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Enhancing Critical Thinking and ICT Integration Through Authentic Assessment at the University of Eswatini: A Synthesis of Cognitive, Linguistic, and Pedagogical Models

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Abstract
Authentic assessment tasks demanding independent reading, collaborative and independent writing, presentation, and reflection promise to enhance critical thinking and deep learning in university-level English language and linguistics. However, skepticism persists regarding the impact of artificial intelligence (AI) in assessments at university level which raise concerns about students' preparedness in implementing their skills in their professions after graduation. This study aimed to evaluate a pedagogical model integrating ICT tools with authentic assessments to foster critical thinking and deep learning in university-level English linguistics. An experimental design was implemented where undergraduate students completed tasks, including content generation through group collaboration, handwritten submissions and digital presentations using prescribed texts, web searches, and AI outputs. Data from assignments, presentations, and narratives were analyzed using Trumper-Hecht's (2008) three-dimensional model. Key findings showed that structured tasks like handwritten submissions, slide creation and audio-visual presentations reduced initial overreliance on copied AI/web content and encouraged deeper engagement. However, limitations persisted, as students often integrated irrelevant or superficial web content into final submissions due to insufficient academic reading. Despite this, group work prompted cognitive growth through social negotiation, and those students who actively processed material demonstrated stronger retention and performance tested in monitored tests. The study concludes that while AI aids content generation, well-designed ICT-mediated authentic assessment designed to enhance engagement with content and social interaction with others is crucial for developing critical thinking and linguistic schemata. It recommends integrated curriculum designs that combine ICT tools with collaborative, multi-stage tasks to ensure authentic learning outcomes in assessing language tasks.

Introduction

In the 21st-century global economy, higher education faces increasing pressure to develop

graduates who are not only knowledgeable in their disciplines but also critical thinkers, effective communicators, and adept users of technology (Villarroel et al., 2018). Despite this imperative, a significant gap often persists between academic learning and the complex demands of the professional world. Traditional assessment methods, such as standardised tests and decontextualised exams, have been widely criticised for encouraging superficial learning and failing to cultivate the higher-order cognitive skills essential for employability and lifelong learning (Villarroel et al., 2018).

This study addresses this gap by exploring the synergistic integration of three critical educational elements: authentic assessment, critical thinking, and Information and Communication Technology (ICT). This study argues that these are not separate goals but are intrinsically connected. Authentic assessment provides the meaningful context, critical thinking is the targeted cognitive process, and ICT serves as the modern toolset that enables and enhances these processes.

This approach is built upon a tripartite theoretical framework. First, the *Authentic Assessment Blueprint* (Ashford-Rowe et al., 2014; Villarroel et al., 2018) emphasises realism, cognitive challenge, and the development of evaluative judgement. Second, *Information Processing Theory* (Manolopoulou-Sergi, 2004) models learning as a cycle of input, processing, and output, mirroring how students engage with information. Third, this paper acknowledges the crucial link between *Critical Thinking* and *Language Proficiency* (Manalo & Sheppard, 2016), where the cognitive cost of using a less-proficient language can impede the demonstration of critical thought.

The problem that motivated this research is the rise of what some term a "post-plagiarism age," (Eaton, 2022) where students' overreliance on internet-sourced or artificial intelligence (AI)-generated content threatens to undermine knowledge acquisition and critical thinking in higher education. While AI accelerates content generation, it risks fostering passive learning if not pedagogically managed. This study, therefore, investigated an experimental pedagogical model used in three modules – two focusing on English language and linguistics and one on the principles of psycholinguistics taught by the author at the University of Eswatini. The model integrated ICT tools with handwritten submissions, collaborative group work, and digital presentations within authentic assessment tasks. The purpose was to determine how this model facilitates deep learning, critical thinking, and the responsible use of AI and internet sources among undergraduate students.

Theoretical foundations: A tripartite integration

This section describes a unified approach that links three critical educational imperatives: *the cultivation of critical thinking, the meaningful integration of ICT*, and *the implementation of authentic assessment*. I draw upon a systematic review of literature to argue that these elements are not separate goals but are synergistically connected. Authentic assessment provides the *context*, critical thinking is the *cognitive process*, and ICT serves as the *toolset* that enables and enhances these processes in a modern context (Grand-Clement, 2017). This framework is therefore built upon the integration of three robust theoretical pillars described hereunder.

