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Empowering EFL Student Teachers through AI: Promoting Creativity, Critical Thinking Skills and Collaboration

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ABSTRACT

The current study aims to explore the influence of Generative Artificial Intelligence (AI) tools on empowering English as a Foreign Language (EFL) student teachers. In particular, the study investigated the impact of AI tools in promoting creativity, critical thinking skills and collaboration as perceived by EFL student teachers. 25 EFL major student teachers in their fourth year, who took part in this qualitative focus group-based study, were enrolled in a 15-week EFL course where AI generative tools were introduced and integrated into the course to assist students in creating a poster. The data were collected from focus group interviews, targeting information about the student teachers' experience in utilizing these tools and their effects on fostering students' creativity, critical thinking skills and teamwork among their peers. Thematic analysis was used. Insights from the focus group interviews show that participants express positive attitudes towards AI tools, particularly in enhancing their creativity, critical thinking and collaboratively improving the quality of their final product. Despite acknowledging the positive effects of AI tools,

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participants highlight several concerns including excessive reliance and limited technical skills required to use this technology effectively. The study has implications for the successful integration of AI tools into future EFL classrooms and contributes to understandings of how student teachers perceive that AI can be creatively implemented in practice, harnessing the benefits as well as dealing with the challenges.

Keywords: AI; Creativity; Critical Thinking Skills; Collaboration; EFL Students

1. Introduction

The rapid development of Artificial Intelligence (AI) has recently emerged as a key factor in changing many areas of our educational system in higher education (HE), within language instruction classes. The integration of AI in our education has the potential to reflect a more responsive and flexible learning environment in which language instruction is enhanced to meet the needs of both individual learners and teachers with creative and personalized methods that help students perform well in their courses [1–3].

Numerous studies have explored the influence of AI tools on improving different aspects of language learning, including engagement, motivation and skill enhancement. For example, Yuan and Liu [3] in their study of using AI applications such as Duolingo in EFL classrooms show significant development in the level of students' engagement and motivation, indicating a positive impact of AI on learning outcomes. Furthermore, Ebadi and Amini [1] found that students' interactions with chatbots significantly enhance their social presence and motivation by providing human-like interactions. They argued that this kind of interaction can promote students' confidence and willingness to communicate in English. Similarly, Fathi et al. [2] indicate that assisted speaking activities can enhance EFL speaking skills and motivation to communicate. These studies highlighted the influence of AI tools in promoting learners' language proficiency and interpersonal abilities.

Despite these positive impacts of AI tools in enhancing EFL learners' linguistic and social skills, there is limited attention on how AI tools can promote and address the complexity of creativity, critical thinking skills and collaboration among EFL learners. Several studies reported both students' and teachers' concerns regarding the potential risks of excessive reliance on AI for knowledge acquisition at the expense of creativity and critical thinking skills [4–6]. This suggests that while AI provides new avenues to enhance learning, it remains essential to explore and understand its impact on fostering creativity and critical thinking skills in EFL contexts.

Enhancing students' critical thinking skills is important, now more than ever, in using and mastering AI. Students need to evaluate the ethical implementations of AI judgments, and the information obtained, challenge the underlying assumptions of AI decisions and analyze and assess the data sources.

These skills are influenced by students' level of engagement in learning. To better enhance these skills, it is likely to be important to adopt more interactive learning materials that require the students to interact with the learning activities more critically and encourage them to create new and creative solutions for the problems. AI can offer learners real-time feedback and opportunities for not only language experimentation but also opportunities for evaluation and analyzing resources and creating new methods to accomplish their tasks. This can overcome the challenges that may arise in collaboration with their peers, reducing the social pressure of traditional classroom settings. To enhance students' learning, it is crucial to improve students' engagement with learning materials and activities, which requires the adoption of new approaches, and advanced language skills to cope with the rapidly changing digital world [4,5].

This study aims to explore the influence of AI tools on empowering EFL student teachers. In particular, the study investigated the impact of AI writing tools in promoting creativity and collaboration as perceived by EFL students' teachers in an Omani HE context. The student teachers routinely use AI tools such as ChatGPT, ChatPDF, Google Gemini, and Canva. Understanding the role of AI in enhancing EFL students' creativity, critical thinking skills and teamwork as perceived by students is important in giving insights about empowering students linguistically and academically through AI. Despite the proliferation of recent studies and interest globally in the field of AI, there is a paucity of evidence on the effective use of AI among Omani student EFL teachers. This study aims to fill this lacuna by addressing the following research objectives:

1. Explore the extent to which AI tools promote creativity with EFL student teachers.
2. Evaluate the effectiveness of AI tools in enhancing students' critical thinking skills after implementing the tools within an EFL course.
3. Investigate the influence of AI tools in fostering teamwork among student teachers in completing their projects.
4. Explore student teachers' perceptions of the main challenges they encounter in utilizing AI tools in EFL classes.

