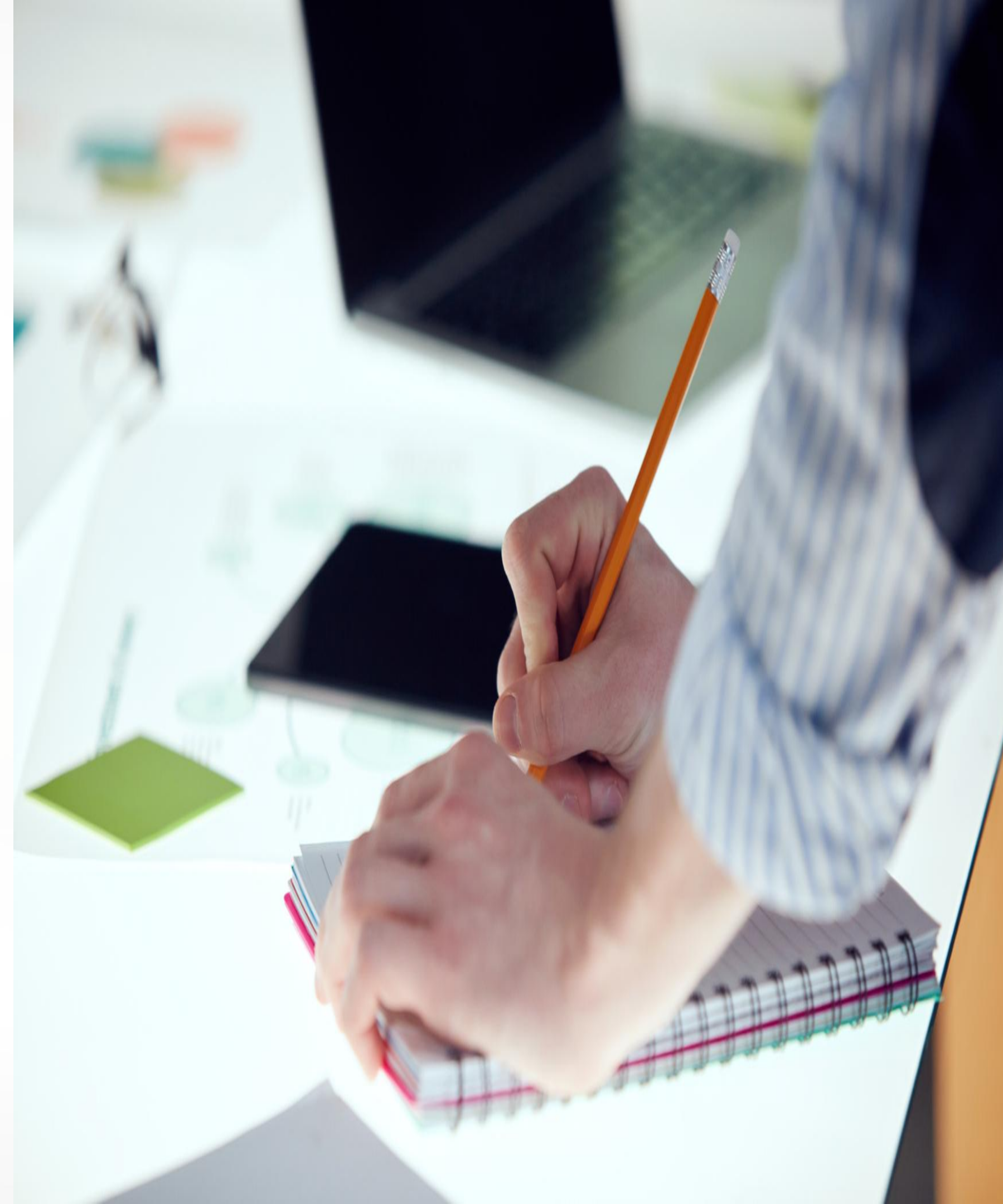
Data Collection:

- Survey and Questionnaire for quantitative analysis from teachers and students
- Interviews and focused group discussions with school principals and administrators
- Review of policy documents on ICT in education

Data Analysis:

Thematic analysis (for qualitative observations)