Pillar I: The Authentic Assessment Blueprint

Authentic assessment involves tasks that simulate real-world practice and require meaningful application of knowledge (Wiggins, 1990). It is anchored in relevance, performance-based output, critical thinking, reflection, multimodality, and iterative feedback.

Villarroel et al.'s (2018) systematic review identifies three core dimensions of authentic assessment:

- *Realism* is a dimension that ensures that the assessment task simulates the kinds of problems, performances, and standards faced by professionals in the field. This involves creating a "rich context" and "worthwhile tasks" that have value beyond the classroom. Therefore, an authentic assessment activity should be challenging. Thus, requiring students to demonstrate their ability to analyse the task and synthesise, from the range of skills and knowledge that they have acquired, those which will be necessary for the completion of a specific outcome and constructing or producing meaning or knowledge, instead of simply re-producing meaning and knowledge as created by others (Ashford-Rowe, Herrington & Brown, 2014: 208).
- *The cognitive challenge* ensures that the task requires higher-order thinking skills such as analysis, evaluation, synthesis, and creation, moving beyond the reproduction of knowledge (Wiggins, 1993). This dimension highlights the value of metacognition as a component of authentic assessment, which establishes the value and importance of both critical reflection and self-evaluation not only for the successful completion of the given task, but also for positive workplace performance, as well as personal development (Ashford-Rowe, Herrington & Brown, 2014: 208).
- *Evaluative judgment* is a process that develops students' capacity to understand and apply standards of quality, through formative feedback, self-assessment, and peer-review (Boud & Molloy, 2013. Peer review here is achieved through effective collaboration. Kendle and Northcote (2000: 6) state that ‘the socio-cognitive value of collaborative learning is one that is becoming increasingly recognised and also offers students the access to multiple points of view as well as some useful opportunities for modelling’. Also, Lebow and Wager (1994: 241) advocate that collaboration provides students with the opportunities to engage in authentic learning activities. These activities shift from all students learning the same things to different students learning different things by creating group problem-solving situations that give students responsibility for contributing to each other’s learning, which in turn help students see the value of what they are learning and choose to share.

Hence, authentic assessment situates student tasks in real-world contexts, requiring deeper cognitive engagement than traditional tests. This approach has been shown to foster higher-order thinking skills (analysis, evaluation, and creation) by compelling learners to apply concepts to meaningful problems especially in higher education (Ashford-Rowe, et al., 2014). In language and linguistics education, authentic tasks such as handwritten analytical reports, peer teaching presentations, and reflective narratives push students beyond surface recall and usher them into critical interrogation of content. By designing assessments that mirror

professional academic work, instructors can scaffold students' abilities to become self-regulated, reflective practitioners.

Pillar II: The information processing and motivational model

The cognitive process of learning, including critical thinking, can be understood through the information processing model proposed by Manolopoulou-Sergi (2004). The Von Neumann architecture comprises the input unit, the memory unit, control unit, the arithmetic logic unit (ALU) and the output unit (Wang, 2022). In this architecture, therefore data flows cyclically through input → processing → storage → output, mirroring cognitive information processing in individuals. Thus, Manolopoulou-Sergi's (2004) model and Von Neumann's architecture posit three key stages in information processing:

- **Input** - which is the individual's first encounter with new information reliant on perception and attention.
- **Central Processing** is responsible for the internal manipulation of information, involving working and long-term memory, where connections are made and knowledge is constructed.
- **Output** which signifies the demonstration of understanding through performance, communication, or action.

Therefore, this study notices similarities between data processing and language processing through shared principles that include sequential processing, where computers follow algorithms while humans follow linguistic processing sequences. In terms of storage and retrieval, computers have memory modules and these parallel cognitive schemata in human beings. While data transformation, through the central processing unit (CPU), parallels mental semantic → syntactic → phonological transformation in language production, cognitive processing in authentic assessment tasks mimics computational information cycles.