The article will now move on to examine key literature in the field considering the following main areas linked to the research questions: creativity, critical thinking skills, collaboration and challenges.

2. Literature Review

2.1. Introduction

The field of EFL encompasses a wide range of approaches and methodologies across the world. Many users of English across the world will use the language for both education and work, where 21st century skills will be of the utmost importance. The seminal article published by Thornhill-Miller et al. [7] outlines these 21st century skills as the 4Cs: creativity, critical thinking, collaboration and communication [8] in the context of education and future work skills. The first three of these areas will be the central focus of this literature review given their centrality to the present study. These will be considered within the context of AI, given how it is transforming practices in creativity, critical thinking and collaboration both within and beyond EFL teaching and learning. This transformation based on AI tools is already occurring in many contexts in terms of teaching, learning, assessment and administrative processes [9]. It is indeed argued that when student teachers make responsible use of AI in the classroom and support their students to do the same, this helps to foster creativity and critical thinking for future generations in a collaborative setting. The benefits of such transformative pedagogies with AI also come with significant challenges regarding ethical concerns and limitations [10]. Therefore, these challenges will also be considered as a main theme in this literature review.

2.2. Creativity

Creative approaches are seen as a fundamental pillar in EFL teaching to promote learner motivation and develop language acquisition [11,12]. It is widely acknowledged that AI will continue to play an increasingly important role in what constitutes creativity in many domains of society.

The literature points to numerous positive directions regarding AI and creativity. Treve [13] finds that after incorporating AI in classroom practice, considerable overall improvements in student engagement, academic success and innovative thinking were achieved in Thai schools and HE. Such outcomes, as highlighted by Pham and Le [14], considering Vietnamese EFL teachers, "shift the focus of creativity from being a mere product to a process and a personal attribute that can be cultivated". The ability to use tools such as AI chatbots in the classroom can, for instance, scaffold peer interactions and the ability to write arguments and counterarguments [15,16] as well as enhance vocabulary [17].

Looking at student teachers Kartal [18] used narrative inquiry to document ChatGPT's impact on their creativity. It was noted that lesson plans, class activities, student involvement, promptness in feedback, and use of multiple perspectives in discussions were enhanced. Likewise, Korucu-Kış [19] (p. 1) believes that ChatGPT can facilitate EFL teachers in progression to their "Zone of Proximal Creativity". However, both Korucu-Kış [19] from the teacher perspective, and Habib et al. [5], looking at students, emphasise the importance of having a sufficient baseline of creative human capacity. Habib et al. [5] (p. 6) note the usefulness for processes such as brainstorming yet insist that "human creativity is needed to begin and end the creative act".

The literature also points to largely positive student perceptions of AI. For instance, Alzubi, Nazim and Alyami [20], using a convenience sample of 546 HE-based EFL students in Saudi Arabia with a closed-item questionnaire find a strong agreement from participants regarding the proposition that AI—namely ChatGPT—has significant value in promoting creative language use and instant feedback. Mixed results in terms of creative output, however, can be found. Woo, Guo and Salas-Pilco [21] analysed four Hong Kong secondary school students' abilities to write creative stories with the support of an AI natural language generation (NLG) tool. They reveal that this use had the potential to enhance creative writing; however, success was depen-

dent on individual students' digital literacy skills, language competence and ability to reflect on the role of AI in the creative process. Therefore, it appears that there are prerequisite linguistic and cognitive skills students and teachers should possess before the creative potential of AI can be fully harnessed.

