

Learning along the Way: A Case Study on a Pedagogically Innovative Approach to Engage Medical Students in the Creation of Open Educational Resources Using ChatGPT

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Abstract

The development of open educational resources (OER) plays a key role in addressing the challenge of access to affordable, appropriate, high-quality teaching and learning materials. This is particularly the case in health sciences in South Africa, where there is a strong imperative around local production of contextually appropriate resources that can be openly accessible within institutions and in practice. This case study details the creation and iterative review approaches undertaken by undergraduate medical students in a study module focused on creating chapters for an orthopaedics open textbook through the use of ChatGPT. It also explores the nuances of the lecturer's process, particularly as relates to assessment, quality, and his ambitions to promote student voice through co-creation. The findings demonstrate that ChatGPT has the potential to be the game changer needed to help build OER production in the Global South, particularly in terms of the speeding up of the process. They also suggest that processes of this kind have a role to play in building students' critical artificial intelligence (AI) digital literacy skills and in boosting their sense of agency. This work stands to make an important contribution in terms of profiling institutional cases where AI is being used in an innovative, responsible manner in the classroom. It also aims to make a unique Global South contribution to the rapidly emerging global discourse around the use of AI in

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teaching and learning, and the use of collaborative content development approaches to promote student voice and social justice in higher education.

Keywords: generative AI; ChatGPT; open educational resources; students as partners; students as co-creators; Global South; digital critical AI literacy

Introduction

This article aims to contribute towards the examination of the challenges and opportunities offered by large language model (LLM) tools such as ChatGPT in the educational landscape, particularly as relates to its potential to advance students' critical artificial intelligence (AI) digital literacy skills and provide capacity for students to function as partners in the production of open educational resources (OER).

Open educational resources (OER) play a key role in addressing the worldwide challenge of access to affordable, appropriate, high-quality teaching and learning materials (Tlili et al. 2023). This is particularly the case in health sciences in South Africa, where there is a strong imperative around local production of contextually appropriate resources that can be openly accessible within institutions and in practice (Harley 2011).

OER are teaching and learning materials that are available at no charge under a Creative Commons licence, providing affordances for legal reuse and adaptation. The power of OER development lies not only in its cost-saving dimension; the dynamic, collaborative approach that defines much OER development activity is also a powerful means to address local content needs by facilitating epistemic representation and inclusion of marginalised voices in the content creation process (Cox, Masuku, and Willmers 2020). A social justice imperative underpins this development, where three dimensions of justice (economic, cultural, and political) are needed for participatory parity (Fraser 2008).

Actively engaging students in the development of educational materials is not only a way to ensure that content is reflective of local perspectives; it also plays a positive role in promoting students' sense of agency and belonging in higher education through student co-creation (Cox and Masuku, forthcoming).

The rapid integration of LLM tools such as ChatGPT into educational practices has brought about transformative opportunities for teaching and learning worldwide (Bond et al. 2023). In resource-constrained contexts, where a lack of access to funds and capacity poses challenges for the sustainable creation of OER, these tools have emerged as potential catalysts for change (OER Africa 2023) and have the potential ability to enable greater equity in education (Alotaibi and Alshehri 2023). Notably, they offer the prospect of saving time and resources, which can expedite the creation of teaching and learning resources. Educators can use LLM and other AI-powered tools to reduce their

workload, facilitate innovative classroom methods, and learn from the insights of their students (Baker, Smith, and Anissa 2019).

The utilisation of LLM tools in the context of academic resource production is not without its complexities, specifically as relates to assessment and plagiarism (or lack of appropriate attribution), bias and cultural appropriateness, and the ability to generate offensive racist and sexist output (LaLonde 2023). There are also challenges related to the quality or accuracy of the material produced.

The debate around AI and student assessment appears to be particularly vexed (Swiecki et al. 2022). Chat GPT and other tools can complete or assist with many kinds of tasks traditionally used in assessments (Bašić et al. 2023), but academics are concerned about the misuse of the tool and students claiming the work to be their own without properly acknowledging the sources and tools they used (Singh 2023).