However, it should be noted that motivation plays a critical role when humans process information, especially when processing learning material unlike computers where that human factor is generally missing because computers/technology do not feel nor react to contextual cues. As Manolopoulou-Sergi (2004) argues that a student's motivational orientation (e.g., intrinsic versus extrinsic) influences what they pay attention to (input), the depth of their processing (central processing), and their willingness to communicate and demonstrate learning (output). Anxiety or a lack of perceived relevance can "block" effective processing at any point. This becomes an important factor when students are given collaborative work since motivation and emotional load do impact the engagement in the collaborative task.

What is crucial with this comparison is that information processing goes through a particular sequence to generate a desired output. Hence, students need to understand that as much as technology for information processing helps us process information faster – it is still important for each student to be aware of the information processing that still needs to occur when content is searched from the internet, evaluated and used for assessment purposes.

Pillar III: The critical thinking and language proficiency link

Critical thinking is widely recognized as a fundamental educational goal, defined as "reasonable and reflective thinking focused on deciding what to believe or do" (Norris & Ennis, 1989, p. 3). Its demonstration is often mediated by language use (Shirkhani, & Fahim, 2011). Research by Manalo & Sheppard (2016) demonstrates that language proficiency, rather than language structure, is a key factor in students' ability to manifest critical thinking in their written work. Students with higher proficiency in a language (L1 or L2) produce a greater proportion of evaluative statements, a key indicator of critical thought and information load held by the individual's memory (Bjork & Bjork, 2020). This is attributed to *cognitive cost*: using a less-proficient language consumes more working memory resources, leaving fewer available for the complex task of critical evaluation (Risko and Gilbert, 2016. This observation is crucial for contexts where students are learning in a second language and also required to use academic discourse.

An Integrated Framework: Connecting the Pillars

The power of this model lies in the interconnection of these pillars. Authentic assessment creates the conditions for deep information processing and critical thinking, while ICT tools can be strategically used to support or enhance each stage.

Stage 1: Language processing & internet use

Language functions as interconnected modules responsible for concept formation, lexical selection, syntax, morphology, phonology and articulation. Garman (1990) in his model of language processing, which he calls the "Language Switchboard" emphasises coordinated activation and routing of linguistic operations, recognising the role of cognitive processes and language activities (conscious and unconscious activation of memory) that are involved in the generation and interpretation of messages and the interaction of input-output events through two channels: the articulatory-auditory channel (speaking and listening) and the visual-manual channel (reading and writing). While Denes & Pinson's "Speech Chain" language processing model emphasizes a forward chain: thought → linguistic encoding → articulation → acoustic transmission → perception → decoding → meaning (Whiteside, 1993).

In this study, students were expected to process the content individually, contribute to the group discussions and write (output) their responses and record their presentation. This ensured that the content they dealt with was processed through all the input-output channels to ensure memory retention, and understanding of the content while picking technical skills that would be useful later in real world contexts.

When students use the internet, additional layers appear. Such layers include searching, evaluating credibility, filtering multimodal sources and synthesising meaning. This study shows that these ICT-mediated processes require heightened critical thinking.

Stage 2: Critical thinking, language learning and ICT integration

Here, three elements *ICT, AI, and language learning* are interconnected. The rapid expansion of online resources and AI tools has reshaped access to subject matter but raised questions about the depth of student engagement (Kendle, & Northcote, 2000). On one hand, ICTs alleviate resource limitations and democratize information; on the other, easy AI-generated answers risk superficial learning and plagiarism. Recent studies suggest that unstructured reliance on AI can undermine the mental effort required for language processing, leading to transient rather than durable knowledge gains (Jones & Lee, 2023; Cotton, et al., 2024). Integrating ICTs within structured, process-oriented tasks, such as requiring handwritten paraphrases, citation annotation, and iterative slide development, can harness technology's affordances while safeguarding critical engagement and language learning enhanced by critical reading of internet/AI generated content (Rezaei, Derakhshan, & Bagherkazemi, (2011).

Inclusive pedagogy and universal design for learning

Universal Design for Learning (UDL) principles advocate creating multiple means of engagement, representation, and expression to accommodate diverse learners (Rose and Meyer, 2002). Inclusive learning design leverages ICT and AI not merely to deliver content, but to empower autonomy and equity in the learning process. Rossi (2023) emphasizes practical strategies, such as flexible assignment formats, scaffolded feedback loops, and multimodal materials to foster belonging and self-efficacy. Likewise, Saborío-Taylor and Rojas-Ramírez (2024) argue that AI can support differentiated pathways, provided tasks are anchored in clear learning goals and ethical technology use. Embedding UDL in assessment design ensures that ICT tools serve pedagogical ends rather than become ends in themselves.