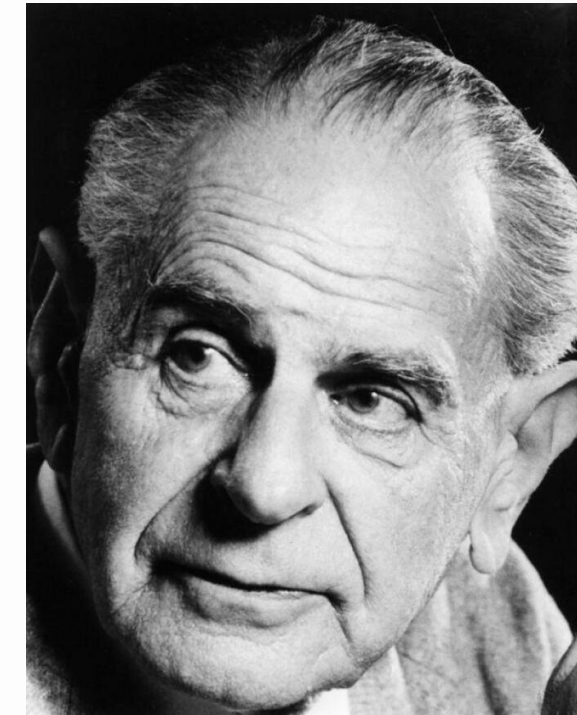
Descriptive statistics (for quantitative insight on SPSS)



- Research is considered the process of generating new knowledge, testing hypotheses and developing theory (Nkhata *et al.*, 2019)
- Both Kuhn and Popper gave contrasting views on the process of scientific knowledge development (www.wikipedia.org, 2025)



VS



Kuhn: Scientific knowledge goes through paradigm shifts

Popper: Knowledge is scientific only when it can be tested through hypotheses and can be rejected

- My Stand: I agree with Rowbottom's view that science progresses because some scientists defend paradigms (Kuhn) while others challenge them (Popper)."
- The mixed-methods research approach aligns with Rowbottom (2011)

The Kuhn Cycle



Research Paradigm



- The Structure of Scientific Revolution, American Philosopher Thomas S. Kuhn (1962)
- A paradigm is a philosophical way of thinking



In educational research, paradigm refers to 'worldview' (Mackenzie & Knipe, 2006)

Dominant Research Paradigms in Educational Research are:



- Positivist/postpositivist Paradigm
- Interpretivist/Constructivist Paradigm
- Critical/Transformative Paradigm
- Pragmatic Paradigm

Elements of Research Paradigm

- Ontology: nature of reality / what is reality?
- Epistemology: What is knowledge?
- Methodology: the process followed to acquire the knowledge
- Axiology: ethical issues to be considered while planning research



Elements of My Research Paradigm

Drawing on Kivunja and Kuyini (2017), under the pragmatic paradigm, my philosophical positioning is as follows:

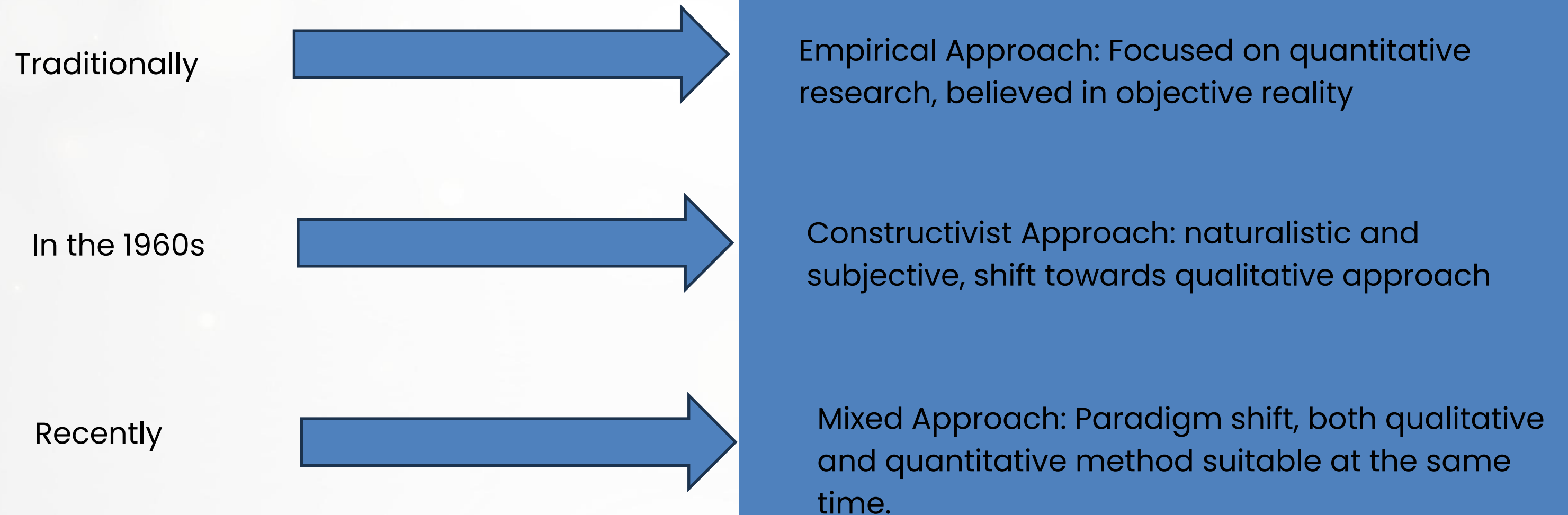
- Ontology: a non-singular reality (realities coexist as subjective and socially constructed)
- Epistemology: The research method is decided based on the research question rather than rigidly following either qualitative or quantitative; mixed method also be employed for research
- Methodology: Mixed method (Qualitative and Quantitative)
- Axiology: value-laden axiology (research is conducted for the benefit of people or address social issues)

