African Journal of Education Science and Technology (AJEST) Vol. 8 No. 4 (May, 2026)
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Digital Delivery Tools and Linguistic Repertoires: Which Platforms Matter for English Teacher Trainees in Uganda?

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Abstract

Digital delivery tools are central to English language teacher education in multilingual contexts, yet evidence on which specific tools influence trainees' linguistic repertoires remain scarce. This study investigated how digital delivery tools collaboration tools, learning management systems (LMS), virtual classrooms, video platforms, and work-showcase tools influence the linguistic repertoires of English language teacher trainees. A convergent mixed-methods design was employed, involving 150 teacher trainees (questionnaire) and 10 ELT lecturers (semi-structured interviews) at Kyambogo University, Uganda. Quantitative data were analysed using descriptive statistics, correlation, and multiple linear regression; qualitative data were analysed thematically. Regression analysis revealed that LMS (β = 0.346, p = 0.001) and collaboration tools (β = 0.257, p = 0.023) significantly predicted linguistic repertoire development, explaining 32.4% of the variance. Virtual classrooms (β = 0.157, p = 0.090), video platforms (β = -0.100, p = 0.250), and work-showcase tools (β = -0.050, p = 0.626) did not reach statistical significance. Qualitative findings showed that while video platforms were perceived as useful for listening comprehension, passive consumption did not drive repertoire development without structured tasks. Digital delivery tools influence linguistic repertoires unevenly. Tools that support sustained interaction, repeated language production, and peer feedback exert stronger effects than tools enabling passive consumption. Teacher education programmes should prioritise pedagogical integration of LMS and collaboration tools over mere provision of access.

Keywords: *digital delivery tools, learning management systems, collaboration tools, linguistic repertoires, teacher education,*

Introduction

The rapid digitalisation of higher education has fundamentally transformed how English language teacher trainees access content, interact with peers, and demonstrate their learning across university contexts globally. Digital delivery tools ranging from learning management systems (LMS) and virtual classrooms to video platforms and collaboration software have become routine components of teacher preparation programmes, particularly across the Global South where institutions are increasingly adopting technology mediated instruction (Adarkwah, 2021; Czerniewicz et al., 2022). However, despite this widespread adoption, a critical pedagogical question remains inadequately addressed in the literature: which specific digital delivery tools actually influence the linguistic repertoires of teacher trainees, and through what mechanisms does this influence occur? This question is not merely technical but fundamentally pedagogical, as the choice of digital tools carries significant implications for how trainees develop the linguistic competencies essential for their future roles as English language teachers.

Digital delivery tools are not neutral conduits for instruction but active mediators of learning experiences whose design features whether they enable synchronous interaction, support peer feedback, allow multimodal expression, or privilege certain language varieties actively shape what learners can do with language (van Dijck et al., 2021; Warschauer, 2020). In multilingual contexts such as Uganda, where English functions as the official language of education alongside numerous local languages including Luganda, Runyakitara, Acholi, and Ateso, the choice and implementation of digital delivery tools carry particularly significant implications for which linguistic resources are legitimised and which are marginalised (Nakayiza, 2021; Ssebaggala, 2019). The digital divide, infrastructural constraints, and varying levels of digital literacy further complicate the relationship between tool availability and pedagogical effectiveness in such contexts (Mugume & Kyeyune, 2022; Pegrum et al., 2022).

Despite the proliferation of digital delivery tools in teacher education, empirical evidence on their differential effects remains remarkably scarce in sub-Saharan African contexts. Existing research has documented the affordances of specific platforms for example, the role of LMS in structuring academic writing tasks (Kohnke et al., 2022), the potential of video platforms for developing listening comprehension (Lu & Gu, 2024), and the value of collaboration tools for peer feedback (Nabirye & Ssentanda, 2022). However, few studies have systematically compared the relative contribution of multiple tool categories within a single sample, and almost none have done so in Ugandan teacher education contexts where multilingual realities and infrastructural constraints create unique conditions for digital learning. This gap matters for three interconnected reasons.