Schematic structures in language processing

Drawing on Nunan's (1990) concept of scripts and frames, language comprehension and production rely on rich, organized mental representations of discourse types. Language processing highlights the conscious and subconscious cognitive and language processes that occur to activate memory for generating, retaining information in various forms – in terms of frames (what we remember as is), and schemas (related knowledge connected in one way or the other).

Leaf (2005) argues that information processing recognizes thinking as a powerful force that constitutes three levels: (1) non-conscious-metacognitive level, (2) conscious cognitive level, and (3) symbolic action level. The first level is very abstract and operates whether we are awake or not while the second level focuses on processing information in real time – what others refer to as working memory (Santrock, 2008). The symbolic action level constitutes what we say and what we do as outputs of our thinking, incorporating the five senses through which we express ourselves (Leaf, 2005). Therefore, through the symbolic level, one is able to determine the level of critical thinking of those involved in an interaction. In the academic setting, educators use students' responses to assessment in order to determine their critical thinking. Hence, in this study, group assessments and students' experiences were used to determine whether the

authentic group assessment enhanced critical language learning in the courses taught by this paper's author.

Authentic assessment activities in the form of handwritten essays, slide creation, oral presentations act as 'encoding events that build and reinforce these schemata. Rewriting AI-generated content by hand triggers deeper semantic processing, while translating essay material into slides and speech formats prompts schema expansion across modes. This layered input–output cycle embeds linguistic structures in memory, enhancing later retrieval and flexible application in novel contexts (Nunan, 1993).

Problem statement

One of the important skills nurtured in higher education is the academic search of information and using it to understand phenomena being taught which would enhance application in real life situations. So giving students tasks to research and respond to questions is one of the pillars of learning in higher education. However, there are negative sentiments resulting from the use of internet-sourced or artificial intelligence generated content which seems to have ushered in what others have termed as a post-plagiarism age in academic writing. The concern posed using AI is that higher education is now likely to graduate students that have less knowledge and also have limitations concerning critical thinking since they engage less with a range of content because of the influence of AI which generates answers instantly. However, other scholars suggest that the important aspect is to embrace new technologies like AI and embark on the use of authentic assessment in higher education. Hence, this study focused on using integrating ICT skills in an authentic assessment task in the teaching of English and linguistics at the University of Eswatini to determine how far the model of authentic assessment facilitated learning and application of knowledge.

Significance

Language use and critical thinking skills are a pillar to every discipline. All academic sectors are impacted by the use of AI and all need the integration of ICTs not only for academic purposes but also for professional skills. Hence, this study shares the students' experiences on the model used to motivate ways to embrace language development/learning, critical thinking and ICT integration in the teaching and learning in any discipline. Both academic staff and students stand to benefit from the use of this model. The preparation of assessment tasks that require extensive and intensive use of a range of content will demand academics to explore integrating authentic assessment principles and ICTs to minimize issues of plagiarism by guiding students to learn in the context of the prevalence of AI generated essays. Academics have the opportunity to motivate students to learn despite the attraction of using AI/the web unethically. Students will also benefit in understanding the benefit of the integrated model despite the demands of the tasks, which expect them not only to process content, but to learn to use ICTs ethically to enhance their assessment.

Purpose of the study

The study aimed to analyse the model of using group work assessment as a form of authentic assessment focusing on the use of internet sourced or AI generated content, rewriting, and oral presentation in one assessment to ensure that the group and individual activities enhance critical thinking. This was based on the in-put-output events which enabled the use of articulatory-auditory (speaking and listening) and manual-visual channels (reading and writing) in information processing (cognitive and language processes).

Objectives of the study

The objectives of the study were to:

- To evaluate the impact on the group authentic assessment model employed in the teaching of English and linguistics to undergraduate students at the University of Eswatini.
- Determine how the pedagogical model integrating the use of ICT tools with authentic assessments principles facilitated critical thinking and language learning to selected students at the University of Eswatini where the model was implemented by the author.
- Determine how authentic assessment mitigates the negative impact of the unethical use of AI and internet sourced assessment materials in higher education, the University of Eswatini, as an example.