...continued

- Ontological assumption shapes research questions, significance and data interpretation
- Epistemological assumption defines research design, data analysis
- Methodological assumptions permeate assumptions, limitations and validity
- Axiological assumptions reflect ethical consideration

Paradigm Shift

In the Educational Research



Source: Mackenzie, N. and Knipe, S., 2006. Research dilemmas: Paradigms, methods and methodology. Issues in educational research, 16(2), pp.193-205.

Paradigm Shift

In the research context (ICT in education)

Normal Science:

Traditional teaching with chalk and talk method, instruction-based learning (Reddy *et al.*, 2020)

Anomalies:

ICT good or bad for education? (Selwyn, 2012)

Crises:

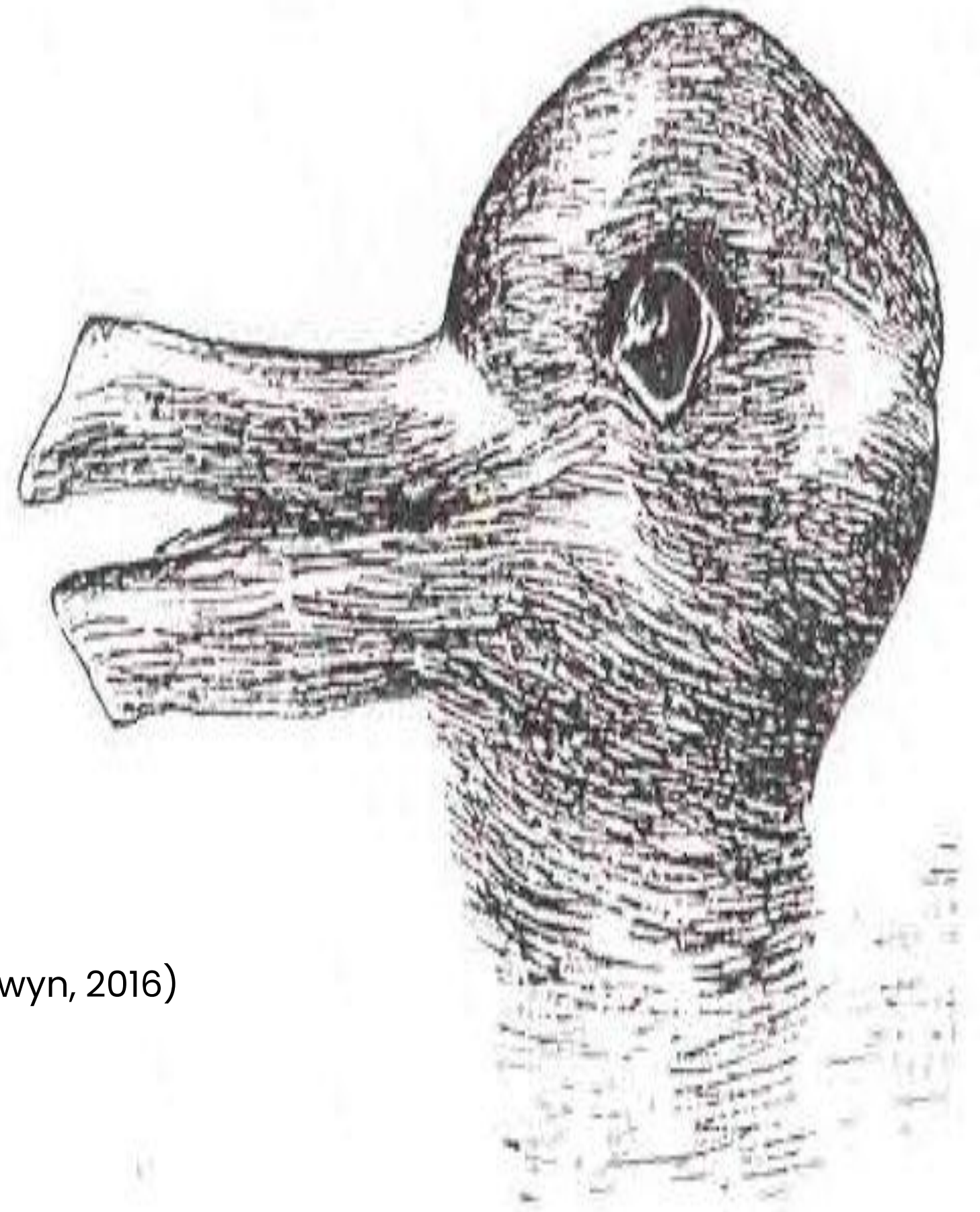
"The emerging role of ICT that required a lifelong skills, and the forced shutdown of schools due to the COVID-19 outbreak (Reddy, Sharma and Chaudhary, 2020); Thapaliya *et al.*, 2024)