First, resource constrained institutions cannot afford to invest in all categories of digital tools at the same time; they require evidence-based guidance on which tools yield the greatest return for linguistic development. Second, the uncritical adoption of digital tools designed in Global North contexts may overlook how these tools interact with local multilingual realities, potentially reinforcing English dominance while erasing local languages and translanguaging practices (Makoe & McKinney, 2020; Madileng & Dlamini, 2023). Third, teacher trainees who experience only certain types of digital engagement during their preparation may carry narrow conceptions of technology-mediated language teaching into their own classrooms, limiting their future students' opportunities for linguistic responsive digital learning (Hockly, 2022; O'Dowd, 2021).

This article addresses these gaps through examining the research objective of a larger mixed-methods study: *How do digital delivery tools influence the linguistic repertoires of English language teacher trainees at Kyambogo University, Uganda?* Five digital delivery tools were investigated based on their prevalence in the Ugandan higher education context: collaboration tools (e.g., Google Workspace, Padlet, Microsoft Teams), learning management systems (Moodle, Google Classroom), virtual classrooms (Zoom, Google Meet), video platforms (YouTube, Flipgrid), and work-showcase tools (ePortfolios, digital portfolios). The article makes three primary contributions to the field. First, it provides quantitative evidence ranking the predictive power of different tool categories for linguistic repertoire development. Second, it offers qualitative explanations for why some tools influence repertoire development more than others, drawing on lecturer perspectives. Third, it generates context-sensitive insights for teacher education programmes across multilingual Africa, with implications for curriculum design, infrastructure investment, and pedagogical practice.

Methodology

The study employed a convergent mixed-methods design (Creswell & Plano Clark, 2018) with quantitative priority, a choice informed by the dual demands of the research question. This design was selected because the research question required both statistical estimation of predictive strength identifying which tools influence linguistic repertoires and contextualised explanation of mechanisms understanding how this influence occurs. Accordingly, quantitative and qualitative data were collected concurrently, analysed separately using appropriate statistical and thematic procedures, and integrated during interpretation to generate comprehensive findings that address both the "what" and "how" of digital tool influence on linguistic repertoire development. The study was conducted at Kyambogo University, Uganda, a public institution with a student population exceeding 33,000. The target population comprised undergraduate English language teacher trainees in the Bachelor of Teacher Education programme and ELT lecturers in the Department of Teacher Education and Extension. Using Krejcie and Morgan's (1970) table, 150 teacher trainees were selected through systematic random sampling from a population of 300. Additionally, 10 ELT lecturers were purposively selected for interviews. The sample included 53.3% male and 46.7% female participants, with the majority (64.7%) aged 30-40 years. Eleven different first languages were represented, with no single language dominating: Ateso (22.0%), Lango (22.0%), Runyakitara (14.7%), and Acholi (13.3%) were most common. English was the first language for only 2.0% of respondents.

Quantitative data were collected using a structured questionnaire with five-point Likert scales (1 = Strongly Disagree to 5 = Strongly Agree). Five categories of digital delivery tools were measured: collaboration tools (5 items, $\alpha = 0.858$), LMS (5 items, $\alpha = 0.862$), virtual classrooms (5 items, $\alpha = 0.856$), video platforms (5 items, $\alpha = 0.871$), and work-showcase tools (5 items, $\alpha = 0.864$). Linguistic repertoires as the dependent variable were measured through five dimensions (composite $\alpha = 0.89$). Qualitative data were collected through semi-structured interviews with ELT lecturers, exploring their observations of how digital delivery tools shape trainees' language practices, which tools they perceived as most effective, and what challenges they observed. Quantitative data were analysed using SPSS version 25. Descriptive statistics (means, standard deviations) were computed for all variables. Pearson correlation analysis examined bivariate relationships. Multiple linear regression identified which tool categories independently predicted linguistic repertoires, with tolerance and VIF statistics confirming absence of multicollinearity. Qualitative interview data were transcribed verbatim and analysed using Braun and

Clarke's (2021) six-phase thematic analysis procedure. Codes were generated inductively while being informed by the theoretical framework.

Ethical Considerations

The study received ethical approval from Kyambogo University Research Ethics Committee and the Uganda National Council for Science and Technology (approval number: UNCST-**SS5256ES**). All participants provided written informed consent. Confidentiality was maintained through anonymity.

