Appendices

Appendix A. Full Methodology

1. Context

The main purpose of the "AI4Ed Nepal: Quality Education Service Delivery through Innovation" project is to generate robust, contextually grounded and equity-sensitive evidence on AI literary, use, opportunities and barriers among the school teachers in Nepal in order to inform the policy, program design and national standards on the responsible use of AI in Nepal's basic education system. The project aims to do this in two different phases. Phase one of the project aims to generate the evidence through mixed methods research, teacher-led innovations and series of structured dialogues. The outcomes of phase one will inform phase two to proceed with the policy formation, programme design and implementation. This particular deliverable outlines the detailed plan of the mixed-method research that will be implemented in the near future of this project.

2. Objectives

Specific objectives of this project are;

1. To assess the current level of AI literacy among teachers, including female teachers, in Nepal, covering awareness, usage, and ethical understanding.
2. To document how teachers currently use AI tools, if at all, in classroom practice and professional work.
3. To examine teachers' perceptions of opportunities and risks associated with the use of AI in basic education.
4. To identify key barriers and enablers influencing AI literacy development and AI adoption, including infrastructural, institutional, attitudinal, equity related, attitudinal and policy-level factors.
5. To explore how teacher-led action research on AI use demonstrates teacher agency and generates practice-based insights.
6. To generate evidence-informed recommendations for policy frameworks, continuing professional development (CPD) structures, and school-level planning to support responsible and inclusive AI integration in the basic education system of Nepal.

3. Planning of the Mixed Method Research

A participatory planning workshop was organized to discuss the details of the mixed method research design during the inception phase of the project on 19 January 2026. Participants of the workshop included the technical team members of the AI4Ed Nepal project, representatives of the Ministry of Education, Science and Technology (MOEST) and experts from the British Council network. The three-hour interactive session, facilitated by Research Lead Dr. Ronda Zelezny-Green, was focused on the discussion to generate robust, policy-usable evidence on AI literacy, use, opportunities, and barriers across Nepal's basic education system.

4. Research Framework: Convergent Parallel Mixed-Methods Design

This particular research will follow a convergent parallel mixed-methods design. The rationale behind this design is to address Nepal's current learning crisis. Despite 96.9% primary enrolment, significant learning poverty persists, with youth unemployment at 23.4%, indicating a skills mismatch that threatens inclusive growth. Physical access to education has not translated into effective learning outcomes. Teacher quality and professional development are central to addressing this challenge, yet Nepal lacks fundamental evidence on teacher AI literacy levels, current AI practices, barriers to adoption, and perceived opportunities. *Can teachers critically evaluate AI-generated content? Do they understand AI ethics? What infrastructure, capacity, and institutional factors enable or constrain AI use? How do these patterns vary by gender, geography, school type, and other equity dimensions?*

To address these questions, a convergent parallel mixed-methods design combining quantitative and qualitative strands has been agreed.

1) The quantitative strand will survey 800 teachers across Nepal's seven provinces using the AI Literacy Scale (AILS)—a 12-item validated instrument measuring four dimensions: Awareness (knowledge of AI concepts), Usage (experience with AI tools), Evaluation (critical assessment skills), and Ethics (understanding of privacy, bias, responsible use). The survey will also collect demographics, current AI practices, barriers/enablers, and perceived opportunities/risks.
2) The qualitative strand will include 372 interviews, 12 focus group discussions, 12 classroom observations, and three multi-stakeholder roundtables, providing an in-depth exploration of mechanisms and meaning behind quantitative patterns.

3) Data collection and analysis will be sex disaggregated to identify potential gender differences and inequalities

This design has been agreed as appropriate for Phase 1's eight-month timeline, enabling simultaneous data collection that captures the same historical moment across Nepal's education landscape. If quantitative patterns emerge (for example, low female teacher AI usage or rural-urban divides), qualitative research can immediately probe mechanisms and contexts. Parallel tracks allow intentional oversampling of female teachers and marginalized groups in both strands simultaneously.

5. Research Questions

The research framework includes six questions addressing: teacher AI literacy levels and variation across equity dimensions; current AI practices and tools employed; perceived opportunities and risks for AI in basic education; barriers and enablers to AI adoption; insights from teacher-led action research demonstrating teacher agency; and policy frameworks needed to support AI literacy development and inform national standards:

1. What is the current level of *AI literacy* among Nepal's teachers, and how does it vary by gender, geography, school type, teaching experience, and equity group (caste/ethnicity)?
2. How do teachers currently use AI (if at all) in classrooms and professional practice, and what tools/approaches are being employed?
3. What opportunities and risks do teachers perceive for AI in basic education, and how do these perceptions differ across contexts? (Risks include both general risks of AI in education and Nepal-specific contextual risks)
4. What are the primary barriers and enablers to AI literacy, adoption, and use (infrastructure, knowledge, structural, attitudinal, equity-related, policy-level initiatives, school planning)?
5. How does teacher-led action research on classroom AI use demonstrate teacher agency, inform and deepen the national study findings, and what practice-based insights emerge?

6. How can AI literacy development and responsible AI integration be supported through policy frameworks, CPD structures, and school planning to inform Phase 2 programme design and national AI in education standards?

6. Sampling Strategy: Grounded in Nepal's Realities

In order to include different types of schools such as small schools in rural areas and bigger schools in towns and cities, the study will include 168 schools for online survey, 48 schools for in-person survey and 24 schools for interview, focus group discussion and class observation. This will be done with flexible allocation: larger schools (15+ teachers) provide 5 survey respondents; medium schools (8-14 teachers) provide 3; smaller schools (<8 teachers) provide 2, with proportionally increased school numbers to maintain the 800 target. This accommodation ensures representativeness across Nepal's diverse school sizes and contexts. This will also help address the sampling bias toward larger, better-resourced schools and undermining equity objectives.

School type coverage includes both community schools (government-funded, approximately 60% of the sample) and institutional schools (private, approximately 40%), reflecting national proportions. Stratified random sampling ensures representation across all seven provinces, urban and rural locations, and school types. In addition to the survey, there will be 60 interviews (48 teachers, including action research participants, 24 stakeholders, including head teachers and local government officials) and 12focus groups discussions to ensure adequate depth without sacrificing analytical quality.

Table 1: Quantitative Sampling Strategy by School Size

School Size (Number of Teachers)	Expected Respondents per School	Rationale
Large schools (15+ teachers)	5 teachers	Sufficient staff numbers allow higher within-school sampling without burden
Medium schools (8–14 teachers)	3 teachers	Balances representativeness with feasibility
Small schools (<8 teachers)	2 teachers	Ensures inclusion of rural and hard-to-reach schools typically excluded by fixed quotas

Total	**800 teachers across 50–70 schools**	Flexible allocation maintains national coverage and equity objectives

Note: The number of schools sampled increases proportionally where smaller schools are included, ensuring the overall sample target of 800 teachers is maintained.

Explicit equity mechanisms were emphasized: minimum 47% female teachers in the quantitative sample; purposive oversampling of female teachers and marginalized caste/ethnic groups in the qualitative strand; intentional recruitment of teachers with disabilities even if survey numbers are small; addition of employment status as a variable (permanent, contract, temporary teachers may have differential access and experiences); and consideration of language of teaching and learning (e.g. Nepali-medium, English-medium, or minority/ethnic L1 contexts) as a contextual variable influencing AI access and use. All analysis will be disaggregated by gender, geography, school type, caste/ethnicity, employment status, and language context where data permits. Real-time monitoring of sample composition will enable recruitment adjustments if underrepresentation is detected.

7. Data Collection Modality and Practical Considerations

Clarification of survey administration modality is essential to make sure that the data are representative and quality data are collected. A purely online approach would systematically exclude rural teachers with limited connectivity—precisely the populations whose experiences are most important for equity-focused policy. A purely face-to-face approach would be inefficient where teachers have reliable access. Thus, this study will adopt a hybrid approach in which both online and face-to-face surveys will be used.

The hybrid approach designates face-to-face data collection as the primary mode, particularly for rural teachers, teachers in schools with limited connectivity, and teachers with low digital literacy. In practice, this is expected to account for approximately 60–70% of survey responses, with trained data collection teams visiting schools, administering surveys in person using tablets, and providing support as needed.

Online administration will serve as a secondary mode, expected to cover approximately 30–40% of responses, primarily among urban teachers with reliable internet access and demonstrated digital literacy. These surveys will be self-administered via secure links shared through email.

Regardless of administration mode, all responses will be captured within a unified digital platform, ensuring consistency in instrument structure, data quality controls, and downstream analysis.

8. Rationale and Design Framework

While the mixed-methods research study will document current teacher AI literacy levels, practices, and barriers across Nepal, it cannot show what happens when teachers actually attempt to integrate AI into their classrooms. Action research fills this gap by generating practice-based evidence from real Nepali classroom contexts. It positions teachers as knowledge producers and designers of AI integration rather than passive research subjects, enables context-specific innovations that researchers cannot predict in advance, produces illustrative case studies grounding quantitative patterns in lived experience, and identifies the specific supports teachers need to move from AI awareness to effective implementation. A detailed plan of action research has been discussed and it will be finalized as the next deliverable of this project.

Appendix B. Survey Instruments

Survey Questions for Head Teachers

Teacher AI Competency and Readiness Survey

BACKGROUND INFORMATION

Gender:

[ ] Male

[ ] Female

[ ] Other

[ ] Prefer not to say

Age: _____ years

Total years of teaching experience: _____ years

Current grade(s) you teach: _____

(Example: Grade 8-10, or Grades 4-5, or Grade 1-3)

Highest Level of Education:

[ ] High School or equivalent

[ ] Bachelor

[ ] Master's / Mphil

[ ] PhD

Subject(s) you teach (select all that apply):

[ ] Nepali Language

[ ] English

[ ] Mathematics

[ ] Science

[ ] Social Studies

[ ] Other: _____

School type:

[ ] Government/Community School (सामुदायिक/sarkari)

[ ] Private/Institutional School

School location - Province:

[ ] Koshi Province

[ ] Madhesh Province

[ ] Bagmati Province

[ ] Gandaki Province

[ ] Lumbini Province

[ ] Karnali Province

[ ] Sudurpashchim Province

School location - Urban/Rural:

[ ] Urban (Municipality or Metropolitan City)

[ ] Rural (Village or Remote area)

***Instructions for Headteachers**: Please rate your level of agreement with the following statements regarding the teaching staff at your school:*

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

SECTION 1: Awareness of Artificial Intelligence

This section measures the foundational knowledge and conceptual understanding of AI among staff.

Teachers can accurately define "Artificial Intelligence" in an educational context.

Teachers are aware of the difference between Generative AI (e.g., ChatGPT) and computer software.

Teachers recognize the ethical implications of AI, such as data privacy, security, and safeguarding.

Teachers stay updated on the latest AI trends in the education sector.

Teachers understand the current government policies regarding AI usage.

Teachers are aware of the potential for AI to reduce administrative workloads.

Teachers can identify AI-generated content with reasonable accuracy.

Teachers understand the concept of "Prompt Engineering" for educational purposes.

SECTION 2: AI Readiness

This section assesses the psychological and technical preparedness of the staff.

Teachers show a high level of interest in attending AI-related professional development.

Teachers possess the basic digital literacy required to navigate AI platforms such as ChatGPT, Google Gemini, Perplexity.

Teachers express confidence in their ability to learn new AI tools.

Teachers are proactive in seeking out AI resources for their subjects.

Teachers view AI as a collaborator rather than a threat.

Teachers have identified specific areas in their workflow where AI could be beneficial.

Teachers are willing to experiment with AI tools despite the risk of initial failure.

Teachers advocate for the inclusion of AI literacy in the student curriculum.

SECTION 3: Artificial Intelligence Adaptation

This section evaluates how teachers are shifting their habits and workflows.

