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Culturally relevant assessment and generative AI: A co-creation framework for pre-service teachers

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Abstract

Despite the ubiquitous use of generative artificial intelligence (GenAI) in education, there is an urgent need to explore its potential to co-create culturally relevant assessment material for learners. This study aims to fill this void by exploring how GenAI can be used to co-create material that is sensitive to learners from diverse cultural backgrounds while being cognisant of inclusivity and equitable assessment opportunities. Through a synthesis of literature, the culturally relevant pedagogy framework, and assessment materials co-created by GenAI, the study seeks to empower pre-service teachers, practitioners, teacher-educators in higher education institutions and policymakers to integrate GenAI-driven assessment in their teaching. The key findings indicate a positive correlation between GenAI integration and enhanced cultural relevance in assessment materials co-creation. This innovative, pedagogical curriculum design case contributes to the discourse on GenAI in culturally relevant assessment practices and advocates for a paradigm shift that emphasises cultural responsiveness and inclusivity.

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Introduction

The capabilities of generative artificial intelligence (GenAI) have grown steadily over the years and has made significant contributions in all fields. However, in the last two years, we have witnessed an increased growth of GenAI models with the potential to re-imagine pre-service teacher (PST) education and training. GenAI may have the potential to provide PSTs with the opportunity to co-create learning materials for assessment. This may encourage PSTs to design assessments that are culturally sensitive and relevant for their learners. The current literature on assessment and GenAI focuses on personalised learning (Bayly-Castaneda et al., 2004; Bozkurt & Sharma, 2023), feedback (Kasneci et al., 2023), and ethical considerations (Naidu & Sevnarayan, 2023; Popenici, 2023; Popenici et al., 2023), while it neglects the pertinent cultural dimension. Although existing research explores GenAI's role in personalised learning (Bayly-Castaneda et al., 2024) and flags critical ethical risks like linguistic bias against non-native speakers (Liang et al., 2023) and threats to assessment integrity (Naidu & Sevnarayan, 2023), we have not found studies that have strategically utilised Meta AI, a uniquely open, multimodal, and globally scalable large language model (LLM), as a co-creative partner to design culturally relevant assessments. Unlike proprietary models trained on homogenised, Western-centric corpora (Fatih Tofiq, 2025), Meta AI's open-source architecture invites interrogation and localisation which enable teachers to audit, adapt, and retrain outputs to reflect the epistemic diversity of their learners (Pratschke, 2024). Its multimodal capacity, which generates not only text but culturally resonant imagery, dialogue, and scenarios, allows for assessments that engage multiple literacies and lived experiences, to move beyond just inclusion toward authentic representation. This positions our work not merely as an application of existing AI tools, but as a critical redesign of the human-AI collaboration model itself; one that centres cultural relevance, and teacher agency in the algorithmic age. Significantly, while studies acknowledge the risk of cultural bias in GenAI (Liang et al., 2023; Naidu & Sevnarayan, 2023), they stop short of providing actionable, pedagogically grounded strategies to dismantle it. This study confronts this gap through a novel, prompt-engineered framework that actively aligns Meta AI's generative capacity with Ladson-Billings' culturally relevant pedagogy (CRP) and transforms it from a potential of bias into a deliberate tool for epistemic justice.

We explore the intersection of GenAI, specifically Meta AI, and CRP to provide English PSTs with an alternative approach of how to design their own assessment materials that are relevant to their learners. Khunou (2020) argues that culturally responsive teaching is imperative for classrooms, given the diversity in language and socio-cultural backgrounds among students. Yet, many teacher training programs still lack pedagogy that prepare PSTs to develop culturally responsive teaching. When English PSTs do not design their own teaching and learning materials, their pedagogical practice is often constrained because they are unable to respond to learner diversity. In the South African context, many PSTs rely heavily on textbooks and teacher's guides (Jita, 2018). While these resources may provide a framework, they often limit opportunities for contextualisation and do not adequately reflect the

linguistic, cultural and socio-economic realities of diverse classrooms (Ball & Cohen, 1996). This gap may result in PSTs feeling unprepared for the demands of culturally responsive teaching environments. Hence, the research question that guides this study is: Can GenAI be used to assist English PSTs to co-create assessment materials that are culturally relevant to diverse learners? In answering this question, this article seeks to contribute to the discourse on GenAI as a co-creator of assessment materials that are culturally relevant and inclusive of learners from diverse cultural, linguistic and ethnic backgrounds. We provide an innovative, GenAI-mediated approach to actively counter cultural bias in assessment, which is a persistent issue wherein standardised tools often marginalise non-dominant cultural and linguistic identities (Baidoo-Anu et al., 2023; Ladson-Billings, 1995). This article moves beyond surface-level inclusion toward epistemic justice and equitable representation in assessment practices through empowering PSTs to co-create context-specific, culturally relevant assessments.

