Published Date: - 30-09-2025
Page No: - 185-188

DESIGNING CULTURALLY RELEVANT AI ENGLISH LEARNING CONTENT FOR RURAL UZBEK PRIMARY SCHOOLS

Jumazoda Shohidai Jaloliddin
basic doctoral student at Urgench State University, Uzbekistan

Abstract

This article explores how artificial intelligence can support the design of culturally relevant English learning content for rural Uzbek primary schools. Building on culturally relevant pedagogy and sociocultural learning theory, we argue that AI systems should amplify learners' local identities, languages, and everyday experiences while addressing infrastructural constraints typical of rural contexts. We describe a design-based research initiative that iteratively developed and tested an AI-augmented microcurriculum featuring offline-capable pronunciation support, adaptive vocabulary practice anchored in rural life, and bilingual story dialogs co-created with teachers. Across a ten-week pilot in grades two to four, pupils showed higher on-task engagement, improved pronunciation intelligibility, and increased willingness to speak, with teachers attributing gains to content that reflected familiar settings and to immediate, non-stigmatizing feedback. The study demonstrates that when AI is paired with culturally meaningful narratives, low-bandwidth engineering, and teacher-centered authoring, technology can strengthen early English learning without displacing local linguistic and cultural capital. Implications address data governance, accent-aware models, and professional development that positions teachers as curators and co-designers rather than mere implementers.

Keywords

Artificial intelligence in education; culturally relevant pedagogy; primary English; rural schools; Uzbekistan; bilingual learning; pronunciation feedback; low-bandwidth design; teacher professional development.

Introduction

Rural Uzbek primary schools serve communities where children often grow up multilingual, drawing on Uzbek and other local languages in homes and mahallas. English instruction typically competes with limited access to devices, intermittent connectivity, and a scarcity of localized materials. In such settings, imported digital resources may present unfamiliar names, foods, festivities, and social practices, inadvertently signaling that English belongs to distant places and people. Culturally relevant pedagogy offers a corrective by affirming learners' identities, connecting content to local knowledge, and developing critical competence alongside academic growth. AI can extend this agenda by adapting tasks to each learner, providing timely feedback, and enabling teachers to generate materials that weave English into everyday rural life rather than treating culture as a decorative add-on. The challenge is to integrate these capabilities without amplifying digital divides or eroding trust through opaque data practices.

Published Date: - 30-09-2025

The study sought to design, implement, and evaluate AI-augmented English learning content that is culturally relevant for rural Uzbek primary learners. The specific objective was to examine whether culturally grounded, AI-supported materials improve engagement, pronunciation, and vocabulary uptake compared to business-as-usual lessons while remaining feasible under rural infrastructure constraints.

The research adopted a design-based approach over two iterative cycles in four rural schools. In cycle one, a team of teachers and instructional designers mapped key themes from the national curriculum onto locally resonant contexts such as seasonal work, school gardens, crafts, family gatherings, and Navro‘z festivities. Short story dialogs and interactive tasks introduced target vocabulary within these scenes, with bilingual scaffolds that shifted gradually from Uzbek to English. A lightweight speech feedback module, trained with Uzbek-accented English samples, offered segmental hints and prosody cues through simple visual meters. Adaptive practice spaced items over time and adjusted difficulty to keep learners in a productive challenge range, while all core functions operated offline with periodic synchronization.

In cycle two, the team refined materials using classroom observations, pupil interviews, and teacher annotations captured in an authoring dashboard. Teachers adjusted names, objects, and plot details to reflect their villages, and they created low-stakes speaking opportunities by allowing private rehearsal with the conversational agent before group performances. The ten-week evaluation included 168 learners in grades two to four. Two schools used the AI-augmented materials in two of their weekly English periods; two comparison schools taught the same syllabus without AI support. Measures included classroom engagement ratings, a short pronunciation intelligibility probe scored by trained raters blind to condition, and a curriculum-embedded vocabulary check. Semi-structured interviews with teachers and sample pupils documented perceptions of cultural relevance and usability.