Teachers have begun incorporating AI tools into their daily lesson planning.

Teachers use AI to generate creative teaching materials (e.g., images, slides, or stories).

Teachers utilize AI for routine administrative tasks (e.g., email drafting, scheduling).

Teachers regularly discuss AI developments with their colleagues.

Teachers have adapted their teaching style to account for the presence of AI in students' lives.

Teachers are moving away from traditional methods that are easily bypassed by AI (e.g., from multiple choice tests to oral exams).

Teachers use AI to translate or adapt materials for ESL (English as a Second Language) students.

Teachers actively troubleshoot technical issues encountered while using AI.

SECTION 4: Pedagogical Integration in the Classroom

This section focuses on the "how" of teaching and learning with AI.

Teachers use AI to provide personalized learning paths for individual students.

Teachers facilitate classroom discussions about the responsible use of AI (data privacy, transparency, bias awareness, human oversight).

Teachers use AI to differentiate instruction for students with special educational needs.

Teachers design assignments that require students to use AI critically.

Teachers use AI to simulate real-world scenarios or role-plays in the classroom.

Teachers leverage AI to provide instant feedback during classroom activities.

Teachers use AI-driven analytics to monitor student engagement during lessons.

Teachers encourage students to use AI as a brainstorming partner for creative projects.

SECTION 5: AI in Evaluation and Assessment

This section looks at the evolution of grading, feedback, and academic integrity.

Teachers use AI tools to assist in grading objective assessments (e.g., quizzes).

Teachers use AI to generate diverse question banks and exam variants.

Teachers utilize AI to provide detailed, qualitative feedback on student essays.

Teachers have redesigned assessments to ensure they are "AI-resistant" or "AI-enhanced."

Teachers use AI to track student progress over long periods to identify learning gaps.

Teachers use AI to analyse assessment data to refine their future teaching strategies.

Teachers involve students in using AI to self-assess their own work against rubrics

THANK YOU

Survey Questions for Teachers

SECTION 1: AI LITERACY (AILS 12-ITEM CORE)

Instructions: *Please indicate how much you agree or disagree with each statement about artificial intelligence (AI).*

RESPONSE SCALE:

1 = STRONGLY DISAGREE

2 = DISAGREE

3 = NEITHER AGREE NOR DISAGREE

4 = AGREE

5 = STRONGLY AGREE

DIMENSION A: Awareness (Understanding of AI Concepts)

I can explain what artificial intelligence (AI) means to someone who has never heard of it.

[1] [2] [3] [4] [5]

I understand the difference between AI tools (like ChatGPT or Google Translate) and regular computer programs (like Microsoft Word).

[1] [2] [3] [4] [5]

I can identify which of the tools I use in daily life involve AI technology.

[1] [2] [3] [4] [5]

DIMENSION B: USAGE (Practical Experience with AI)

I have personally used AI tools (such as ChatGPT, Google Translate, Gamma, Gemini, Perplexity or others) for my teaching work.
[ ] yes [ ] No

I feel confident using AI tools to create teaching materials (such as lesson plans, practice questions, or slides).
[1] [2] [3] [4] [5]

I use AI tools as part of my normal teaching practice (at least once per week).
[ ] yes [ ] No

DIMENSION C: EVALUATION (Critical Assessment of AI)

I can identify when AI-generated content contains errors or inappropriate information for my students.
[1] [2] [3] [4] [5]

I understand the limitations of AI tools (such as when they might give wrong answers or culturally inappropriate suggestions)
[1] [2] [3] [4] [5]

Before using AI-generated content with students, I check it for accuracy and cultural appropriateness
[1] [2] [3] [4] [5]

DIMENSION D: ETHICS (Understanding of Bias, Privacy, Responsible Use)

I am aware that AI tools can reflect biases (such as gender bias, caste bias, or Western cultural bias).
[1] [2] [3] [4] [5]

I understand privacy concerns related to using AI tools with student data (such as names, work samples, or personal information).
[1] [2] [3] [4] [5]

I teach my students about responsible AI use (such as not plagiarizing, understanding AI limitations, or protecting privacy).
1—always, 2- usually, 3- sometimes, 4- rarely, 5- never

SECTION 2: BACKGROUND INFORMATION

***Instructions**: This information helps us understand how AI literacy varies across different teachers and contexts. All responses are strictly confidential.*

Gender:

[ ] Male

[ ] Female

[ ] Other

[ ] Prefer not to say

Age: _____ years

Total years of teaching experience: _____ years

Current grade(s) you teach: _____

(Example: Grade 8-10, or Grades 4-5, or Grade 1-3)

Highest Level of Education:

[ ] High School or equivalent

[ ] Bachelor

[ ] Master's / Mphil

[ ] PhD

Subject(s) you teach (select all that apply):

[ ] Nepali Language

[ ] English

[ ] Mathematics

[ ] Science

[ ] Social Studies

[ ] Other: _____

School type:

[ ] Government/Community School (सामुदायिक/sarkari)

[ ] Private/Institutional School

School location - Province:

[ ] Koshi Province

[ ] Madhesh Province

[ ] Bagmati Province

[ ] Gandaki Province

[ ] Lumbini Province

[ ] Karnali Province

[ ] Sudurpashchim Province

School location - Urban/Rural:

[ ] Urban (Municipality or Metropolitan City)

[ ] Rural (Village or Remote area)

Caste/Ethnicity

NOTE: This information is collected for equity analysis only to understand whether teachers from different backgrounds have different access to AI literacy opportunities. All responses are completely confidential and will never be linked to your name

[ ] Brahmin/Chhetri

[ ] Dalit

[ ] Janajati (Indigenous/Ethnic minority)

[ ] Muslim

[ ] Other:

Employment status:

[ ] Permanent teacher (स्थायी)

[ ] Temporary contract teacher (अस्थायी करार)

[ ] Relief/Rahat teacher (राहत शिक्षक)

[ ] Other: _____

Language(s) you can teach in (select all that apply):

[ ] Nepali

[ ] Maithili

[ ] Bhojpuri

[ ] Tharu

[ ] Tamang

[ ] Newari

[ ] English

[ ] Other: _____

Do you experience any disability that affects your teaching work?

NOTE: This helps us understand accessibility needs for professional development. Responses are confidential.

[ ] No
[ ] Yes - Vision impairment
[ ] Yes - Hearing impairment
[ ] Yes - Mobility impairment
[ ] Yes - Learning or cognitive disability
[ ] Yes - Other: _____
[ ] Prefer not to say

Primary device you use to access information for your teaching work:

[ ] Smartphone - personal (I own it and can use it anytime)

[ ] Smartphone - family/shared (I must ask permission or share with others)

[ ] Laptop/Computer - personal (I own it and can use it anytime)

[ ] Laptop/Computer - family/shared (I must ask permission or share with others)

[ ] Laptop/Computer - school

[ ] Tablet - personal (I own it and can use it anytime)

[ ] Tablet - family/shared (I must ask permission or share with others)

[ ] No regular device access

[ ] Other: _____

Internet access at home:

[ ] Occasional lack of access

[ ] Internet available but often unreliable (frequent outages)

[ ] No internet at home

[ ] Mobile data only (limited or expensive)

On average, how many hours per day do you spend on household work and care responsibilities (cooking, childcare, elderly care, etc.) OUTSIDE of your teaching work?

[ ] Less than 1 hour

[ ] 1-2 hours

[ ] 3-4 hours

[ ] 5 or more hours

SECTION 3: YOUR CURRENT AI TOOL USE

Have you ever used any AI tools for your teaching work?

[ ] Yes *(→ Continue Q30)*

[ ] No *(→ Skip to Q37)*

[ ] Not sure what counts as "AI tools" *(→ Continue to Q30)*

[IF YES OR NOT SURE – CONTINUE 30-36]

Which of these AI tools have you used at least once for teaching? (Select all that apply)

[ ] ChatGPT or similar generators (Gemini, Claude, Bard, etc.)
[ ] Google Translate or other AI translation tools
[ ] Canva or other AI design tools
[ ] AI image generators (DALL-E, Midjourney, Bing Image Creator, etc.)
[ ] AI features in Google Classroom or other teaching platforms
[ ] YouTube AI recommendations or AI-generated subtitles for teaching
[ ] Other AI tools: _____
[ ] None of the above

How often do you currently use AI tools for your teaching work?

[ ] Every day or almost every day
[ ] A few times per week
[ ] Once a week
[ ] A few times per month
[ ] Rarely (less than once per month)
[ ] I tried it once or twice but stopped using it

What about language learning apps/AI tools for extra practice outside class? (Select up to 3 main uses)

[ ] Creating or improving lesson plans
[ ] Generating practice questions, worksheets, or assignments
[ ] Translating materials to/from Nepali or students' local languages
[ ] Creating visual teaching aids (images, diagrams, posters)
[ ] Explaining difficult concepts in simpler language
[ ] Responding to parent or student questions outside class
[ ] Grading, assessment, or feedback support
[ ] My own professional development or learning new teaching methods
[ ] Finding teaching resources or lesson ideas
[ ] Other: _____

Do your students directly interact with AI tools during your lessons?

[ ] Yes, regularly (students use AI tools at least weekly)
[ ] Yes, occasionally (students use AI tools less than weekly)
[ ] No, only I use AI tools (students don't directly interact)
[ ] No, students don't have access to AI tools
[ ] No, we are not allowed to use AI tools with students in class
[ ] Not applicable

Has using AI tools changed how you teach?

[ ] Yes, significantly - I teach quite differently now
[ ] Yes, somewhat - I've made some small changes to my teaching
[ ] No, I use AI but my teaching approach is the same
[ ] Too early to tell - I just started using AI

Approximately how much time per week do AI tools save you, if any?

[ ] None
[ ] Using AI actually takes MORE time than it saves
[ ] Less than 1 hour saved per week
[ ] 1-2 hours saved per week
[ ] 3-5 hours saved per week

[ ] More than 5 hours saved per week
[ ] Not sure / Hard to estimate

How did you first learn about AI tools for teaching?

[ ] Colleague or fellow teacher
[ ] Training workshop or professional development session
[ ] Social media (Facebook, YouTube, TikTok, etc.)
[ ] News article or media report
[ ] I explored and learned on my own
[ ] School administrator or head teacher suggested it
[ ] Family member or friend (not from school)
[ ] Other: _____

_____
_____

[IF "NO", IN Q29, CONTINUE FROM HERE]

_____
_____

What is the MAIN reason you do not use AI tools regularly for your teaching?

