Navigating the Crossroads of Generative AI and Academic English Writing – A Student Perspective in a Time of Transition

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Abstract

The study investigates how students perceive, use, and evaluate Generative Artificial Intelligence tools in a BA Academic English Writing course. Tools like ChatGPT, Quillbot, and Grammarly have transformed traditional study aids, enhancing the writing process. The research question is: How do students' perceptions of using Generative AI (GAI) as a tool for academic English writing evolve over the course of an academic writing class immediately after the public launch of the large language model (LLM) ChatGPT? The study considers Warschauer et al.'s three paradoxes arising from using GAI for second language writing: the imitation contradiction, the rich get richer contradiction, and the with or without contradiction. Methodology includes pre- and post-course surveys with qualitative questions to capture students' views before and after using GAI. Content analysis reveals varied opinions, from enthusiasm for GAI's efficiency to concerns about academic dishonesty and creativity hindrance. Students also worry about grading bias and increasing exam difficulty. The study underscores the need for balanced and responsible GAI integration to enhance individual efforts and skills while acknowledging potential benefits and risks.

Introduction

Topic

The purpose of this exploratory study was for me as a teacher in EAP (English for Academic Purposes) to detect how students perceive, use and evaluate GAI as a tool for writing soon after the release of ChatGPT to the public on 30 November 2022. It is important to investigate such aspects in a time of transition; GAI had suddenly been launched globally, but at the same time no authorities had yet taken any steps to formulate guidelines or measures of using GAI in Higher Education in Denmark.

The study was conducted in connection with a BA course in Academic English Writing in an international study programme at Roskilde University (RU) in Denmark. As the long-term purpose with this study is to equip students with greater and more critical language and writing awareness in an artificially intelligent world, I decided to perform conceptual content analysis in a consistent sample-based study of student perceptions before and after the said course. In other words, since GAI will be a significant player in the students' academic work, I wanted to ensure that students will continue to learn and practice academic English to enable them to assess the outputs from GAI.

Previous studies

Several studies explore university students' general perceptions of GAI. For instance, Malmström et al. (2023) surveyed 5,894 Swedish students, finding that most were positive about AI-language tools like chatbots, with 56% believing they enhance learning efficiency. However, 54% expressed concerns about AI's future educational impact, reflecting a near-equal division between enthusiasm and anxiety. Similarly, Nam and Welding (2023) surveyed American college students and found comparable divisions. While 51% viewed AI use in schoolwork as cheating, 61% believed AI tools could enhance learning, though only 37% had used them for educational purposes. Students were also split on the ethics of AI (42% ethical, 41% unethical) and whether AI tools should be regulated or banned. Despite concerns, 65% of students were optimistic about the positive societal impact of AI. In both studies, students' attitudes reflect a tension between optimism for the educational benefits of AI and anxiety over its ethical and future implications, highlighting the ambivalence students feel about integrating AI into education.

Studies exploring university students' perceptions of GAI in academic writing through content analysis reveal similar tensions. Chan and Hu (2023), e.g. surveyed 399 undergraduate and postgraduate students in Hong Kong. The findings revealed a generally positive attitude towards GAI, with students recognising its potential for personalised learning and writing assistance. However, concerns regarding accuracy, privacy, and ethical issues were also highlighted. The study emphasises the need for informed guidelines on integrating GAI into higher education. In the same vein, in a study at the University of Liverpool, Johnston et al. (2024) indicate that while most students were aware of GAI tools, there was significant scepticism about using them for drafting entire essays. The study found that confidence in academic writing influenced students' support for using these technologies and advocated for clear university policies regarding their use.

However, if we probe the more specific use of GAI in academic English writing when English is a second or foreign language, as in my case, striking crossroads appear: Affordances of GAI may in fact be constraints, or vice versa. In their study suggesting a pedagogical AI literacy model, Warschauer, et al. (2023), for example, identify three crucial paradoxes that arise from using ChatGPT for second language writing:

1) The imitation contradiction: Traditional EAP often relies on students imitating standards and norms of academic writing, which may lead to "patchwriting" and plagiarism. But even though GAI can now produce fluent and accurate texts that can serve as models for learners, it may not do away with this challenge as it "puts the imitation contradiction on steroids" (Warschauer et al., 2023, p. 2). Using ChatGPT may now create an even wider and thus more discernible gap between perfect language and less skilled language in student texts making the emerging language learners subject to suspicion and discipline.

2) The rich get richer contradiction: AI can provide personalised and adaptive feedback and scaffolding for learners, but it can also widen the gap between those who have access to such tools and those who do not. "AI-generated writing thus runs the risk of becoming yet another contributor to the same inequality that it has the potential to address" (Warschauer et al., 2023, p. 3).

3) The with or without contradiction: Getting the most out of AI tools takes high-level skills already, such as being able to prompt adequately including having a high-level language proficiency, etc. Thus, the better the student is at writing, the greater the chance that the student's level will soar with the aid of AI. And "[t]his has potentially harmful consequences for second language writers—in the age of AI writing, those who can already write very well without AI may become more and more valued, whereas those who have lower writing proficiency, with or without AI, may be increasingly excluded" (Warschauer et al., 2023, p. 3). Accordingly, Warschauer et al. (2023) warn us that premature exposure to AI tools may rob students of the basic skills of mastering second or foreign language writing as these students may now become over reliant on the tools. The paradox is crucial: "For second language writers, for example, early introduction to AI writing tools like ChatGPT can present students with an all-too-tempting opportunity for easy assignment completion, rather than effortful learning. But failure to also learn how to effectively leverage AI tools in their writing could leave them ill-prepared for a future that requires the sophisticated use of AI tools" (p. 3).

