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Cool Things Academics Do

AI Literacy in Higher Education

Case Study Booklet

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Stellenbosch University Centre for Teaching and Learning

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Foreword

The rapid rise of generative AI (GenAI) is reshaping higher education, compelling educators to rethink their pedagogical approaches. This case study booklet highlights five educators at Stellenbosch University who have strategically integrated GenAI into their teaching, assessment, and student learning experiences.

These cases showcase innovative ways to foster AI literacy, content knowledge, critical thinking, and evaluative judgment. The focus is on ensuring meaningful engagement with GenAI tools rather than passive reliance or avoidance.

Through these case studies, we explore how GenAI can be used as a pedagogical tool while maintaining academic integrity, promoting deep learning, and preparing students for the evolving digital landscape. The stories of Sharon Malan, Albert Strever, Melody Neaves, Jodie Lemphane, and Hamman Schoonwinkel serve as inspiration for educators navigating the intersection of GenAI and education.

These case studies demonstrate that AI literacy is not about merely using GenAI tools but about developing students' ability to critically assess, refine, and integrate GenAI into their disciplinary contexts. By embedding GenAI within structured learning experiences, these educators are shaping a generation of students who can navigate GenAI's affordances and limitations with confidence and responsibility.

Through these approaches, students start to (1) develop agency in learning, making informed decisions about GenAI's role in research, and (2) understand the evolving role of human expertise, ensuring that GenAI supports rather than replaces critical thinking.

As GenAI continues to evolve, so must our teaching and assessment strategies. The approaches shared in this booklet provide valuable insights into how educators can harness GenAI's potential while fostering deep learning, critical engagement, and ethical GenAI use.

Acknowledgements

We extend our gratitude to Sharon Malan, Albert Strever, Melody Neaves, Jodie Lemphane, Hamman Schoonwinkel, and Lennox Olivier for their contributions to AI-integrated teaching at Stellenbosch University. Their innovative approaches pave the way for the responsible and transformative use of AI in higher education. We also extend thanks to Dalene Joubert for her significant contribution to this initiative.

Cases

1. Dr. Sharon Malan

Faculty of Economic and Management Sciences
Extended Curriculum Programme (ECP)

Focus Area: Developing Evaluative Judgment and Critical GenAI Literacy through Transformative Assessment

Sharon Malan integrates GenAI into her academic literacies module by fostering evaluative judgment and structured reflection. Initially skeptical about GenAI's impact on academic writing, she now strategically introduces GenAI tools late in the learning process to preserve deep engagement. Her approach includes peer feedback, explicit assessment rubrics, and GenAI-assisted feedback and tutoring. A key component of her assessment strategy is requiring students to critique and reflect on both peer and AI-generated feedback section by section, reinforcing their ability to discern quality and reliability in GenAI outputs.

2. Dr. Albert Strever

Faculty of Agrisciences
Department of Viticulture & Oenology

Focus Area: GenAI Literacy & Responsible GenAI Use in Research

Albert Strever's entrepreneurship course, and a library training course where he is involved in use GenAI as a structured learning tool in research-based assignments. In a controlled experiment, half his students used GenAI while the other half relied on traditional methods. The exercise revealed GenAI's limitations, such as generating fabricated references, and reinforced critical verification skills. In the entrepreneurship course, students are encouraged to interrogate their business ideas, develop business model canvases and frameworks for their pitches/podcasts with different GenAI tools. His approach ensures that students not only learn responsible GenAI use but also develop essential research competencies, including source validation and academic integrity, and learn how to enhance their creative abilities by using AI as an augmentation tool.

3. Dr. Melody Neaves

Faculty of Engineering

Mechanical and Mechatronic Engineering Department

Focus Area: Integrating GenAI into STEM to Develop Critical Thinking & Self-Directed Learning

Melody Neaves reshaped her materials science module by embedding GenAI tools into the learning process while reinforcing self-directed learning. Students used GenAI to generate exam questions, analyze GenAI-generated responses, and critically evaluate accuracy and depth. By experimenting with different GenAI tools, they develop a nuanced understanding of GenAI's role in problem-solving while maintaining cognitive engagement in engineering education.

4. Jodie Lemphane

Faculty of Medicine and Health Sciences

Division of Anatomy

Focus Area: GenAI Integration to Develop Critical Thinking in Anatomy Education

Jodie Lemphane employs GenAI tools in anatomy education to help students develop evaluative skills. Students interact with GenAI to generate explanations and then critically assess the accuracy and completeness of GenAI-generated content. Through structured discussions and reflections, they refine their ability to discern factual errors and bias in GenAI-generated medical knowledge, ensuring they become both critical consumers and responsible users of GenAI in healthcare.

5. Hamman Schoonwinkel

Faculty of Economic and Management Sciences

School of Accountancy

Focus Area: Computational Thinking and Digital Acumen in Accounting Education

Hamman Schoonwinkel's approach to AI literacy focuses on automation in accounting. Students use GenAI tools like ChatGPT to generate code for automating financial data analysis, learning to refine their prompts and evaluate GenAI-generated outputs. His module not only enhances students' computational thinking but also prepares them for GenAI-driven changes in the accounting profession by reinforcing problem-solving and analytical skills.