*(NOTE A MAX OF FIVE AND **RANK THE TOP THREE**)*

[ ] I don't know what AI tools are available for teaching
[ ] I don't know how to use AI tools
[ ] No internet access at my school
[ ] No internet access at my home
[ ] No device (smartphone, computer, tablet) to access AI tools
[ ] Not enough time to learn how to use new technology
[ ] My school doesn't allow or support using AI tools
[ ] I don't trust the accuracy of AI-generated content
[ ] AI tools don't work well in Nepali or my students' languages
[ ] I'm concerned about student data privacy and security
[ ] I don't see how AI would actually help my teaching
[ ] I'm worried AI might replace teachers or reduce our value
[ ] Other: _____

SECTION 4: BARRIERS TO USING AI IN TEACHING

***Instructions**: Please rate how much each of the following limits YOUR ability to use AI tools in your teaching. Even if you currently use AI, some barriers may still affect you.*

RESPONSE SCALE:
1 = Not a barrier at all
2 = Minor barrier
3 = Moderate barrier
4 = Major barrier
5 = Complete barrier (makes it impossible)

Lack of reliable internet connection at my school

[1] [2] [3] [4] [5]

Lack of reliable electricity at my school (frequent power cuts)

[1] [2] [3] [4] [5]

No access to computers, tablets, or smartphones for teaching

[1] [2] [3] [4] [5]

Lack of training or professional development on how to use AI tools

[1] [2] [3] [4] [5]

Not enough time in my schedule to learn about new technology

[1] [2] [3] [4] [5]

AI tools are not available in students' home languages

[1] [2] [3] [4] [5]

Concerns about student data privacy and security when using AI

[1] [2] [3] [4] [5]

My school administration does not support or encourage using AI tools

[1] [2] [3] [4] [5]

Worried that AI tools will give incorrect or culturally inappropriate information to students

[1] [2] [3] [4] [5]

My students do not have access to devices or internet at home (limits what I can assign)

[1] [2] [3] [4] [5]

Fear that AI will eventually replace teachers or reduce the value of our profession

[1] [2] [3] [4] [5]

Household and family responsibilities limit my time to learn new skills

[1] [2] [3] [4] [5]

AI tools don't understand the specific languages or contexts my students come from

[1] [2] [3] [4] [5]

I don't have colleagues I can learn from or ask questions about technology

[1] [2] [3] [4] [5]

SECTION 5: OPPORTUNITIES FOR AI IN TEACHING

***Instructions**: Please indicate how much you agree or disagree with each statement about potential opportunities and risks of AI in education.*

RESPONSE SCALE:
1 = Strongly Disagree
2 = Disagree
3 = Neither Agree nor Disagree
4 = Agree
5 = Strongly Agree

AI tools could help me save time on lesson planning and administrative tasks

[1] [2] [3] [4] [5]

AI tools could help me provide more personalized support to students with different learning levels

[1] [2] [3] [4] [5]

AI tools could help me translate or adapt materials for multilingual students

[1] [2] [3] [4] [5]

AI tools could help me learn new teaching methods and improve my practice

[1] [2] [3] [4] [5]

AI tools could help reduce the quality gap between well-resourced private schools and under-resourced government schools

[1] [2] [3] [4] [5]

AI tools could allow me to spend more time on students' social-emotional development instead of paperwork

[1] [2] [3] [4] [5]

If AI tools become common in Nepal's schools, students in remote provinces will be left behind compared to Kathmandu

[1] [2] [3] [4] [5]

The following documents available upon request

Head Teacher Survey Guide

Teacher Survey Guide

Semi-structure Interview Schedule for Local Government Education Officers interview

Semi-structure Interview Schedule for Head Teachers interview

Semi-structure Interview Schedule for Teachers interview

Classroom Observation Protocol

Focus Group Discussion Protocol for teachers

THANK YOU

Appendix C. Detailed quantitative data analysis

Quantitative data was analysed under a locked analytical plan covering the teacher survey and the accompanying head teacher survey, in two tiers: initial results prepared ahead of the June roundtables, and fuller analyses feeding this report. After data auditing, de-identification and rule-based cleaning with documented quality flags and missing-data rules, the 12-item AI Literacy Scale (AILS) was scored into four sub-scales (Awareness, Usage, Evaluation and Ethics), with the overall score the mean of the four sub-scale means, reported in three literacy bands (High, Moderate, Low) and tested for reliability against the instrument's interim benchmark. Descriptive statistics were produced for every variable, and every applicable analysis was disaggregated by the equity dimensions in the questionnaire (gender, province, urban/rural location, school type, caste/ethnicity, employment status, disability, language), with priority two-way intersectional disaggregation mandatory and three-way cuts run where cell sizes permitted. Group comparisons used Welch's t-tests, Welch's ANOVA and chi-square tests, with non-parametric fallbacks and multiple-comparison corrections; every finding is reported with subgroup sizes, an effect size and a 95 per cent confidence interval, never a p-value alone. Second-tier analyses added psychometric validation of the AILS (factor analysis and measurement invariance), post-stratification weighting on gender, province and school type, multilevel models reflecting the nesting of teachers within schools and municipalities, regression modelling, latent-class segmentation of teacher readiness, and school-level head-teacher–teacher linked analyses, conducted in SPSS and R software, with first-tier outputs independently rerun by a second analyst.

Appendix D. Action Research Templates

A template designed to collect qualitative and quantitative research data from the mentees by the mentors

Record sheet for the Exploratory Action Research Mentoring Plan under AI4Ed Nepal: quality education service delivery through innovation

General information

1. Name of the mentor-
2. Mentee teacher-
3. Name of the school-
4. Location of the school-
5. Interaction date-
6. Current phase of the EAR- (Selecting ai tools/exploration/ planning/ intervention/reflection)

Focus areas of the research-

- **The area of the problem** (Did the mentee teacher identify any particular challenge in the classroom? – for example -difficult to share one's opinion on the topic among friends or the teacher)
- **What AI tool was used by the teacher? (Chat gpt/ canva/ gemini/ magicschool/google ai)**
- **Did the AI tool/s help the mentee teacher? How? (eg. 'To teach vocabulary with meaning-form-pronunciation (MFP)'**
- **Problems the teacher faced (if any)**
- **How the problem was mitigated (if any)**

The effective of the evidence

- **How the teacher was mentored this time?**
- **What/how students learned?**
- **What made the learning better/worse?**

Keeping the above questions in consideration, fill in the table below.

Index/pointer	Observations of the mentee teacher	Classroom artefacts (For evidence)
Student engagement	No participation/ low participation/ higher participation	TPS/ lower absenteeism/classwork/
Learning achievement	Level of understanding of the learners/ journey to HOTS from LOTS	Sample writing tasks/ formative/ summative test result/
Effective classroom teaching	- Did the use of AI tool useful? - How has/have the tool supporting the teacher for successful teaching? - Have the ai tools created any unnecessary burdens in teachers?	For time management ? Become resourceful? Support in CPD? …… …….
Inclusion and gender equality/equity	- Did the use of AI tool(s) support all the learners (SEN/mixed ability learners) equal opportunity for classroom activities?	translation? audio/ video/ podcast task? Use 21st century skills? Equal opportunity?

	- Need to plan differently for any student(s)?	

Mentee teacher reflection-

1. **What went well? (ai tools/ real classroom)**
2. **What did not go well?**
3. **What I will do in next class?**

Mentor's reflection

- **Effectiveness of mentoring**
- **How it can be refined next time**
- **What technical or mentoring support will benefit my mentee teacher(s)**

(If possible)

Success story of mentee teacher (from the classroom)

Success story of a mentor teacher (from among the mentee teachers)

Appendix E. Quantitative Findings Report

Executive Summary

This report provides a rigorous, policy-grade interpretation of the quantitative data gathered for the **AI4Ed Nepal** study. Grounded in the project's *Quantitative Analysis Plan (QAP)* and *Statistical Analysis Plan (SAP)*, this analysis bridges raw statistical indicators with structural, equity-focused, and practical realities in Nepal's education sector.

Key insights reveal:

1. **A Significant Gender Divide**: A robust, moderate gender gap in overall AI Literacy (d = 0.430) and a dramatic deficit in adoption rates (OR = 0.436 for women) that worsens when controlling for infrastructure and school-type access.
2. **A Steep Age Gradient**: Younger teachers (under 30) are the primary adopters; older teachers face a steep decline in both adoption (OR = 0.096 for ages 50+) and overall literacy.
3. **Structural Fit vs. Subscale Reliability**: The 12-item AI Literacy Scale (AILS) demonstrates an excellent structural configuration through Confirmatory Factor Analysis (CFI = 0.983, TLI = 0.977, RMSEA = 0.042, SRMR = 0.025), proving that the underlying 4-factor latent structure fits Nepalese data cleanly. However, because of lower loadings on individual items, the *Ethics* subscale's reliability (alpha = 0.575) still falls below our QAP-locked 0.60 floor. This psychometric strain activates our locked fallback protocol.
4. **Intersectional Nuance**: While simple caste-based differences are statistically non-significant on their own (p = 0.520), intersectional cuts reveal that the gender gap is heavily magnified within specific castes (e.g., Terai/Madheshi Dalit: gap of 0.80 scale points and Terai/Madheshi Janajati/Adivasi): gap of 0.51 scale points) but virtually non-existent in others (Hill Dalit and Terai/Madheshi Other Caste).
5. **Mode and Training Barriers**: A notable administration mode effect (d = 0.292) demands statistical adjustments, while a severe "lack of training" (Mean = 3.86) emerges as the top overall barrier to integration.

Section 1: Achieved Sample and Data Cleaning

1.1 Sample Representation and Imbalances

The achieved analytic sample consists of N = 815 teachers. When compared to the project's sampling frame design, several critical imbalances emerge:

- **The Female Equity Floor**: The sampling design established a non-negotiable minimum of 47% female representation. The achieved sample contains 44% **female teachers** (n = 362), 54% **male teachers** (n = 441), 0.1% identifying as "Other" (n = 1), and 1.2% choosing "Prefer not to say" (n = 10). This 3% deficit below the equity floor represents an under-representation of women and requires the application of Tier 2 post-stratification weighting to prevent male-dominated biases in overall population estimates.

- **Geographical Distribution**: Province 2 (Madhesh) and Province 3 (Bagmati/Kathmandu Valley) are heavily represented, comprising 20% (n = 163 and n = 164) of the sample respectively. Province 5 (Lumbini) is the next largest single cluster at 19% (n = 156). In contrast, rural and more remote areas such as Province 6 (Karnali) and Province 4 (Gandaki) make up only 9.6% (n = 78) and 9.0% (n = 73) of the sample, respectively.

- **School Type and Employment**: The sample is dominated by community (public) school teachers (86%, n = 698) versus institutional (private) school teachers (14%, n = 117). Nearly half of the respondents hold Permanent contracts (45%, n = 368), followed by Temporary (26%, n = 209), Rahat (13%, n = 110), and Niji (4.2%, n = 34) contracts, while other contracts make up the remaining 12% (n = 94).

1.2 Data Cleaning, Quality Exclusions, and Limitations

To arrive at the final analytic sample of N = 815, several quality check criteria from the QAP were executed. Two critical methodological parameters and limitations must be documented:

- **Response-Timing (Speeder) Limitation:** A standard speeder check (excluding respondents who completed the survey unrealistically fast) could only be partially applied. Due to instrument design constraints, response timing was captured exclusively for the Kobo Toolbox portion of the sample. Because timing data was unavailable for the Google Forms cohort, this exclusion filter was omitted for that subset to maintain sample volume and consistent treatment across administration pipelines.

- **Retaining Straight-Liners (Sensitivity Analysis):** The baseline sample retains 96 "straight-liners" (respondents who answered all psychometric scale items with zero variance) who passed all other automated quality flags. Rather than performing an implicit exclusion, keeping these cases maintains an open, fully documented N = 815 sample.

To evaluate if their inclusion introduces systematic bias, a sensitivity check was performed:

- *Gender Gap Sensitivity:* The overall gender gap in AI Literacy remains highly robust whether straight-liners are included (d = 0.430, p = 0.000) or excluded (d = 0.419, p = 0.000).

- *Mode Effect Sensitivity:* The administration mode effect is slightly conservative in the full sample (d = 0.292, p = 0.000). However, because both values comfortably exceed our QAP-locked covariate-adjustment threshold of d ≥ 0.15, the analytical decision to control for survey mode remains completely unchanged. Retaining straight-liners is therefore a robust choice that preserves sample size without compromising baseline findings.

Section 2: AI Literacy Scale (AILS) Psychometrics & Validation

Addressing **RQ1** (AILS validation) and **Report Theme 1 (AI Literacy)**, the psychometric analysis shows a scale that is structurally solid but exhibits localized internal strain.