As the above studies are either purely quantitative or use mixed methods to represent student perceptions of GAI for academic writing in general, none of them perform inductive conceptual content analysis of complex, contradictory perceptions to present a thick and nuanced narrative of lived experiences. This is only possible if the sample size is small, and if students can express their unfiltered voices in open-ended questions. This research gap provides the background for the present study.

The aim of the study

Inspired by the above studies of academic English writing itself and of GAI in particular, I wanted to study my own students' reception of using GAI tools in writing academic English as a second or foreign language based on a two-step model aimed at didactic improvement – as a kind of action research: During the course I wanted them to, first, learn how to write in various exercises *without* GAI tools, and, second, do the same exercises again, but now *with* the use of AI. As with the 'with or without contradiction" in Warschauer et al.'s study, it is my task as an educator to minimise the paradoxes by ensuring that the students in my class become skilled writers *before* they put GAI to use. And hence I wanted to know their attitudes and opinions of GAI tools both *before* and *after* having used them in the course exercises. This vision resulted in a pre-course survey, which was repeated as a post-course survey. Eventually, the conceptual content analysis of the survey results enabled me to systematically map the range of themes – which proved to contain several paradoxes - and track how ideas evolve, offering a rich, narrative-based understanding of the impact of using GAI on student writing. In this way, I would be able to explain in more detail what inherent paradoxes Warschauer et al.'s three contradictions might exactly contain. The RQ is: *How do students' perceptions of*

using Generative AI (GAI) as a tool for academic English writing evolve over the course of an academic writing class immediately after the public launch of the large language model (LLM) ChatGPT?

In the following, I begin by describing the writing course, the students and the survey. Next, I present the content analysis design used in the analysis of pre- and post-course survey responses, explaining how the analysis was framed as a narrative of development. Then follows the results, a discussion, including limitations and, lastly, I present my thoughts on future directions.

Methods

The writing course

The study took place at RU, which is a Danish public university that offers innovative and experimental research, learning and problem-solving in various fields of study. My course in Academic English Writing is a 10-week elective of a total of 20 hours to be included in the BA basic studies program of both the humanities, social sciences and natural sciences in the typically 5th or 6th semester.

In the course, I usually work with features of the website *Using English for Academic Purposes* (www.uefap.org) supplemented by various textbook extracts and other websites or exercises of my own design. Themes are, among others, academic English style, conciseness, reporting sources, paraphrasing, paragraphs, coherence, information flow, structure and voice. The exam is a take-home portfolio exam in which students are to submit a number of texts written by themselves including reflection parts in which they reflect on problems, challenges, etc. of the various academic English writing levels, criteria, conventions, etc. From Warschauer et al.'s perspective above, I suspect that my course follows the imitation agenda: see what others do, know that this is also required of you, and do likewise! The underlying vision is, however, to teach students to write as clearly and precisely as possible when English is not a native language.

Types of students

Students from both Danish and international tracks are welcome to select this course. The class size is typically around 20-25 students from all three faculties wanting to improve their English writing for international study programmes, or because they want to study abroad.

Survey design

As I wanted to engage in an exploratory sample-based study, I decided to conduct identical pre-course and post-course surveys based on purely qualitative open-ended questions, as the above Swedish study (Malmström et al., 2023) had yielded interesting comments from the student participants. My group would be small enough for easy compilation, coding and analysis of their data. The students could choose between paper and electronic surveys, but they all chose the paper versions handed out to them in class.

This study took place from 11 September to 13 November 2023, followed by two weeks for the take-home written exam assignment. The pre-course survey was handed out in the beginning of the first class before teaching started. I obtained students' informed consent, and I informed them of issues, such as privacy, confidentiality, and anonymity in the surveys. Subsequently, an identical post-course survey was conducted before the exams. As previously mentioned, the idea was to teach classes in which writing exercises

on various features were carried out by students individually, in pairs or in groups *without* any use of GAI, and then followed by the students' own choice of either re-doing the same exercises *with* the aid of GAI tools, or letting the GAI tools do the entire tasks for them.

Survey questions

I wanted rich, flexible and in-depth responses about their study and writing habits as well as about how they imagine the use of AI in future studies and in society as such exploratory research might provide unanticipated insights into a before and after situation. Thus, the survey was identical before and after the course and consisted of questions about students' familiarity with AI, their perceptions of AI and ethics, their use of AI applications, their evaluations of the pros and cons of using them, their expectations of the future of AI in writing for university as well as their expectations about AI in writing in education and careers in general (cf. Table 1: Survey questions). This would be ideal, I expected, when I had limited prior knowledge of my students' reception of AI as this was brave new world to everybody. I also added a question about their teachers' attitudes to AI as this knowledge would provide me with a better understanding of the students' study environment. The term AI was used consistently in the surveys as my familiarity with the now preferred term generative AI (GAI) was not as consistent at the time.