2.3. Critical Thinking Skills

In today's fast paced globalized world, critical thinking skills are more important than ever. In both academic and real-world settings, critical thinking skills are essential for assessing knowledge and information, solving problems and making well informed decisions. Recent studies into how AI affects critical thinking have noted many affordances as well as some constraints. Darwin et al. [4] examine seven Indonesian Masters students' perceptions of AI's role in enhancing critical thinking. They find that students consider that AI tools enriched critical thinking by aiding academic research, theory analysis, and evidence evaluation. However, concerns were raised about AI's limitations, such as a lack of personalization and the need for nuanced understandings. Ghedir and Ghamsi (2024) focus specifically on how AI tools improve critical thinking in EFL writing instruction. They reveal that AI-supported writing tasks enabled students to analyse, synthesize, and evaluate information more effectively. However, the study also highlighted challenges like over-reliance on AI and the need for proper guidance. Overall, roughly 70% (n=29) of the 42 participants found AI-enabled feedback highly to moderately effective for their critical thinking skills. This may also be effective for critical thinking when increasing the effectiveness of independent study [22,23] From a broader perspective Melisa et al. [24] conduct a systematic review to analyse the impact of AI tools on critical thinking in HE. It is reported that AI facilitated instant access to diverse perspectives, supported argument construction, and improved data analysis. However, risks of over-reliance on AI and the importance of fostering independent judgment are noted. They therefore recommend guidance, training and reflective practice as key interventions for effective AI use. Overall, it seems that AI is likely to be a part of critical thinking skills in many educational and workplace settings, so it is incumbent upon teachers to model effective use with their students.

2.4. Collaboration

In order to think creatively and critically, viewing AI as a collaborator with the human partner taking overall control seems to be the prevalent outlook. Kim and Cho [25] look at 20 undergraduates augmenting their drawing skills through AI collaboration, additionally noting affective and problem-solving gains. El Shazly [26] also noted affective and linguistic gains with reduced speaking anxiety among 48 Egyptian EFL undergraduates after interaction with AI Chatbots. Within the context of such transformative experiences, Fengchun and Wayne [27], in their UNESCO guidance paper, acknowledge the potential for AI to empower and afford opportunities globally; nevertheless, they warn that human intervention must not be sidelined.

Conversely, Stojanovic et al. [6] argue that AI lacks the capacity for imagination and abstract thought, advocating the need for a synergistic relationship between human and AI, particularly focusing on the creative writing process. When reliant only on AI, they argue that authentic and original author contributions are lost. On this basis, Atchley et al. [28] (p. 9) emphasise the vocational training needs of students regarding AI: "As students enter a workplace, their ability to work on human/computer 'teams' is a critical cognitive skillset". Offloading cognition to AI for lower-order outcomes, focusing on higher-order cognition and metacognition for human learning seems to be an important aspect of this [28]. The responsibility therefore falls upon teachers to show proficiency in modelling this collaborative relationship with AI in checking the accuracy of AI automated responses as well as critical use for classroom procedures such as classroom planning, hybrid interventions such as immediate AI feedback and teacher response and automated assessments [29]. Based on their systematic literature review, Mena-Guacas et al. [30] go a step further to recommend that future teacher involvement should extend to AI development focusing on algorithms that provide individual and group analysis of performance (predictive and actual) to boost motivation as well as teaching and learning decision-making and outcomes. There are clearly some high ambitions for the new technologies which will have significant training implications to update the knowledge of teachers and their students.

2.5. Challenges

The literature points to numerous challenges and concerns regarding the implementation of AI. Atchley et al. [28] (p. 7) highlight that "costs [of AI] can include an impoverished memory for information, inappropriate confidence in knowledge and skill development, and vulnerability to misinformation". The mixed-methods study of Habib et al. [5] analysed reflections of 56 US university students assessing the impact of ChatGPT on their work. Despite some positive potential uses seen, they warn of reduced self-efficacy of some students and cognitive fixation when AI responses cannot be successfully incorporated by students.

Ethical concerns are increasingly prevalent around AI. Renz and Vladova [31] assert that human-centred values such as ethics, morality and privacy need to be placed at the heart of AI learning and not outsourced to machines. From a cultural angle, Burke and Akhtar [32] note that cultural sensitivities and contextual considerations are not always embedded within the intended purposes of AI algorithms, thus may not be tailored to diverse groups of students. To address these concerns, Kartal [18] highlights the need for upskilling with students and their teachers in dealing with ethical issues, digital literacy and how to appropriately use generated content. Woo, Guo and Salas-Pilco[21] (p. 25) point to the skills needed to avert risks outlined in the literature:

> "An AI-supported approach comprising critical evaluation of AI words and sparing use of AI words, rather than wholesale copying and pasting of AI words, enhances the creativity of a high-level student. Without such careful evaluation, the use of AI words may detract from the student's existing high-levels of creativity".