6. Lennox Oliver

Faculty of Arts and Social Sciences

Dean's Office

Focus Area: Designing Curricula That Enhance Learning in the Age of AI

Lennox Olivier restructured his Sociology curriculum to balance AI integration with academic integrity, ensuring that students develop essential critical thinking and writing skills before engaging with AI tools. Rather than banning AI, he deconstructed the traditional essay's role in assessment, implementing a structured learning process that emphasizes argumentation, source evaluation, and academic voice. By guiding students through each stage - class engagement, reading comprehension, conceptual debates, and structured writing—before allowing AI use in take-home essays, his approach fosters AI literacy, ethical engagement, and deep learning while preserving the essay as a meaningful academic tool.

Dr. Sharon Malan



[Click here to listen on Spotify.](#)

Faculty of Economic and Management Sciences
Extended Curriculum Programme (ECP)

Focus Area: Developing Evaluative Judgment and Critical AI Literacy through Transformative Assessment, implemented in 2024.

Biography

Dr. Sharon Malan is the Extended Curriculum Programme (ECP) leader at the Faculty of Economic and Management Sciences at Stellenbosch University. She teaches Academic Literacies and Introduction to Economics to first-year and Extended Curriculum Programme (ECP) students.

Context

Sharon's teaching involves preparing students to think critically and argue convincingly — skills crucial in economics and entrepreneurship. With the introduction of ChatGPT, she recognized an immediate threat to traditional assessment practices, particularly essay writing. This prompted her to rethink her pedagogical approach. Rather than resisting GenAI, she leveraged it as an opportunity to teach students how to use GenAI responsibly and strengthen their critical and evaluative skills.

Goals of the approach

- ✓ Strengthen students' evaluative judgment through GenAI-integrated assessment.
- ✓ Teach responsible GenAI use without undermining deep engagement.

How it worked

- GenAI tools were introduced late in the learning process to encourage productive struggle.
- Students reflect on peer feedback, and feedback provided by Gen AI, explaining their rationale for accepting or rejecting suggestions.
- AI is then systematically integrated as an additional feedback tool whilst also being utilised as a refinement and tutoring tool.
- Rubrics and exemplars guided students in assessing writing quality.

Sharon's approach

Sharon adopts a flipped-classroom approach that emphasizes active engagement, reflection, and iterative learning. GenAI tools are introduced only after students have developed foundational skills, ensuring they first engage deeply with critical thinking and academic writing before leveraging GenAI for refinement.

Structured Learning Progression

In the first term, students focus on critical thinking, argumentation, and persuasive writing. They analyse complex topics, construct persuasive arguments, and evaluate ideas—laying a strong foundation for academic writing. Only after grappling with the material independently do they begin using tools like Grammarly, Hemingway App, and ChatGPT to refine their writing. GenAI is not a replacement for learning but a writing support tool introduced through in-class demonstrations showcasing best practices and responsible use.

Sharon structures her contact sessions in two phases:

- Teaching sessions where she provides direct instruction.
- Practice sessions, flowing directly on teaching sessions, where students engage in hands-on writing exercises.

Structured Learning Progression continued

During practice sessions, students compare their work to exemplars (both strong and weak examples), engage in peer and AI generated feedback, and use a structured approach to assess writing quality. This explicit guidance helps students internalize quality standards and develop their evaluative judgment.

They also reflect on peer and AI generated feedback, articulating their reasons for accepting or rejecting suggestions. GenAI tools are used as part of this process. For example, if feedback indicates a weak thesis statement, students are encouraged to prompt GenAI for improvement suggestions, refining their ability to critically interact with GenAI-generated content rather than relying on it passively.

"So, I literally asked ChatGPT to write the argumentative essay as a first-year undergraduate student ... with all the criteria you need, reference lists, et cetera. So, [the students] had to basically analyze and evaluate GenAI. They got the GenAI-generated essay 24 hours before the [assessment] opportunity and they were quite surprised. I said, "Yes, you can get it and then you can make notes, you can work in groups, you could ask GenAI, you could do whatever." Because I can't control that. And you can even bring your notes. So take the essay, print it out. Make notes on it, and evaluate it. The only thing I didn't do is I didn't share with them the questions on my paper. So they had to discern what they think I would ask about GenAI when you critically evaluate that. That was a way of making sure that they're using the skills now and sensitising them, experiencing that GenAI can be analysed. And they can't just accept anything it says. And it is amazing. I gave them bonus points - I'm busy marking at the moment - and I gave them two bonus points because they had submitted that with the exam paper as well. And it's incredible to see what they have done with that." - Sharon

For the final invigilated, sit-down assessment, Sharon provided students with GenAI-generated essays on economic issues (e.g., economic inequality in South Africa). Students analysed these essays before the test, preparing critiques and notes. During the exam, they evaluated GenAI-generated arguments, citations, and content accuracy, applying their critical thinking skills. This method explicitly assessed students' ability to judge GenAI-generated content against established academic standards.