2.1 Reliability Analysis

The scale's reliability was evaluated using Cronbach's Alpha (alpha) and McDonald's Omega (omega):

- **Total Scale Reliability**: The total AILS scale shows strong internal consistency with a standardized Cronbach's alpha = 0.898 (raw alpha = 0.897) and a McDonald's Omega Total (omega_t) of 0.916. The Omega Hierarchical (omega_h) of 0.808 confirms that a strong general factor underlies the 12 items, justifying the use of the der_ails_overall composite mean.
- **Subscale Heterogeneity**:
  - *Subscale 1 (Awareness, q1–q3)*: alpha = 0.785 — Good.
  - *Subscale 2 (Usage, q4–q6)*: alpha = 0.798 — Good.
  - *Subscale 3 (Evaluation, q7–q9)*: alpha = 0.797 — Good.
  - *Subscale 4 (Ethics, q10–q12)*: alpha = 0.575 — Poor (fails to meet the 0.60 floor).

2.2 Confirmatory Factor Analysis (CFA) and Fit Evaluation

In contrast to preliminary pilot models, the CFA results on the full N = 815 sample reveal that the hypothesized 4-factor structure of the AILS fits the empirical data exceptionally well:

$chi^2(48) = 117.038$, p = 0.000 CFI = 0.983, TLI = 0.977, RMSEA = 0.042, SRMR = 0.025

These fit statistics comfortably exceed standard psychometric thresholds (CFI ≥ 0.95, TLI ≥ 0.95, RMSEA ≤ 0.06, SRMR ≤ 0.05), confirming that the 4-factor model is structurally valid for Nepalese teachers.

However, looking at the **CFA Loadings**, we see why Subscale 4 suffers from a low alpha despite excellent overall model fit:

- The items load cleanly on their respective factors (e.g., q1 = 0.695, q2 = 0.760, q3 = 0.767, q4 = 0.763, q5 = 0.721, q6 = 0.781, q7 = 0.744, q8 = 0.734, q9 = 0.779).

- However, the loadings for the Ethics factor are weaker: q10 loads at 0.532 and der_ails_q12_rev loads at 0.460 (p = 0.000). Because Cronbach's alpha is highly penalized by lower loadings and a small item count (only 3 items), the internal consistency of the Ethics subscale remains structurally weak (alpha = 0.575) despite matching the multidimensional latent framework.

2.3 Methodological Synthesis: Activating the locked Fallback Protocol

Because the Ethics subscale's reliability (alpha = 0.575) falls below the 0.60 floor, we must activate the **locked decision in QAP Section 8.1.3**:

1. **Drop the Ethics Composite**: The full Ethics composite is dropped from primary descriptive reporting to prevent masking conflicting trends.
2. **Item-Level Reporting**: Report the three Ethics items individually.
3. **Activate the Q12 Fallback Indicator**: Substitute the der_ethicsgap binary typology with the single-item **Q12 Risk Indicator** for Roundtable briefings and policy summaries.

Section 3: Overall Gaps and the "Ethics Drop" Fallback

Addressing **RQ1, RQ3, and RQ4**, we analyze the overall prevalence of risk indicators and AI literacy gap typologies.

3.1 Prevalence of the Q12 Risk Indicator (AI Users Only)

The fallback **Q12 Risk Indicator** measures the proportion of AI-adopting teachers who report that they "rarely" or "never" teach their students about responsible AI use:

- **Overall Prevalence**: Under the correct denominator restricting the analysis strictly to actual AI adopters (n = 619), **7.27% of AI-using teachers** (95% {CI} [5.48%, 9.59%]) exhibit high risk.
- **Gender Disaggregation**: Female AI-adopters exhibit a higher prevalence of this risk (8.5%, n = 258) compared to male adopters (6.5%, n = 355).

3.2 AI Literacy Typology Gaps

The binary typologies identify teachers with mismatched literacy profiles:

- **Skill Gap** (Awareness ≥ 4.0 AND Usage < 3.0): Prevalence is 5.6% (95% {CI} [4.3%, 7.4%]). These are "knowledgeable non-users"—teachers who understand what AI is but have not integrated it into practice.

- **Critical Gap** (Usage ≥ 4.0 AND Evaluation < 3.0): Prevalence is 4.2% (95% {CI} [3.0%, 5.8%]). These are "uncritical power users"—teachers using AI frequently but failing to verify its accuracy or cultural appropriateness. This group represents an immediate policy risk (e.g., propagating biased or incorrect curriculum content).
- **Ethics Gap** (Usage ≥ 4.0 AND Ethics < 3.0): Prevalence is 5.8% (95% {CI} [4.4%, 7.6%]). Because the Ethics composite was dropped due to poor reliability, this specific typology is replaced in descriptive summaries by item-level reporting. Specifically, female teachers score lower on all three individual ethics items compared to male teachers:
    - *Q10 (Safety & Ethics)*: Female Mean = 3.38 vs. Male Mean = 3.54
    - *Q11 (Bias Awareness)*: Female Mean = 3.59 vs. Male Mean = 3.83
    - *Q12 (Responsible Use)*: Female Mean = 3.38 vs. Male Mean = 3.64

Section 4: Key Demographic Gaps and Intersectionality

4.1 The Primary Gender Divide

The single-dimension comparison of overall AI Literacy (der_ails_overall) by gender reveals a highly robust inequality:

- **Male Teachers**: n = 438, Mean = 3.848, SD = 0.637, Median = 3.917
- **Female Teachers**: n = 354, Mean = 3.559, SD = 0.712, Median = 3.750
- **Welch's t-test**: t = 5.848, p = 0.000
- **Effect Size**: **Cohen's** d = 0.430 (95% {CI} [0.288, 0.572])

This finding is **Robust** and triggers a major **Equity Flag** (as d ≥ 0.30 with a confidence interval excluding zero). It confirms that male teachers in Nepal possess significantly higher overall AI literacy.

4.2 Caste/Ethnicity: Simple vs. Intersectional Realities

If analysed solely on a single dimension, caste and ethnicity do not appear to influence AI literacy:

- **Welch's ANOVA**: F = 0.900, p = 0.520
- **Kruskal-Wallis**: $chi^2(8) = 4.802$, p = 0.778
- **Effect Size**: $\eta^2 = 0.007$ (accounting for only 0.7% of the variance)

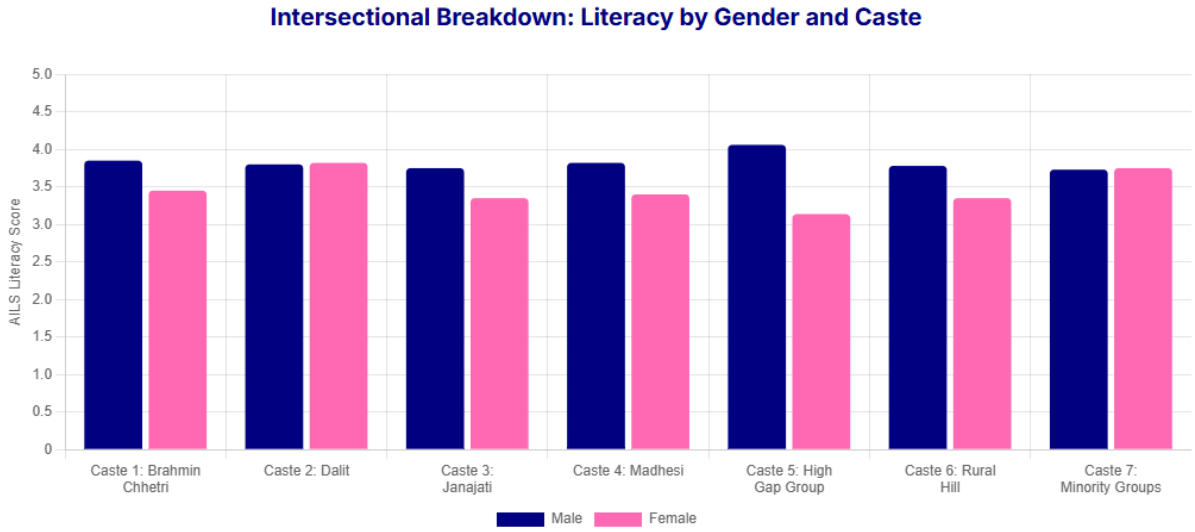
However, the **Two-Way ANOVA** incorporating Gender and Caste/Ethnicity reveals the true, intersectional story:

- **Gender Main Effect**: Highly significant (F (1, 785) = 35.689, p = 0.000, $\eta^2_p = 0.043$).
- **Caste Main Effect**: Non-significant (F (8, 785) = 0.516, p = 0.845).
- **Interaction Effect (Gender times Caste)**: Non-significant (F (8, 785) = 1.143, p = 0.332, $\eta^2_p = 0.012$) but accounts for a meaningful chunk of variance.

Looking at the **Estimated Marginal Means**, we see why single-axis reporting is misleading:

- **Widened Gaps**: In Terai/Madheshi Dalit, the gender gap is massive—0.80 **scale points** (Male Mean = 4.04 vs. Female Mean = 3.24). In Terai/Madheshi Janajati/Adivasi, the gender gap is also large—0.51 **scale points** (Male Mean = 3.88 vs. Female Mean = 3.37). These are high-priority targets for targeted, gender-transformative intervention.
- **No Gaps**: In contrast, the gender gap is completely non-existent among Dalit teachers (Hill Dalit: Male Mean = 3.83 vs. Female Mean = 3.86) and Terai/Madheshi Other (Male Mean = 3.78 vs. Female Mean = 3.70).

AI Literacy Scale (AILS) Score by Gender and Caste/Ethnicity



4.3 Survey Administration Mode Effect

A strong, statistically significant mode effect was observed in overall AI Literacy:

- **Face-to-Face (F2F)**: n = 242, Mean = 3.85, SD = 0.58
- **Online**: n = 573, Mean = 3.65, SD = 0.72
- **Welch's t-test**: t = 4.162, p = 0.001, d = 0.292 (95% {CI} [0.14, 0.44])

Because this mode effect is greater than our QAP-locked threshold of d ≥ 0.15, it indicates that online respondents systematically underreport their literacy. This triggers the **mandatory inclusion of the survey mode as a control covariate** in all Tier 2 multivariable models.

Section 5: Barriers to AI Integration and Gendered Gaps

Addressing **RQ4 (Barriers)** and **Report Theme 4**, we analyze the specific hurdles preventing AI adoption.

5.1 Top 5 Barriers to AI Integration (Ranked by Mean)

1. **t_s4_q41 (Lack of training/professional development on AI tools)**: Mean = 3.86, SD = 1.06. This is the absolute highest barrier, pointing directly to a systemic gap in teacher CPD.
2. **t_s4_q47 (Students do not have devices/internet at home)**: Mean = 3.60, SD = 1.02. Highlighting the persistent digital divide outside of school walls.
3. **t_s4_q44 (Student data privacy/security concerns)**: Mean = 3.56, SD = 0.97. Indicating high awareness of potential ethical risks.
4. **t_s4_q46 (Worried AI gives incorrect or culturally inappropriate info)**: Mean = 3.47, SD = 0.98. Highlighting evaluating capacity concerns.
5. **t_s4_q43 (AI tools not available in students' home languages)**: Mean = 3.00, SD = 1.08.

5.2 Gender Gaps in Perceived Barriers (with Holm Correction)

The application of the conservative **Bonferroni-Holm correction** across all 14 items isolates two distinct robust gaps:

1. **t_s4_q50 (AI tools don't understand students' specific languages or contexts)**:
    - Male Mean: 2.732, Female Mean: 2.950
    - Effect Size: **Cohen's** d = -0.212 ($p = 0.003$, $p_{adj} = 0.040$)
    - *Interpretation*: Under strict correction, female teachers are significantly more concerned about linguistic and cultural exclusion in Western-centric AI models.
2. **t_s4_q49 (Household/family responsibilities limit my learning time)**:
    - Male Mean: 2.254, Female Mean: 2.456
    - Effect Size: **Cohen's** d = -0.206 ($p = 0.004$, $p_{adj} = 0.054$)
    - *Interpretation*: Highly suggestive and borderline significant under strict correction, female teachers experience greater domestic workload constraints on their professional learning time.