In addition, Korucu-Kış [19] identifies the need for precise prompts and input to AI and strategies for dealing with repetitive content generated. Slimi [33], providing insights from the Omani perspective, stresses how crucial it is for HE to step up on integrating more AI to prepare graduates for their future workplaces. It seems that extensive teacher development along these lines, which acknowledges the wide spectrum of teachers' current understandings and perceptions of AI's pedagogical place from an indispensable tool to an inherent risk to creative and value-oriented learning [14,34,35], would be highly beneficial.

3. Methodology

3.1. Research Design

This research adopted a qualitative methodology to explore EFL students' perceptions of the impact of AI tools on enhancing their creativity, critical thinking skills and collaboration. Focus group interviews were used to help provide an in-depth understanding of views and experience [36] in utilizing these tools in general and their effects on fostering students' creativity and teamwork among their peers. Focus groups help to reveal different perspectives and levels of understanding that may remain untapped through other data collection tools [37].

3.2. Research Questions

The main objective of this research is to explore the impact of using Generative AI tools in fostering EFL student teachers' creativity, critical thinking skills and collaboration.

In particular, the research aims to answer the following research questions:

1. To what extent do AI tools promote creativity with EFL student teachers?
2. How effective are AI tools in enhancing student teachers' critical thinking skills?
3. How influential are AI tools in fostering teamwork among student teachers?
4. What are student teachers' perceptions of the main challenges they encounter in utilizing AI tools in EFL classes?

3.3. Participants

Having gained ethical approval from the institution, the study involved 25 fourth-year EFL major students (also referred to as student teachers) enrolled in a 15-week English as a Foreign Language course at an Omani University. A purposive sample of voluntary participants was sought; their consent was gained and data confidentiality and their right to withdraw from the study at any time were explained. Throughout the course, students were introduced to and engaged with AI generative tools,

which were purposefully integrated into the curriculum to support the development of a creative poster project. To explore student teachers' perceptions and experiences, data were collected through a series of focus group interviews. Discussion questions were prepared in advance, peer reviewed and piloted to ensure their clarity and relevance to the research aims. Each session lasted between 20 and 40 minutes and centred on the perceived impact of AI, the use of AI tools in the learning process, and the relationship between these tools and the development of creative skill. Five groups each with five participants—12 male and 13 female in total—were audio-recorded within a period of five days. One of the researchers mediated the focus groups, facilitating answers to open-ended questions (see **Appendix A**).

3.4. Analytical Approach

Focus groups were chosen due to the rich data that can be elicited through interaction, which promotes student teachers' reflectivity [38]. The focus group data were analysed using thematic analysis, guided by the six-phase process outlined by Braun and Clarke [39]. This involved: (1) becoming familiar with the data through repeated readings of the transcripts; (2) generating initial codes by identifying meaningful segments aligned with participants' insights; (3) organising these codes into preliminary themes to capture broader patterns; (4) reviewing and refining themes to ensure consistency and relevance across the dataset; (5) defining and naming themes to accurately reflect the essence of each pattern; and (6) constructing a coherent narrative supported by direct quotations from participants. Deductive and inductive themes were generated from the data.

To deepen the analysis, this process was complemented by Krueger and Casey's [40] focus group analytical framework, which emphasises not only what participants said, but also how they said it, the context of their responses, and the degree of internal consistency. This included attention to the frequency and specificity of responses, the extensiveness of engagement across participants, and the emergence of key ideas that reflected shared group perspectives. Together, these two approaches ensured a rich, systematic, and credible interpretation of the data. Member-checking was used whereby participants reviewed written summaries of their comments and confirmed their agreement that they were representative of their views, making any amendments if needed [36]. This approach served to triangulate the findings, offering further descriptive validity, consistency and trustworthiness [41].