Table 1: Survey questions for the pre-course survey on using AI applications in writing academic English texts.

General questions:
Name or student number:
Study programme and fields of study:
Semester:
Age:
Nationality:
Gender:
Poor, average or good command of academic English writing:
Which AI applications such as ChatGPT are you familiar with? Any language and writing applications? Please name them:
Perceptions of AI applications and ethics:
Do you think using AI applications such as ChatGPT to complete assignments or exams is cheating, plagiarism or morally wrong? Please explain:
Do you think using AI applications such as ChatGPT to complete assignments or exams could be a major help, and that they can be used in a responsible and critical way? Please explain:
Do you think using AI applications such as ChatGPT to complete assignments or exams should be allowed or prohibited? Why? Please explain:
Using AI applications:

Do you have experience using ChatGPT or similar AI writing applications? For personal use or for educational use? For assignments and/or exams? Please explain:
How do you use AI writing applications in your assignments or exams? Please explain:
Have your teachers or supervisors previously addressed using AI applications? Are they positive or negative about using them? Please explain:
Do you think using AI applications provide better results than if you had to write on your own? Please explain:
Which pros and cons are there of using AI applications in writing for university? Please explain:
The future of AI in writing for university:
Are you worried or enthusiastic about using AI applications in study programmes, assignments and/or exams in the future?
What do you think will be the impact on your education and your career? Please explain:
What do you think will be the impact on writing skills in society in general? Please explain:
Any final remarks?
Thank you for participating!

Note: The post-course survey was identical.

Research approach and analysis method

My study is an example of action research, which is a participatory and iterative research methodology focused on solving real-world problems while generating knowledge through action and reflection (Lewin, 1946). This is highly effective for improving practices in education (Elliott, 1991). As in Kemmis & McTaggart (1988), I adopted a cyclical model of inquiry in planning, acting, observing and reflecting (Kemmis & McTaggart, 1988).

As I was interested in detecting attitudinal trends over time in the students' survey responses, I decided to perform an inductive conceptual content analysis (Krippendorff, 2018). Such an analysis is relevant in identifying and tracking shifts in how students conceptualise GAI before and after the academic writing course. A purely qualitative conceptual content analysis allows me to systematically identify key themes and concepts in students' perceptions and ensures that I explore responses consistently across all students. The method minimises researcher bias in interpreting responses and remains grounded in participants' perspectives. In other words, changes are not merely anecdotal as in general accounts of survey findings with selected quotations to support those findings. Instead, conceptual content analysis offers a structured framework to ensure that all relevant ideas, nuances and voices are captured in an authentic way. Thus, it helps build a narrative of student experiences. Furthermore, as an aid in action research, conceptual content analysis provides a way to align student perceptions with specific future pedagogical objectives of the academic writing course.

First, to get an overview of responses to each survey question, I copied all responses for survey question 1 and pasted them below the same question in a separate document. I did the same with all the other responses for each survey question in both the pre- and post-survey forms and thus gradually formed two documents: one with the pre-course survey results and one with the post-course survey results. Next, I made print copies of the documents and started reading each one of them while tentatively noting recurrent concepts and themes in the student replies. Then I read the responses a second time and coded all concepts and themes in the responses by underlining and emphasising them by hand and writing conceptual themes in the margin. Then these concepts were further categorised into overall code categories for each survey question collection of responses as explained in the study results below. Finally, these conceptualisations enabled me to draw conclusions and generalisations about important thematic patterns and trends in the entire body of responses with a view to a before and after situation, thus enabling me to answer my research question.

Results

Participants

In total, the participants consisted of fourteen students in the pre-course survey and in the post-course survey. One person did not participate in the first survey, but in the last one, but I did not consider that a problem as she had participated in all class activities and would then have experiences of writing with or without GAI that could be fruitful for my study. Eight students were from the Natural Sciences, three from the Social Sciences, two from the Humanities, and one did not state their field of study. Ten students were Danish, and four were international students. The students' age range was 19-28 years. Seven students were women and six men, and one student did not state their gender. When quoting individual students below, I have used their initials.

The GAI tools used

The tools suggested for use by the students were ChatGPT 3.5., Quillbot, Grammarly and Writerly as they related to linguistic improvement and style improvement and were the most well-known. The most widely used tool turned out to be ChatGPT 3.5.

Main findings

The survey questions probed the students' familiarity with AI, their perceptions of AI and ethics, their use of AI applications, the pros and cons of using them, their expectations of the future of AI in writing for university as well as their expectations about AI in writing in education and careers in general. The main themes across these areas turned out to be a series of paradoxes indicating mixed feelings and difficulty in navigating the crossroads between using GAI and doing one's own writing. The most prevalent themes adhered to either Warschauer et al.'s "imitation contradiction" as students were overly concerned about plagiarism and dishonesty, or to the "with or without contradiction" as students reflected on the temptation to take the easy way out in writing and thus doing away with creativity. There were no responses reflecting Warschauer et al.'s socioeconomic concerns in the "rich get richer contradiction".

Below, the themes that emerged in the pre-course survey data are presented.