(Note: Gaps in computer access t_s4_q40 [p=0.030, padj =0.295], school administrative support t_s4_q45 [p=0.020, padj =0.227], and learning time t_s4_q42 [p=0.019, padj =0.227] are no longer statistically significant after strict multi-comparison adjustment).

Section 6: Multivariate Predictors of AI Adoption and Literacy

Addressing **RQ2, RQ4, and RQ6**, we analyze predictive models of actual AI use and literacy.

6.1 Predicting AI Adoption: Logistic Regression

The logistic regression models whether a teacher has ever adopted AI (der_q29_used_binary = 1). The model has a robust fit: **Nagelkerke** R^2 = 0.273.

- **The Adjusted Gender Penalty**:
    - In the unadjusted bivariate Chi-Square (Counts table), female teachers have lower adoption rates (71.3% adoption, n = 258 of 362) than male teachers (80.5% adoption, n = 355 of 441):

$chi^2(1) = 8.869$, p = 0.003, Unadjusted OR = 0.601 [0.432, 0.833]

- However, in the **multivariate logistic regression**, which controls for age, school type, caste, devices, and internet access, the odds ratio for female teachers **drops further to** 0.436 (95% {CI} [0.29, 0.65], p = 0.000).
- *Crucial Policy Interpretation*: Controlling for infrastructural access and school types *magnifies* the gender gap. Even when a female teacher has the exact same device, home internet, and school type as a male teacher, **female teacher is still** 56.4% **less likely to adopt AI** (OR = 0.436). This highlights that the adoption gap is driven by deep-seated social, domestic workload, or institutional-support barriers rather than basic hardware access.
- **The Steep Age Gradient**:
    - Relative to early-career teachers (under 30), the odds of adopting AI decrease dramatically with age:
        - Ages 30–39: OR = 0.269 (95% {CI} [0.13, 0.54], p = 0.000)
        - Ages 40–49: OR = 0.215 (95% {CI} [0.10, 0.45], p = 0.000)
        - Ages 50+: OR = 0.096 (95% {CI} [0.04, 0.22], p = 0.000)
    - Older teachers are severely left behind in adoption, with those over 50 showing an 90.4% reduction in adoption odds compared to early-career peers.
- **Technological and Survey Predictors**:
    - Having no home internet (t_internet_home level 3) severely hinders adoption (OR = 0.343, 95% {CI} [0.13, 0.90], p = 0.027).
    - Using primary device type 8 significantly restricts adoption (OR = 0.150, 95% {CI} [0.06, 0.33], p = 0.000).
    - Online administration mode is associated with lower odds of reporting adoption (OR = 0.382, 95% {CI} [0.22, 0.66], p = 0.001).

6.2 Predicting AI Literacy: Multiple Linear Regression (Table 1)

The multiple OLS regression predicts overall AI literacy (der_ails_overall). It explains 16.6% **of the adjusted variance** (Adjusted R^2 = 0.166, F = 3.562, p = 0.000).

- **Confirming the Age Decline**:
  - Parallel to the adoption model, overall literacy decreases linearly with age:
    - Ages 30–39: B = -0.197 (95% {CI} [-0.346, -0.048])
    - Ages 40–49: B = -0.403 (95% {CI} [-0.589, -0.217])
    - Ages 50+: B = -0.587 (95% {CI} [-0.819, -0.354])
  - This confirms that older teachers are not only less likely to use AI, but those who do use it have significantly lower literacy scores.
- **Geographical and Mode Effects**:
  - Teachers in Province 3 (Bagmati/Kathmandu Valley) score significantly lower on AILS overall than the Province 1 (Koshi) reference group (B = -0.262, 95% {CI} [-0.433, -0.091]), as do teachers in Province 5 (B = -0.211, 95% {CI} [-0.389, -0.032]) and Province 7 (B = -0.222, 95% {CI} [-0.416, -0.028]).
  - The survey administration mode continues to exert a highly significant negative effect even after fully adjusting for demographics (B = -0.266 for online administration, 95% {CI} [-0.400, -0.131], p < 0.001).

Section 7: Actionable Recommendations for Phase 2

Based on these quantitative findings, Phase 2 CPD design and policy development should prioritize:

1. **Intersectional Targeting**: Abandon flat, single-axis gender initiatives. Prioritize high-gap sub-populations, such as female teachers in Terai/Madheshi Dalit and Terai/Madheshi Janajati/Adivasi, while adjusting for the unique socio-cultural dynamics of those communities.
2. **Addressing Multidimensional Barriers**: Direct resources to help female teachers overcome localized linguistic barriers (d = -0.212) and domestic workload constraints (d = -0.206) through workplace-integrated training.
3. **CPD Program Structuring**:
   - **Skill-Gap CPD**: Tailor basic hands-on training for the 5.6% of teachers who have high awareness but low usage.
   - **Critical Evaluation CPD**: Design urgent safety training for the 4.2% of "uncritical power users" who actively use AI but lack the skills to evaluate its accuracy.
4. **Age-Customized Onboarding**: Break away from generic "one-size-fits-all" IT workshops. Create specialized, slow-paced onboarding tracks for veteran teachers (ages 50+) who exhibit an over 90% reduction in adoption odds.

Appendix F.Roundtable Summary

Context

The AI4Ed Nepal: Quality Education Service Delivery through Innovation project is generating evidence through a convergent parallel mixed-methods research design, teacher-led action research (AR), and stakeholder engagement processes. The project combines quantitative and qualitative research with teacher-led classroom innovation to understand current AI literacy and awareness of teachers, AI practices, barriers, opportunities, ethical concerns, and policy implications within Nepal's school education system. Particular emphasis is placed on gender equity, inclusion, local government capacity, infrastructure disparities, and responsible AI adoption.

In this context, British Council Nepal in collaboration with the Ministry of Education and Sports (MOES) organized four thematic and two geographical roundtable discussions. These roundtables brought together federal, provincial, and local government stakeholders, teachers, teacher educators, researchers, development partners, and community representatives. Participants collectively reviewed the emerging evidence of the current mixed method research and teacher led innovation projects on the use of AI tools in teaching and learning. The main objectives of these roundtables were to validate the emerging findings, discuss implementation realities, and generate policy-relevant recommendations.

These roundtable discussions were critical components of this initiative mainly because these dialogues were expected to contribute to the translation of research evidence into actionable policy directions, development of AI in education standards, implementation strategies, and future programme design for Nepal's education system.

National Level Thematic Roundtables

Four thematic roundtables were organized on 10th and 11th of June 2026 in Kathmandu. Participants of these roundtables included high level officials from the Ministry of Education and Sports, Ed Tech experts, academics, teachers, head-teachers, researchers, representatives of development partners particularly that are working in education and technology, and representatives of Ministry of Information and Communication. Key participants from the MOES and other organizations contributed to all four thematic roundtables while some participants attended specific roundtable based on their expertise and experience.

Before each roundtables, the research team shared the preliminary or early findings of the mixed-method research and teacher-led innovations under that specific theme. This sharing session set the context for thematic discussion and also served an opportunity to validate

those findings emerged from the research. After the sharing session, participants were divided into groups. All four roundtables had specific theme and each theme consisted of six questions as prompts for group discussion.

Each group had about an hour to deep dive into the specific questions under the designated theme and the discussion was followed by a presentation and discussion. The groups were asked to summarize their discussion in the following format:

Three key messages from this theme: [captured live].

Points of consensus — and where views differ.

Concrete actions: who, and by when (next six months for MoEST & provinces).

What this adds to the AI-in-basic-education standards.

In addition to this, representatives of the teachers who are engaged in teacher-led innovation under this project shared their experiences of using AI in their teaching and learning. They highlighted the AI tools they have been using to address their pedagogical issues, the way they have been using the AI tools, emerging patterns of improvement in their pedagogy, challenges they have been facing and how AI tool could support teachers' pedagogy. Such sharing sessions provided the opportunity for the participant to connect their discussion to the ground realities on the use of AI in Nepali classroom.

Roundtable 1: AI Capacity in Education

The first roundtable discussion focused on teacher AI literacy standards, AI-related competencies, and professional development pathways within Nepal's teacher education and continuing professional development systems. GEDSI were a cross-cutting theme across all roundtables. Participants discussed the research findings with reference to the AI literacy across gender, geography, school types, and teacher backgrounds. The questions that were given to the groups in this roundtable were:

1) Based on the research findings, how ready are Nepal's teachers for AI integration?
2) What teacher AI literacy standards are needed in Nepal's context?
3) How can AI-related competencies be integrated into existing teacher education and CPD systems?
4) What minimum AI competencies should all teachers possess?
5) How can gender and geographical gaps in AI literacy be addressed?
6) What immediate actions should MoEST and provincial governments prioritize within the next six months?

Summary of Discussion and Recommended Actions

1. Nepal's Teachers Are Interested in AI but Not Yet Ready for Systematic Integration

Participants agreed that while many teachers are increasingly aware of AI tools, most are not yet ready to integrate AI effectively into lesson planning, classroom teaching, student engagement, assessment, or professional learning. Teachers' AI knowledge remains fragmented and largely dependent on individual initiative rather than structured support systems.

Policy and Programme Actions

- Revise the Teacher Competency Framework to include AI-related competencies.
- Develop a national AI literacy framework for teachers.
- Launch a nationwide AI awareness campaign targeting teachers and school leaders.
- Integrate AI literacy into both pre-service and in-service teacher education programmes.

2. Foundational AI Literacy Must Become a Core Teacher Competency

Participants emphasized that all teachers should possess a minimum level of AI literacy, including understanding what AI is, how it works, its limitations, ethical considerations, and appropriate educational applications.

Policy and Programme Actions

- Develop national AI competency standards for teachers.
- Introduce foundational AI literacy modules in teacher training institutions.
- Create self-learning AI literacy resources and online certification programmes.
- Incorporate AI literacy indicators into teacher professional development pathways.

3. Critical Professional Judgement Is More Important than Technical Skills Alone

Participants stressed that teachers must not simply use AI outputs but critically evaluate, verify, adapt, and contextualize AI-generated information before using it in classrooms.

Policy and Programme Actions

- Include critical AI evaluation skills in teacher training curricula.
- Develop practical guidance on fact-checking and validating AI-generated content.
- Create examples of responsible classroom use of AI tools.
- Promote reflective and inquiry-based approaches to AI use.

4. AI Competencies Should Be Integrated into Existing Teacher Education and CPD Systems

Rather than creating entirely separate AI training programmes, participants recommended embedding AI competencies within existing teacher education curricula, CPD frameworks, mentoring systems, and professional learning communities.

Policy and Programme Actions

- Integrate AI modules into existing teacher education courses.
- Embed AI-related competencies within ongoing CPD programmes.
- Develop AI-focused learning communities and peer support networks.
- Establish AI resource repositories linked to existing teacher learning platforms.

5. Gender, Geographical, and Infrastructure Inequalities Influence AI Capacity

Participants acknowledged significant disparities in AI access and literacy related to geography, infrastructure, connectivity, device availability, and socio-economic conditions. These inequalities directly affect teachers' opportunities to develop AI competencies.

Policy and Programme Actions

- Prioritize rural and underserved schools in AI capacity-building initiatives.
- Expand ICT infrastructure, internet connectivity, and device access.
- Establish ICT laboratories and digital learning hubs in schools.

- Ensure targeted support for teachers working in remote and marginalized communities.

6. Nepal Needs an AI-in-Education Framework and Clear Guidance

A strong consensus emerged that Nepal currently lacks a coherent AI-in-Education framework. Participants highlighted the need for national guidelines that define expectations, standards, ethical principles, and implementation pathways.

Policy and Programme Actions

- Develop a National AI in Education Framework.
- Prepare AI implementation guidelines for schools and local governments.
- Develop standards for ethical and responsible AI use.
- Align AI initiatives with the National AI Policy and School Education Sector Plan.