Scientific Revolution:

Acceptance of ICT in global education (Henderson, 2020; Wu *et al.*, 2019; Selwyn, 2016)

Paradigm Shift:

Modern learning environment, more learner-centric and mass sharism (Bandyopadhyay *et al.*, 2021)



Reflection on Proposal Writing Process

‘Scratch where it itches’

- Initially focused on ‘Primary level’ education, assuming there is an educational gap between rural and urban students.
- However, when empirical knowledge was explored, an actual gap was observed in the Secondary level rather than the Primary.
- Guided by the above phrase, I shifted my area of interest from Primary Level schools to Secondary Level Schools. This shift can be regarded as a **paradigm shift** in my research area
- This replicates the ‘Paradigm Shift’ of my own study
- Moreover, I faced challenges while choosing my research, a ‘pragmatic’ research paradigm, as there were several competing paradigms

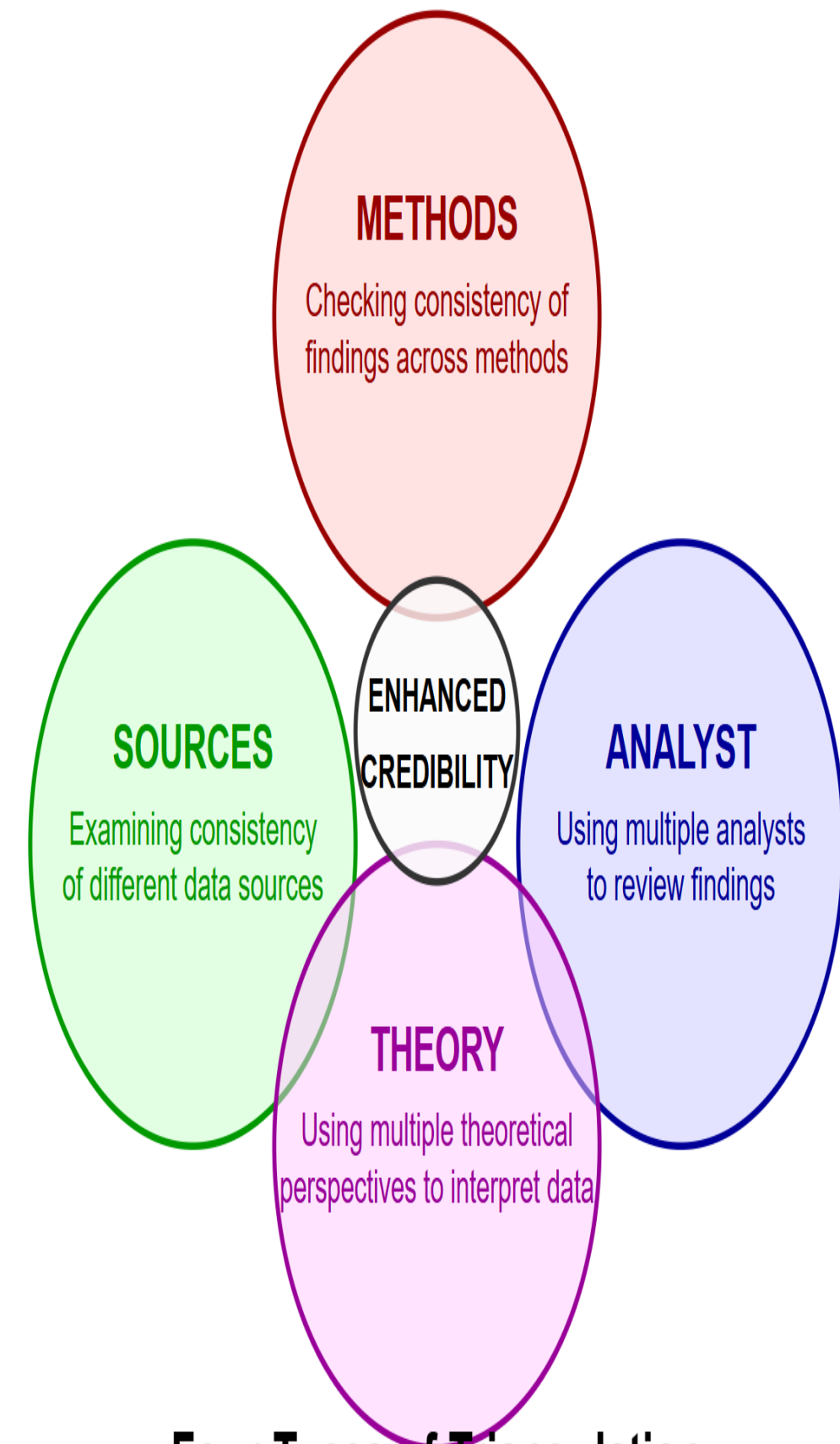


Ethical Considerations

- Ethical approval will be obtained from the University of Wales Trinity before conducting the research.
- Informed consent will be obtained from the participants
- Participants will be provided the right to voluntary participation and the right to withdraw at anytime from the survey
- The academic purpose of the research will be communicated to the participants clearly.
- Any limitations and personal biases will be openly expressed

For Validity (Creswell and Miller 2000)