AI detectors have been shown to be highly unreliable in terms of detecting AI, with a significant bias against certain linguistic patterns, specifically as relates to second- or third-language English speakers (Farrelly and Baker 2023). Although there is potential for these tools to provide greater equity in education, they can also be used inequitably and harmfully against students and threaten to increase the digital divide (Gwagwa et al. 2020) if all students do not have free access to these tools and the critical AI digital skills to participate optimally. It is also widely documented that AI has an inherent geopolitical bias, in that the data used to train AI models is mostly gathered from Global North databases, resulting in a lack of representation of other geographic contexts, perpetuating coloniality and neoliberalist oppression (Zembylas 2023).

Guidelines and policies for the use of AI have emerged globally, as have calls for responsible use of AI in education (Dignum 2023). This brings into question whether students have the critical AI literacy to interrogate and ethically appropriate this generated content.

This case study on student co-creation of open textbooks in the Orthopaedics for Primary Health Care initiative at the University of Cape Town (UCT) is collaboratively authored by researchers from the Digital Open Textbooks for Development (DOT4D) initiative, one of the students involved in the study module reported on here (Robyn Brown), and the lecturer leading the study module.

Literature Review

There is a deluge of new literature on the use of AI in education and its associated effects. This literature review explores some of the current thinking around the key themes described in the Introduction.

Student Use of ChatGPT and the Development of Critical AI Digital Literacy Skills

Several authors have called for the need for students to have digital literacy, including critical AI digital literacy (Bali 2023; Mills, Bali, and Eaton 2023; Tlili and Burgos 2022). AI literacy can be thought of as an extension of traditional literacy skills and as “part of the modern individual’s essential toolkit” (Farrelly and Baker 2023, 7). This literacy entails an awareness of gender and racial prejudice, a knowledge of copyright and licensing, and the ability to recognise and counteract AI “hallucinations,” such as “deepfakes” and misinformation (O’Dea and O’Dea 2023). It is further suggested by O’Dea and O’Dea (2023) that students need two key skills as part of their critical AI digital literacy: fact checking and the ability to write creative and effective prompts.

Fact checking

Fact checking includes a process of authenticating the sources of output, in which students need to familiarise themselves with AI detectors and recognise AI-generated text (O’Dea and O’Dea 2023).

Prompt crafting

Prompt crafting or engineering is increasingly important in the context of critical AI digital literacy, in that it is the primary means of interfacing with LLM tools. A prompt can be defined as “a set of instructions provided to an LLM that programs the LLM by customising it and/or enhancing or refining its capabilities” (White et al. 2023).

There are several frameworks that can be used to guide and formalise the prompting process (White et al. 2023). Two frameworks have been chosen in this study to examine the prompt used by the lecturer and the process of how the students worked through their module.

Motsa’s (2023) “Anatomy of the prompt” identifies Persona, Task, Context, Exemplars and Tone.

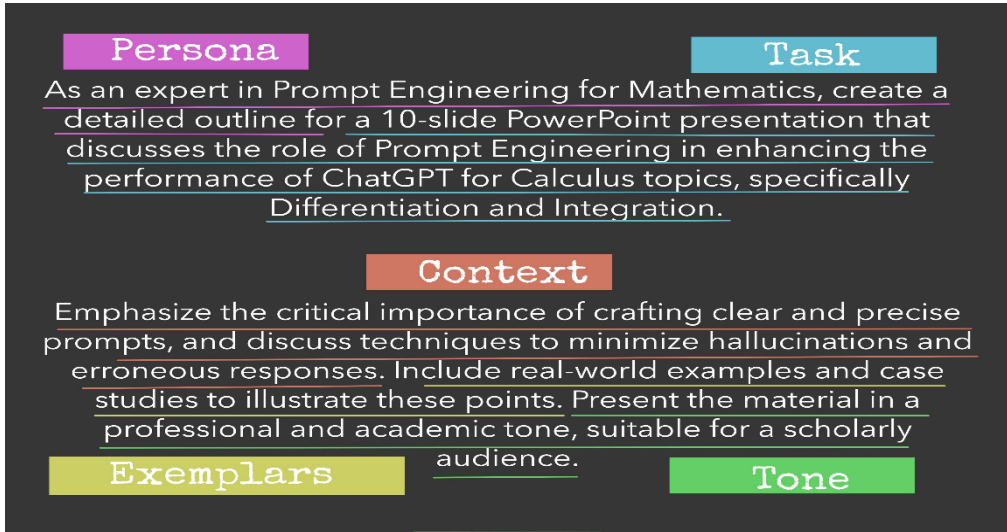


Figure 1: Motsa’s (2023) “Anatomy of a prompt”

The second framework is the “CREATE” framework (Barrett 2023), which identifies six considerations: Clarity, Relevant information, Examples, Avoid ambiguity, Tinker, and Evaluate. “CREA” can be used as a prompt guide and “TE” (tinker and evaluate) form part of the cycle of reviewing and editing AI-generated content.