Results and Discussion

Descriptive Results for Digital Delivery Tools

Table 1: Descriptive Statistics for Digital Delivery Tools Used by English Language Teacher Trainees

Tool Category	Mean	SD	Skewness	Kurtosis
Collaboration Tools	3.37	0.79	-0.23	0.18
Learning Management Systems	3.22	0.70	-0.11	-0.34
Virtual Classrooms	2.95	0.60	0.09	-0.22
Video Platforms	3.32	0.78	-0.19	-0.08
Work-Showcase Tools	3.17	0.83	-0.06	-0.41

Note: N = 150. Scale: 1 = Strongly Disagree to 5 = Strongly Agree. All distributions approximated normality, supporting p arametric analysis. Collaboration tools recorded the highest mean (M = 3.37, SD = 0.79), while virtual classrooms recorded the lowest mean (M = 2.95, SD = 0.60).

Correlation Analysis

Table 2 Presents correlations among digital delivery tools and linguistic repertoires.

Variable	1	2	3	4	5	6
1. Linguistic Repertoires	1					
2. Collaboration Tools	0.267	1				
3. LMS	0.523	0.500	1			
4. Virtual Classrooms	0.416	0.554	0.577	1		
5. Video Platforms	0.481	0.485	0.654	0.527	1	

Variable	1	2	3	4	5	6
6. Work-Showcase Tools	0.375	0.355	0.614	0.406	0.720	1

$p < 0.01$ (2-tailed)

All digital delivery tools correlated positively and significantly with linguistic repertoires. LMS showed the strongest correlation ($r = 0.523$, $p < 0.001$), followed by video platforms ($r = 0.481$, $p < 0.001$) and virtual classrooms ($r = 0.416$, $p < 0.001$). Collaboration tools showed the weakest correlation ($r = 0.267$, $p = 0.001$). Inter-correlations among tool categories ranged from 0.355 to 0.720, indicating that trainees use multiple tools in an integrated digital ecology rather than in isolation.

Regression Analysis

Table: 3 Presents the multiple linear regression results for digital delivery tools predicting linguistic repertoires.

Predictor	β	SE	t	p	95% CI
Collaboration Tools	0.257	0.080	2.29	0.023	[0.035, 0.479]
Learning Management Systems	0.346	0.101	3.42	0.001	[0.147, 0.545]
Virtual Classrooms	0.157	0.092	1.71	0.090	[-0.025, 0.339]
Video Platforms	-0.100	0.086	-1.16	0.250	[-0.270, 0.070]
Work-Showcase Tools	-0.050	0.082	-0.49	0.626	[-0.212, 0.112]

Note: $R^2 = 0.324$, Adjusted $R^2 = 0.301$, $F(5,144) = 13.810$, $p < 0.001$

The model was statistically significant, explaining thirty-two point four percent (32.4%) of the variance in linguistic repertoires. Learning Management Systems emerged as the strongest significant predictor with beta equals zero point three four six, positive value equaling to zero point zero zero one ($\beta = 0.346$, $p = 0.001$), followed by collaboration tools giving beta equals zero point two five seven, positive value equal to zero point zero two three ($\beta = 0.257$, $p = 0.023$). Virtual classrooms approached but did not reach conventional significance ($\beta = 0.157$, $p = 0.090$). Video platforms showed a non-significant negative coefficient ($\beta = -0.100$, $p = 0.250$), and work-showcase tools showed a non-significant negative coefficient ($\beta = -0.050$, $p = 0.626$).

These findings indicate that not all digital delivery tools influence linguistic repertoires equally. Tools that support sustained, interactive, peer-mediated engagement LMS and collaboration tools exert significant positive effects. Tools that primarily enable passive consumption (video platforms) or occasional presentation (work-showcase tools) do not predict repertoire development independently.