7. Capacity Development Must Be Participatory, Contextualized, and Continuous

Participants argued that one-off training programmes are unlikely to be effective. Sustainable AI capacity development should involve continuous learning, peer support, mentoring, experimentation, and contextual adaptation.

Policy and Programme Actions

- Establish long-term mentoring and coaching systems.
- Support teacher-led action research on AI use.
- Promote peer learning and communities of practice.
- Develop feedback and reflection mechanisms for continuous learning.

Roundtable 2: AI for Teacher Professional Development and Student Assessment

This roundtable focused on the use of AI for teacher mentoring, classroom support, formative and summative assessment, feedback systems, and teacher professional learning. Participants discussed the opportunities, risks, fairness concerns, bias mitigation, ethical safeguards, and realistic implementation pathways for AI-supported education in Nepal's school education system.

The questions included in this roundtable discussion were:

1) How can AI support teacher mentoring, lesson planning, and professional development?
2) What opportunities and risks exist in AI-supported student assessment?
3) What ethical safeguards are required before AI tools are used in schools?
4) How can AI be used responsibly without replacing teachers' professional judgment?
5) What monitoring and evaluation mechanisms are necessary for AI-enabled education?
6) What practical implementation pathways are feasible in Nepal's school system?

Summary of Discussion and Recommended Actions

1. AI Has Strong Potential to Transform Teacher Professional Development

Participants viewed AI as a powerful tool for supporting personalized professional learning, virtual mentoring, lesson planning, content creation, and access to educational resources.

Policy and Programme Actions

- Develop AI-supported teacher professional development platforms.
- Integrate AI tools into national teacher learning portals.
- Establish virtual mentoring and coaching systems.
- Develop multilingual AI-enabled professional learning resources.

2. AI Can Improve Lesson Planning and Access to Teaching Resources

Participants noted that AI can significantly reduce teachers' preparation time by helping generate lesson plans, teaching materials, assessments, and classroom activities while providing access to global educational resources.

Policy and Programme Actions

- Develop AI-assisted lesson planning tools aligned with Nepal's curriculum.
- Create national repositories of AI-supported teaching resources.
- Develop contextualized teacher guides on AI-assisted lesson preparation.
- Promote sharing of AI-generated teaching resources among teachers.

3. Student Assessment Could Become More Personalized and Efficient

Participants recognized opportunities for AI-assisted assessment, including automated feedback, formative assessment, adaptive testing, rubric development, and data analysis.

Policy and Programme Actions

- Pilot AI-supported formative assessment systems.

- Develop standards for human-assisted AI scoring.
- Review national assessment frameworks to incorporate AI responsibly.
- Develop assessment guidelines balancing AI support and teacher judgement.

4. Ethical Safeguards Must Be Established Before Large-Scale AI Adoption

Strong concerns were raised about privacy, data security, algorithmic bias, misuse of AI, overdependence on technology, and student safety.

Policy and Programme Actions

- Develop an Ethical AI Safeguarding Framework for Education.
- Establish standards for student data protection and privacy.
- Create guidance on responsible use of AI tools in schools.
- Develop awareness programmes on ethical AI use for teachers and students.

5. Monitoring and Evaluation Systems Must Accompany AI Integration

Participants emphasized the importance of establishing mechanisms to monitor implementation quality, learning outcomes, ethical compliance, and equity impacts.

Policy and Programme Actions

- Develop national monitoring and evaluation guidelines for AI in education.
- Establish indicators for tracking AI adoption and outcomes.
- Create digital monitoring systems and databases.
- Support mixed-methods evaluation approaches for AI programmes.

6. AI Should Enhance, Not Replace, Teachers' Professional Agency

Participants repeatedly stressed that AI should remain a support tool while teachers continue to provide professional judgement, contextual adaptation, ethical oversight, and human interaction.

Policy and Programme Actions

- Promote teacher-centred AI implementation models.
- Develop guidance emphasizing teacher oversight of AI outputs.
- Support teacher agency through experimentation and action research.
- Include critical reflection and professional judgement in AI training programmes.

7. Practical Implementation Requires Existing Systems to Be Strengthened Rather Than Replaced

Participants recommended integrating AI into existing educational systems such as teacher training programmes, learning portals, teacher guides, and professional development mechanisms rather than creating parallel structures.

Policy and Programme Actions

- Embed AI tools within existing education platforms and portals.
- Develop a one-stop AI resource and knowledge-sharing platform for teachers.
- Strengthen current teacher professional development systems with AI components.
- Introduce modular AI courses linked to existing CPD pathways.

Roundtable 3: Access and Inclusion in AI

The theme access and inclusion focused on issues of access, equity, infrastructure, connectivity, affordability, and inclusion in AI-enabled education. Drawing on the preliminary findings, participants discussed the disparities in access to digital technologies, internet connectivity, devices, electricity, AI tools, and digital learning opportunities across different geographical regions, school types, genders, socio-economic groups, and marginalized communities. Participants also discussed the roles of federal, provincial, and local governments, development partners, schools, and the private sector in creating an enabling ecosystem for equitable access to AI in education. Throughout the discussions, participants emphasised that equity should not become an additional component of AI policy but an inherent component of it. Guiding questions provided to the groups under this roundtable were:

1) What does the evidence tell us about who is being left behind — across gender, caste/ethnicity, language, disability and geography?
2) How can AI tools work in Nepal's multilingual classrooms (Maithili, Bhojpuri, Tharu, Tamang and other mother tongues)?
3) What measures ensure female teachers and rural/remote teachers are not further disadvantaged in AI access and literacy?

4) How can access for students and teachers with disabilities be built in from the start?
5) What role should federal, provincial and local governments play in closing — not widening — equity gaps?
6) What immediate, low-cost actions can protect the most marginalised learners as AI adoption accelerates?

Summary of Discussion and Recommended Actions

1. Equity should be Integrated in the AI Policy Right from the Beginning

One of the common threads during the discussion in all the group was that AI in education should be considered as a pubic educational resource rather than the property of the privileged groups only. Due considerations should, therefore, be given to minimise the unintentional digital divide in the use of technology. Also, the AI policies should recognize and consider Nepal's multi-dimensional inequalities that include rural/urban context, boys/girls, male/female teachers, rich/poor schools, privileged/marginalized population and types of teachers.

Policy and Programme Actions

- Develop a National Equity and Inclusion Framework for AI in Education.
- Prioritise disadvantaged schools during initial AI implementation.
- Integrate Gender Equality, Disability, and Social Inclusion (GEDSI) principles throughout AI policy development.
- Allocate targeted funding for schools serving disadvantaged communities.
- Establish monitoring indicators to measure equity outcomes alongside technological adoption.

2. Identifying Learners and Teachers who are at Risk of Being Left Behind

Participants emphasized that we cannot simply assume that all will benefit from AI when there are policies and programmes in place. There could be several barriers that might prevent certain students and teachers to have access to AI tools and resources. Challenges relating to electricity, internet connectivity, transport, and professional development opportunities in the rural areas; students from different language backgrounds; teachers and students with different kinds of disabilities; and female teachers who have multiple roles to play might have different kinds of challenges to have access to the AI facilities. Thus, it is important that those people who are at risk of being left behind should be identified and additional support system should be developed.

Policy and Programme Actions

- Identify vulnerable learner and teacher groups within national AI planning;
- Prioritise remote municipalities during early implementation;
- Provide differentiated professional development programmes;
- Develop targeted support for female teachers;
- Incorporate accessibility requirements into educational AI procurement;
- Strengthen multilingual AI initiatives supporting Nepal's linguistic diversity;
- Allocate additional technical support for low-resource schools.

3. AI Policies and Programmes Should be Culturally and Linguistically Responsive

Participants recommended that Nepal should develop AI tools capable of supporting Nepali and other national languages spoken in different parts of the country. Multilingualism should be recognized as an opportunity to strengthen mother tongue education while promoting equitable learning opportunities. The conversation also focused on the need to include cultural responsiveness in AI policies and programmes by reflecting Nepal's diverse social, cultural, and educational contexts. Educational examples, illustrations, stories, and datasets should represent local communities rather than relying exclusively on international examples that may be unfamiliar or culturally inappropriate.

Policy and Programme Actions

- Investment in Nepali and other National languages AI models;
- Support for AI development in different mother tongues;
- Incorporation of multilingual requirements into national AI standards;
- Partnerships with universities and technology developers;
- Culturally contextualised educational datasets;
- Research on AI-supported multilingual pedagogy.

4. Include Disability and Universal Design for Learning in AI in Education Policies and Programs

All the groups highlighted that AI and education in Nepal must address the needs of learners and teachers with disabilities. Many digital platforms remain inaccessible to learners with visual, hearing, physical, intellectual, or multiple disabilities. Thus, participants advocated reversing the conventional approach by ensuring that accessibility becomes a core design principle throughout the AI development and implementation process. Participants stressed that if disability factor is considered

seriously, AI has a great potential to improve educational opportunities for learners with disabilities. AI-powered speech recognition, text-to-speech applications, automatic captioning, image description technologies, adaptive learning systems, personalized learning pathways, predictive analytics, and assistive communication technologies were identified as examples of innovations capable of significantly improving participation, learning outcomes, and learner independence. Groups recommended adopting the principles of **Universal Design for Learning (UDL)**, whereby educational technologies are designed from the outset to accommodate diverse learning needs, preferences, and abilities.

Policy and Programme Actions

- Adopt Universal Design for Learning (UDL) principles within all AI-enabled educational initiatives;
- Establish national accessibility standards for educational AI platforms and digital resources;
- Require accessibility audits before approving AI applications for school use;
- Strengthen collaboration with disability organisations during AI policy development;
- Invest in assistive technologies and accessible digital infrastructure for schools;
- Incorporate disability-inclusive AI modules into teacher education and continuous professional development programmes;
- Establish funding mechanisms to support schools serving learners with disabilities.

5. Need of Gender Responsive AI Capacity Development

Early findings of the research has indicated that female teachers often experience additional constraints associated with family responsibilities, limited opportunities for travel to professional development events, restricted access to digital devices, and lower confidence in experimenting with emerging technologies. In this context, simply making AI training programmes available does not necessarily ensure equitable participation. The discussions, therefore, emphasised the importance of designing gender-responsive AI capacity development programmes. Rather than relying exclusively on centralised face-to-face training, participants suggested combining local workshops, school-based mentoring, online learning opportunities, peer learning networks, and modular professional development programmes that provide greater flexibility for teachers with different responsibilities.
Participants also discussed girls' opportunities to develop AI literacy. Schools should actively encourage girls to participate in AI-related learning activities, coding clubs,

digital innovation programmes, and STEM education initiatives. Participants suggested that early exposure to AI and digital technologies may help reduce long-term gender disparities within technology-related professions.

Policy and Program Actions

- Develop gender-responsive AI professional development strategies;
- Decentralise AI training through provincial and local delivery mechanisms;
- Establish mentoring networks for supporting female teachers;
- Provide targeted digital infrastructure support to female teachers working in remote areas;
- Promote girls' participation in AI, STEM, and digital innovation programmes;
- Collect gender-disaggregated data on AI access, participation, and learning outcomes;
- Integrate gender considerations throughout AI monitoring and evaluation systems.

6. Share Responsibilities across Federal, Provincial and Local Governments

The discussion emphasized that successful AI integration requires coordinated action across Nepal's three levels of government and participants proposed a collaborative governance model in which different levels of government perform complementary roles according to their mandates and capacities.

The Federal Government was viewed with the primary responsibility for developing national policy, establishing AI standards, allocating financial resources, strengthening national digital infrastructure, developing ethical guidelines, coordinating research, and ensuring alignment with broader education reforms.