3.5. Analysis and Findings

This research seeks to examine EFL student teachers' perceptions of AI tools in four key areas: their role in promoting creativity during poster creation, enhancing critical thinking skills, fostering teamwork in project work, and the main challenges students face when using AI tools in EFL classrooms. These four areas are depicted in **Figure 1** below:

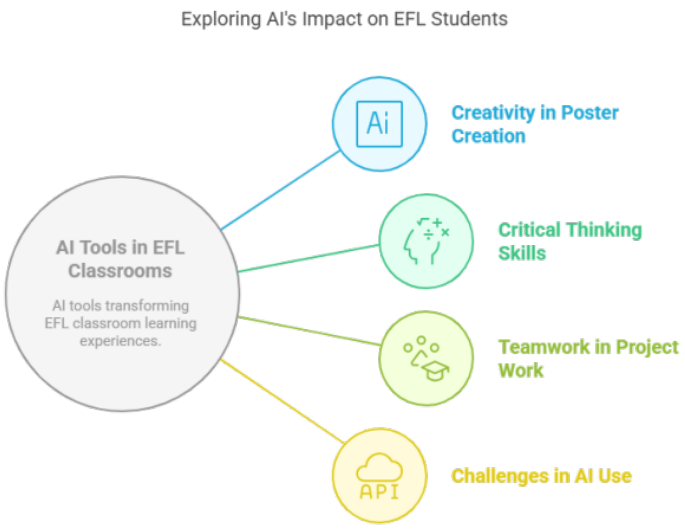

Figure 1. Four key areas of EFL students' perceptions of AI tools.

3.6. Themes

The analysis revealed four overarching themes regarding students' perspectives on AI in EFL learning. First, challenges and concerns centred on the limitations of AI in understanding context and fostering critical thinking, as well as its lack of personalisation and usability issues, particularly among less experienced users. Concerns also emerged around overdependence on AI for quick answers and its potential to reduce social interaction. Despite these concerns, students acknowledged several benefits, highlighting AI's role in enhancing creativity, supporting idea generation, and facilitating collaboration, as well as its efficiency in supporting critical thinking and decision-making tasks. Under attitudes and beliefs, students expressed a desire to maintain a clear distinction between human and AI roles, often asserting the importance of human identity in learning. Trust in AI varied, with some students expressing technological scepticism. Finally, students offered future-oriented suggestions, emphasising the need for AI literacy, structured integration into teaching and learning, and improved access to high-quality AI tools, alongside pedagogical strategies that position the human user as the initiator of the process. (see **Figure 2** below)

The section below details the four aforementioned themes whilst bearing in mind internal consistency (agreement), internal disagreement and frequency [40] for each overarching theme. Insights from all four research aims are embedded in each of the sections.