Table 1: The CREATE framework for high-quality prompt craft in AI tools (Barrett 2023)

C	Clarity	Clearly define the task or intent of the prompt, including specific information about the output.
R	Relevant information	Provide relevant details, including specific keywords and facts, the tone, audience, format, and structure.
E	Examples	Use examples in the prompt to provide context and direction for the output.
A	Avoid ambiguity	Focus on the key information and delete unnecessary details in the prompt.
T	Tinker	Test and refine the prompt through multiple iterations. Explore different input versions to discover the best results.
E	Evaluate	Continuously evaluate the output and adjust the prompt as needed to improve the quality.

The development of prompting frameworks and attempts to interrogate prompting processes are important components of developing critical AI digital literacy skills. Students now have the additional challenge of being aware of and deciding to use or not to use AI. Literature suggests that AI has been embraced globally in a wide range of

industries; in order for our students to be prepared, they should not fear AI, but should instead harness its ability (O’Dea and O’Dea 2023).

In addition to the two key skills of fact checking and prompt crafting proposed by O’Dea and O’Dea (2023), an awareness of copyright and licensing is a critical aspect of ethical AI digital literacy.

Copyright checking

Navigating copyright and licensing of content derived from the internet and tools such as ChatGPT can be tricky to manage in responsible academic practice, particularly in terms of confidently knowing what one is able to legally reuse and share, whether in part or as a whole, and who the “owner” of that content is (Lambert and Stevens 2023; Lucchi 2023).

Academic referencing systems have responded to the surge in AI-generated content by publishing guidelines on how to cite content generated by tools such as ChatGPT, enabling responsible, ethical reuse and citation of AI-generated content in a scholarly context (see, for example, Caulfield 2023; McAdoo 2023). The protocols around assessing and claiming copyright of ChatGPT content do, however, remain a vexing challenge—both for students who want to avoid plagiarism offences and for OER creators using Creative Commons and other forms of open licensing in AI-generated open content.

Capacitating students to engage with copyright and licensing of ChatGPT-generated content, particularly third-party-owned images and graphics, is a crucial aspect of building AI digital literacy skills and addressing concerns related to academic plagiarism and the responsible use of third-party content. For OER creators, it is ethically and legally more challenging, in that if they are building on AI-generated content, there are significant complexities in terms of acknowledging original creators of the content.

Educators’ Perspectives: Pedagogical Approach and Assessment

Educators in a recent study by Kim and Kim (2022) expressed concerns that AI may reduce the role of educators, but they admitted that the fast pace of change will continue and asked for more professional development in this regard. Kim and Kim (2022, 10) argue that the successful use of AI tools depends on the “attitudes of the teachers who lead the lesson.”

One of the key challenges for educators integrating or allowing the use of ChatGPT in assignments is the question of how best or most appropriately to assess students’ work (Jansen et al. 2023). In rethinking approaches towards assessment, particularly as relates to essay writing, educators can use ChatGPT to facilitate collaboration and student-centred learning (Rudolph, Tan, and Tan 2023). Additionally, assessments can be

adjusted to assess students on their ability to use multiple sources (Nowick 2022). This is in line with an approach in which assessment rewards students' creative and critical thinking abilities, rather than rote learning (hooks 2010).

Student Co-Creation of OER

Student partnerships through co-creation of OER seek to break down traditional hierarchies wherein the educator holds all the power and the student is the receiver of knowledge (Healey and Healey 2019). The aim of these partnerships is a reciprocal relationship in which students can build confidence through the process (Guitman, Acai, and Mercer-Mapstone 2020). Students have, however, expressed concerns regarding how these partnerships will be graded (Bovill et al. 2016). These partnerships are often set out in less structured ways, with some ambiguity, meaning that students are also out of their comfort zones if they are used to simply following instructions. These concerns can be addressed by both parties by paying "attention to potential sources of student resistance at the outset as well as active listening and response to student concerns" (Keeney-Kennicutt, Gunersel, and Simpson 2008, 1).