Methodology

The study used qualitative reflective analysis of student artifacts, including handwritten paraphrasing tasks, multimodal presentations, narrativised reflections, and group collaborative activities that were implemented in an authentic assessment design for English language and linguistics modules.

Data sources included handwritten notes, evidence of AI-assisted content or internet sourced – cut and paste content, digital slide presentations, student audio presentations and narrative reflections. Therefore, the unit of analysis is this study was the use of authentic assessment approach in mediating the impact of AI or internet sourced answers. This approach focused on the use of group work that required academic research, discussion, collaboration to produce one academic essay, ensuring that each participant had a section to write (not type), preparing slides (typed), and production of recorded presentations by each group members.

Data collection method

I employed reflective analysis (notes from assessing the students' group assessments) and narrative interviewing where the participants were asked to narrate their experiences. Narrative interviewing uses open, non-leading questions, and narrative interviews give priority to the elicitation of participants' stories with minimum intervention from interviewers (Esin, 2011:

99). Narrative interviews are a product of interviewing as a participatory site in which meaning is co-produced by participants and interviewers (p.100).

Data collection: model experiment

In this study, the model used in the group assignments given to the participants required that they analyse the question, search for relevant sources using the prescribed texts, Google search and use artificial intelligence. After identifying the relevant content the participants had to evaluate their content for relevance and discuss these in their respective groups. Each group member wrote down their sections and together the group had to produce a coherent handwritten academic essay on the given topic. Then they had to prepare and type presentation slides. Typing the assignment was prohibited to reduce cut and paste from internet sources and submission of AI generated content without engaging with it. From that output, they had to prepare presentation slides, which they used for generating recorded presentations, which, each group had to upload on the Moodle Learning System and share in the class WhatsApp Group.

Therefore, participants integrated technical skills to search for relevant content, to prepare for their presentation and to record their presentations. Hence, ICT expanded their cognitive horizons, and it was noted that ICT requires instructional structure to prevent shallow copy-paste engagement especially in the beginning when searching for relevant content for the task.

Participants' narratives

Participants were asked to unanimously reflect on their experiences in carrying out the group assessments as articulated above. Narratives are an essential tool to elicit experiential data. The narrative analysis approach takes stories as the unit of analysis (Esin, 2011: 92). The stories are usually gathered from the accounts of participants.

Esin (2011) further notes that narrative analysis functions as a method through which researchers explore how people remember, structure and story their experiences and understand the complexities of human selves, lives and relations. Narrative analysis therefore illuminates both the individual experiences and social processes that shape these experiences, and provides the analyst with useful tools to integrate the individual details and complexity in the construction of stories. Narrative research enables researchers to see multiple and sometimes contradictory layers of meaning, to reconstruct meanings through linking these layers, and to explore and understand more about individual and social processes. These narratives also enabled the author to identify the participants cognitive growth, especially those in the final year who had been exposed to this model of authentic assessment for 3 semesters (30 weeks).

In this study, I actively participated in the construction of these narratives since I gave the assessment tasks, marked and awarded marks. My engagement made this study to take a participatory approach. Hence, there was a need to take an objectivity stance when collecting and analyzing the content. Therefore, I employed the notion of *reflexivity* to navigate the different roles I played as a facilitator, assessor and researcher. Downing, Polzer and Levan (2013: 480–481) describe reflexivity as a methodological practice that enables a researcher to

be "relationally present" and that research participants themselves are also "capable of reflexivity in the course of their own sharing of narrative accounts". Downing et al. (2013: 483) state that "reflexive thinking on the part of the respondents also adds texture, but this reflexivity is best facilitated by acknowledging and, to the best of the researcher's ability, understanding the space-time context of the interview and interviewee". Having used this notion before (Dlamini-Akintola, 2019: 101), I have learnt to separate my own voice and that of the participants in the narratives, and incorporated the analysis of space, context and time both in the production and analysis of the narrative data.

Data analysis

Two models were taken into consideration in the analysis of data: the narrative analysis model and the Trumper-Hecht's three-dimensional analytical model.