Sharon thus took her final assessment a step further, transforming it into an opportunity for assessment as learning.

"So yes, I think that really is beneficial for the student. They were extremely critical, even more critical than I think they should have been. They [even] analysed the referencing since I didn't reference it according to the Stellenbosch Harvard referencing system. They would say some of the references were fake. They tested it. One student said the years in one of the references were incorrect. The in-text referencing wasn't there altogether, so they critiqued that. But they also, what I liked, critiqued the arguments itself, and that was the ultimate goal that I wanted to achieve. Because they see that the thesis statement was literally: "Economic growth does make the rich richer and the poor poorer." So, one of the students said: "What type of inequality are they referring to? Are they speaking about South Africa? Are they narrowing down the subject?" And they weren't convinced by GenAI's statistics because there was sometimes a lack of background information around those statistics. So a lot of the things that they learned in the rulebook for arguments, The art of persuasion, is what they applied in that test " - Sharon

Outcomes

Sharon's structured approach achieves not only AI literacy outcomes, but also content-related mastery and metacognitive outcomes:

- Critically assess the AI feedback provided alongside the feedback from peers and myself (as just another peer in this conversation)
- Reflect on the strengths, limitations and ethical implications of GenAI in academic work.
- Strengthen academic writing skills, including argumentation, coherence, and structure.
- Apply evaluative judgment by comparing their work with exemplars and critiquing peer feedback.
- Recognize the value of productive struggle, understanding that grappling with learning deepens mastery.

By fostering an iterative learning process, Sharon equips students with the skills to use GenAI responsibly and thoughtfully in academic and professional contexts.

The use of exemplars (models of good practice) and dialogic feedback (interactive discussions about work quality) played a key role in helping students develop a nuanced understanding of quality standards.

Points to ponder

- How can GenAI be used as a tool for learning rather than a shortcut?
- What role does structured feedback and iteration play in AI literacy?

Dr. Albert Strever



[Click here to listen on Youtube](#)

Faculty of Agrisciences
Department of Viticulture & Oenology

Focus Area: GenAI Literacy & innovative teaching-learning-assessment practices, , implemented in 2023.

Biography

Dr. Albert Strever, a Senior Lecturer in Viticulture and Oenology at Stellenbosch University, specializes in viticulture while also exploring entrepreneurship and innovation in higher education.

Context

Albert's course introduces students to the academic research process within their discipline, tackling real-world industry issues. Working in groups, students navigate the full research cycle — from analyzing topics and engaging with scientific literature to writing a research report.

With the rise of ChatGPT and GenAI, Albert recognized both opportunities and risks in students' reliance on GenAI for research. Instead of restricting GenAI use, he leveraged it as a teaching tool to help students critically engage with GenAI, verify sources, and develop essential digital literacy skills.

Goals of the approach

- ✓ Teach students responsible GenAI use in research and professional settings.
- ✓ Strengthen students' critical engagement with GenAI-generated sources.
- ✓ Develop academic research skills by addressing GenAI's strengths and limitations.
- ✓ Cultivate evaluative judgment in distinguishing credible vs. unreliable sources.

How it worked

Rather than simply allowing or banning GenAI, Albert structured GenAI engagement into the research process by testing its performance in various contexts:

1. Acting as a brainstorming partner to explore arguments, identify key concepts, and refine research topics.
2. Providing help with finding source.
3. Assisting with writing, i.e. improving clarity and structure.

Albert's approach

Rather than restricting GenAI use, Albert strategically incorporated GenAI tools into his curriculum as structured components of the research process. His approach followed three key phases:

1. Choosing a Research Topic
2. Finding & Evaluating Sources
3. Writing the Research Report

At each stage, students were introduced to and given opportunities to engage with different GenAI tools, experiencing both their affordances and limitations. Prior to the first phase, Albert collects real-world research questions from industry professionals, farmers, and media sources. Using these as a starting point:

- Students first select a topic and analyze it independently.
- They then use ChatGPT or other GenAI tools to break down the topic, identify key concepts, and explore possible angles for research.

Albert's approach continued

Since students were not accustomed to broad, open-ended research questions, this exercise helped them frame their inquiry more effectively.

Once students settled on a topic, students were encouraged to use ChatGPT to generate references for their arguments. However, when they attempted to verify these references using DOI searches and academic databases, they quickly discovered that many GenAI-generated citations did not exist.

This moment of realization created a valuable opportunity for critical discussions on GenAI's credibility as a research tool. To address this, Albert introduced students to GenAI-powered research tools such as:

- Connected Papers which helps to visualize relationships between academic works.
- Elicit which extracts real, openly available scholarly articles.

Although these tools provided genuine sources, students soon realized that many retrieved works were open-access rather than seminal studies locked behind paywalls. This hands-on experience deepened their understanding of both the possibilities and constraints of GenAI in academic research.

To reinforce traditional research methods, Albert arranged a session where a faculty librarian guided students through university databases and journal searches. Although GenAI tools like ChatGPT have since improved in generating accurate references, the lesson on credibility remains relevant.