Case Study: The Orthopaedics for Primary Health Care Initiative

The supervised studies module (SSM) reported on in this article takes place in the context of the broader "Orthopaedics for Primary Health Care" open textbook development process initiated in 2019, the aim of which was to develop an openly licensed undergraduate textbook that could be used for student-centred collaborative learning, both within and beyond UCT, in both academic and clinical contexts.

History of the Orthopaedics for Primary Health Care Initiative

The initiative, led by the Director of the Orthopaedic Research Unit in the Faculty of Health Sciences at UCT, aimed to address the educational challenges faced by medical students who do not receive the instruction time required to cover the curriculum and prepare them for clinical work during internship and community service years, which have a significant orthopaedic component. Added to this, the initiative aimed to address the fact that the medical training resources used previously were mainly based on guidelines and textbooks from the Global North. The primary objective was therefore aimed at creating a resource that is practical, relevant, and relatable for undergraduate medical students in Southern Africa and can be used as a continuous learning and reference resource by primary care physicians.

The lecturer is motivated by social justice principles, including enabling free access to educational resources (distribution), building culturally relevant local content (recognition), and including student voice in the authoring of his open textbook development processes (representation).

The first volume of the *Orthopaedics for Primary Health Care* textbook comprised 48 chapters and was published in collaboration with the DOT4D initiative in 2021. The

aim was, however, to keep the chapter review and development process dynamic and ongoing. There was also an ambition to develop further chapters of the book in line with the identified needs and gaps in the current curriculum. The SSM process undertaken in 2023 was a means through which to address this desire for ongoing chapter refinement and the development of new chapter content.

Overview of the ChatGPT Student Chapter Authorship Process

The UCT Health Sciences SSM is a four-week course that is compulsory for third-year medical students. Students provide their top 10 preferences of module topics (out of 96 possible options) and are randomly allocated a topic using an algorithm to ensure fairness in topic distribution. At the end of the module, a final report is submitted in order to show the progress that students made and what they learned from the experience.

Four students were involved in the 2023 “Orthopaedics for Primary Health Care Student Chapter Project” SSM reported on here, in which they had to use ChatGPT to (1) construct two new chapters from scratch and (2) review three existing chapters from the published version of the textbook. In addition, they needed to source local images for the new chapters and attempt to update the previously used images with local examples. This case study focuses on the first activity and the challenges of sourcing images.

The process began with a debrief from the lecturer, who sent an email with instructions of what the project entailed as well as documents and templates that would be used in the process. This was followed by a hybrid meeting held in person and via Zoom to accommodate those students who could not come to campus. In this session, the brief was further discussed and any confusion or discrepancies around the process were cleared up. Following this meeting, the lecturer circulated the suggested prompt for comment.

In addition to the brief, the lecturer provided consent forms and detailed instructions on the ethics of sourcing photographs of patients and a letter to the ward sister introducing the students and their work. At this point, the students were thrust into the “deep end” of the process, as they had not yet done the fifth-year orthopaedic study block. They had some experience of working in the wards, but they did not have the in-depth knowledge of the content they were tapping into and attempting to contribute to. The approach was that they would need to “learn along the way.”

A core element of the original project brief was the focus on localisation, particularly as relates to images. In addition to the fact that local pathology not only presents certain conditions that are not typically covered in medical databases from the Global North, there was also a concern around representation and the need to have local images that reflect students’ lived professional realities.

Methodology

This study was undertaken using a qualitative, collaborative case study approach. The lecturer approached the DOT4D team when he was designing the task. We were very interested in this innovative case and asked if we could meet the students and be part of the process. After the first meeting with the lecturer and the four students participating in the SSM, we realised the power of this unique approach and attended a second meeting with the students at the end of their process.

Keen for a collaborative authorship approach in which we could capture student perspective, we invited all four students in the SSM to contribute to data collection and authorship. Only one of the students, Robyn Brown, felt that she was able to take up the offer. She played a key role in verifying the details of the module, gathering reflections from the other students in the SSM around the assignment, and in authoring the “Robyn’s perspective” vignettes presented in this article.