Pre-course survey results

1. Familiarity with AI

The responses indicate a wide range of familiarity with GAI applications, both for personal use or educational use, such as generating creative content, proofreading, or gaining inspiration. While some students are well-versed in multiple general GAI tools (e.g., Quillbot, Grammarly, ChatGPT), others are only familiar with one (typically ChatGPT), specialised tools (CoPilot for coding, Perplexity or Python AI), or none. This suggests that the level of exposure to GAI applications in writing varies. However, ChatGPT, and to some degree Grammarly, stand out as the most recognised GAI applications among the respondents, which may be attributed to their widespread use and recognition in various contexts, including academia.

2. Perceptions of AI and ethics

Creativity vs. dishonesty

There are various perspectives on whether using GAI for assignments or exams constitutes cheating or plagiarism. LA argues, "the individual capabilities of the students who use it in exam cannot be judged and it is also largely unfair to the other students who are taking exam without its help." AT, however, believes that "the ability to access and 'filter out' knowledge in higher speeds from a much wider and more easily accessible pool of sources, is in itself… a skill to be built upon and rewarded." Many respondents agree on the importance of using GAI critically, advocating for students to verify and supplement GAI-generated content. AT adds, "it is not the knife that kills someone but the hand holding it."

Some respondents express concerns that overreliance on GAI could hinder creative and independent thinking by "dumbing you down". MAR, for example, states that using GAI is "academically dishonest, thus morally wrong. Formulating sentences is our job." These students argue that writing assignments require creativity and independent thought, with some viewing GAI as a "lazy" approach. Another respondent suggests that GAI might not be well-suited for understanding the "real world."

This has bearings on how the students view the use of GAI in exams as memory-based exams are more likely to be seen as inappropriate for GAI use, while exams that assess problem-solving or research skills may be more GAI-friendly. But despite the concerns with overreliance, a common theme is the recognition of GAI as a helpful tool, like Google or Wikipedia. Thus, some argue that using GAI is not cheating if it is transparent.

The responses regarding whether GAI tools like ChatGPT should be allowed in exams reveal several trends. Many students support allowing GAI with certain restrictions, emphasising responsible and ethical use, such as using it for gaining insights without directly copying content. Some respondents, however, express concerns about monitoring and detecting GAI use to distinguish between legitimate assistance and cheating. A smaller group is sceptical of GAI's benefits or advocates for its prohibition to protect the authenticity, creativity, and independent thinking of student work, as well as ensure proper assessment.

3. Teachers' viewpoints as seen from the student perspective

Tool vs. crutch

Several students report that educators have mixed opinions on GAI applications. Some are open to their use, while others, particularly in the context of exams, have a negative view. AN mentions that some of her

teachers tried using GAI but agreed that "it's not a good thing... because we are going to get dumber if we stop using and training our brains." Younger supervisors tend to have a more positive outlook, seeing benefits like timesaving. However, many educators express caution, especially with exams, as AS notes that "the negativity comes from having to evaluate students' writing very carefully, which creates suspicion." According to students, some educators recommend using GAI responsibly as a tool, not a crutch, while others have not addressed its use.

4. Using GAI tools

Learning potential vs. effectiveness

Students' use of GAI tools for writing shows a range of approaches. Many use these tools for tasks like gathering information and summarisation, finding them useful for quickly obtaining overviews and uncovering missed details. Some seek clarification on complex subjects, using GAI to ask questions and get explanations. Others use GAI for grammar improvement and proofreading to refine their work. A smaller group employs GAI to generate different perspectives, encouraging creative exploration. However, some students either avoid or limit GAI use, favouring traditional research methods. PI recalls that a group member used ChatGPT for a draft, but "the essentials of the project did not appear clearly." A few students express hostility toward GAI, like KA, who says, "No, I absolutely do not think that ChatGPT is of any help because if you don't understand the subject, you won't have the ability to be critical about the information it gives you."

Opinions on the effectiveness of GAI applications vary. While some students appreciate their ability to produce coherent and concise text, others question their capacity to capture the richness of vocabulary and personal style, Nonetheless, some view GAI applications positively, praising their assistance in achieving clarity and accuracy in written content, such as AL who believes that GAI "summarises the concepts and the large amount of information that is out there making it easier for the reader to understand various topics without investing as much time as they would do if they were to do their own research about it. In this way, students can understand and learn more in less time allowing them to develop more complete and precise assignments or exams".

Some students find these tools particularly useful for specific purposes, such as aiding individuals with dyslexia or explaining complex mathematical concepts. They may also benefit introverts by providing a means of expression. According to CH "This can especially be useful for individuals with social anxiety or those that are generally quieter than others".

Despite the advantages, concerns linger regarding the quality of GAI-assisted writing. Some students worry about the potential for inaccuracies or lower-quality content, while others fear compromising their creativity and independence. A minority strongly advocate for the superiority of human writing, emphasising its uniqueness and flexibility. Essentially, the responses reflect a spectrum of viewpoints on the effectiveness of GAI applications, with recurring themes centring around creativity, independence, and authenticity.