During the report writing phase, acknowledging that he cannot police GenAI use in writing, Albert encourages students to:

- Use GenAI tools for language editing rather than content generation.
- Reflect on whether GenAI improved clarity or introduced inaccuracies.

Since many students are not first-language English speakers, GenAI's potential to level the playing field in academic writing is an important discussion point.

"So our role [as lecturers] is changing. I think we need to extract and emphasize key learnings, aligned with real world context and problems. That's one big role that we have."
- Albert

Albert's approach continued

Throughout the semester, students receive structured feedback through weekly check-ins. At the end of the course, they must declare their GenAI use by answering four reflective questions. Finally, students also had to declare their GenAI use, answering four reflective questions:

1. How did GenAI influence your research process?
2. What challenges did you encounter with GenAI-generated content?
3. How did you verify GenAI-generated sources?
4. Did GenAI save time or require more effort to correct inaccuracies?

This reflection process cemented AI literacy as a key skill.

" I think we should look at a community of practice ... where we as lecturers could share our ideas, our successes, but also our failures on using this in the classroom. We need to give guidance, also ethical guidance to students on what to use, why and how. And for that we need to tinker of ourselves. We can't just stay away from these solutions, start using it yourself to also be able to give that advice." - Albert

Outcomes

Albert's approach ensures that students move beyond passive GenAI use to critical engagement, evaluative judgment, and research integrity. His structured integration of GenAI helps students develop the ability to:

1. Use prompt engineering to optimize GenAI output.
2. Critically assess GenAI-generated content, recognizing fabricated citations and inconsistencies.
3. Strengthen research skills, including source verification and literature analysis.
4. Enhance writing quality, particularly for non-first-language English speakers.
5. Recognize GenAI's limitations and ethical concerns, particularly regarding academic integrity.

Points to ponder

- How can GenAI enhance rather than replace critical thinking in research?
- What strategies help students distinguish real knowledge from GenAI-generated misinformation?
- How can educators balance GenAI integration while maintaining research integrity?

Final thoughts

Albert's approach shifts the focus from GenAI as a shortcut to GenAI as a tool for enhancing academic inquiry. By embedding AI literacy into the learning process, he equips students with the skills to navigate GenAI critically and responsibly. Rather than assessing only the final research product, his method evaluates the entire learning journey, ensuring students engage meaningfully with GenAI rather than passively accepting its outputs.

Through experiential learning and structured reflection, students leave the course with a nuanced understanding of GenAI's affordances and limitations—skills that will be crucial as they enter an GenAI-integrated workforce.

Dr. Melody Neaves



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Faculty of Engineering
Department of Mechanical and Mechatronic Engineering

Focus Area: Integrating generative AI into STEM subjects to support critical thinking, self-directed learning, and the development of evaluative judgment, implemented in 2024.

Biography

Dr. Melody Neaves is a lecturer in the Mechanical and Mechatronic Engineering Department at Stellenbosch University. She teaches a highly theoretical, interconnected second-year Materials Science module, with approximately 400 students per cohort.

Context

The module presents unique challenges: unlike most engineering courses, which follow a chronological, calculation-based approach, Materials Science requires students to navigate complex, interrelated concepts without a clear progression. This often leads to cognitive overload and difficulty connecting key ideas.

To address this, Melody designed a series of interventions focused on self-directed learning, critical thinking, and AI literacy, ensuring that students engaged actively with the material rather than simply memorizing it.

Melody's approach

During the Materials Science module, students engage in independent projects on different materials (e.g., steel, titanium, ceramic, clay). Each project demands self-study, conceptual integration, and applied learning - all skills essential for modern engineering education.

Melody's approach continued

To encourage active learning, Melody originally required students to develop their own exam questions based on course content. The questions were to test higher order skills, using Bloom's taxonomy. This forced students to:

- Think critically about what makes a question meaningful and well-structured.
- Develop a question at exam level, along with a detailed solution.
- Engage in peer assessment, strengthening their evaluative judgment.

"There's so many topics that are related to each other and not in a chronological order. So you would learn something in Chapter 10 that is, say, about the properties of materials, how strong they are, how far they stretch so on. And only learn about the structure. Maybe later and the structure of the material determines the properties and the processing of the material determines the structure, so you can see how everything is interrelated." - Melody

However, the emergence of ChatGPT changed everything. Prompted well, GenAI could generate a 70% complete project in under five minutes, undermining the original intent of the exercise. Melody recognized that traditional approaches to assessment needed adaptation to ensure that GenAI enhanced learning rather than replacing it.

"And that's where we decided we're going to use ChatGPT. We're going to co-opt it. So, we transformed these projects by co-opting it. It's now a sidekick to you as a superhero student. You have the sidekick, which is your ChatGPT or Gemini, it was called Bard at the time, you've got a whole bunch of, you know, GenAI Large Language Model chat bots. As we said, you are going to still create your own questions, but you're going to prompt ChatGPT, you're going to ask it questions. And then it's going to give you answers, but you're going to critically evaluate those answers. And you're going to say what it did right, what it did wrong, was it what you wanted?" - Melody

In response, Melody implement a small change. Once students had formulated their questions, they submitted them to ChatGPT to generate responses. Their task was then to critically evaluate the GenAI-generated answers, assessing their accuracy, depth, and relevance. Through this, students not only honed their subject knowledge but also developed a keen eye for detecting inaccuracies and gaps in GenAI-generated content. As part of this, students often had to go back to the course material for comparison.