Literature review

The need for culturally relevant pedagogy in teacher education

CRP has increasingly become important and necessary to address the needs of diverse learners in the classroom particularly in societies marked by demographic diversity and educational inequities (Ladson-Billings, 1995). CRP acknowledges the use of learners' cultural knowledge, experiences, and background to make learning relevant, meaningful and empowering (Apple, 2004; Gay, 2002, 2018). According to Gay (2018, p.10), "Culture, like any other social or biological organism, is multidimensional and continually changing. It must be so to remain vital and functional for those who create it and for those it serves". Research shows that when teachers integrate learners' cultural backgrounds and experiences into their teaching and assessment, they create a more engaging environment that promotes greater academic achievement and a sense of belonging (Gay, 2002, 2018; Ladson-Billings, 1995; Paris, 2021).

The consequences of neglecting culturally responsive teaching are significant. Research consistently demonstrates that when learners' cultural backgrounds are ignored, classrooms risk alienating them, by reducing motivation, and reinforcing systemic inequities (Nieto, 2010; Sleeter, 2012). Learners from marginalised backgrounds often experience schooling as assimilationist, where their cultural identities are devalued or rendered invisible (Delpit, 2006). This not only undermines academic achievement but also erodes learners' sense of belonging (Ladson-Billings, 2009). Without CRP, schools perpetuate deficit perspectives that frame culturally diverse learners as 'problems to be fixed' rather than as holders of valuable knowledge systems (Valenzuela, 1999).

The challenge for PSTs is acquiring the skill of designing and implementing culturally relevant assessments. Most PST education training programs do not adequately prepare PSTs with these skills, which leaves them underprepared to meet the demands of their diverse classrooms (Khunou,

2020). One may argue that if PSTs lack foundational training in culturally relevant pedagogy, their evaluation of AI-generated content risks reproducing the very biases the approach seeks to dismantle. However, rather than disqualifying PSTs from the process, this gap positions the co-creation task as a scaffolded, experiential learning opportunity; one that compels PSTs to confront, interrogate, and develop cultural competence through guided critical engagement with AI outputs. As Naidu and Sevnarayan (2023) caution, uncritical adoption of AI tools can perpetuate harm; thus, this process must be embedded within structured mentorship, explicit CRP frameworks, and reflective dialogue to transform evaluation from a subjective guess into a deliberate, educative act of cultural discernment. Traditional assessment materials that are modelled on standardised testing do not adequately capture learners' knowledge and abilities from minority cultural and linguistic groups (Apple, 2004; Gay, 2018; Ladson-Billings, 1995, 2009). Thus, there is an urgent need for adaptable assessment materials that can address the diversity of the modern classroom. CRP is not only a moral imperative, but also a pedagogical necessity for promoting equity and inclusivity in the classroom.

GenAI in education

In education, GenAI has become a catalyst for new ways of thinking about designing assessments, which makes them helpful for writing, creating content, and solving problems (Naidu & Sevnarayan, 2023). GenAI could help teachers with lesson planning, producing educational resources, and even tailoring material to specific contexts and learners (Baidoo-Anu & Ansah, 2023; van den Berg & du Plessis, 2023). Hence, the LLMs of GenAI, such as, ChatGPT, Meta AI, and Copilot provide a solution (Baidoo-Anu & Ansah, 2023) for PSTs wanting to design culturally relevant assessments that cater for learners from diverse linguistic and ethnic backgrounds. PSTs can use the LLMs to co-create assessments that are culturally sensitive and relevant for their learners. In this way, LLMs can empower PSTs to become skilled and effective materials developers who are able to meet the needs of their learners while ensuring inclusive and equitable assessment opportunities

Challenges and opportunities for co-creating with GenAI

Although GenAI has enormous educational potential (Baidoo-Anu & Ansah, 2023), there are also serious concerns over its efficacy and moral use in a variety of learning contexts. For example, Popenici (2023, p. 381) argues that "The blind trust in and adoption of new tech by educators... becomes even more dangerous in the era of AI" because of the possibility of perpetuating the cultural biases in the data used to train AI models. If the content generated by GenAI is not carefully managed, it could inadvertently perpetuate stereotypes or exclude certain cultural perspectives and thus undermine efforts to create culturally relevant assessments. Furthermore, GenAI systems may be trained on materials that prioritise standard English language varieties and potentially disadvantage learners who speak non-standard varieties of English (Liang et al., 2003). To avoid this, it is important for English PSTs to be actively involved in the co-

creation process when using GenAI. It must be argued that "[t]he challenge ahead for education is to become users of AI for the benefit of our students and institutions rather than simple subjects of AI" (Popenici, 2023, p. 381). Instead of relying solely on GenAI to generate content, teachers should use it as a collaborative tool that allows them to input their knowledge of their learners' cultural backgrounds and experiences. This co-creation approach ensures that the materials produced by GenAI are both authentic and aligned with the principles of CRP. It may also provide an opportunity for PSTs to critically engage with GenAI and develop an understanding of how to use it effectively in their practices. Co-creating assessment materials with GenAI may free up time for teachers and allow them to spend more time teaching their learners (van den Berg & du Plessis, 2023).