5. Pros and cons of using AI in academic writing

Improvement vs. overreliance

When discussing the pros and cons of using GAI tools for writing, several key themes emerge. On the positive side, many students highlight the benefits of improved writing facilitated by GAI tools. They note enhancements in grammar, clarity, and academic language, which help them express their ideas more effectively. DA says: "Only instances when the language is too shabby and it needs to be more pristine but I am

lost in rewriting it to that manner, then I can ask for help". However, AT disagrees: "Regarding the content of a written product, I would say that using GAI applications does provide better results most often than not. However, in terms of a rich vocabulary or the ability to write 'with a flow' - whether that has to do with eloquence per se or even a certain charisma on paper - I would argue that GAI cannot do much, if there is not foundation in hand with the person using it".

Some appreciate the efficiency and time-saving aspects of GAI, finding it helpful for generating text quickly and completing assignments more efficiently. Additionally, a few students mention how GAI tools contribute to a better understanding of texts and topics, clarifying complex concepts and providing access to additional information beyond academic materials.

However, concerns are also raised regarding overreliance and laziness fostered by GAI tools. Many students worry about academic laziness and the risk of students neglecting independent research in favour of GAI-generated content. AN says: "I used to use it as a tool for assignments but not anymore because I prefer to use books and my brain because I feel that is such a lazy thing to use ChatGPT for that". Similarly, DA worries that students may rely on GAI for tasks they should perform independently: "There is a consequence that people will take GAI for granted".

There are also concerns about the potential for GAI to provide misleading information and ethical considerations regarding its use. There is, however, only one mention of bias in all the responses. AL: "It can affect the transparency of the assignments and exams if the GAI applications are not used ethically, being critical of the information found and aware of the possible biases these can provide".

Some students fear that heavy reliance on GAI could obstruct creativity and critical thinking, hindering the development of students' own writing styles and analytical skills. Additionally, there is a concern that dependence on GAI may reduce students' independence in the learning process, discouraging them from thinking critically and conducting research independently. Overall, while GAI tools offer diverse benefits, there are significant considerations regarding their potential drawbacks and impacts on student learning and academic integrity.

6. The future of AI in writing for university

Enthusiasm vs. scepticism

A significant majority of the respondents express enthusiasm about the potential use of GAI applications in education, such as AT: "street-smart people will have an extra advantage and I am very curious about the outcome of this new dynamic". These students see GAI as a valuable tool that can enhance the learning experience. For instance, it may be a means to improve knowledge production and academic processes. Others are excited about the opportunities GAI offers in terms of efficiency, access to information, and potential improvements in assignments and exams.

A smaller group express mixed feelings or remain neutral as they may have concerns or uncertainties about the implications of GAI in education, but they also acknowledge potential benefits.

Finally, a few students express concerns or worry about the use of GAI in their study programs. They may have reservations about overreliance on GAI, the risk of misleading information, or the potential impact on creativity and critical thinking. And some worry about the ethical considerations and transparency associated with GAI usage in education.

7. Impact on education, careers and writing skills in society in general

Optimism vs. apprehension

Many respondents believe that GAI applications will have a positive impact on their education and future careers. They anticipate that GAI tools will facilitate learning, help them understand complex topics, and improve the quality of assignments and exams. Some students express that GAI will enhance their career prospects, especially in fields where GAI plays a significant role. A few also think it will benefit society, such as AN: "For writing skills, I think that ChatGPT is really good at it like it uses really good grammar, and it would help a lot society". In fact, GAI may take away the messy cognitive load of certain tasks according to KA: "Since people tend to minimize growth of entropy, it's good news we can finally outsource the entropy of thinking to a computer".

A sizeable portion of respondents does not expect GAI applications to have a significant impact on their education or careers. They may believe that while GAI can be useful, it will not be a "game-changer", or their education and career path will not rely heavily on GAI tools.

A small group express mixed or uncertain views about the impact of GAI on their education and careers as they acknowledge that GAI may be a useful tool but have reservations about potential downsides or uncertainties regarding the future. There are, however, more mixed feelings when it comes to the impact of GAI on the writing skills in society in general as many fear overreliance on these tools.

A minority of students do not foresee any positive impact from GAI and express concerns about its use in education and their careers. They worry about issues like creativity, overreliance, laziness, or potential dishonesty. DA strongly believes that those "who go the traditional route of writing everything themselves" will see the results "in their intelligence, focus, and passion being a lot clearer than those who give in to sloth." Some argue that using GAI may reduce the personal touch in writing, making it less authentic and more formulaic. One student is particularly concerned about misuse, fearing that "dishonest colleagues will use it more, get better at using it, and gain an unfair, unearned advantage."

Summary

The pre-course survey examination of students' perspectives on GAI applications in academic writing reveals a complex interplay of optimism and apprehension, highlighting a nuanced balance between recognising the potential advantages of GAI tools for efficiency and learning enhancement, while concurrently expressing concerns regarding ethical considerations, potential erosion of creativity, and uncertainties surrounding the future implications on education, careers, and societal writing skills.

Below, the themes identified in the post-course survey data are presented.

Post-course survey results

1. Familiarity with AI

The familiarity with GAI applications has now widened to not only include ChatGPT, Grammarly or Quillbot, or a few specialised programs, such as Perplexity. Now students also mention Writefull, used in the course, Bing, pi.AI/talk, copy.AI, Appwriter, and the translation tool DeepL Translate. And most applications are used for educational purposes rather than personal uses.