Melody's approach continued

Another key aspect of Melody's approach was teaching students the importance of effective querying, commonly referred to as prompt engineering. Students were given guidance on and experimented with different ways of phrasing questions to see how GenAI responded, gaining insights into how language influences the quality of GenAI outputs. This skill is particularly relevant in an era where GenAI is increasingly integrated into professional and research environments.

Goals of the approach

- ✓ Promote critical engagement with GenAI tools rather than passive reliance.
- ✓ Develop evaluative judgment by requiring students to assess GenAI-generated outputs.
- ✓ Teach students prompt engineering skills to refine GenAI responses.
- ✓ Foster deeper conceptual learning through an iterative feedback process.

How it worked

Students independently studied parts of the course and then created exam questions based on the content. They were required to submit these to ChatGPT to formulate the answers, after which they had to:

- Evaluate the GenAI-generated responses for accuracy, depth, and relevance.
- Identify conceptual errors or oversimplifications in the GenAI's explanations.
- Cross-check GenAI-generated answers against course materials and scientific literature.

Outcomes

By shifting the focus from GenAI as a quick-fix tool to GenAI as a learning enabler, Melody empowered students to take control of their learning while developing essential engineering problem-solving skills. Melody's approach helped students to

- Use GenAI for inquiry-based learning rather than passive consumption.
- Develop prompt engineering skills to refine GenAI-generated responses.
- Strengthen their understanding of materials science concepts through iterative assessment.
- Formulate and evaluate high-quality exam questions.
- Enhance their peer evaluation skills, reinforcing evaluative judgment.

A core part of the approach was teaching students to refine their GenAI queries:

- Students experimented with different ways of phrasing questions.
- They analyzed how changes in wording affected GenAI-generated responses.
- This helped them understand GenAI's strengths, biases, and limitations.

Final thoughts

Melody's innovative approach to GenAI-integrated learning ensures that students engage with GenAI critically, ethically, and effectively. By crafting their own exam questions and evaluating GenAI-generated responses, students engaged more deeply with the course material. This not only strengthened their understanding of key concepts but also enhanced their ability to critically assess information—a skill crucial in both academia and industry.

Rather than viewing GenAI as a threat to assessment integrity, she reframed it as an opportunity to enhance critical thinking, evaluative judgment, and self-directed learning. Her interventions provide a model for integrating GenAI into STEM education, ensuring that students are not just consumers of GenAI-generated knowledge but active participants in shaping it.

Students also gained confidence in navigating GenAI tools, recognizing their potential and limitations. While GenAI can assist in learning and problem-solving, Melody emphasized that ultimate responsibility for academic integrity and critical evaluation rests with students themselves. By requiring students to reflect on how they used GenAI in their assignments, she reinforced the importance of transparency and ethical GenAI use in academic work.

Points to ponder

- How can GenAI be used to enhance conceptual understanding rather than replace deep learning?
- What strategies ensure that students critically engage with GenAI-generated content rather than passively accepting it?
- How can AI literacy be embedded into STEM education without undermining assessment integrity?

Jodie Lemphane



[Click here to listen on Spotify.](#)

Faculty of Medicine and Health Sciences
Department of Biomedical Sciences
Division of Clinical Anatomy

Focus Area: AI integration to develop critical thinking skills, implemented in 2024.

Biography

Mrs Jodie Lemphane is a lecturer in the Faculty of Medicine and Health Sciences at Stellenbosch University. With a keen interest in learning technologies and student engagement, she has been integrating GenAI into her teaching to better connect with a tech-savvy generation. Recognizing that anatomy is a content-heavy discipline, Jodie has explored various technologies to make learning more interactive and relevant.

The rise of reshaped her materials GenAI presented an opportunity for students to critically engage with GenAI while reinforcing foundational knowledge. Beyond content mastery, she aimed to transform her classroom into a space for dialogue—encouraging students to question, analyze, and discuss GenAI's role in learning and professional practice.

Context

Anatomy is dense, detailed, and highly structured, making memorization a key challenge for students. While traditional teaching methods focus heavily on factual recall, Jodie sought to encourage deeper engagement, analytical thinking, and ethical AI literacy.

Goals of the approach

- ✓ Develop AI literacy by requiring students to analyze GenAI-generated content for accuracy and bias.
- ✓ Foster critical thinking and ethical GenAI use through structured reflection and discussions.
- ✓ Encourage active learning by applying GenAI in both content mastery and professional problem-solving.
- ✓ Prepare students for GenAI-integrated workplaces, particularly in healthcare and research settings.

How it worked

- Students were introduced to Stellenbosch University's GenAI Use Guidelines.
- Undergraduate students used ChatGPT, Perplexity, and Consensus, to generate responses on anatomy-related topics while postgraduate students, used GenAI tools tailored for scientific research, such as Unriddle, Perplexity and Consensus.
- Peer discussion sessions were used to debate various GenAI related issues.
- Students also prompted GenAI to generate poems, dialogues, or TV scenes about anatomical structures.