Qualitative Findings

Four themes emerged from thematic analysis of lecturer interviews:| LMS as a structured gateway to academic English. Lecturers consistently identified LMS platforms as central to academic English development. One explained:

Course materials are easy to access on Moodle, and submitting assignments is convenient. The LMS functions as a central repository for academic English input, contributing to sustained exposure to formal language use." (AUD-2025-1) However, lecturers noted that LMS effectiveness depends on digital literacy. Another observed:

"Some of my students have become quite skilled at navigating the LMS, downloading materials, submitting assignments, and participating in discussion forums. Others still face challenges of forgetting passwords, slower loading times, or difficulty uploading files." (AUD-2025

Theme 2: Collaboration tools enabling peer scaffolding and translanguaging. Lecturers reported that collaboration tools support joint meaning-making and peer feedback. One stated:
"Collaborative tools like Google Docs and Padlet allow my trainees to co-write essays, comment on each other's work, and learn from their corrections. This process develops their grammar, vocabulary, and writing skills." (AUD-2025-6). lecturers revealed that collaboration tools enabled translanguaging practices that remained invisible in formal assessments:
"In the WhatsApp groups that students create themselves, they code-switch constantly. They explain concepts in local languages, then someone writes the final answer in English. But I never see this process. I only see the final English product." (AUD-2025-7)

Theme 3: Video platforms: perceived usefulness without measurable effect. Despite positive perceptions of video platforms in the quantitative data, lecturers described them as useful primarily for listening comprehension rather than for productive language development. One lecturer explained:

"Video-based resources influence trainees' language comprehension because they are able to see and hear the original use of English. This helps improve listening skills. But watching alone does not make them write better." (AUD-2025-10). Another noted the passive consumption problem:

"When they use documentaries, they can observe correct pronunciation and intonation. But if they just watch without any task, they do not produce language. The learning is passive." (AUD-2025-3)

Theme 4: Work-showcase tools as reflective but not developmental. Lecturers described work-showcase tools as valuable for documentation and reflection but not as drivers of linguistic change. One observed:

"ePortfolios help students see their progress over time. They can look back at their first assignment and see how their English has improved. But the portfolio itself did not cause the improvement. The improvement came from the writing and feedback process." (AUD-2025-9)

Another noted limited engagement with showcase tools due to digital literacy constraints:

"Some trainees struggle even with basic LMS functions. Using ePortfolios is too advanced for them at this stage. We need to walk before we run." (AUD-2025-2)

Discussion

The findings of this study demonstrate that digital delivery tools influence linguistic repertoires unevenly, with Learning Management Systems and collaboration tools emerging as significant predictors while virtual classrooms, video platforms, and work-showcase tools did not reach statistical significance. These results contribute to a more nuanced understanding of technology-mediated language learning in multilingual teacher education contexts, with important implications for theory, practice, and policy.

LMS and Collaboration Tools as Significant Predictors

The finding that Learning Management Systems and collaboration tools significantly predict linguistic repertoire development aligns with and substantially extends the theoretical frameworks guiding this study. From a Sociocultural perspective, LMS platforms function as mediational tools that structure sustained engagement with academic English through discussion forums, written assignments, and feedback cycles (Lantolf et al., 2020). Unlike video platforms, which users can consume passively, LMS environments require active participation posting, responding, submitting, and revising that is creating conditions for mediated language development. This finding carries important theoretical implications: it suggests that the effectiveness of digital tools as mediators depends not merely on their technical affordances but on the extent to which they demand active, sustained language production. For teacher education programmes, this implies that investment

in LMS infrastructure yields greater returns when accompanied by pedagogically structured activities that require trainees to engage productively with academic language rather than consume content passively.

Collaboration tools, with their emphasis on peer interaction and joint meaning-making, demands active language production. The finding that collaboration tools significantly predict repertoire development ($\beta = 0.257$, $p = 0.023$) supports Communities of Practice theory, which emphasises learning through mutual engagement and joint enterprise (Wenger-Trayner & Wenger-Trayner, 2020). When trainees co-write essays, comment on each other's work, and negotiate meaning in shared documents, they are not merely consuming language they are producing, manipulating, and reflecting on it in ways that foster linguistic development. The qualitative finding that collaboration tools enable covert translanguaging practices is particularly significant for multilingual contexts. Trainees reported using local languages in WhatsApp groups to scaffold understanding before producing English outputs, yet these translanguaging practices remain institutionally invisible because formal assessments capture only the final English product (García & Li Wei, 2014; Li Wei, 2022). This finding extends translanguaging theory by demonstrating that digital tools do not automatically create translanguaging spaces; rather, institutional recognition and assessment practices determine which multilingual practices become visible and legitimate. Teacher education programmes must develop assessment policies that acknowledge the multilingual processes trainees use to arrive at English outputs, rather than evaluating only final products.