2. Perceptions of AI and ethics

Ethics, guidelines and empowerment

Across the surveyed responses, several discernible trends emerge regarding perceptions of GAI applications, particularly ChatGPT, in academic contexts. As in the pre-course survey, the varied perspectives collectively illuminate the evolving discourse on the ethical dimensions surrounding GAI utilisation in educational settings. A prevalent trend involves nuanced ethical considerations as respondents often distinguish between acceptable and unacceptable uses of GAI. They emphasise the importance of contextual nuances, arguing that the ethical use of GAI applications hinges on the specific manner and extent of utilisation. Another notable consistent trend is the dichotomy between viewing GAI as a tool and perceiving it as a potential culprit for academic misconduct: "I would say that it is morally wrong because there wouldn´t be any creativity and we would be using our knowledge so we wouldn´t be able to prove what we know" (AM).

Some respondents take a pragmatic view, seeing GAI as a helpful tool for comprehension, proofreading, or idea generation when used carefully. LA notes, "After working with GAI during course, my opinion has changed a little. In my opinion the way GAI is used to complete the task matters. If it is a literal copy and paste, then it is definitely wrong. But I think, if it is only used to get a little idea or opinion while making sure that it is not impacting the individual's own opinion and voice, then maybe it is fine. But I would highly stress that the way of use in the respective situation should determine if it is morally correct or not". Others remain concerned about overreliance and misuse, particularly direct copy-pasting, which is seen as ethically questionable. PI highlights the difficulty of determining whether a GAI-generated text is original or plagiarised, warning of the risk of plagiarism when rephrasing is involved.

In the post-course survey responses, there is a greater concern for defined parameters, guidelines and instruction in using GAI applications "with restrictions, so the student does not exploit the application and its functions" (CH) than in the pre-course surveys. The themes of responsibility and transparency resonate in the responses. Many respondents advocate for clear communication about the extent of GAI involvement in academic work. CH adds that "An example of this is the consent to use ChatGPT for projects if the student informs the professor and writes it in the project description. If the student uses the GAI applications, they must refer to the application and explain why they used it in the project". SO agrees that "testing needs to change fundamentally in order to account for how students will utilize these new tools".

However, responses also reflect a dynamic evolution of opinions as some respondents note shifts in their perspectives after exposure to GAI during coursework, indicating the influence of practical experiences on shaping views – as in MAR's change of viewpoint from direct hostility to an accepting approach: "I now see that GAI can be used to explain complex ideas that otherwise would require a teacher/tutor/knowledgeable classmate to explain. The information given by GAI should still be received critically, but if the student sees this information as fitting well into the rest of the material, then they can make the call of accepting the GAI input as accurate. Furthermore, if GAI synthesizes a text, the reader can always double-check the accuracy of that synthesis. Thus, the responsibility still lies with the person who puts their name on the assignment".

YA's personal story about newfound empowerment reflects another kind of changed perspective: Being "a disabled person myself, I can say that ChatGPT has been a very useful tool in my assignments. It, of course, has nothing to do with plagiarizing. Whenever I get lost and think that a piece of text is too difficult for me to comprehend, I would usually copy paste a text in and ask ChatGPT to help me summarize it in a more

simplified language. It has saved me a lot of time and effort rather than giving me a migraine as I try to reread the same text a one hundred times and get increasingly more frustrated and I am unable to do what I am supposed to be doing". She adds: "I am just really happy that I am able to get this kind of help. That was not really available for me before. I would like to continue using it with simple things that I need help with. I am sure some people do not agree, but I am not really worried about that. Not a lot of people care about people with disabilities, so I have to be the one to care for myself in that way".

In fact, respondents acknowledge the potential major help GAI applications, such as ChatGPT, can provide in completing assignments or exams. They highlight the usefulness of GAI in creating well-rounded, formal products. Thus, the majority sees GAI as a valuable tool that, when used judiciously, contributes to the development of comprehensive academic outputs.

A minority of students advocate for prohibition of GAI tools in academic work and exams altogether. And lastly, no students advocate for permitting the use of GAI without some kind of moderation, citations, and other kinds of responsible use. Eventually, despite these concerns, most students acknowledge the inevitable integration of GAI into future education.

3. Teachers' viewpoints as seen from the student perspective

Mixed reception

Over the two-month period, respondents still indicate a mixed reception from teachers and supervisors. While some educators are positive, according to the respondents, and recognise the value of GAI, particularly in providing a wide range of information and saving time on research, others express reservations or negativity. The persistent varied responses reflect the ongoing discourse within RU about the role of GAI in academic work.

4. Using GAI tools

Learning potential vs. efficiency

The responses reflect a nuanced approach to the use of GAI tools in academic settings, where individuals strategically employ these tools based on their specific needs. One prevalent theme is the use of GAI as an information resource. Many respondents rely on GAI writing applications like ChatGPT to quickly gather summarized information, aiding in research and project formulation.

Another common use of GAI is for proofreading, style, and grammar checking. Some respondents find these tools useful for refining their writing and ensuring clarity and grammatical accuracy, though many prefer to rewrite or not fully rely on GAI input. KA notes, ""To have ChatGPT help you write a sentence in a more academic I could find helpful, but to do that I would need to have an idea about what I'm writing in the first place". One student refuses to use GAI for this purpose despite a supervisor's suggestion, feeling confident in their ability to reformulate texts independently.