Jodie's approach

By integrating GenAI tools into assignments and discussions, Jodie encouraged students to move beyond passive GenAI use and actively engage in critical evaluation.

Jodie's interventions were targeted at two student groups:

- Undergraduate speech-language therapy students, who explored GenAI's potential and pitfalls in academic work.
- Postgraduate students, who experimented with GenAI for research, clinical reasoning, and professional applications.

Before engaging with GenAI tools, students interacted with the Stellenbosch University GenAI Use Guidelines as a pre-activity. This helped frame discussions on responsible GenAI use, transparency, and ethical considerations. Through this, students explored why it is important to disclose GenAI use in academic work and professional settings.

Jodie's approach continued

"I also made the [AI] guidelines a pre-session activity for the students so that they could be aware that there is a guiding document for [them]. I asked them to use the AI tool again to help them get the main themes from this document. So it was interesting, especially this year, the students were very afraid of cheating. They're very afraid of someone saying, "Hey, this is not your work", because obviously, their work is everything, especially in the research context." - Jodie

Students completed both written and presentation-based assignments on anatomy. During these they were required to interact with GenAI tools, such as ChatGPT, Claude, and Gemini to generate responses on anatomy-related topics. They then had to critically evaluate the accuracy of the GenAI-generated content, using the content of the module as reference. This process forced students to interact with the content knowledge and apply it in a different context. They also submitted their prompts and had discussions and reflections on platforms like Padlet, students examined issues such as GenAI bias, ethical considerations, and the role of GenAI in research integrity.

By fact-checking GenAI-generated outputs and identifying errors, students reinforced their learning while developing analytical skills. They also experienced some of the limitations of these GenAI tools. Finally, students also had to articulate how they used GenAI while ensuring their work remained their own.

For postgraduate students, Jodie introduced GenAI tools relevant to research, such as Perplexity and Consensus, which provide source-based answers rather than generic responses. One student, interested in medical practice, explored GenAI's potential for differential diagnosis while also considering its biases and limitations, particularly regarding Global North-trained GenAI models that may not fully capture South African healthcare contexts.

To make anatomy more engaging, Jodie also experimented with GenAI-generated creative content. Students prompted GenAI to generate poems or TV scenes about anatomical structures, adding a playful and imaginative dimension to their learning while reinforcing key concepts in a memorable way.

"Creativity helps students engage with complex concepts differently. If GenAI can generate an episode of 'Grey's Anatomy' explaining the nervous system, why not use it as a tool to make learning more interactive?" - Jodie

Outcomes

Jodie's approach led to increased engagement and deeper learning.

- Students learned to critique GenAI-generated content, identifying inaccuracies and biases.
- They developed an awareness of GenAI's ethical implications in academic and professional settings..
- Undergraduates reinforced their anatomy knowledge by fact-checking GenAI outputs.
- Postgraduates explored GenAI's role in research and diagnostics, applying it to real-world problems.
- Through structured discussions, they developed a critical and ethical stance toward GenAI.

Final thoughts

Jodie's approach transformed GenAI from a passive tool into an interactive learning partner. By designing activities that required critical interrogation of GenAI-generated content, she ensured that students engaged deeply with anatomy while developing essential AI literacy skills.

Her interventions empowered students to:

- Approach GenAI with informed skepticism, recognizing its affordances and limitations.
- Use GenAI ethically and transparently, ensuring that academic integrity remains intact.
- Develop the skills needed to navigate an GenAI-driven world responsibly—whether in academia, research, or professional practice.

Points to ponder

- How can GenAI enhance knowledge retention and critical engagement in content-heavy disciplines?
- What strategies can educators use to balance GenAI use with academic integrity?
- How can AI literacy be integrated into professional disciplines like healthcare and research?

Hamman Schoonwinkel



[Click here to listen on Spotify.](#)

Faculty of Economic and Management Sciences
School of Accountancy

Focus Area: Computational thinking and digital acumen in accounting education, implemented in 2024.

Biography

Hamman Schoonwinkel is a lecturer in Digital and Leadership Acumen within the School of Accountancy. He teaches first-year students foundational digital tools and techniques, beginning with Excel in their first semester before advancing to more complex computational skills, including programming, in their second year.

Hamman focuses on equipping students with the skills to integrate technology into problem-solving within the accounting domain. His teaching philosophy centers on computational thinking—the ability to break down problems, recognize patterns, and create structured solutions. With GenAI joining university classrooms and GenAI tools increasingly integrated into financial and business environments, Hamman saw an opportunity to incorporate GenAI literacy into his teaching.

Context

Hamman's module originally aimed to introduce students to automation techniques using Excel, specifically through the macro recorder, which allows users to record repetitive tasks and execute them with a single click. However, this tool has limitations—it only repeats recorded actions and cannot handle complex decision-making or adapt to variations in data.