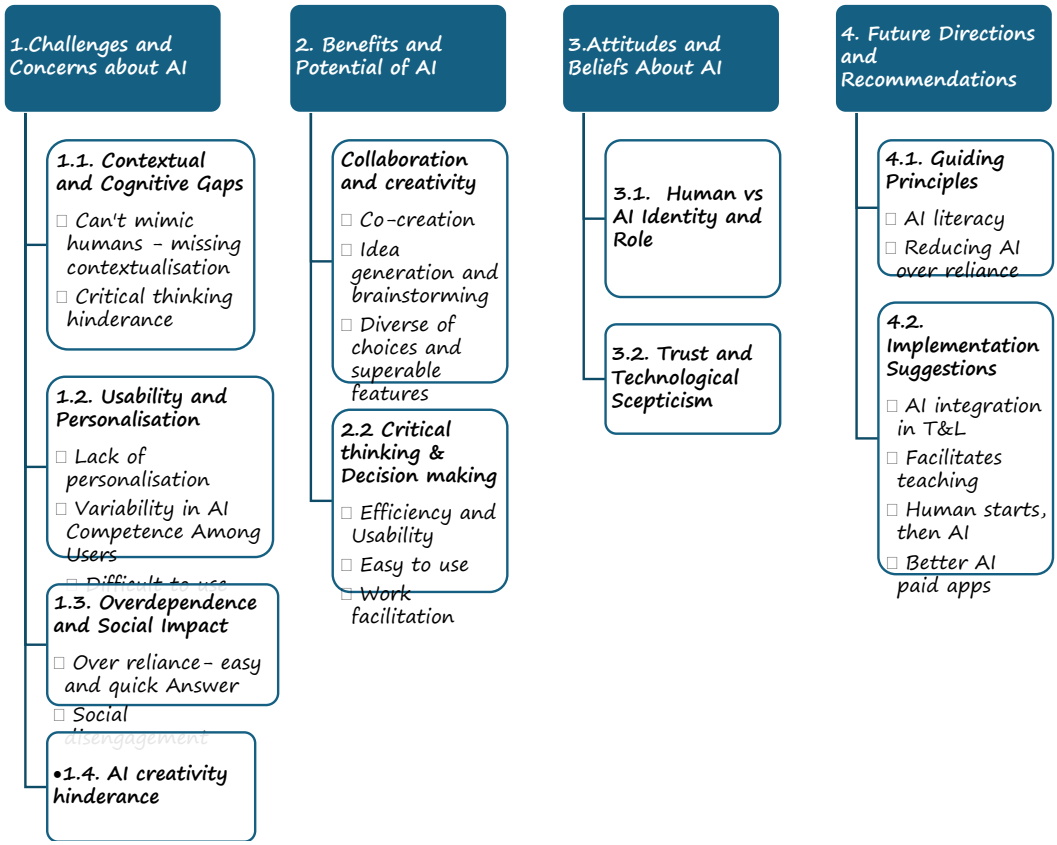

Figure 2. Four overarching themes.

4. Main Findings

4.1. Challenges and Concerns about AI

Numerous challenges and concerns about AI were highlighted by participants as per **Figure 2**. These are outlined and analysed in further detail below.

4.1.1. Contextual and Cognitive Gaps

Limited Contextualisation

Participants frequently expressed that AI lacked cul-

tural and situational depth in its responses. It seems that AI was limited in terms of its adaptability to the Omani context.

Int 2.1:

"It really doesn't go in deep, so it doesn't have a full understanding of your culture... So yeah, it might hinder in these terms. This can impact our creativity, too."

This view reflects strong **internal agreement** across participants regarding AI's current inability to show authenticity or mimic human contextual understanding when used for some teaching and learning purposes. It seems that this lack of contextualisation associated with AI affects the relatability of knowledge and creativity when its users feel constrained.

4.1.2. Usability and Personalisation

Lack of Personalisation

Students expressed significant dissatisfaction regarding the usability and personalisation of AI. They often felt that the output lacked their personal voice and emotional investment. This led some participants to completely abandon AI use or become frustrated about paywalls.

Int 3.1:

"I love design and care about the small details... That's why in the end I found myself designing the poster from scratch—not AI."

Int 2.2

"Sometimes, like we need to pay for... the images that are really representative. We need to pay for them."

The findings show a certain **consistency** in the view that AI can sometimes lack the nuance and personal expression they value in creative work.

Usability Challenges

While most participants recognised that AI was generally helpful in their learning processes, one group highlighted technical difficulties linked to the products AI can generate.

Int 4.2:

"It was difficult... we write only the script for the video and it creates the whole video but then there was like some bots that were inappropriate... So, we have to do it only one sentence from the whole script and we have to search for that sentence."

This example reflects **internal disagreement**—others found AI tools easy and intuitive. This may relate to perceptions on the role that AI can play in the creative process and the need to understand its limitations when generating a product or artefact. However, AI may not always be set up to act as a collaborative team member, which creates difficulties in terms of usability.

4.1.3. Overdependence and Social Impact

Difficulties in usability have sometimes led, on the one hand, to abandonment of AI tools; on the other hand, there is a risk of overdependence whereby AI intervention is dominant. This overreliance on AI as a shortcut risks removing original human thought and critical thinking from collaborative group processes. The interviewees below encapsulate these concerns through the following quotes:

Int 2.1:

"I think it hindered our critical thinking skills... Why do I need to try in thinking or finding solutions for my problem if I have AI?"

Int 2.2:

"It gives you the simplest answers... you don't really get creative with it."

These quotes are representative of concerns shared by several participants: that AI encourages **surface-level engagement**, leading to **intellectual laziness** and a decline in problem-solving effort, thereby having a negative social impact and reversing the affordances of groupwork.

4.1.4. AI Hinders Creativity

If AI can disengage groups from their cognitive efforts in creative processes, it has effectively hindered creativity. How this plays out in practice can be seen through Int 3.2's description:

Int 3.2:

"Yes, it limited my creative input because... I prefer everything that is ready for me without searching, without thinking... So sometimes I think AI stops us from thinking

creatively."

This view, nevertheless, reflects **internal disagreement** about AI's role in supporting creativity—some found it inspiring, others felt it stifled original thought.

Table 1 summarises the theme "Challenges and Concerns about AI"

Table 1. Summary of: Challenges and Concerns about AI.