Pedagogical framework

CRP, as conceptualised by Ladson-Billings (1995, 2009), was used as a pedagogical framework for this study. CRP is best known as a framework in education that addresses the academic and social needs of learners from diverse cultural backgrounds. CRP has been adapted and extended by other scholars. Gay (2018) refers to CRP as 'culturally responsive teaching' and Paris (2021) as 'culturally sustaining pedagogy'. Despite the differences in terminology, these approaches are not in conflict with each other; their goal is to educate learners by focusing on the strengths that they bring into the classroom. Ladson-Billings (1995, 2009) theorised pedagogy within a critical paradigm and proposed three principles to be considered CRP:

- Produce learners who can achieve academically
- Produce learners who demonstrate cultural competence
- Develop learners who can both understand and critique the existing social order.

For these principles to be realised, Ladson-Billings also proposed teaching behaviours that PSTs, in the context of this study, need to embody to merit the designation 'culturally relevant'. These include:

1. The conceptions of self and others: Ladson-Billings observed that exemplary teachers of CRP held a belief that their learners were capable of academic success, and these teachers saw themselves as members of the community and teaching as a way of giving back to the community. In these classrooms, learners were "cajoled, nagged, pestered, and bribed to work at high intellectual levels" (1995, p.479). This culturally relevant behaviour of teachers is emphasised by Gay (2002, p. 110), "when teachers believe in their learners' intellectual potential without ignoring or neglecting their ethnic and cultural identities, they build towards academic success from a basis of cultural validation and strength".

2. The structure of social relations: Culturally relevant teachers maintained fluid learner-teacher relationships and demonstrated a connectedness with all their learners. They also encouraged their learners to work collaboratively and be responsible for one another. In these classrooms, the learner-teacher relationships were “equitable and reciprocal” (Ladson-Billings, 1995, p. 480).
3. The conceptions of knowledge: Culturally relevant teachers held the view that “knowledge is not static, it is shared, recycled, and constructed” (Ladson-Billings, 1995, p. 481). Hence, in these classrooms, learners listened and learnt from each other and the teacher. By doing so, learners’ knowledge was affirmed. Gay (2018, p. 17) argues that “Culturally responsive teaching recognizes and further develops this natural diversity and fluidity of competence among diverse student populations”.

Ladson-Billings’ (1995, 2009) conception of knowledge aligns with Brookfield’s (2017) critical reflection and Apple’s (2004) critical theory, which both emphasise a democratic, participatory model of education where learners engage in knowledge-making and learn to question and transform their realities. Brookfield (2017, p. 26) advocated for teachers to see things differently and to be “interested in how power manifests itself in the classroom, how it moves around an educational setting, when its exercise opens up new possibilities, and when it closes them down”. Similarly, Apple (2004) emphasises the influence of social structures on education and argues for the recognition of knowledge as socially constructed, urging teachers to address how dominant ideologies shape curricula and marginalise diverse voices. When integrated into CRP, these theories encourage teachers to design materials that enable learners to understand and critique social orders, aligning with Ladson-Billings’ (1995) goal of developing learners capable of socio-political critique.

CRP has laid the foundation for the importance of teachers including “student culture in the classroom as authorized or official knowledge” (Ladson-Billings, 1995, p. 483). Gay (2018) also supports the use of learners’ culture and experiences in the classroom to expand their intellectual and academic achievement and refers to this process as ‘cultural scaffolding’.

Inspired by Ladson-Billings’ (1995), Gay’s (2018) and Paris’s (2021) philosophy of CRP, we look at ways of how PSTs can use GenAI to co-create culturally relevant assessment materials. Like Gay (2018, p. 53), we believe that “If the potential of culturally responsive pedagogy is to be realized, then widespread instructional reform is needed, as well as major changes in the professional development, accountability, and assessment of teaching personnel”.

Methodology

Context

This study utilises a hybrid learning environment which combines the digital collaboration of Meta AI and English PSTs in the co-creation of culturally relevant assessment materials. Meta AI (powered by Llama 4, as of 2025) is a publicly accessible, web-based conversational AI developed by Meta Platforms, Inc. It operates via natural language processing to generate text, answer questions, and create content based on user prompts. While the exact architecture and training data are proprietary, Meta AI is known to be trained on publicly available internet text and is designed to be instruction-tuned for educational and creative tasks. For this study, we used the free, publicly available version accessible via Meta AI at the time of data collection. Meta AI is the learning context that is used to assist PSTs to create authentic materials that may be used to encourage creativity, critical thinking, and collaboration among learners. This study was conducted with English PSTs in mind. We used South Africa as a teaching context to explore how PSTs can co-create culturally relevant assessments with GenAI; however, this study can be generalised to any cultural context. The resource we used was a computer with access to the Internet to utilise GenAI platforms. This resource enabled the researchers to have an effortless interaction with Meta AI. We explored the potential of Meta AI to generate culturally relevant assessments that are aligned to the South African context. South Africa’s diverse population of learners in school provided a unique backdrop to explore culturally relevant teaching and assessment materials. We used Meta AI to ensure that the generated assessment materials would resonate with PSTs and their learners.