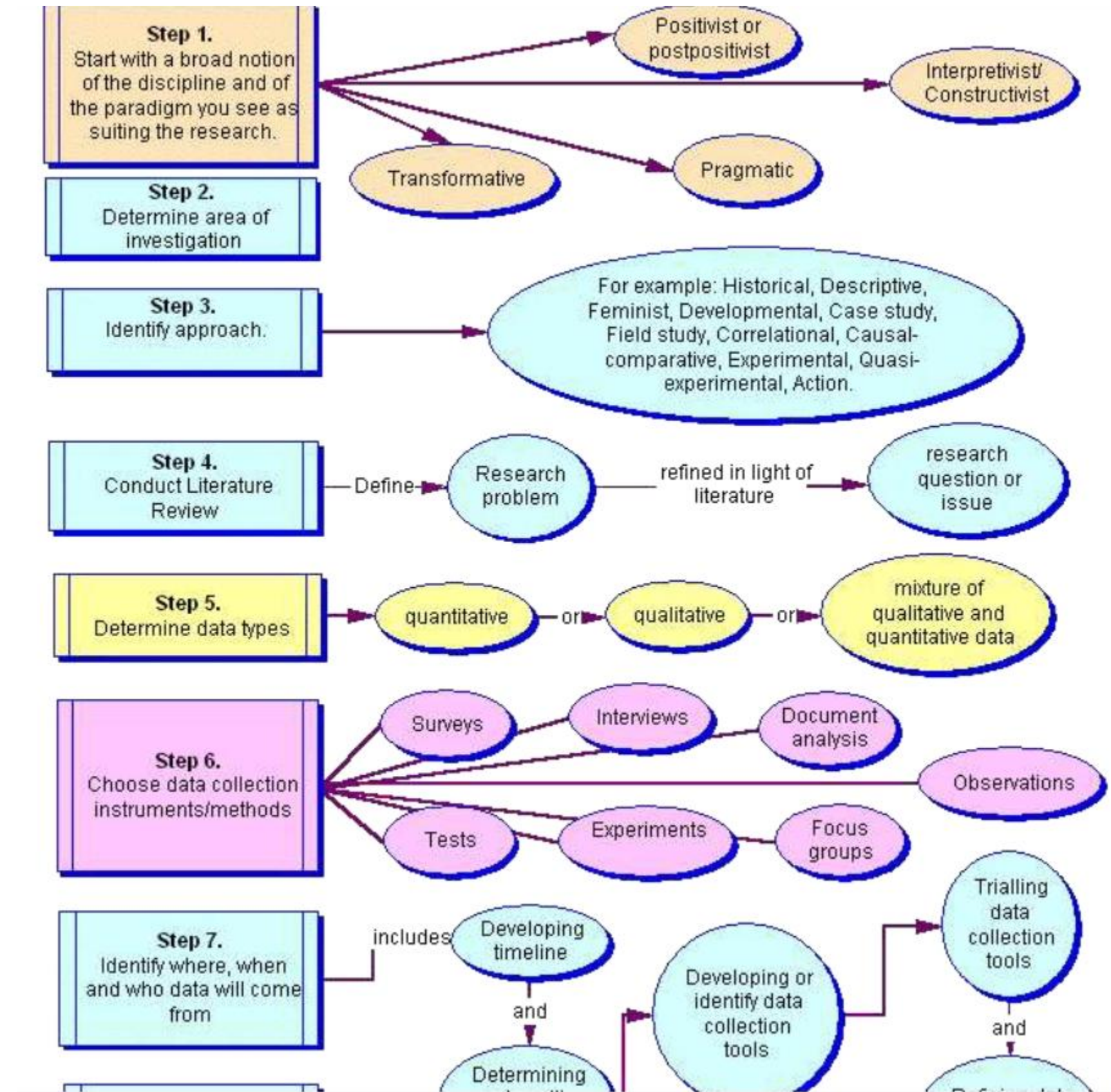
- Triangulation
- Self-disclose assumptions, beliefs and biases to inform the audience
- Prolonged engagement in the field for survey and interviews
- Audit Trial
- Thick rich discription



Four Types of Triangulation

(Based on Patton, 1999)

Research Journey



Conclusion

- ICT plays a crucial role in providing equal opportunity for quality education
- Therefore, a study investigating the role of ICT in the education sector, both in urban and rural area is essential for effective integration.
- Therefore, this study has set out to understand the role of ICT in Nepalese education, comparing its adoption in rural and urban schools
- In certain disciplines of research, there are some shared assumptions, theories, values and beliefs (paradigm) that work as a 'rulebook' and guiding principles to the research process
- The choice of paradigm sets down the intent, motivation and expectations for the research
- Paradigm comprises Ontology (research questions, significance and data interpretation), Epistemology (research design, data analysis), Methodology (assumptions, limitations and validity) and Axiology (ethical consideration)
- Ontology → Epistemology → Methodology → Axiology
- In a research community, having a common worldview follows through citations to show the relevance of the study