The data used in this case study was collected in multiple forms in order to extract all perspectives and produce thick layers of data. This triangulation of data comprised:

- Field notes gathered during two meetings with the students and the lecturer.
- Document analysis of the prompt and the lecturer’s assessment rubric.
- Reflections of the SSM students about their engagement with ChatGPT and the co-creation of open textbook chapters gathered by the student co-author of this article.
- A 60-minute semi-structured interview with the lecturer exploring the conceptual threads presented in this article.

These data were coded into broad themes, which were informed by the literature and categories that emerged from the student and lecturer reflections. Frameworks were identified as a means of analysing the prompt component and to map some of the steps taken by students after the initial prompting process. Full ethics clearance for this study was obtained.

Findings

Use of ChatGPT and the Development of Critical AI Digital Literacy Skills

This case study demonstrates the development of critical AI digital literacy skills in three areas: prompt crafting, fact checking, and paying attention to ethical and legal issues such as consent and licensing of images sourced for the open textbook.

Prompt crafting in the chapter creation process

Students initiated the content drafting process with the agreed-upon initial prompt set out by the lecturer. They diverged in their individual approaches and thereafter followed up with their own prompts to address gaps or shortcomings of the text—a process which involved multiple, iterative rounds of individualised prompting (up to 13 rounds in Robyn’s process).

The students in the SSM adopted two different approaches to prompting and the content creation process. One student did preliminary online research and found textbooks that had information on their specific chapter topic before initiating the prompting process. They then copied relevant information from paragraphs in the textbook and fed it into ChatGPT as a reference to create the chapter draft. The other three students let ChatGPT do its own research to create the initial chapter draft based on the prompt.

When using Motsa’s (2023) framework to analyse the initial prompt used by students, we can see that all five aspects are included in this prompt, in that it had features of clarity, relevant information, and examples avoiding ambiguity (see the annotated version in Figure 2). The prompt can therefore be seen as a “well-crafted” example in terms of developing critical AI digital literacy skills.

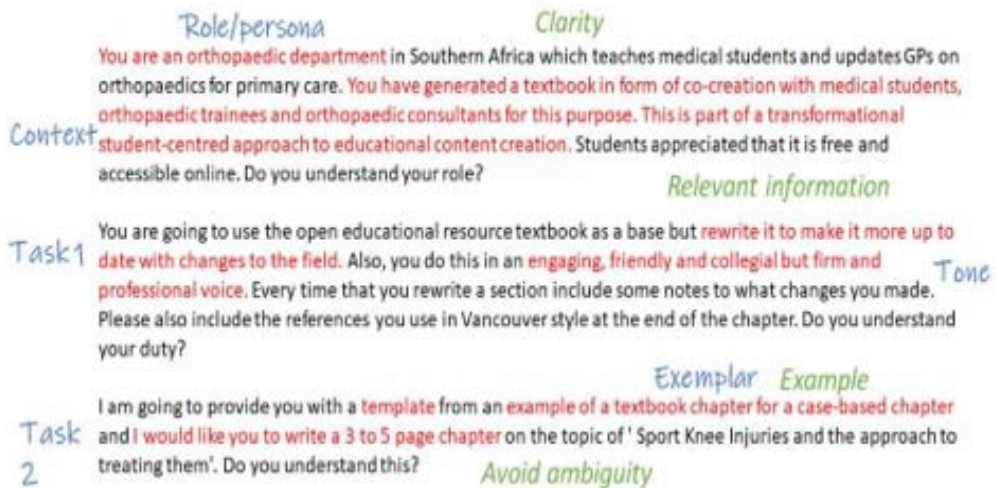


Figure 2: Annotation of the original prompt text identifying key focus areas in Motsa’s (2023), in blue text, and Barrett’s (2023), in green text, frameworks

Robyn’s Perspective: The ChatGPT Prompting Process

As students, we were familiar with ChatGPT and often used it to help with studying and homework tasks, but I never thought I could make a textbook chapter using AI.

I learnt a lot more than I thought I would from this project and was proud of the chapters that we were able to create.

An important skill we added to our toolkit was how to prompt ChatGPT to produce the content that we wanted. We all used the same initial prompt in order to keep the tone and format consistent throughout the various chapters.