Prompt-based pedagogical format

This study employs a prompt-based pedagogical format using the free version of Meta AI to co-create culturally relevant materials for English PSTs using South Africa as a context. The format consists of the following stages which PSTs can use to design their culturally relevant assessment materials:

Stage one - Prompt development

The researchers planned and created a set of carefully designed prompts that reflect South African cultural contexts, diverse learner needs, and English language teaching objectives. These prompts were designed by the researchers and drew on their prior knowledge and experience of designing prompts together with the curriculum requirements for Grade 8 English Home Language South African learners as set out in the Curriculum and Assessment Policy Statement (CAPS) (DoBE, 2011).

Stage two - Text generation

The researchers then inputted their developed prompts into Meta AI. Meta AI was not used to co-create any of the prompts. Meta AI then generated culturally relevant materials and/or images.

Stage three - Text evaluation and refinement

We have implemented a structured, multi-layered evaluation protocol to address concerns regarding evaluator bias and a lack of preparation in culturally relevant assessment design. Evaluator criteria.

All evaluators (the researchers in this pilot phase) are qualified English education specialists with at least ten years' experience teaching in South African public schools and familiarity with CAPS. Their cultural competence was further validated through prior involvement in curriculum development projects focused on multilingual and multicultural classrooms.

Evaluator training

Both evaluators hold qualifications in pedagogy and teacher development practice, and participated in trainings such as workshops, seminars, and conferences which focused on assessment design and artificial intelligence, respectively. Triangulation strategy.

We used methodological triangulation to enhance validity and reliability. The researchers evaluated the generated materials from Meta AI using the CAPS which guides teaching and learning in South Africa. The CAPS recommends the length of texts to be read and written. It also recommends the types of questions that should be asked of learners and the weighting of lower and higher order questions. The researchers then read through the generated materials to assess if learners in South African school contexts would find the materials meaningful, culturally relevant, accurate, and suitable for classroom use. A culturally relevant rubric was created to assess representations of local identities, languages, values, and lived experiences. After independent evaluations, the researchers engaged in consensus discussions to resolve discrepancies and document justifications for final ratings. Although not implemented in this pilot, future iterations will involve PSTs and learners in validating cultural relevance, a step explicitly noted as Stage 5 in our design. All evaluation data (comments and revisions) were documented in a shared digital log to ensure auditability and traceability of decision-making. The next two stages are not implemented in this study but should be implemented by PSTs in school contexts.

Stage four - Integration and application

The final co-created materials may then be used as culturally relevant assessments.

Stage five - Reflection and dissemination

The final stage should involve PSTs reflecting on the co-creation process. They should evaluate the effectiveness of the generated materials by seeking feedback from their learners. In future scaled implementations, this stage will include learner focus groups and PST reflective journals to further triangulate findings and enhance validity.

Prompt generation

To illustrate the prompt-based approach, we inputted the following prompts into Meta AI:

Prompt one

"I am an 8th Grade teacher. The topic that we are focusing on in class is 'Being a new learner in high school'. Create a text for Grade 8 (aged 14) South African learners of about 250 words. The text must be written as a story with detailed characterisation and a strong theme of 'being a new learner in high school'. The story must be culturally relevant and appeal to teenagers in the South African context."

Prompt two

"Generate critical, engaging and culturally relevant questions of between 1, 2, 3 and 4 marks totalling 15 marks. Create 7 questions that must be related to the story and must probe learners' thinking. Include the different levels of Bloom's taxonomy in the questioning. Create suggested answers that are culturally sensitive for the questions to assist the teacher to assess this task."

Prompt three

"Design a writing task based on the story. The task must be culturally relevant and require learners to reflect on their own experiences of being a new Grade 8 learner in high school. This should total 20 marks. Include a culturally sensitive rubric in table format to assist the teacher to assess this task."

Prompt four

"Create a culturally relevant oral activity using the panel discussion format for learners about 'being a new learner at high school'. The interviewer must prompt learners to discuss who they are, where they come from, and how they feel about being a new learner in high school. Tabulate a culturally sensitive rubric to assess this activity out of 15 marks."

Findings

The researchers have selected a South African Grade 8 classroom context to generate assessment materials and questions. We thought of a topic that most Grade 8 learners encounter when starting high school, 'being a new learner in school', and have used Meta AI to assist us to create a culturally relevant story for an English classroom. Figure 1 shows the first prompt which was created to accommodate a diverse group of Grade 8 learners transitioning to a high school.

Prompt one:

I am an 8th Grade teacher. The topic that we are focusing on in class is 'Being a new learner in high school'. Create a text for grade 8 (aged 14) South African learners of about 250 words. The text must be written as a story with detailed characterisation and a strong theme of 'being a new learner in high school'. The story must be culturally relevant and appeal to teenagers in the South African context.

Navigating the Unfamiliar Halls of High School

As the sun rises over the vibrant streets of Soweto, 14-year-old Amogelang prepares for her first day at Meadowlands High School. She feels a mix of excitement and nerves, having left behind the familiarity of her primary school. Clutching her new school bag, adorned with colorful badges and African prints, Amogelang takes a deep breath.