At the end of 2022, the emergence of ChatGPT prompted Hamman to rethink his approach. He recognized that GenAI could bridge the gap between basic automation and full programming, allowing students to generate and modify Visual Basic for Applications (VBA) code without needing extensive programming experience.

Goals of the approach

- ✓ Introduce students to GenAI-assisted automation while maintaining critical problem-solving skills.
- ✓ Develop computational thinking by requiring students to break down automation challenges before using GenAI tools.
- ✓ Teach effective GenAI interaction (prompt engineering) to enhance GenAI-generated code outputs.
- ✓ Expose students to real-world applications of GenAI in finance and business analytics.

How it worked

- Students were introduced to ChatGPT as a coding assistant to streamline repetitive tasks
- They were taught how to structure GenAI prompts, and practiced iterating on their queries, refining language and specificity to generate better, more accurate code.
- They practiced using ChatGPT to generate VBA code for Excel - testing, modifying, and iteratively improving the code throughout.
- Finally, students applied their GenAI and automation skills to analyze football match statistics from 114 files and extract key insights, mimicking real-world financial data analysis tasks.

Hamman's approach

In the second semester of 2023, Hamman launched a new module focused on automation. Interestingly, GenAI was not part of the original plan. However, with the emergence of ChatGPT at the end of 2022, he quickly realized its potential impact on automation and problem-solving—something too significant to ignore.

Initially, the module aimed to teach automation using Excel, specifically through the macro recorder, a built-in tool that allows users to record and repeat simple actions (e.g., formatting data or applying formulas). While useful, the macro recorder has significant limitations:

- It can only repeat exact actions rather than adapt to changing data.
- It cannot handle complex decision-making or customization.

Hamman's approach continued

To overcome these limitations, Hamman introduced ChatGPT as a tool to help students generate VBA code for advanced automation. This allowed them to:

- Move beyond basic recorded actions and create custom solutions.
- Generate functional code without needing prior programming knowledge.
- Bridge the gap between manual automation and full coding proficiency.

While this is useful, the macro recorder has limitations, as it can only repeat exactly what was recorded and cannot handle more complex tasks.

Students initially struggled to communicate their problems clearly to ChatGPT. Many had difficulty defining their issues and structuring their prompts effectively. This reinforced Hamman's belief that explicit instruction on GenAI interaction was necessary. He recognized that developing the skill of effectively communicating with GenAI would become increasingly valuable in the future, further justifying its inclusion in the module.

While GenAI can assist with coding, it does not replace the essential cognitive processes involved in problem-solving. Students are required to independently break down problems, identify patterns, and structure their own solutions before using GenAI to refine their work. Immediate feedback from GenAI enables rapid iteration and deeper learning, mirroring professional workflows in accounting and finance.

What began as a minor integration of GenAI ultimately became a central part of the module, with a strong focus on teaching students how to use ChatGPT effectively for coding assistance.

GenAI integration also allows for more authentic, industry-relevant assessments. In one project, students analyze football match statistics from 114 files, extracting meaningful insights—a task that simulates real-world data analysis in financial and business settings. By leveraging GenAI in these projects, students experience firsthand how technology can enhance data-driven decision-making while still requiring human critical thinking and oversight.

"And what is quite cool about this ChatGPT thing is also this immediate feedback that they get versus traditional assessments, because they will get code, they will try it, [and if] it doesn't work, then they immediately go back and try to fix it. Versus a traditional assessment where you write your test, you submit your test, you get it back maybe weeks after you wrote it. I mean, how many people actually then go and look at what they wrote, and what marks they got and then learn from it? Probably less than 5%, and that is also weeks after you've submitted it. And if you're happy with your mark, you're probably just gonna go on with your life. But in this case, because it's a project that they work on, the getting immediate feedback in the sense that the code either works or doesn't, they go back to their prompt and try to fix it and fix it until it works". - Hamman

Outcomes

Hamman's approach ensures that GenAI enhances rather than replaces students' cognitive skills. By structuring learning experiences where students actively engage with GenAI rather than rely on it uncritically, he prepares them for the evolving demands of the accounting profession. Through this approach, students

- developed AI interaction skills by learning how prompt quality influences AI-generated outputs.
- gained experience in real-world GenAI applications for business and financial automation.
- developed basic programming literacy without needing extensive syntax knowledge.
- applied GenAI to analyze large datasets, simulating business intelligence tasks.
- developed a mindset of trial, error, and iteration, essential in both programming and GenAI interaction.

Final thoughts

Hamman's approach demonstrates that GenAI can be a powerful tool for introducing programming and automation without undermining problem-solving skills. By guiding students in structuring prompts, analyzing GenAI-generated outputs, and applying GenAI in real-world scenarios, he ensures that students develop both technical competence and AI literacy.

His work highlights how GenAI can enhance learning by providing immediate feedback, allowing rapid iteration, and making problem-solving more engaging. In 2024, he is launching a new programming module to further study how GenAI exposure influences computational thinking and problem-solving abilities.