Besides the initial prompt, we all just prompted ChatGPT in the way that we needed. Near the end, we asked orthopaedic consultants in the UCT Department of Orthopaedic Surgery to review our chapters in exchange for co-authorship, so that we could make sure the information in the chapters was accurate and relevant.

Fact checking for quality control

The students in the SSM independently undertook a range of fact-checking processes to ensure the credibility of the content produced. This process was followed by engagement with specialist consultants to validate the chapters and the accuracy of what ChatGPT produced.

Robyn's Perspective: Reliability of ChatGPT

ChatGPT was unpredictable. We really didn't know what to expect before starting this project. Sometimes it worked perfectly the first time, but the second time it would make mistakes. Almost like it forgot what to do.

The AI often gave us too much information, like rambling on, or it left out some headings and information. The lecturer wanted these chapters to be short with only the essential information on orthopaedics at a student level. Any references that ChatGPT gave us we had to cross-check for accuracy. This was really tough because ChatGPT doesn't often give any references, so we have no idea where it got its information from most of the time.

Tinkering and evaluating are part of Barrett's (2023) framework, and in this case study students spent time "tinkering" and went through a two-part evaluation with advice from medical consultants as they were busy forming the chapters and then a final review of the complete work.

Robyn's Perspective: Evaluating the Content

This process happened in two parts: During the process we continued to tweak and adjust our chapters over the course of the project by engaging with orthopaedic

consultants and getting expert advice from them on what the chapter should include as well as what images would be appropriate.

At the very end, we sat down with the consultants and let them read through our entire chapter for them to give us feedback on what needed to be changed. I learned a lot from these sessions because I was able to ask questions on my particular topics. In order to take photographs, we needed to know what signs to look for in a patient, so we researched our topics, and in this way, learned more about them. During the review process I also asked questions to enhance my understanding.

The fact-checking process was iterative and took place in the course of the drafting process and at the end of the drafting process in collaboration with working surgeons in the hospital. The students took on the fact-checking process without any guidance and the lecturer expressed that he was “really surprised to have all these checks and balances ... without me or without us actually telling them what to do. ... They came up with it themselves.”

Image sourcing and copyright awareness

It was noted from the comments of the student author that students were out of their comfort zone, especially as relates to knowing what to look for when sourcing images. The lecturer felt it was very important to have pictures of patients who look like the patients the students will see in the hospital, rather than Google images from America or the United Kingdom. He stressed the importance of local content that is “visual” and “how it can transform teaching material if it’s done in an ethical and mindful way.”

Robyn’s Perspective: Sourcing Local Images

We either searched the wards ourselves for patients who represented our chapter topics well or had help from the surgeons who sent us images while working in the wards. This part was challenging, as we didn’t always know what we were looking for and what constitutes a “good image.” It was important, ethically, that we obtained consent from the patients we took pictures of and that we de-identified the images when adding them to our chapters. If we really struggled to find a patient, we used Creative Commons images, particularly from Wikimedia.

The students in the SSM received training in Creative Commons licensing as part of a digital literacy skills workshop in their first year of study. They also attended skills development workshops in scholarly writing, referencing, and ethics at the start of the SSM process. As such, they demonstrated good working knowledge in terms of both finding and attributing openly licensed images. They expressed a concern around adhering to good practice in this regard, which they viewed as an issue of academic

integrity, in the same way that they understood the ethical importance of obtaining consent from the patients they photographed.

The development of new critical AI digital literacy skills, some of which are described here, comprises a challenge for educators, who need to adapt pedagogical approaches and upskill themselves on the technology alongside their students, literally “learning along the way,” as the lecturer in this study expressed it.

Educator Perspective

The lecturer reflected on the nuances of his pedagogical approach, the specifics of the prompting process, challenges related to assessment, and the quality of the open textbook chapters produced.

Pedagogical approach

The lecturer discussed his pedagogical philosophy and style of using less control for students to learn and grow, stating: “You obviously can control and standardise, but if you just leave it open and the process unfolds, I’m always surprised to see I can actually learn a lot more from them [the students] than they do from me.” He went on to say:

I think that students can grow their professional attitude when we give the freedom to explore it. And importantly: it’s not always about the actual content, it’s more about them finding themselves.