Upon arrival, she's greeted by the school's lively atmosphere. The sound of laughter, chatter and Afro-pop music fills the air. Amogelang spots learners wearing various cultural attire – traditional Sotho, Zulu and Xhosa clothing – proudly showcasing their heritage.

In her classroom, Amogelang meets her classmates: Thembi, an avid soccer player; Ntombi, a talented singer; and Tumelo, a tech-whiz. Together, they navigate the challenges of high school. They bond over shared experiences, supporting each other through academic pressures, sports competitions and cultural events.

Amogelang discovers hidden strengths and talents. She joins the debate team, finding her voice on social issues affecting South African youth. Her classmates encourage her to embrace her uniqueness.

As the days turn into weeks, Amogelang transforms from a timid newcomer to a confident, engaged learner. She realizes high school isn't just about academics; it's about growth, friendship and self-discovery.

"Being new doesn't mean being alone," Amogelang's teacher, Mrs. Mthembu, reminds them. "Embrace your individuality, celebrate diversity and build strong relationships. You are the future leaders of South Africa."

Amogelang and her friends leave school, inspired to tackle challenges, explore opportunities and forge their paths.

Would you like me to make any adjustments or provide additional resources?

The story generated by Meta AI reflects key socio-cultural markers of the South African adolescent experience, such as being a new learner in high school, geographic references (Soweto), cultural practices (Afro-pop music), and age-appropriate themes (academic pressures, sport competitions and cultural events). Meta AI was able to localise references authentically, Soweto's vibrant streets, traditional clothing and Afro-pop music. While this suggests potential for resonance, actual learner reception remains to be empirically validated through classroom implementation and feedback, as recommended in Stage 5 of the framework. We thought it appropriate that this generated story referenced 'Meadowlands high school' an iconic site where the Soweto Uprisings took place on June 16, 1976. Moreover, the story in Figure 1 captures everyday struggles, interests, and strengths of South African teenagers; and thus, may encourage empathy and a sense of connection among learners in the classroom. Meta AI's adaptability ensured age-appropriate language, tone and complexity for 14-year-olds, thereby optimising engagement. We appreciated how Meta AI's inclusive approach celebrates individuality, unity and self-discovery by addressing socio-cultural challenges in the South African context. PSTs may replicate this approach and generate personalised materials that reflect the diversity of South African learners. Interestingly, in Figure 1, we noticed that learners using cultural attire to school is not a South African everyday school uniform. This information is incorrect in this context and would require PSTs to have a critical eye when generating such content. They may need to edit such information to suit the needs and experiences of the learners they teach. Alternatively, PSTs can re-design their prompt by providing Meta AI with greater detail to achieve an output that is more consistent in the given context.

In the second prompt, we requested Meta AI to generate culturally relevant questions in response to the story it created for us. We were specific about what we wanted Meta AI to do. We requested it to include a certain number of questions, the weighting of questions according to Bloom's taxonomy and the total marks. In the same prompt, we requested Meta AI to create suggested answers that may assist PSTs to assess learners' written responses. Figure 2 illustrates how Meta AI can be used to assist teachers to design culturally relevant questions for learners.

Prompt two:

Generate critical, engaging and culturally relevant questions of between 1, 2, 3 and 4 marks totalling 15 marks. Create 7 questions that must be related to the story and must probe learners' thinking. Include the different levels of Bloom's taxonomy in the questioning. Create suggested answers that are culturally sensitive for the questions to assist the teacher to assess this task.

Figure 1. The use of Meta AI to generate culturally relevant stories.

Questioning Levels of Bloom's Taxonomy	
Remembering (4 marks)	
1. Describe Amogelang's initial feelings about high school. (1 mark)	Answer: Amogelang felt apprehensive, anxious and excited, reflecting typical transitional emotions.
2. Identify Amogelang's cultural influences. (1 mark)	Answer: Family values, community traditions and Sotho heritage, notably traditional attire.
3. What challenges did Amogelang face in her new school? (2 marks)	Answer: Adapting to unfamiliar classrooms, navigating diverse peer groups and managing academic expectations.
Understanding (4 marks)	
4. Explain Amogelang's transformation throughout the story. (2 marks)	Answer: Amogelang evolved from feeling timid and isolated to becoming confident, engaged and self-assured, embracing her cultural identity.
5. Describe the significance of Mrs. Mthembu's advice. (2 marks)	Answer: Mrs. Mthembu emphasized embracing individuality, celebrating cultural diversity and fostering meaningful relationships, promoting resilience.
Applying and Analyzing (7 marks)	
6. Relate Amogelang's experiences to your own transitions or challenges. (3 marks)	Answer: (Learner responses should demonstrate empathy, understanding and personal connections to Amogelang's journey.)
7. Analyze how Amogelang's cultural background shaped her high school experience. (4 marks)	Answer: Amogelang's Sotho heritage influenced her identity, community ties and coping strategies. Her cultural resilience enabled confidence, friendship formation and academic growth.

Figure 2. The use of Meta AI to create culturally relevant questions and suggested answers.