Narrative analysis

Two models of narrative analysis were used: *the thematic model*, which focuses on what is said in narratives and the *interactional-performative model*, which places collaborative meaning-making processes at the centre of narrative analysis (Esin, 2011). The themes, interaction and performance of the participants in this study were further analysed using the Trumper-Hecht's three-dimensional analytical model.

Trumper-Hecht's Three-Dimensional Analytical Model

Trumper-Hecht's (2008) framework dissects discourse into *cognitive, social*, and *discursive dimensions* to capture how individuals interpret and construct meaning.

The *cognitive dimension* examines the mental operations learners deploy as they make sense of content. Here I looked for evidence of reading strategies (skimming, scanning), note-taking and paraphrasing methods, activation and restructuring of existing schemata. By tracking how students describe their thought processes, I was able to capture the depth and evolution of their critical thinking. Cognitive mental operations students deployed included reading strategies, paraphrasing, schemata activation.

Through the *social dimension* I focused on interactional dynamics in collaborative tasks. Key aspects included: negotiation of meaning and roles within groups, management of interpersonal conflicts and time constraints, peer scaffolding and mutual support. When students reflected on challenges, they revealed how group work shapes both individual learning and collective knowledge building.

The *discursive* dimension involved the analysis of language choices, genre conventions, rhetorical structures students employ in written and spoken texts. Through this dimension, I analyzed language use and genre conventions in students' written and spoken output. I attended to choice of rhetorical structures (argumentative vs. descriptive), use of metadiscourse markers (sentence structures and cohesive devices), shifts between academic registers and everyday language. Reflections illustrate how learners navigate and internalize discourse norms.

Using this model to analyze student narratives uncovers how authentic tasks mediated by ICT shape internal thought processes, peer interactions, and expressive competence.

By intertwining authentic assessment theory, ICT integration, UDL principles, and Trumper-Hecht's analytical lens, this framework supports the study's design and analysis..

Results

The analysis of participants' narratives reveals how the authentic assessment design, requiring research, handwritten responses, synthesis of group ideas, slide preparation, and recorded oral presentations, activated cognitive, social, and discursive processes consistent with Trumper-Hecht's (2008) model and the theoretical framing presented in this article. The findings are presented according to five themes, namely, (1) *Evidence of critical thinking in students' use of AI and internet sources*, (2) *Evidence of authentic assessment*, (3) *Benefits of group work*, (4) *Challenges of group work*, and (5) *Responses to task requirements*.

Table 1: Evidence of critical thinking in students' use of AI and internet sources

Theme	Description	Illustrative Participant Evidence
Evaluation of AI Accuracy & Credibility	Students compared AI-generated content with textbooks, modules, and credible websites; identified inconsistencies or misinformation.	"Sometimes we get the wrong information from using AI… it doesn't correspond with other websites." (P2)
Source Verification & Cross-checking	Active checking of books, alternative sites, and scholarly sources; rejecting unreliable content.	"I had to search for books online to get legit references." (P5)
Paraphrasing & Synthesis	Students reconstructed meaning manually, paraphrased, and filtered irrelevant details.	"We ensured we paraphrased and did not copy everything as is." (P8)
Judgment of Relevance	Students evaluated relevance of content to the questions and removed unnecessary information.	"We made sure everything corresponded directly to the given questions." (P1)
Metacognitive Monitoring	Students reflected on learning processes, coherence of contributions, and accuracy of citations.	"I checked for coherence and helped review the final draft." (P6)

Table 2: Evidence of authentic assessment

Authenticity Dimension	Evidence from Participants	Illustrative Participant Evidence
Real-world Relevance	Students used research, handwriting, slide creation, and oral presentation—mirroring real academic work.	"We analysed questions, researched, wrote by hand, prepared slides and recorded." (P17)
Cognitive Challenge	Task required understanding linguistic theories, analysis of complex concepts, and integration of multiple sources.	"The project deepened my understanding of psycholinguistics." (P3)
Evaluative Judgment	Students reviewed each other's citations, APA formatting, and content coherence; peer checking.	"We checked all in-text citations and references to make sure they were correct." (P20)
Multimodal Output	Handwritten script → typed version → slides → oral recording.	"Rewriting by hand helped us internalize the content." (P8)