In his open, freeform approach, the lecturer demonstrated that he was conscious of the correlation between the degrees of freedom students are given in a task and their sense of agency as a co-author, stating that “to really have a student move from becoming a participant in a project to actually being a co-creator ... you have to almost let them figure it out themselves.” He added that he felt students lose a lot of agency if you tell them exactly what to do.

This was a challenge for him, in terms of not really knowing how to approach the learning design. He stated that he “didn’t really know how to design this whole thing” and that he “was figuring out things along the way,” adding that he was probably just as uncomfortable as the students.

Robyn’s Perspective: Building Agency and Confidence

The lecturer was very inclusive in his approach, asking us: “What do you guys think?” It felt a bit strange being asked what we wanted because we, as students, are so used to sitting and listening to a lecturer and being told what to do. It was not like other learning experiences. Our opinions and ideas were all incorporated, and it was a very student-orientated project. Our input was valued and incorporated throughout.

Prompting and using ChatGPT

The lecturer had read “a little” on the use of ChatGPT to revise open textbook chapters and knew it was very important to set a good prompt. He wanted the new content to fit in with the previous open textbook chapters, and it was important to instruct ChatGPT that “we are doing this for students and it is also written by students and there should be some transformational aspect.”

He stated that “it would have been so nice to actually have a framework there,” but that it was a “trial and error thing” and “it took us a lot longer to actually work out the process of communicating with ChatGPT, which I think was important.” He suggested that in order to get “buy in from the students ... I think it’s really important to have them be part of the prompt process as well. ... The process should be centred around the students.”

Assessment

The lecturer thought carefully about his approach towards assessing the students. His overarching approach was to focus on students’ engagement with the ChatGPT tool and how they worked with the other students, rather than the quality of the content produced. Describing his process of evaluation, he stated that he “had a look at the prompts that they gave ... and how they reacted to what they were given, how they tried to inquire about the information that was provided ... Are they accepting the knowledge? ... Are they cross referencing?”

The lecturer felt this process of engagement and interest shown by the student was most important and that “someone who was completely engaged with the process, with the group and in dialogue with ChatGPT scored very high,” as opposed to someone who just accepted and submitted the chapter and did not really participate in the discussion.

There was a rubric as part of the SSM module where the quality of content structure and cohesion were recognised as being important. He adapted the weighting of marks in the rubric to emphasise engagement, reflecting that he “would have loved to have a tool for evaluating the process,” and suggesting that there should be “an assessment tool of content creation projects with medical students.”

Quality of open textbook chapters

The lecturer was not concerned about the accuracy of the medical content or the level of responsibility given to the students creating the chapters, as he was confident about the specialist review, which took place at the end of the production process to “cross-check” the content before it is published.

He also highlighted the importance of this being an open textbook where student authors would be acknowledged as a dimension of the quality assurance process, stating that:

“They knew that this is going to go into a book that will be available for a broader audience of future generations of students, and they wanted to produce good content.”

When asked whether he thought the quality of the chapter content produced was of better or worse quality compared to the chapters the authors produced in the originally published volume, he said that they were “maybe a little bit more superficial than what we had previously, but the quality ... was probably similar.” He did, however, indicate an efficiency advantage, in that ChatGPT “just makes it a lot faster to put something on paper,” and it gave students an entry point to producing content, in that they had something to engage with, which they could tweak and use to figure out aspects of the content.

Discussion

This case study provides a useful example and template of how educators and students can use ChatGPT in a learning exercise in higher education. This lecturer’s approach is innovative and thought-provoking and seeks to challenge existing hierarchies and power systems in higher education. His philosophy of openness and student co-creation enabled a process wherein students could engage in content creation and, through this, “find themselves.” The lecturer had an instinctive plan concerning the balance between giving students agency, but also having some structure for students who felt a little uncomfortable about the flexibility and free-form nature of the module. Key insights from these third-year medical students reveal their concern for ethical conduct and keen awareness of academic integrity.

The lecturer and the students approached this module with the necessary scholarly rigour and sense of responsibility, which enabled their critical AI digital literacy. The teaching experience of the lecturer enabled him to recognise the importance of prompt engineering, even though he had not engaged with the vast amount of research emerging in this area (White et al. 2023).