Figure 2 shows how Meta AI can create culturally relevant assessments that align with Bloom’s taxonomy ranging from basic recall questions to questions that demand creative thinking and application. Meta AI is also able to generate suggested answers to the questions it creates. However, PSTs would need to adopt a critical stance when evaluating the suggested answers generated by GenAI. For example, from our assessment of the suggested answers in Figure 2, we have observed that the responses to Question Five do not respond to the complexity of the question. PSTs should engage with the suggested answers to ensure that they meet the level and expectations of the marking criteria. Despite this drawback, we are of the opinion that PSTs would find this tool quite handy as it would save them time, encourage creativity in designing materials for classroom use and create a space to engage with their learners’ cultural backgrounds. Figures 1 and 2 show how Meta AI can create a reading task for learners with questions and answers. We then thought that we should explore the idea of creating a writing task for learners, as shown in Figure 3.

Prompt three:

Design a writing task based on the story. The task must be culturally relevant and require learners to reflect on their own experiences of being a new Grade 8 learner in high school. This should total 20 marks. Include a culturally sensitive rubric in table format to assist the teacher to assess this task.

Writing Task (20 marks)				
Write a personal narrative (250-300 words) titled "My First Days in High School". Drawing on Amogelang's story and reflecting on your own experience as a Grade 8 learner in a South African high school:				
- Describe your feelings about starting high school, incorporating elements of cultural identity and community. - Explain one challenge you faced and how you showed resilience in dealing with it (link to culture, language, friendships in the South African context). - Conclude with insights about yourself, highlighting how community and your cultural identity shaped your high school experience in South Africa.				
Assessment Rubric (20 marks)				
Criteria	4	3	2	1
Personal Reflection	Deep personal reflection; well-structured.	Personal reflection; clear.	Attempts reflection; some issues.	Limited reflection.
SA Context	Explicit SA school links (culture, language, diversity).	Clear SA context links.	Attempts SA link; somewhat unclear.	Little SA context link.
Challenge & Handling	Clear challenge; good handling with SA insight showing resilience.	Describes challenge & handling.	Mentions challenge; unclear handling.	Challenge vague/missing.
Insights	Thoughtful insights about self/diverse SA school linking cultural identity & community.	Clear insights; some reflection.	Attempts insights; somewhat unclear.	Minimal insights.
Language	Clear, fluent, mostly error-free.	Clear; some errors.	Sometimes unclear; errors affect meaning.	Unclear; many errors.

Figure 3. The use of Meta AI to create writing tasks.

We found Meta AI to be quite impressive as it remembered the original text it created and set a variety of task requirements from the prompts inputted. In Figure 3, Meta AI drew on Amogelang’s story and instructed learners to write a similar narrative to mirror their experiences. Meta AI can create specific instructions to learners to enable them to complete all the requirements of the task such as describing their initial anxieties and excitement about high school, drawing on their experiences in primary school, discussing their strengths and challenges, reflecting on new relationships formed and concluding with lessons learned. In addition, Meta AI was able to tabulate a culturally sensitive rubric to assess this writing task. The rubric responds to the initial prompt we inputted where we requested Meta AI to enable this task to be assessed out of 20 marks.

In our final prompt, we requested Meta AI to create a speaking activity for Grade 8 learners. The activity we prompted Meta AI to create was a panel discussion that would enable them to reflect on their transition to high school.

Prompt four:

Create a culturally relevant oral activity using the panel discussion format for learners about 'being a new learner at high school'. The interviewer must prompt learners to discuss who they are, where they come from, and how they feel about being a new learner in high school. Tabulate a culturally sensitive rubric to assess this activity out of 15 marks.

Panel Discussion: "Being a New Learner at High School"

Objective

Grade 8 learners share experiences and reflections about transitioning to high school in South Africa, focusing on diversity and adaptation.

Guidelines

- Panel Composition:** 3-4 Grade 8 learners participate as panelists.
- Moderator:** A teacher or selected learner moderates the discussion.
- Environment:** Foster a respectful and safe space for sharing experiences.

Moderator Prompts

The moderator will ask panelists questions like:

- "Tell us about yourself - where do you come from, and what brought you to this high school?"
- "How did you feel on your first day at high school? Did you feel welcomed?"
- "What has been one challenge you've faced as a new learner here, and how are you dealing with it? Does it relate to our school's cultural or language diversity?"
- "What do you think makes our school a diverse place, and how does that affect you as a learner?"
- "What advice would you give to other Grade 8 learners who are new to high school in South Africa?"