Table 3: Benefits of group work

Benefit Category	Description	Participant Evidence
Cognitive & Academic Gains	Improved understanding, deeper learning, exposure to new perspectives; enhanced writing and research skills.	"Breaking down the work helped me understand concepts I thought were difficult." (P29)
Collaboration & Communication	Growth in teamwork, negotiation of ideas, and problem-solving.	"We could support each other and share ideas to enrich the assignment." (P25)
Skill Development	Time management, leadership, citation skills, ICT proficiency (slides, recordings).	"I stepped up as group leader and coordinated typing, presenting, and referencing." (P5)
Personal Growth	Increased confidence, patience, and interpersonal awareness.	"Although I am quiet, I felt proud that my careful approach strengthened the work." (P6)

Table 4: Challenges of group work

Challenge Category	Description	Participant Evidence
Unequal Participation	Some members contributed little or nothing, leading to frustration and reduced cohesion.	"We ended up being three… others left the group." (P10)
Conflict & Personality Clashes	Dominant members, disagreements, refusal to accept corrections; toxic dynamics.	"Some refuse to be corrected… environment becomes toxic." (P24)
Scheduling & Logistics	Difficulty meeting due to strikes, work commitments, poor communication, or part-time status.	"Scheduling meetings was hard… we are part-time students." (P23)
ICT Challenges	Network issues, unreliable devices, misleading AI content.	"Communication was affected by network instability." (P3)
Academic Challenges	Integrating sections, maintaining coherence, APA formatting, handwriting burden.	"In-text citation was a major challenge." (P9)

Table 5: Responses to task requirements

Task Component	Student Actions	Evidence
Researching the Topic	Used modules, books, internet, AI; cross-checked credibility; analysed questions.	"We examined the key terms and searched the internet for reliable information." (P12)
Producing a Coherent Group Essay	Divided tasks, wrote sections by hand, merged into one script, reviewed for unity.	"We ensured each contribution connected logically with others." (P7)
Preparing Presentation Slides	Selected key points, summarised content, and created clear slides.	"We discussed and refined information for slides." (P7)
Recording Oral Presentations	Coordinated meeting times, rehearsed, and recorded using available devices.	"We met at school to write the assignment and record the work." (P23)
Submitting Final Work	Reviewed for neatness, APA accuracy, coherence, and adherence to instructions.	"We checked references and ensured our essay met the marking criteria." (P20)

Discussion

This study set out to investigate how a structured model of authentic assessment, integrating ICT and collaborative group work, could foster critical thinking and deep learning. The findings strongly affirm that the assessment design was both authentic and cognitively demanding, successfully requiring students to process information deeply, use ICT critically, collaborate meaningfully, and demonstrate learning through multimodal outputs.

Critical thinking emerges through evaluation of sources, inference, argument construction, comparison of information, judgment of AI accuracy, synthesis of multimodal content. ICT expands cognitive horizons but requires instructional structure to prevent shallow copy-paste engagement. Authentic assessment ensures that students activate deep processing, not merely retrieve online content.

Authentic assessment in group assessments activates cognitive functions similar to computational and linguistic processing systems in that it enables the individual to use language to search for relevant content, engage with others and reproduce the assessment task. ICT integration enables multisensory engagement, while handwritten analysis promotes slower, deeper reflection. Students develop metacognitive awareness by comparing AI output with manual reasoning. Authentic assessment, grounded in information-processing models (Churchland, 1980), enhances critical thinking by requiring learners to encode, transform, evaluate, and present knowledge. ICT supports these processes when used reflectively.

The participants' narratives strongly affirm that the assessment design was both authentic and cognitively demanding, requiring students to process information deeply, use ICT critically, collaborate meaningfully, and demonstrate learning through multimodal outputs. The findings align seamlessly with the theoretical framework outlined in this article.