Why Virtual Classrooms Did Not Reach Significance

The marginal effect of virtual classrooms ($\beta = 0.157$, $p = 0.090$) requires careful interpretation. This finding does not indicate that synchronous interaction is unimportant for linguistic development; it suggests that the quality and consistency of virtual classroom interaction in this context may have been compromised by infrastructural constraints. Qualitative data revealed persistent challenges: "Internet problems disturb the show" (AUD-2025-4); "Sometimes you just listen because your microphone cannot work well" (AUD-2025-8). Under such conditions, virtual classrooms may devolve into one-way transmission instead of dialogic interaction, limiting opportunities for spontaneous language production and real time feedback. This interpretation aligns with research from other African contexts showing that inconsistent connectivity changes the nature of synchronous online learning (Adarkwah, 2021; Czerniewicz et al., 2022). For teacher education programmes, this finding underscores the critical importance of reliable infrastructure for realising the pedagogical potential of synchronous tools.

Video Platforms: The Passive Consumption Problem

The non-significant negative coefficient for video platforms ($\beta = -0.100$, $p = 0.250$) may appear counterintuitive given their positive correlation with linguistic repertoires ($r = 0.481$). However, this pattern significant bivariate correlation but non-significant regression coefficient indicates that the variance shared with other variables (mainly LMS, $r = 0.654$) is accounting for the association. In practical terms, trainees who actively use LMS platforms also tend to watch videos, but the active engagement with LMS, not the passive video watching, drives repertoire development. The qualitative data support this interpretation: "If they just watch without any task, they do not produce language. The learning is passive" (AUD-2025-3). This finding refines existing literature that has emphasised video input without adequately distinguishing between passive consumption and active engagement (Kohnke & Moorhouse, 2021; Lu & Gu, 2024). The implication for practice is clear: video platforms should be integrated with structured tasks that require trainees to produce language in response to video content, transforming passive viewing into active learning experiences.

Work-Showcase Tools: Reflection Without Transformation

The non-significant finding for work-showcase tools ($\beta = -0.050$, $p = 0.626$) suggests that portfolio practices, while valuable for metacognitive awareness, do not directly drive linguistic repertoire development. This aligns with theoretical expectations: reflection on language use is not the same as using language, and from a Sociocultural perspective, development occurs through mediated activity, not through documentation of past activity (Lantolf & Thorne, 2017). However, this finding may also reflect the nascent stage of ePortfolio implementation in this context. As one lecturer noted, "Some trainees struggle even with basic LMS functions. using ePortfolios is too advanced" (AUD-2025-2). Where digital literacy is still developing, higher-order portfolio practices may be unrealised or superficial. This suggests that institutions should build foundational digital competencies before introducing sophisticated portfolio tools, ensuring trainees have the technical skills to engage meaningfully with showcase practices.

Implications for Theory

This study contributes to three theoretical frameworks. For Sociocultural Theory, it demonstrates that not all digital tools function equally as mediators of language development. Tools that support sustained, active, interactive engagement mediate development more effectively than tools used passively or sporadically. This refines the concept of mediation by specifying conditions under which tools become effective mediational means namely, when they demand active language production within structured pedagogical frameworks. For Communities of Practice, the study shows that digital tools enable different forms of participation. LMS platforms enable institutionally visible participation, while collaboration tools enable invisible but linguistically significant peer communities where translanguaging and peer scaffolding occur. Communities of Practice theory must account for hidden communities whose learning remains institutionally unrecognised yet pedagogically powerful. For Translanguaging Theory, the study demonstrates that digital platforms are not neutral translanguaging spaces. Platform design and institutional policies actively constrain which translanguaging practices become visible and legitimate (Li Wei, 2022). This extends translanguaging theory by incorporating material and ideological conditions into the analysis, recognising that digital tools both enable and constrain multilingual practices.