Assessment Rubric for Panel Discussion (15 marks)			
Criteria	3 marks	2 marks	1 mark
Personal Introduction and Cultural Context	Clearly introduces self, articulates background and origin in South Africa; strong cultural relevance.	Introduces self with some context; cultural link attempted.	Introduction lacking detail; minimal cultural link.
Expression of Feelings and Experiences	Articulates feelings and high school experiences thoughtfully.	Expresses feelings and experiences clearly.	Limited expression of feelings/experiences.
Engagement with Diversity and Inclusion	Thoughtfully discusses diversity/inclusion in school; South African context evident.	Talks about diversity/inclusion; some points made.	Little comment on diversity/inclusion.
Communication and Interaction Skills	Speaks clearly, confidently; interacts well with moderator and panel.	Good communication; interacts adequately.	Communication sometimes unclear; limited interaction.
Depth of Reflection and Insight	Shows strong reflection on experience; insightful comments made.	Shows some reflection; comments reasonable.	Limited reflection/insight shown.
Total: 15 marks			

Figure 4 is another example of a culturally relevant assessment task that can be co-created using GenAI. Figure 4 depicts the panel discussion guidelines to learners, that Meta AI created, which we prompted it to do. PSTs would find these guidelines useful in their teaching as it would streamline and make the assessment process smoother. Moderator guidelines were also created to facilitate and prompt further understanding when learners work in groups. Meta AI was able to create a very structured and logical assessment that Grade 8 learners can follow. In the same instruction, we prompted Meta AI to create a culturally sensitive assessment rubric to assess this task out of 15 marks. The LLM was able to tabulate the rubric in seconds and is useful in assessing learners who are ‘excellent’ and who ‘need improvement’.

Discussion

The findings of this study demonstrate the potential of GenAI to co-create culturally relevant assessment materials for learners in school contexts. The researchers used Meta AI to generate culturally relevant assessments that may resonate with learners from diverse backgrounds. This co-creation aligns with CRP principles (Ladson-Billings, 1995) which foreground three interrelated criteria: supporting academic success, promoting cultural competence, and developing critical consciousness. The co-creation process between PSTs and Meta AI not only provides opportunities to design assessments that are intellectually rigorous and academically challenging but also affirms learners’ cultural identities by embedding local experiences, languages,

and knowledge systems into materials design. In this way, the integration of GenAI can support learners' academic achievement while simultaneously promoting cultural competence, as learners see their identities and communities reflected in the materials. This integration of GenAI into CRP frameworks extends critical reflection principles (Brookfield, 2017) into the digital age. It highlights the need for initial teacher education (ITE) to infuse GenAI training, critical examination, and collaborative co-creation processes into its programs.

The findings (Figures 1-4) indicate that Meta AI can generate culturally sensitive assessment materials. It follows prompts and infuses local references and addresses socio-cultural challenges. This echoes Gay's (2018) argument that culturally responsive teaching validates and affirms learners' cultural heritages while bridging them to academic learning. In the South African context, where education has historically privileged Eurocentric knowledge at the expense of African epistemologies (Fatih Tofiq, 2025), embedding learners' cultural and linguistic resources into classroom assessments is essential for equity (Hoadley, 2018; Pratschke, 2024; Vandeyar, 2017). GenAI can potentially counter deficit views of learners from marginalised communities and contribute to more socially just pedagogical practices by positioning learners' cultural repertoires as assets.

Furthermore, Meta AI is adaptable as it ensures age-appropriate language, tone, and level of difficulty which makes it an effective tool for PSTs. However, the risk of cultural bias in GenAI-generated materials persists (Popenici, 2023). PSTs should critically evaluate and refine GenAI-generated materials to ensure their alignment with CRP principles. Notably, this evaluative burden cannot rest solely on the practitioner; the prompt architecture itself must be interrogated. The observed cultural stereotyping, such as assumptions about "appropriate" cultural attire in school settings, may not reflect GenAI errors per se, but rather a deficit in the prompt design: namely, the absence of explicit prompts that instruct the model to avoid reductive or essentialist cultural tropes. Moreover, the underlying training corpus and absence of embedded CRP frameworks within the GenAI's operational logic may perpetuate cultural biases. Yet, as Naidu and Sevnarayan (2023) caution, this evaluative process itself is not neutral; it is inevitably filtered through the PSTs' own cultural lenses, positionalities, and potential blind spots. Without explicit training in critical cultural reflexivity, PSTs may unintentionally reinforce dominant norms or misrecognise culturally critical expressions as "inaccurate" or "irrelevant." Therefore, future prompt engineering must be conceived not merely as a technical skill, but as a pedagogical imperative; one that requires designers and users alike to include CRP principles into the prompt generation. This includes prompts such as "avoid cultural stereotypes", "centre community-defined norms of appropriateness", and "interrogate assumptions about cultural representation". Such scaffolding is imperative to ensure that GenAI serves as a tool for equity rather than a conduit for bias. Thus, the co-creation model should be scaffolded not only by CRP frameworks but also by guided mentorship, peer dialogue, and structured reflection protocols that assist PSTs to interrogate their own assumptions while evaluating LLM outputs. Only then can

critical evaluation become a tool for dismantling bias, rather than replicating it.

The findings display the significance of the co-creation process between PSTs and Meta AI. PSTs would be able to take ownership of materials development, instil a sense of confidence and competence in their teaching practices when they co-create materials by collaborating with GenAI. This approach supports Ladson-Billings' (1995, 2009) notion of teachers as 'cultural mediators', where PSTs may be able to bridge the gap between learners' cultural backgrounds and their academic content. The co-creation process also promotes critical thinking and creativity among PSTs, which is echoed by Paris's (2021) emphasis on culturally sustaining pedagogy.