References

- Acharya, G.P. (2025) 'Issues and Challenges of ICT Use in Government and Non-government Schools: A Study on ICT Intergration in the Teaching-Learning Process in Surkhet District', *Surkhet Journal*, 4(1), pp. 131–152.
- Afzal, A., Khan, S., Daud, S., Ahmad, Z. and Butt, A. (2023). Addressing the digital divide: Access and use of technology in education. *Journal of Social Sciences Review*, 3(2), pp. 883–895.
- Airen, V. (2024) 'The role of ICT in enhancing education in rural areas', *Unified Visions*, pp. 35.
- Ajzen, I. (1991) 'The theory of planned behavior', *Organizational Behavior and Human Decision Processes*, 50(2), pp. 179–211.
- Bandyopadhyay, S., Bardhan, A., Dey, P. and Bhattacharyya, S. (2021) *Bridging the education divide using social technologies*. Springer.
- Begum, N. and Gul, N. (2025) 'Bridging the Gap: The Role of Technology in Reducing Educational Inequality in Developing Countries', *ASSAJ*, 3(02), pp. 2409–2421.
- Bharti, R., Pomal, K., Ahmed, M. and Singh, C.B. (2024) 'Transformative impact of ICT on education', *Feedback International Journal of Communication*, 1(3), pp. 131–141.
- Davis, F.D. (1989) 'Perceived usefulness, perceived ease of use, and user acceptance of information technology', *MIS Quarterly*, 13(3), pp. 319–340.
- Dhital, H. (2018) 'Opportunities and challenges to use ICT in government school education of Nepal', *International Journal of Innovative Research in Computer and Communication Engineering*, 6(4), pp. 3215–3220.
- Dibaba, W. (2017) 'The role of effective integration of ICT in education', *International Journal of Advanced Research in Computer Science*, 8(9).
- Foutsitzi, S. and Caridakis, G. (2019) *ICT in education: Benefits, challenges and new directions*. IEEE.
- Gebremeskel, G.B., Kebede, A.A. and Chai, Y. (2016) 'The paradigm role of ICT', *International Journal of Information and Education Technology*, 6(4), pp. 301.
- Henderson, D. (2020) 'Benefits of ICT in Education', *IDOSR Journal of Arts and Management*, 5(1), pp. 51–57.
- Herselman, M. and Britton, K.G. (2002) 'Analysing the role of ICT in bridging the digital divide', *South African Journal of Education*, 22(4), pp. 270–274.

Joshi, B.M., Acharya, U. and Khatiwada, S.P. (2024) 'Policy versus reality', *Pragyaratna*, 6(2), pp. 226–234.

Khan, S., Hwang, G.-J., Abbas, M.A. and Rehman, A. (2019) 'Mitigating the urban–rural educational gap', *British Journal of Educational Technology*, 50, pp. 735–749.

Kivunja, C. and Kuyini, A.B. (2017) 'Understanding and applying research paradigms', *International Journal of Higher Education*, 6(5), pp. 26–41.

Kuhn, T.S. (1997) *The structure of scientific revolutions*. University of Chicago Press.

Kumar, P. and Gautam, D. (2023) 'Transformative role of ICT in 21st century learning', *International Journal for Research in Applied Science and Engineering Technology*, 11(12), pp. 91–95.

Lim, C.P., Ra, S., Chin, B. and Wang, T. (2020) 'Leveraging ICT to enhance education equity', *Educational Media International*, 57(2), pp. 87–111.

Mackenzie, N. and Knipe, S. (2006) 'Research dilemmas', *Issues in Educational Research*, 16(2), pp. 193–205.

Mishra, P. and Koehler, M.J. (2006) 'Technological pedagogical content knowledge', *Teachers College Record*, 108(6), pp. 1017–1054.

OECD (2006) *Education at a Glance 2006*. OECD Publishing.

Panyajamorn, T. et al. (2018) 'Effectiveness of e-learning design', *Malaysian Journal of Learning and Instruction*, 15(1), pp. 1–34.

PuenteDura, R. (2006) *Transformation, technology, and education*.

Rana, K. (2024) 'Rural primary teachers' perceived affordances of ICT training in Nepal', *Interactive Learning Environments*, 32(9), pp. 5479–5493.

Reddy, P., Sharma, B. and Chandra, S. (2020) 'Student readiness and perception of tablet learning', *Journal of Cases on Information Technology*, 22(2), pp. 52–69.

Rogers, E.M. (2001) 'The digital divide', *Convergence*, 7(4), pp. 96–111.

Rowbottom, D.P. (2011) 'Kuhn vs. Popper', *Studies in History and Philosophy of Science Part A*, 42(1), pp. 117–124.

Selwyn, N. (2012) *Education in a digital world*. Routledge.

Selwyn, N. (2016) *Is technology good for education?* John Wiley & Sons.

Shulman, L.S. (1986) 'Those who understand', *Educational Researcher*, 15(2), pp. 4–14.

Sond, S. (2025) 'Role of Information and Communication Technology in Education', International Journal of Scientific Research in Engineering and Management, 9(4), pp. 1–3.

United Nations, Department of Economic and Social Affairs (2023) The 17 Goals | Sustainable Development.

Wood, R.M. (2023) 'A review of education differences in urban and rural areas', International Research Journal of Educational Research, 14(2), pp. 1–3.



THANK YOU