Learners in the AI condition demonstrated more sustained attention during oral practice and volunteered to repeat utterances to improve their feedback meters. Teachers reported that pupils recognized themselves in the stories and quickly appropriated phrases to narrate familiar activities, which reduced the distance between English and everyday life. Pronunciation scores improved modestly yet consistently, with the largest gains observed for phonemes that Uzbek learners commonly approximate through L1 categories. Teachers credited the visual feedback with shifting attention from correctness as judgment to correctness as a trajectory, allowing children to attempt, adjust, and attempt again without embarrassment. Vocabulary checks showed better retention for words anchored in local scenes than for abstract items, and interviews suggested that meaning-making benefited from bilingual transitions that did not force abrupt code switching.

The design choices mattered. Offline operation ensured that a dropped signal never halted practice, and low-spec devices handled speech feedback well enough when recordings were brief and the interface emphasized clarity over ornamentation. Teacher authoring proved essential because subtle cultural details signaled authenticity, and the ability to replace a character’s name or swap a market scene for a school garden conveyed to learners that their worlds deserved representation. The agent’s default of private rehearsal before public speaking gave timid pupils an accessible path into oral participation, while class performances retained the communal dimension valued in local schooling. Importantly, the AI layer remained in

service of pedagogy rather than dictating it; teachers set communicative goals first, then used analytics to notice who needed more practice with certain sounds or phrases.

Cultural relevance did not mean romanticizing rural life or flattening diversity. Some stories invited reflection on environmental stewardship and safety in ways that resonated with local concerns, and pupils discussed why certain practices varied from one family to another. This approach aligned with the broader aim of developing critical cultural competence alongside language skills. The study also surfaced ethical responsibilities. Families appreciated transparent explanations of what audio data were stored and for how long, and trust grew when schools adopted clear consent procedures and when models processed speech locally by default. Teachers asked for continued support to interpret dashboards and to calibrate the balance between item-level drilling and open-ended conversation, underscoring that professional development should focus on principled orchestration rather than tool operation alone.

While results were promising, the project remained limited by its short duration and by its focus on a handful of themes. Longer interventions could explore how cultural narratives evolve across grades and how AI can help bridge from highly contextualized scenes to more general language use. Accent-aware models need broader training data representing regional variation, and vocabulary selection should be revisited each term to reflect seasonal life. Nonetheless, the pilot indicates that thoughtful localization combined with accessible AI can make early English not only more intelligible but also more meaningful.

Designing AI English content for rural Uzbek primary schools is most effective when technology and culture are treated as mutually reinforcing. By grounding language in familiar narratives, enabling accent-aware and non-stigmatizing feedback, and positioning teachers as co-authors, the approach described here nurtured engagement and oral confidence without depending on continuous connectivity. The work invites policymakers to support open, teacher-friendly authoring pipelines, to invest in privacy-preserving infrastructure, and to promote professional learning that centers pedagogy. For researchers, it highlights the importance of measuring both learning outcomes and cultural resonance, since meaning drives motivation, and motivation sustains learning.

References

1. Ladson-Billings G. Toward a theory of culturally relevant pedagogy // American Educational Research Journal. 1995. Vol. 32, No. 3. P. 465–491.
2. Vygotsky L. S. Mind in Society: The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press, 1978. 159 p.
3. Cummins J. Language, Power and Pedagogy: Bilingual Children in the Crossfire. Clevedon: Multilingual Matters, 2000. 309 p.
4. Luckin R., Holmes W., Griffiths M., Forcier L. B. Intelligence Unleashed: An Argument for AI in Education. London: Pearson, 2016. 56 p.
5. UNESCO. Artificial Intelligence in Education: Guidance for Policy-makers. Paris: UNESCO, 2021. 146 p.
6. Mayer R. E. Multimedia Learning. 3rd ed. Cambridge: Cambridge University Press, 2021. 344 p.

7. Hattie J., Timperley H. The power of feedback // Review of Educational Research. 2007. Vol. 77, No. 1. P. 81–112.

8. Plass J. L., Homer B. D., Kinzer C. K. Foundations of game-based learning // Educational Psychologist. 2015. Vol. 50, No. 4. P. 258–283.

9. Warschauer M. Technology and Social Inclusion: Rethinking the Digital Divide. Cambridge, MA: MIT Press, 2004. 260 p.

10. UDL Guidelines 3.0: A framework for designing learning environments that enable all individuals to gain knowledge, skills, and enthusiasm for learning // CAST. 2018. URL: cast.org (access date not required).