Furthermore, a notable group of respondents use GAI, particularly ChatGPT, to enhance their understanding of complex academic texts. They use these tools to simplify dense material, rephrase content, or generate bullet points to aid comprehension.

Despite these uses, some respondents express limited personal usage of GAI tools, using them only sporadically or within the context of specific courses. This suggests that their engagement with GAI is primarily driven by academic requirements rather than personal preference.

Efficiency emerges as a significant theme, with some respondents acknowledging the positive impact of GAI applications on speed and productivity. However, there is also a recognition among participants of the importance of providing clear instructions for effective use of GAI tools.

Nevertheless, scepticism remains about the ability of GAI to deliver better results, with concerns raised about the lack of personality, creativity, and uniqueness in GAI-generated content. Additionally, there is a perception that GAI may not necessarily contribute to becoming a better writer as it "no longer represents your voice".

5. Pros and cons of using AI in academic writing

Improvement vs. educational risks

The pros and cons of using GAI tools, as perceived by the respondents, can be categorised into several themes. On the positive side, GAI applications offer time efficiency by accelerating the research and writing process, enabling the completion of more projects within a specific timeframe. Additionally, they aid in enhancing understanding of complex texts and assignments by providing a wider perspective on subjects through simple questions. GAI also contributes to the improvement of writing skills by polishing language and academic writing, resulting in more readable texts. Moreover, these tools generate large quantities of information quickly and precisely, offering fast answers to difficult questions.

However, there are also significant drawbacks to consider. One concern is the lack of creativity and critical thinking that GAI applications may foster, as they can detract from the individuality and personal touch in writing. This overreliance on GAI could hinder the development of critical thinking skills among students. CH says: "It is good for explaining a text and sound more 'academically correct' but less like 'yourself'". Furthermore, there is a risk of encountering incorrect or outdated information, especially in obscure topics, which undermines the reliability of GAI-generated content. Additionally, students raise concerns about equity and grading issues. KA explains: "I'm worried about how examinators will change how their exams function or how they grade in a way that benefits GAI assistance. Everyone can write a plausible academic text on most subjects with GAI with a reasonably level of correctness. So I'm worried that either the grades would get more evenly distributed where fewer students fail and pass with an A, because the examinator have changed how the mark is distributed via a bell curve. Or the exams get worded in a more difficult to understand manor to trick the GAI". In other words, KA is concerned that the level of assignments will increase as more students produce similar-looking texts.

There is also a risk of undermining genuine learning, as extensive use of GAI may discourage students from applying themselves fully to tasks. Using GAI may in fact damage the production of knowledge according to MA: "The most vital part of academia however cannot be outsourced to (these) computers: new ideas and discoveries".

6. The future of AI in writing for universities

Enthusiasm vs. fear of reforms

A large subsection of the responses is enthusiastic about the future of GAI in universities. This stance is based on the positive aspects of GAI as information retrieval systems, enhanced writing opportunities and on a basic confidence in GAI as potent of creating all kinds of new opportunities for writers. A few students regard GAI as a new kind of "ally" in academic work. Other students have mixed feelings as they are positive about the possibilities but worry about the extra burden and workload associated with ongoing educational reforms, suggesting a consideration of structural implications in the Higher Education system. MAR says: "The bigger the reform, the bigger the burden and this reform promises to be big".

7. Impact on education, careers and writing skills in society in general

Optimism vs. apprehension

This time, students are more specific about the potential impact of GAI writing tools in education, their careers and society. Those who applaud the advancement of GAI mention enhanced analytical skills, career advancement, improved writing skills, learning, information access, time efficiency and integration in daily tasks. The rest of the group have mixed feelings and express uncertainty about the GAI impact and concerns about job opportunities. A small fraction of respondents is concerned about the potential negative impact of increased GAI usage leading to laziness and dependency. Some respondents worry that overreliance on GAI may make individuals less critical and independent in their writing. And finally, a couple of students believe that the widespread use of GAI could contribute to the deterioration of writing skills, especially if individuals become compliant with GAI-generated content without critically examining the writing process.

Summary

The one main theme or concern that stands out across the responses is the delicate balance between the potential benefits and risks associated with the use of GAI applications in academic writing. Participants express enthusiasm for the efficiency, timesaving, and assistance GAI can provide in various aspects of academic work. However, the predominant concern revolves around the potential negative impact on creativity, critical thinking, and the development of individual writing skills. The overarching worry is that overreliance on GAI might lead to a loss of personal engagement, originality, and independent learning. Therefore, the central theme is the need for a balanced and responsible integration of GAI tools in the academic writing process to enhance rather than replace individual efforts and skills.

Discussion

Summary of findings

The pre-course and post-course survey results reveal both continuity and evolution in major themes related to GAI applications in academic settings. Overall, they predominantly reflect Warshauer et al.'s first paradox, that of "the imitation contradiction" about the inherent imitation vs. plagiarism game in second language writing with or without AI tools, as well as the third paradox, that of the "with or without contradiction" as students are confused about the contradicting experiences of efficiency vs. creativity with or without AI tools (Warshauer et al., 2023, pp. 2-3).