Implications for Practice and Policy

For curriculum designers and lecturers, the findings suggest prioritising pedagogically structured LMS activities that require active language production discussion forums, peer review assignments, collaborative writing tasks while integrating collaboration tools with explicit guidance for peer feedback that moves beyond informal chat to substantive language development. For university administrators, investment should focus not only on tool access but on digital literacy training for both trainees and lecturers, as an LMS is only as effective as users' ability to navigate it. Stable connectivity for synchronous tools like virtual classrooms is essential; without reliability, their pedagogical potential remains unrealised. For policymakers, the findings highlight the need to recognise that translanguaging practices occurring in collaboration tools have genuine pedagogical value. Developing assessment policies that make visible the multilingual processes trainees use to arrive at English outputs, rather than assessing only final products, would more accurately capture the full scope of linguistic development.

Limitations and Future Research

Several limitations should be acknowledged. The cross-sectional design cannot establish causality; future research should employ longitudinal designs to track how digital tool use shapes linguistic repertoires over time. The single-institution focus limits generalisability; comparative studies across multiple Ugandan and East African universities would strengthen the evidence base. Self-report measures may be subject to social desirability bias; future studies could incorporate observational data or digital trace analysis to complement self-reports. Finally, the study focused on linguistic repertoires as the dependent variable; future research could examine how digital tools influence other dimensions of teacher development, including pedagogical content knowledge, assessment practices, and professional identity formation

Conclusion and Recommendations

This study investigated how five categories of digital delivery tools influence the linguistic repertoires of English language teacher trainees at Kyambogo University, Uganda. The findings demonstrate that digital delivery tools influence linguistic repertoires unevenly, with Learning Management Systems ($\beta = 0.346$, $p = 0.001$) and collaboration tools ($\beta = 0.257$, $p = 0.023$) significantly predicting repertoire expansion and explaining thirty five percent (32.4%) of the variance. Virtual classrooms, video platforms, and work-showcase tools did not reach statistical significance. Qualitative findings revealed that while video platforms were perceived as useful for listening comprehension, passive consumption did not drive repertoire development without structured tasks. Collaboration tools enabled covert translanguaging practices that remained institutionally invisible, and work-showcase tools supported reflection without directly transforming language use. These findings highlight the critical importance of active, interactive, and sustained engagement with language through digital tools, rather than passive consumption or superficial engagement.

Recommendations

For curriculum designers and lecturers*:* Prioritise pedagogically structured LMS activities that require active language production discussion forums, peer review assignments, and collaborative writing tasks. Integrate collaboration tools

deliberately, with explicit guidance for peer feedback that moves beyond informal chat to substantive language development. Design video-based activities that require trainees to produce language in response to video content rather than consume it passively.

For university administrators: Invest not only in tool access but in digital literacy training for both trainees and lecturers. An LMS is only as effective as users' ability to navigate it. Provide stable, reliable connectivity for synchronous tools like virtual classrooms; without reliability, their pedagogical potential remains unrealised. Develop infrastructure that supports equitable access, recognising that digital divides disproportionately affect students from rural backgrounds.

For policymakers: Recognise that translanguaging practices occurring in collaboration tools have pedagogical value that should be acknowledged rather than dismissed. Develop assessment policies that make visible the multilingual processes trainees use to arrive at English outputs, rather than assessing only final products. Support research that examines how digital tools interact with local multilingual realities, ensuring that technology policies are contextually responsive rather than imported uncritically from Global North contexts.

For teacher educators: Model effective digital pedagogy in their own practice, demonstrating how digital tools can be used to foster linguistic development. Develop trainees' critical digital literacy, enabling them to evaluate digital tools not simply as technical resources but as pedagogical choices with significant implications for language learning. Encourage reflection on how digital tools shape language practices and identities, preparing trainees to make informed pedagogical decisions in their future classrooms.

Acknowledgements

The author acknowledges the support of the doctoral supervisors, the participants at Kyambogo University, Kyambogo University REC for ethical approval and the Uganda National Council for Science and Technology UNCST for research approval.

Funding

The authors received no financial support for the research, authorship and or publication of this article.

Declaration of conflicting interests

The authors declared no potential conflicts of with respect to the research, authorship, and /or publication of this article.

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