The Provincial Governments should function as intermediaries between national policy and local implementation. Their responsibilities could include contextualising national policies, coordinating provincial teacher professional development, supporting innovation, monitoring implementation, facilitating collaboration among municipalities, and providing technical assistance to local governments.

The discussions placed particular emphasis on the role of Local Governments (Palikas) because they are directly responsible for managing schools and supporting teachers. Participants recommended that municipalities should become the primary implementing agencies for AI integration by identifying local needs, strengthening school infrastructure, supporting teachers, engaging communities, coordinating local partnerships, and monitoring implementation progress.

Participants also highlighted the role of schools themselves. School leaders should create enabling environments for innovation, encourage responsible experimentation with AI, facilitate collaborative professional learning, and promote ethical use among teachers and students. Teacher Professional Learning Communities, Shikshya Chautari, Community Learning Centres, and Educational Training Centres were also

mentioned as existing mechanisms that could support AI capacity development without establishing entirely new institutional structures.

Policy and Programme Actions

- Clearly define AI responsibilities across all three levels of government;
- Strengthen coordination mechanisms among federal, provincial, and local authorities;
- Integrate AI responsibilities within existing education governance structures;
- Establish provincial technical support units for AI implementation;
- Strengthen municipalities' capacity to support schools;
- Utilise existing professional learning structures for AI capacity development;
- Encourage partnerships among government, universities, schools, development partners, and the private sector.

7. Building and Inclusive AI Ecosystem is the Immediate Need

Participants recommended to start with low-cost, high-impact interventions**.** These include developing introductory AI guidance for schools, strengthening teacher awareness, establishing peer learning networks, promoting action research, integrating AI into existing professional development programmes, and supporting experimentation through pilot schools. Existing institutions such as CEHRD, Educational Training Centres, Community Learning Centres, universities, and Teacher Professional Learning Communities were identified as appropriate platforms for initiating these activities.

Participants suggested that the governments could create a national repository of AI teaching resources that teachers could access freely. Contextualised lesson plans, ethical guidance, classroom examples, assessment ideas, and multilingual resources would help teachers gain confidence while reducing duplication of effort across schools.

Sustainable implementation requires simultaneous investment in teacher capacity, institutional leadership, ethical governance, infrastructure, community engagement, and continuous research. AI should therefore become part of Nepal's broader educational transformation agenda rather than an isolated technology initiative.

Policy and Programme Actions

- Prepare practical AI guidance for schools and teachers;

- Establish a national repository of contextualised AI teaching and learning resources;
- Strengthen teacher action research and peer learning on AI;
- Integrate AI modules into existing teacher professional development programmes;
- Utilise Community Learning Centres and Educational Training Centres as local AI learning hubs;
- Establish pilot schools to demonstrate inclusive AI implementation;
- Continue multi-stakeholder dialogue during development of Nepal's National AI in Education Framework;
- Strengthen partnerships among government agencies, universities, schools, development partners, and technology providers;
- Commission further research on AI equity, multilingual education, disability inclusion, and responsible innovation.

Roundtable 4: National Standards Development for AI in Basic Education

The third roundtable focused on the development of national standards and guidelines for AI in school education. Discussions will address policy scope, governance mechanisms, implementation responsibilities, ethical frameworks, endorsement processes, and the roles of federal, provincial, and local governments in AI integration. Participants acknowledged that AI technologies are developing much faster than educational policies and institutional practices. Schools, teachers, and students are already beginning to use AI-powered applications, often without clear guidance regarding appropriate use, data privacy, ethical considerations, or educational quality. Consequently, participants argued that Nepal should move proactively to establish a coherent National AI in Education Standards Framework that provides direction while allowing sufficient flexibility for diverse educational contexts.

1) What should be included in national AI in education standards?
2) How should responsibilities be shared among federal, provincial, and local governments?
3) What ethical, privacy, and equity provisions should guide AI integration?
4) How can national standards remain flexible enough for diverse local contexts?
5) What institutional mechanisms are needed for implementation and monitoring?
6) What are the immediate next steps for policy development?

Summary of Discussion and Recommended Actions

1. Nepal Needs a Comprehensive National AI in Education Framework

All the groups in this roundtable highlighted that Nepal requires a comprehensive national framework that provides overall direction for AI integration across the education sector. Nepal has already developed the National AI Policy and the Digital Nepal Framework but these documents provide only broad strategic directions and contain relatively limited guidance specific to school education. Thus, participants suggested to have a national AI in Education Framework to translate national aspirations into practical guidance for schools, teachers, local governments, teacher education institutions, curriculum developers, and educational technology providers. The framework should define the vision, objectives, implementation principles, governance mechanisms, institutional responsibilities, ethical safeguards, monitoring arrangements, and capacity development strategies required for responsible AI adoption. Participants further suggested that the framework should remain adaptive and flexible given the diverse context of Nepal and the rapid pace of technological change. AI policies should undergo periodic review so that standards remain relevant as new technologies emerge.

Policy and Programme Actions

- Develop a National AI in Education Framework specifically for school education;
- Align AI implementation with existing education sector reforms;
- Establish periodic review mechanisms for AI policies;
- Create operational implementation guidelines for schools and municipalities;
- Develop accompanying teacher guidance documents and resource materials;
- Establish a national technical advisory committee on AI in education.

2. Teacher Competency Standards must be Expanded to Integrate AI

Participants shared that successful AI integration depends primarily upon teachers rather than technology itself. Thus, teacher competency standards should be revised to include the knowledge, skills, attitudes, and ethical considerations required for responsible AI use. Participants emphasized that teachers require the ability to critically evaluate AI-generated information, design AI-supported learning experiences, protect learner privacy, recognize algorithmic bias, promote responsible digital citizenship, and maintain professional judgement when using AI-assisted educational tools.

Policy and Programme Actions

- Revise Nepal's Teacher Competency Framework to include AI competencies;
- Develop AI competency standards for teacher educators;
- Integrate AI across pre-service and in-service teacher education;
- Establish AI certification pathways linked to professional development;
- Create self-assessment tools enabling teachers to monitor their own AI competencies;
- Support teacher-led action research to strengthen AI pedagogy.

3. Ethics, Privacy and Child Safeguarding Must be Ensured in AI in Education Standards

Ethics was indicated as one of the most frequently discussed topics throughout the roundtable. Participants emphasized that AI should never compromise children's rights, privacy, wellbeing, or educational opportunities. Participants expressed concern regarding the collection, storage, sharing, and commercial use of student data by AI applications. They argued that schools often lack sufficient understanding of how AI platforms manage user data, creating potential risks related to privacy breaches, unauthorized data sharing, profiling, and commercial exploitation. Participants therefore recommended developing comprehensive ethical standards addressing informed consent, transparency, accountability, fairness, bias mitigation, explainability, and human oversight. Teachers should remain responsible for educational decision-making, with AI functioning as a support tool rather than replacing professional judgement. The discussions also highlighted the need for stronger child safeguarding provisions. Participants recognized that children may increasingly interact with AI-powered learning systems, making it essential to establish safeguards protecting them from inappropriate content, manipulation, misinformation, cyberbullying, and harmful online interactions. Schools should therefore receive clear guidance regarding appropriate AI use, digital citizenship, online safety, and responsible technology practices.

Policy and Programme Actions

- Develop National Ethical Guidelines for AI in Education;
- Establish child safeguarding standards for AI applications;
- Strength data privacy legislation relating to education;
- Require informed consent procedures where learner data are collected;
- Develop ethical procurement standards for educational AI systems;
- Provide ethics training for teachers, school leaders, and education officials.

4. Monitoring, Evaluation and Quality Assurance Mechanism

Participants discussed that the successful integration of Artificial Intelligence into Nepal's education system needs robust systems for monitoring, evaluation, quality assurance, and continuous improvement. While national standards can establish expectations for AI implementation, participants emphasized that these standards must be accompanied by mechanisms that enable government agencies and schools to understand how AI is being used, whether it is improving educational outcomes, and whether unintended risks are emerging. Participants cautioned against creating compliance-driven monitoring mechanisms that focus primarily on identifying weaknesses or imposing sanctions. Instead, monitoring should function as a supportive process that identifies schools requiring additional technical assistance, infrastructure investment, or professional development. Such an approach would encourage innovation while reducing teachers' fear of experimentation with new technologies.

Participants proposed that monitoring should incorporate both quantitative and qualitative evidence. Classroom observations, teacher portfolios, action research reports, student feedback, and case studies should complement statistical indicators to provide a richer understanding of how AI influences teaching and learning in diverse educational contexts.

Policy and Programme Actions

- Develop a comprehensive Monitoring and Evaluation Framework for AI in Education.
- Integrate AI indicators into the Integrated Education Management Information System (IEMIS).
- Develop national indicators covering infrastructure, teacher competencies, classroom use, equity, inclusion, ethics, and learning outcomes.
- Strengthen school supervision systems to provide supportive coaching rather than compliance monitoring.
- Encourage schools to document AI innovations through teacher portfolios and action research.
- Conduct periodic national reviews of AI implementation and revise standards accordingly.
- Establish mechanisms for collecting feedback from teachers, learners, parents, and local governments.
- Promote evidence-informed decision-making using both quantitative and qualitative data.

5. National Roadmap with Phase-wise Programmes for AI in Education is Needed

Participants recognized that developing national standards is only the first step in Nepal's AI journey. Equally important is the establishment of a clear implementation roadmap that identifies responsibilities, timelines, milestones, and mechanisms for stakeholder engagement. Participants suggested beginning with a comprehensive gap analysis to identify existing strengths, institutional capacities, policy gaps, infrastructure needs, and teacher readiness. Such analysis would provide an evidence base for determining implementation priorities and resource allocation. The next stage proposed by participants involved broad stakeholder consultation by including teachers, students, parents, local governments, universities, teacher educators, disability organizations, indigenous communities, technology companies, development partners, and civil society organizations throughout the policy development process.

Policy and Programme Actions

1. Conduct periodic review and continuous improvement.
2. Establish a National Technical Working Group on AI in Education.
3. Undertake a comprehensive national readiness and gap analysis.
4. Conduct nationwide consultations involving diverse stakeholder groups.
5. Develop implementation guidelines alongside national standards.
6. Pilot AI implementation before nationwide expansion.
7. Allocate dedicated financial resources within education sector planning.
8. Strengthen partnerships with universities and international research institutions.
9. Build mechanisms for continuous policy learning and adaptation.

6. Immediate Priorities for Developing National Standards

Participants suggested several important activities can begin immediately using existing institutional structures and available resources. Preparation of interim guidance for schools and teachers could be something that can be initiated immediately**.** Participants shared that many educators are already experimenting with AI tools without access to practical advice regarding ethical use, classroom applications, data privacy, or quality assurance. Simple guidance documents developed by CEHRD and MoEST could therefore provide immediate support while more comprehensive standards are being prepared. Also, participants highlighted the need of awareness and sensitization programmes all over Nepal regarding the role of AI in education.

Policy and Programme Actions

- Prepare interim AI guidance for schools and teachers.
- Launch introductory AI awareness and orientation programmes.
- Strengthen AI-related teacher professional development.
- Establish a national repository of AI teaching and learning resources.
- Develop model lesson plans and classroom exemplars demonstrating responsible AI use.
- Support pilot schools and teacher action research initiatives.
- Strengthen collaboration among government, universities, schools, and development partners.
- Review and update AI standards periodically based on implementation evidence.

Geographical Roundtables: Provincial Perspectives

Following the national thematic roundtables on AI Capacity in Education, Teacher Professional Development and Student Assessment, Equity and Inclusion, and Development of National Standards, two geographical roundtables were organized in Madhesh and Lumbini provinces to ensure that national policy discussions are grounded in local realities, infrastructure conditions, and implementation constraints. Madhesh Province has been selected because of its distinct socio-cultural and linguistic diversity, cross-border dynamics, gender and equity considerations, and infrastructure disparities. The province also includes communities and school systems that are often underrepresented in national policy discussions, making it essential for understanding context-sensitive AI integration challenges. Similarly, Lumbini Province has been selected because it represents a diverse rural-urban educational context with variations in infrastructure, school access, teacher capacity, and multilingual education realities. The province also reflects a combination of community and institutional school systems with differing levels of technological readiness.