Implications for group work design in higher education: A practical blueprint

The model used in this study showed that authentic assessment ensures that students activate deep processing, and do not merely retrieve online content. The proposed integrated framework is responding to the suggestion made by other scholars who advocate for continuous adaptation in pedagogy (Lebow, & Wager, 1994; Manalo & Sheppard, 2016 and Rezaei, Derakhshan, & Bagherkazemi, 2011). Therefore, simply designing a complex, technology-rich task is insufficient if students lack the specific skills to execute it. Therefore, the following principles are essential for preparing authentic group assessments:

a) Explicit instruction is essential for critical thinking. Therefore, the language of evaluation (e.g., how to critique, justify, and synthesize) must be explicitly taught before a task that requires these is given, especially when teaching a group for the first time. As Manalo & Sheppard (2016) found, language proficiency alone did not correlate with critical evaluation in students who had not received instruction; they needed to be taught the specific discourse forms.
b) Lowering the cognitive cost is a must for students working in a second language or with unfamiliar with academic discourse. So, providing models, scaffolds, and glossaries of evaluative language can free up cognitive resources to focus on the critical thinking task on the activity or subject content itself.
c) Students need to be positively oriented to view assessment as learning where techniques like self-assessment and peer-assessment (as recommended in the authentic assessment blueprint) are not just for grading; they are powerful pedagogical tools for developing evaluative judgment and critical thinking (Boud & Molloy, 2013).

Drawing on the 4-step model from Villarroel et al. (2018) here is how an educator can implement this integrated framework in designing task for group work for authentic assessment:

1. Consider the workplace context by identifying the real-world problems, critical thinking skills, and technology tools used by professionals in the discipline. This can be achieved by:
    a) Crafting a rich context by using realistic scenarios (e.g., a case study, and for language concepts, prepare application opportunity for that concept). Then, use ICT tools to bring it to life (preparing presentation slides, recording voice overs, uploading this to learning management system or using Google drive, or any form of sharing large documents, simulated dataset).
    b) Creating a worthwhile task that would ensure that the output is relevant to a real or simulated audience. ICT should enable the professional presentation of this output.
    c) Requiring higher-order skills which will ensure that the task demands analysis and evaluation, not just a summary of the content. For example, students must compare AI-generated summaries of a topic with their own research, identifying inaccuracies and biases; thus, enhancing critical thinking.

2. Facilitate learning and evaluative judgment

This can be facilitated by:

    a) Teaching critical discourse explicitly, showing students how to construct arguments, evaluate evidence, and use language of critique.
    b) Using ICT tools for Formative Feedback such as reviewing documents using track changes peer review and self-assessment. Facilitators can also use discussion forums or annotation tools for ongoing feedback dialogues. The Moodle Learning Management System was useful in this context.

3. Providing sustainable feedback which students can use in future tasks and in developing their capacity for self-regulation. For example, good presentations/output need to be commended to motivate students. If further reading is required, recommendations need to be made. Corrections need to be provided where necessary to enable students to learn from your feedback. One of the easiest ways to give feedback is also to give the assessment criteria and notes on marking abbreviations as part of the activity package so that students know what is expected of them in that task and how to interpret abbreviated marking styles. However, there are some drawbacks to giving feedback. The numbers of students taking some of these modules were so high (over 450 students in total) such that marking and giving detailed feedback ended up limited. But the group work reduces the number

of scripts to be graded which motivates the facilitator to give detailed feedback. The students should also be motivated to share and read the feedback to enhance comprehension of the content.

This blueprint moves beyond a checklist of characteristics to provide a model for design, ensuring assessments are not just realistic, but also intellectually demanding and focused on developing students' own capacity for judgment.

Conclusion

This paper has argued that the synergistic integration of authentic assessment, critical thinking, and ICT provides a powerful pathway for reforming higher education pedagogy. By grounding our approach in robust theoretical pillars, we can move beyond using technology as a mere add-on. Instead, we can design learning experiences that are deeply engaging, intellectually challenging, and professionally relevant. The ultimate goal is to create an educational environment where students are not passive recipients of information but active, critical, and proficient constructors of knowledge, fully prepared to navigate and shape the complex world they will enter. Authentic assessment entails a bit of added task for both facilitators and students, especially at the beginning when there is transitioning from the traditional assessment methods and the added burden of continuous learning as technology changes rapidly. One would therefore recommend further studies on the sustainability of employing this model in large groups taking modules that are intellectually oriented than those that provide practical implementation easily. Employing pedagogic models in the teaching of theoretical subjects such as language becomes a challenge that need to be continuously investigated to determine sustainability and improvement.

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