This study extends the work of Bozkurt and Sharma (2023) on personalised learning experiences with GenAI. It highlights the potential for cultural responsiveness in assessment materials. The findings further confirm Apple's (2004) argument that education should acknowledge and address the socio-cultural realities of learners' lives. Our findings also complement Kasneci et al.'s (2023) research on GenAI-generated feedback and demonstrates the adaptability of GenAI in diverse educational contexts. Importantly, this study addresses the gap identified by Naidu and Sevnarayan (2023) regarding the lack of research on GenAI's cultural implications.

This research reconceptualises teacher agency in the context of GenAI-generated materials. PSTs are no longer passive recipients of pre-designed materials but rather active co-creators who utilise GenAI to develop culturally responsive assessments. This shift in teacher agency corroborates Gay's (2018) notion of teachers as 'cultural scaffolders', who support learners' academic and cultural development. This study encapsulates its pedagogical significance through the integration of GenAI in teacher education which can transform PSTs' understandings of culturally relevant pedagogy. PSTs are thus able to develop essential skills to designing assessments that promote cultural responsiveness and enhancing teaching practices. The findings also support Brookfield's (2017) critical reflection which emphasises the importance of teachers as agents of social change.

While some critics argue that GenAI-generated materials may perpetuate cultural biases and stereotypes (Popenici, 2023), we argue that when critically evaluated and refined by PSTs, GenAI can produce culturally responsive assessments that challenge dominant epistemologies. Contrary to concerns that GenAI may homogenise educational experiences (Kasneci et al., 2023), our research demonstrates that Meta AI can adapt to diverse cultural contexts and promote culturally sustaining pedagogy (Paris, 2021). Furthermore, we challenge Ladson-Billings' (1995) assertion that teachers alone are responsible for culturally relevant pedagogy; instead, our findings suggest that GenAI can augment teachers' cultural responsiveness, enhance academic achievement and create socio-political consciousness. We refute the notion that technology inherently undermines cultural relevance (Apple, 2004; Brookfield, 2017), as the findings confirm that GenAI has the potential to transform ITE and promote the design and use of culturally relevant

assessment materials.

Limitations

The study relied on Meta AI's capabilities, which may not represent the full spectrum of GenAI tools. Furthermore, the co-creation process was facilitated by the researchers which could have potentially influenced the generated materials' cultural relevance. In addition, the study's focus on English language teaching may not translate to other subjects or disciplines. The lack of longitudinal data also restricts an understanding of the long-term impact of GenAI-generated materials on learner outcomes. Lastly, the study's reliance on prompt-based generation may overlook potential biases in the prompts themselves. Despite these limitations, our exploration with Meta AI shows how PSTs can create a collaborative co-creation process to ensure the production of culturally relevant materials.

Conclusions, implications and recommendations

This research addresses a significant gap in existing literature by exploring GenAI's potential to co-create culturally relevant assessment materials for specific classroom contexts. The main findings indicate that Meta AI can generate culturally responsive assessment materials. Specifically, this study demonstrates the possibility of integrating GenAI into ITE to address the need for culturally sustaining pedagogy. The study's findings also question the implications for PSTs' education and training if we are to empower them to embrace the use of GenAI and CRP in their materials development. This aligns with Ladson-Billings' (1995, 2009) call to re-examine teacher preparation which highlights the imperative to rethink and reimagine ITE programs.

The implications of this study suggest a paradigm shift in ITE and instructional design. Teachers would be in a position to create culturally relevant assessment materials that promote social justice, equity, and inclusivity if they are open to integrate GenAI into their practices. The findings in this study have significant implications for ITE programs and highlights the need for GenAI literacy, GenAI pedagogy, prompt generation, and culturally relevant teaching methodologies. Furthermore, this research underlines the potential for GenAI to address cultural disparities in educational materials, particularly in marginalised communities. These implications extend beyond the classroom and contributes to a broader vision of education as a catalyst for social change, cultural empowerment, and teacher agency.

We recommended that ITE should empower PSTs to integrate GenAI and CRP into their design of assessment materials. GenAI training and prompt generation techniques should be integrated into PST curricula. This should be accompanied by an emphasis on critical evaluation and refinement of GenAI-generated materials that ensure alignment with CRP principles. Further, ITE programs should create a commitment to social justice and equity by providing resources and support for PSTs to design GenAI-generated materials. For PSTs and practitioners, it is important to develop proficiency in using GenAI tools for

developing culturally relevant assessment materials. This involves going beyond technical competence to include acquiring cultural competencies. Teachers engaged in the evaluation of culturally relevant materials must possess not only expertise in GenAI applications but also the cultural skills and qualifications necessary to assess content from diverse socio-cultural contexts. This dual competency ensures that evaluations are rigorous, unbiased, and contextually appropriate, thereby avoiding stereotypes, cultural misrepresentations, or systemic inequities.

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