An important finding from this case study was the unanticipated presence of students’ critical AI digital literacy skills, a skill set needed for effective, responsible engagement with AI-powered tools such as ChatGPT (O’Dea and O’Dea 2023). They received the carefully engineered prompt and some guidance from the lecturer, but further steps for engagement were left to the students.

As expected, students had different views about the level of agency they were given, one enjoying the flexibility while others said that more meetings and clearer instructions could be used in future (Bovill et al. 2016). The lecturer acknowledged that he was “winging” it; and yet the deliberate process around formulating a sound prompt and the open discussions with students and careful assessment approach indicate an innovative, inclusive pedagogical approach, encompassing the principles of “students-as-partners” pedagogy (Healey and Healey 2019)

ChatGPT has the potential to be the game changer needed to help build OER in the Global South. It provided a unique opportunity for students to create new open textbook chapters in orthopaedic surgery with guidance and review by local experts. These chapters include relevant local content and images. A real advantage was the speed at which first drafts of chapters could be created with the use of ChatGPT and the momentum this enabled in the textbook development process.

The pedagogical benefits of co-creation by students with ChatGPT include the empowerment of students and student learning through critically assessing content and the process of tinkering with ChatGPT outputs, group discussions, and expert review of their work (Guitman, Acai, and Mercer-Mapstone 2020). Students started with no knowledge of orthopaedic surgery and ended up feeling like they had “learned so much.” In reflection, Robyn acknowledged: “As a third-year medical student, I never thought I would be able to be part of a project where I would receive co-authorship. My SSM project was done, but my journey of writing continued when I was approached to help write this report. I felt like I was really part of the team and that my input was valued.”

From this case study, we can see the potential of harnessing ChatGPT to build students’ critical AI digital literacy skills, particularly as relates to fact checking, prompt crafting and copyright checking, and partnering with students to build student agency and OER production capacity.

Challenges Experienced by the Lecturer

The lecturer discussed three main challenges. The first was needing a framework for prompting. Despite his concern about the lack of a framework, the prompt had all the key components to produce first drafts of textbook chapters. The lecturer concluded that in future teaching interventions such as this, it may be useful to think beyond the initial prompt in the framework used. Many new frameworks and prompt guides are emerging, which can be adapted for particular contexts (Barrett 2023; White et al. 2023).

Secondly, the lecturer described AI technology as a “double edged sword” since, despite the time efficiency, the chapters were not of better quality than those drafted in the traditional process. He reflected that that the students had not studied this material yet in their curriculum and that perhaps fifth-year students or postgraduate students could create better quality materials.

His final challenge was how to assess the module, which was also a concern for the students. He devised his own framework described above, albeit nascent, which can be built upon in future iterations. The emphasis of the assessment was on the process and learning—not on the content produced.

Conclusion and Recommendations

This case study has implications for the integration of three areas of research, the use of AI-powered tools in education, open education and the production of OER, and students-as-partners pedagogical approaches. The lecturer's open philosophy of teaching and sharing content created a process where students learned valuable skills, acquired knowledge, and found agency.

The case study provides a meaningful example of enabling students' epistemic access through using their voices to author texts that are accessible and make sense to them. Students embraced the idea of being authors of chapters, being acknowledged in publication, and the potential for this work to make things easier for future students, as they all commented that student-authored chapters were, in general, easier to understand and written at a level which was easier for them to relate to.

This case study has shown the power of partnerships with students. By creating an enabling environment open to innovation and experimentation, educators and institutions can facilitate the development of collaborative ecosystems where students contribute their voices, experiences, and insights to the production of teaching and learning content and, in so doing, develop a deeper sense of belonging and agency. Limitations of the study include the small sample size and the fact that the study is limited to one teaching intervention.

In order to facilitate student co-creation, institutional infrastructure and policy to support AI-powered technology need to be in place; critical AI digital literacy programmes need to be in place for students and academics that encourage informed, responsible exploration and use of AI-powered tools as they emerge; and institutional reward and recognition systems need to evolve in order to recognise the transformational potential of innovative approaches to teaching, such as the use of AI tools in student co-creation.

At a global level, it is vital that content consumed in generative AI is inclusive, representing knowledge from all societies, and there must be a conscious, determined effort to fight against racial and gender biases. In this regard, the need to develop and profile OER from the Global South that can contribute towards the global knowledge commons is greater than ever.

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