In the pre-course survey, a central theme of dishonesty – or direct dumbness and laziness - is prominent as a spectrum of views ranges from considering GAI as a valuable, effective and time-saving tool or "ally" for

enhancing understanding and research to strong concerns about overreliance leading to academic dishonesty. There is also a related concern with GAI's hindrance of creativity, being yourself, writing with a "flow" or "charisma" in writing. GAI is not "the real world", and thus students need to be in control of these tools, they say. In the post-course survey, some of the students' views change, and the major themes shift towards more nuanced ethics, pragmatic and specific needs, guidelines, and writerly empowerment. Furthermore, the post-course survey reveals a heightened concern for defined parameters, specific guidelines, clear communication and responsible use of GAI in decision-making levels in Higher Education. So, in general, even though both teachers and students still have mixed feelings about using GAI in academic work, there is a slightly greater acceptance rather than hostility in the post-course survey. In other words, students are trying to navigate towards solutions to "the imitation contradiction".

However, a new feature in the post-course survey is the preoccupation with structural aspects of Higher Education. One student, for instance, fears a "grading bias" and changes in exam structures, which may favour GAI responses. In this way, the level of exams risk changing to a higher level as everybody can perform well in writing with the aid of GAI tools. This clearly reflects Warschauer et al.'s "with or without contradiction". Other students fear resulting educational reforms and thus extra workloads and more confusing situations for students.

In both surveys, recurrent themes include concerns about creativity, independence, and authenticity in the context of GAI-assisted writing. The pre-course and post-course responses collectively depict a nuanced impression where students navigate the potential benefits and drawbacks of integrating GAI tools into their academic writing processes. The ongoing discourse suggests that the understanding and perception of GAI's role in enhancing learning and efficiency are evolving, with students weighing the advantages and limitations based on their individual needs and preferences.

But what was not mentioned in their responses? Warschauer et al.'s paradox of how "the rich get richer" is, for instance, not a concern. All responses revolve mostly around the students themselves, of course prompted by the survey questions, but the question about using AI for writing in the future in society might have led them to speculate on cultural and socio-economic inequalities. But not so. And only one student mentioned the word "bias", which demonstrates that AI bias may not play a crucial role to them at this stage in their acquaintance with GAI. Finally, even though there was a concern with linguistic perfection, there was no mention of English as a foreign language from a learner perspective. That is, there was no mention of what GAI could do for their linguistic development as second or foreign language writers in any way. All this reflects that the students were mostly concerned with their daily lives as individual students rather than demonstrating a wider outlook on society. This may be a natural consequence of being involuntarily thrown into a tumultuous transition period, which leaves little room for easy navigation.

Methodological limitations

After the completion of this study, which took place in September to November 2023, and while this paper was being written in the winter and early spring of 2024, Roskilde University launched formal guidelines of GAI use in all study regulations based on recommendations from a national task group. So, as explained, this study investigates student perceptions before these were implemented.

I am aware that the two-month timeframe is limited. A longer timeframe for data collection and follow-up surveys could provide more insights into the long-term effects of integrating GAI in academic writing.

Another limitation with this group is of course the small sample size, which may limit the generalisability of the findings. It is, however, not my intention to generalise based on this exploratory study, but to provide a nuanced narrative of student voices and concerns.

As the data collected in the surveys relied on self-report from participants, they may introduce bias, and it is not always clear what the distinction is between experiences and assumptions. Participants may provide desirable responses or inaccurate information, impacting the validity of the findings. But since each participant responded to the same survey twice, major discrepancies and bias would have been detected, and I found none of this kind. Thus, I decided to avoid adding any direct post-course question about what the changes might have been to the students.

Methodologically, conceptual content analysis of surveys in action research has the advantage of yielding important historical insight into complex human thought and attitudes over time, but at the same time it is time-consuming and risks being subjective, reductive and erroneous due to researcher bias and to the length, details and quality of the responses. As I am aware of these limitations, I have, firstly, tried to account for the situation in detail and to take on an inductive approach in my two consecutive readings and coding to avoid bias and pre-conceived ideas. And as the population is small, the aim has not been to provide statistical inferences about the relevance of academic fields, ages, gender or any other variables, but only to provide a historical snapshot of a time of transition in international Higher Education when students of academic English writing move from natural intelligence, as it were, to a paradigm of artificial intelligence. This snapshot is the detailed story of what goes on in their minds.

Future directions

As conceptual content analysis provides a way to align student perceptions with specific pedagogical objectives of the academic writing course, the concerns above prompt this teacher to adjust the curriculum and exercises to go into more depth with the writing process rather than the final product. Emphasis must be put on the enjoyment of creativity and thus the enhancement of authenticity in the otherwise perhaps cumbersome writing and editing process to ensure that students refrain from taking the easy, efficient way out with GAI as a ghost writer. More emphasis must also be placed on inherent GAI bias and its role in society, and how to use GAI as a linguistic tool in foreign language writing and learning as distinct from native language writing.

Conclusion

In this study, I asked: *How do students' perceptions of using Generative AI (GAI) as a tool for academic English writing evolve over the course of an academic writing class immediately after the public launch of the large language model (LLM) ChatGPT?* The content analysis narrative of the progression from the pre-course to post-course survey reactions indicates a more nuanced understanding among students. While the optimism persists, there is a shift towards more specific considerations of the potential impacts, with increased awareness of both positive outcomes and potential challenges associated with the integration of GAI in education, careers, and society.

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