Lennox Olivier

Faculty of Arts and Social Sciences
Dean's Office

Focus Area: Designing curricula that enhance learning in the age of AI

Biography

Lennox Olivier is a Higher Education Advisor (Learning Technologies and Program Renewal) in the Faculty of Arts & Social Sciences at Stellenbosch University. In addition to his advisory role, he is involved in the training of peer-to-peer facilitators and teaches Sociology to third-year students. His interests lie in how AI reshapes teaching, learning, and communication in higher education, with a focus on integrating critical AI literacy into academic practice.

Context

The essay has traditionally been central to assessment in Sociology, serving multiple purposes: fostering critical thinking, assessing students' understanding of theoretical concepts, and providing a space for academic voice development. However, the emergence of generative AI tools like ChatGPT has disrupted traditional essay-based assessments. Students can now use AI to generate, paraphrase, and structure content in ways that challenge the integrity of original work.

Rather than banning AI or ignoring its presence, Lennox took a pragmatic approach: rethinking how essays function as assessments and redesigning his curriculum to help students understand the value of structured argumentation, academic voice, and ethical AI use.

Goals of the approach

- ✓ Help students learn how to write structured, well-reasoned essays before turning to AI tools.
- ✓ Allow students to experiment with AI, without fear of punitive measures.
- ✓ Provide opportunities for students to learning how AI works and form an understanding its limits through experience.
- ✓ Help students realizing the risks of 'unethical AI use'
- ✓ Encourage reflecting on own development and potential upskilling and deskilling when using AI as a "learning tool".

How it worked

- The purposes previously addressed by the essay, i.e. engagement with the readings, understanding the concepts were identified and the addressed separately, i.e. through invigilated assessments or in tutorials.
- Students worked through structured activities before writing take-home essays, making it difficult to bypass engagement with the material.
- Rather than "catching" students using AI, Lennox reframed the conversation to focus on responsible AI engagement.

Lennox's approach to GenAI-Integrated learning

Historically, essays in Sociology served multiple purposes:

1. **Ensuring engagement with course content** (e.g., through required readings).
2. **Developing analytical and critical thinking skills** (e.g., argument formulation).
3. **Encouraging class attendance and participation.**
4. **Providing students with an opportunity to practice academic writing.**
5. **Assessing understanding of key theoretical concepts.**

Lennox recognized that AI tools could now perform many of these functions, particularly synthesizing content and structuring essays. Instead of viewing AI as an existential threat to the essay, he took a **deconstructive** approach: breaking down the essay's original purposes and redesigning his teaching to ensure students still developed essential skills **before** writing their final take-home essays.

Lennox's approach continued

His approach introduced **a structured, multi-stage process**:

1. **Class Attendance & Participation:** Instead of essays indirectly measuring engagement, he introduced attendance tracking and in-class discussions.
2. **Reading & Conceptual Understanding:** Students completed **reading quizzes** (e.g., multiple-choice tests in a controlled environment) to ensure they engaged with course material.
3. **Critical Engagement with Theory:** Tutorial discussions encouraged students to debate sociological concepts before writing.
4. **Essay Structure & Argumentation:** Tutorials explicitly focused on essay structure, including thesis statements, argumentation, and evidence use.
5. **Take-Home Essay with AI Declaration:** Students were allowed to use AI but had to declare how they used it and list the full quote used from readings at the end of their essay. This was not included in the word count, but served to ensure that students could indicate where it came from as well as offer some context.
6. **Incorrect AI use was not flagged for plagiarism** but was penalized for poor academic practice and used to enhance AI literacy.

By structuring the learning process in this way, students could not simply rely on AI-generated text without first developing foundational academic skills.

"I am not ready to give up on the essay. [I] cannot continue to simply ban AI use for take-home essays. [I] also cannot simply allow AI use and treat it as if it's just another source of information. If I allow AI use, the whole course design needs adjusting and renewal - it needs to incorporate relevant AI literacy components" - Lennox

Outcomes

Lennox's structured approach ensured that students did not passively consume AI-generated content but actively engaged with the learning process.

Through this approach, students:

- Learned to write structured, well-reasoned essays **before** turning to AI tools.
- Developed a critical awareness of **what AI can and cannot do** in academic writing.
- Understood that AI-generated text is **not a substitute for deep engagement with readings and theory**.
- Practiced **ethical AI use**, recognizing when AI-generated text was **helpful vs. misleading**.
- Became **accountable for their learning**, as they had to **explicitly declare** any AI-generated contributions.

Final thoughts

Lennox's approach offers a middle ground between banning AI and unrestricted use. He redesigned his curriculum to ensure that learning was central, that tasks were fit for purpose and that AI could not easily be used as a replacement for critical thinking. His work highlights how AI literacy must be integrated into curriculum design, not just AI-specific policies.

By explicitly breaking down the purposes of an essay and assessing these components separately, Lennox ensures that students still develop core academic skills—even in an AI-enabled learning environment.

His approach provides a valuable alternative for educators reluctant to abandon essay-based assessments but concerned about AI's potential to undermine learning.

Points to ponder

- How can we balance transparency, accountability, and academic integrity when allowing AI in take-home assessments?
- What components of traditional assessments (e.g., essays) need to be adapted for an AI-integrated world?
- How do we rethinking TLA for the age of AI?

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