Participants of these geographical roundtables included a diverse group of stakeholders representing different sectors of the provincial education system, local education offices, local government representatives, school leaders, classroom teachers, teacher educators, university academics, development partners, educational technology practitioners, and members of the AI4Ed Nepal research team.

These geographical discussions focused on the following key areas:

- Province-specific opportunities and challenges for AI integration in school education
- Local government capacity, roles, and implementation constraints
- Infrastructure and connectivity realities
- Linguistic and cultural dimensions affecting AI adoption
- Gender and equity implications of AI-enabled education
- Practical school-level implementation pathways
- Teacher support, mentoring, and professional development systems

The dialogues began with a presentation of the preliminary findings from the AI4Ed Nepal mixed-methods research, highlighting teachers' AI literacy, current classroom practices, perceived opportunities, barriers to implementation, and emerging policy implications. Participants then engaged in facilitated group discussions structured around six guiding questions specifically designed to examine the implications of these findings for Madhesh and Lumbini Provinces. Throughout the discussions, participants reflected on provincial realities, identified implementation priorities, proposed practical solutions, and generated recommendations for provincial and national policymakers.

The questions given to the groups were:

1) Based on local realities, how feasible is AI integration in schools within this province?
2) What infrastructure and connectivity barriers exist at the local level?
3) What kinds of AI tools are most realistic for rural and resource-constrained schools?
4) How can local governments support teachers and schools in responsible AI use?
5) What equity and language issues must be considered in AI-enabled education?
6) How can schools, communities, and local governments collaborate to support implementation?

Summary of Discussion and Recommended Actions

1. Feasibility of AI Integration in Madhesh and Lumbini Provinces

Participants agreed that AI has a great potential to strengthen teaching and learning, improve teacher productivity, support personalised learning, and enhance access to

educational resources. However, they also recognised that successful implementation will depend upon careful planning, adequate preparation, and phased implementation rather than immediate large-scale adoption. Teacher readiness was pointed out as the key factor for AI in education. Participants shared that many teachers are already experimenting independently with freely available AI tools such as ChatGPT and other generative AI applications. Teachers reported using these tools to prepare lesson plans, generate classroom activities, create assessment questions, translate materials, and access additional teaching resources. This demonstrated a high level of curiosity and willingness to innovate despite limited formal guidance or institutional support. However, this was not the case with all the teachers, according to the discussion.

Participants acknowledged that schools themselves are often less prepared than individual teachers. Many schools lack clear policies regarding AI use, have limited ICT infrastructure, insufficient internet connectivity, and few opportunities for structured professional learning. Thus, successful AI integration requires strengthening institutional capacity along with the individual teacher competencies. Therefore, participants recommended beginning with pilot schools representing different geographical and socio-economic contexts. These schools could demonstrate effective practices, identify implementation challenges, and generate locally relevant evidence before wider expansion across the provinces.

Policy and Programme Actions

- Develop a phase-wise provincial AI implementation strategy.
- Identify demonstration schools representing diverse contexts.
- Prepare school-level AI implementation plans.
- Develop introductory guidance for teachers and school leaders.
- Establish provincial mentoring and technical support mechanisms.
- Monitor pilot implementation before scaling up across the province.

2. Infrastructure and Connectivity are the Foundations for AI Integration

Participants shared that reliable digital infrastructure remains a fundamental prerequisite for successful implementation of AI in Education. Considerable differences in infrastructure availability across municipalities and schools within the Provinces were reported both in Madhesh and Lumbini. However, connectivity was reported to be more serious in Lumbini. Due to the remoteness, some districts in Lumbini do not have reliable network connection even to operate the mobile phones. Urban schools generally possess relatively reliable electricity, internet connectivity,

computer laboratories, and access to digital devices. In contrast, many rural schools continue to experience intermittent internet access, inadequate bandwidth, limited ICT equipment, and insufficient technical maintenance. Participants suggested that introducing AI without addressing these disparities risks widening existing educational inequalities between schools.

Participants also discussed the affordability of digital technologies and the devices for AI access. Also, effective AI implementation requires reliable technical support, maintenance systems, software updates, cybersecurity measures, and sustainable financing and these are not easily available in the provinces. Another important issue concerned electricity reliability, particularly in remote municipalities.

Policy and Programme Actions

- Expand reliable broadband connectivity across all municipalities.
- Improve electricity supply for schools in underserved areas.
- Establish ICT laboratories equipped for AI-enabled teaching.
- Develop sustainable maintenance and technical support systems.
- Allocate dedicated funding for ICT infrastructure within municipal education plans.
- Promote public-private partnerships supporting educational technology infrastructure.
- Prioritise underserved schools during infrastructure expansion.

3. AI Tools should be Appropriate for Local Educational Context

Participants pointed out the need of identifying AI applications that are realistic and appropriate for schools in the local contexts. Participants recognised that while sophisticated AI technologies continue to emerge internationally, schools require practical, affordable, and contextually appropriate applications that directly support teaching and learning. Participants agreed that AI should initially focus on improving teachers' professional practice rather than replacing classroom instruction. Teachers described a wide range of practical uses already emerging through individual experimentation, including lesson planning, preparation of worksheets, development of assessment questions, translation, summarising educational content, preparing presentations, and generating classroom activities. These applications were viewed as immediately relevant because they reduce teacher workload while improving instructional quality.

Participants also highlighted the importance of low-bandwidth and mobile-friendly AI applications. Since smartphones are considerably more common than computers

among teachers, mobile-based AI tools were viewed as particularly appropriate during the initial stages of implementation. Offline or partially offline AI applications were also recommended for schools experiencing unreliable internet connectivity.

Language was another important consideration. Participants argued that AI tools supporting Nepali and other national languages would be considerably more useful than English-only systems. Local language support would enable teachers to develop culturally relevant learning materials while improving accessibility for students whose first language is not English.

Policy and Programme Actions

- Promote AI tools that directly support teachers' daily work.
- Prioritise mobile-friendly and low-bandwidth AI applications.
- Encourage development of Nepali-language AI resources.
- Develop AI tools aligned with Nepal's national curriculum.
- Provide practical training on evaluating and adapting AI-generated materials.
- Establish repositories of locally developed AI teaching resources.

4. Leadership of the Local Governments is Important for AI in Education Implementation

Participants shared that Nepal's decentralised education system provides municipalities with significant responsibilities for school governance, teacher support, educational planning, and resource allocation. AI implementation should, therefore, become an integral component of municipal education planning rather than being viewed as an externally driven technology initiative. Participants suggested that each municipality should gradually develop its own Municipality level AI in Education Plan, aligned with national standards while responding to local educational realities.

Participants also expected the local governments to support teachers in the use of AI in education. Municipalities could organise school-based professional learning activities, facilitate peer learning networks, coordinate mentoring, and strengthen collaboration among schools within their jurisdictions. Such locally organised capacity-building initiatives were viewed as more sustainable because they allow teachers to receive continuous support rather than participating in isolated workshops. Local governments should also allocate budget for AI related activities and mobile local resources in a more coordinated and collaborated manner.

Policy and Programme Actions

- Prepare Municipality Level AI in Education Plans aligned with national policy.
- Allocate dedicated resources for AI-related educational activities within municipal education budgets.
- Strengthen school-based teacher professional development.
- Establish municipal AI mentoring and coaching networks.
- Support schools in developing local AI implementation plans.
- Facilitate partnerships among schools, universities, private sector organisations, and development partners.
- Monitor equitable implementation across all schools within the municipality.
- Promote community awareness regarding responsible AI use.

5. Equity, Language and Inclusion must be Considered for AI in Education Program

Participants stressed that AI implementation should contribute to reducing educational inequalities rather than widening them. Consequently, every stage of implementation should be informed by principles of equity, inclusion, accessibility, and cultural responsiveness. Participants identified several groups that may face disproportionate barriers to AI adoption if targeted support is not provided. These included schools in remote municipalities, teachers with limited digital confidence, female teachers balancing professional and family responsibilities, learners with disabilities, students from economically disadvantaged households, and children whose first language differs from Nepali or English. Participants also discussed the importance of disability inclusion that need to be considered while planning AI in Education.

Policy and Program Actions

- Embed equity and inclusion principles throughout provincial AI implementation.
- Develop multilingual AI teaching and learning resources.
- Strengthen AI accessibility for learners with disabilities.
- Design differentiated professional development for teachers with varying digital competencies.
- Prioritise disadvantaged schools during AI implementation.
- Collect gender- and location-disaggregated data to monitor equitable access.
- Promote culturally responsive AI content reflecting local knowledge and languages.
- Ensure that provincial AI initiatives explicitly address Gender Equality, Disability, and Social Inclusion (GEDSI).

6. Partnership and Collaboration for Sustainable AI Integration

Participants emphasised that sustainable educational transformation requires active collaboration among schools, parents, communities, municipalities, universities, civil society organisations, development partners, and the private sector. They suggested that schools should actively engage parents and communities in discussions about the opportunities, limitations, ethical considerations, and responsible use of AI. Such engagement would help build public trust while encouraging informed participation in future educational initiatives. Participants also highlighted the important role of universities and teacher education institutions. Universities can contribute through research, curriculum development, teacher education, technical expertise, and evaluation of pilot programmes. Stronger collaboration between schools and universities would enable evidence generated through classroom practice to inform future policy while ensuring that research remains grounded in practical educational realities.

The private sector, technology companies were recognised as other important partners. Technology companies can contribute technical expertise, educational software, infrastructure support, innovation, and professional learning opportunities. However, participants emphasised that private sector involvement should remain guided by national educational priorities and ethical standards rather than purely commercial interests. Development partners were viewed as particularly important during the early stages of implementation. Participants acknowledged the significant contribution already made through the AI4Ed Nepal project and encouraged continued support for research, teacher capacity development, innovation pilots, policy dialogue, and international knowledge exchange.

Policy and Programme Actions

- Strengthen school–community partnerships supporting AI awareness.
- Engage parents in discussions regarding responsible AI use.
- Promote collaboration between schools and universities.
- Encourage responsible partnerships with technology providers.
- Strengthen collaboration with development partners during pilot implementation.
- Establish provincial knowledge-sharing networks among schools.
- Encourage schools to document and disseminate innovative AI practices.
- Build community ownership of AI-enabled educational reform.

Conclusions

These six roundtable discussions provided important policy and program insights for the AI4Ed Nepal research. The discussions emphasized that Nepal's AI in Education should focus on the human centred approach that strengthens teachers' agency; consider equity and inclusion as the foundation of all AI policies and programmes; responsible governance supported by clear standards, ethical guidelines, and accountability mechanisms; continuous capacity development both at the system level and individual level; evidence-informed implementation; contextually grounded innovations and localized experimentation of AI in education. AI in Education should be considered as an integral part of the overall school education eco-system.

All six roundtable discussions were organized in collaboration with the government and both the Federal and Provincial Ministries of Education took the ownership of these roundtable discussions. High profile officials from the Ministry of Education started the events with their opening remarks and wrapped up the discussions with the key messages.

Appendix G. Stakeholders Consulted

SN	Events	Local Level Stakeholders	Province Level Stakeholders	Federal Gov Stakeholders	Other Stakeholders	Total Stakeholders
1	Thematic Roundtables (Across 4 Themes in Kathmandu)	1	0	21	15	37
2	Geographic Roundtable - Madhesh	9	7	14	6	36
3	Geographic Roundtable- Lumbini	9	7	15	8	39
Total Participants						**112**