Subtopic	Description	Example Quote(s)	Interpretation
1.1. Limited Contextualisation	AI lacks cultural and situational depth in its responses.	**Int 2.1:** "It really doesn't go in deep, so it doesn't have a full understanding of your culture... So yeah, it might hinder in these terms."	Strong internal agreement: AI cannot fully mimic human context or understanding.
1.2. Lack of Personalisation	AI-generated outputs often lack personal voice, creativity, or satisfaction.	**Int 3.1:** "I love design and care about the small details... That's why in the end I found myself designing the poster from scratch, not AI." **Int 2.2:** "Sometimes, like we need to pay for... the images that are really representative."	Consistent perception that AI lacks the nuance and emotional investment learners value in their creative work.
1.2. Usability Challenges	Some participants found AI tools difficult or unintuitive to use.	**Int 4.2:** "It was difficult... we write only the script for the video... some bots were inappropriate... we have to search for that sentence."	Reflects internal disagreement: while most found AI helpful, a few faced usability barriers.
1.3. AI as a Shortcut (Overreliance)	Concerns that AI encourages shallow thinking by offering ready-made answers.	**Int 2.1:** "Why do I need to try in thinking or finding solutions for my problem if I have AI?" **Int 2.2:** "It gives you the simplest answers... you don't really get creative with it."	Agreement that overreliance on AI can hinder independent thought and encourage surface-level engagement.
1.4. AI Hinders Creativity	Mixed perspectives: some students felt AI limited their originality.	**Int 3.2:** "Yes, it limited my creative input because... I prefer everything that is ready for me without searching... So sometimes I think AI stops us from thinking creatively."	Internal disagreement: some viewed AI as helpful, others felt it suppressed their creativity by making tasks too easy or passive.

4.2. Benefits and Potential of AI

Participants across focus groups widely acknowledged the benefits and potential of AI tools in supporting their learning tasks, particularly within creative, collaborative, and information processing contexts. This theme is explored through two major sub-themes: Collaboration and Creativity and Critical Thinking & Decision-Making.

4.2.1. Collaboration and Creativity

Students reported that AI tools contributed significantly to co-creation, especially during poster design and video production. Many noted that these tools allowed them to collectively build and present their ideas more efficiently.

Int 4.3:

"Also, it helped us. We used an AI tool to create a video about the topic we have."

There was also strong agreement on the role of AI in idea generation and brainstorming. Students explained that AI facilitated the early stages of their projects by suggesting relevant concepts, breaking down complex terms, and even helping them visualise content.

Int 1.1:

"It helped us like to brainstorm... what does that mean and how can we, like, put it in our poster."

Int 1.2:

"It gives us information directly... and summarised the information."

These responses suggest high frequency and internal agreement around AI's capacity to support imagination and exploration through the process.

Another frequently noted benefit was the variety of choices and features AI tools offer, particularly in design tasks. Students appreciated AI's ability to generate multiple layouts and visual options, enhancing their creative control and expression.

Int 1.1:

"There is like landscape and portrait...

we had the option to choose whatever we wanted."

Int 2.2:

"It provides design ideas, schemes and font combinations that match the theme of our site."

Despite an acknowledgement of AI's challenges and limitations, there were no significant points of disagreement in this sub-theme. This reflects the largely widespread appreciation of AI's role in enabling flexible, creative outputs.

4.2.2. Critical Thinking and Decision-Making

In terms of critical thinking, students expressed that AI contributed to their decision-making processes primarily by providing quick, structured, and summarised information. This increased efficiency and usability when navigating complex content. It seems that AI facilitated some tasks, affording cognitive load to think critically for follow-up tasks. There was also some evidence of critical thinking in terms of guiding AI through the correct use of prompts and instructions participants gave to ChatGPT.

Int 1.2:

"ChatGPT made our work easier... with our input on the prompts, it summarised the information... we have everything ready for us so that we can move on to thinking about the next step."

Int 2.1:

"It really made the process much easier for us."

There was strong internal consistency in these responses, with students repeatedly referring to AI as a practical tool that enhanced productivity and reduced time spent searching or analysing.

Participants also highlighted how AI tools facilitated their workload, particularly when juggling multiple assignments or managing time-sensitive projects.

Int 3.2:

"It facilitated the process, especially when we have a lot of words and assignments."

Int 4.1:

"It was so helpful in a way that managed our time and also it makes the work easier for all of us."

In terms of ease of use, most students described AI tools as intuitive and accessible.

Int 1.2:

"So it is so easy in terms of the compass... we have everything ready for us."

There were no direct contradictions or disagreements under this sub-theme, though a few usability concerns were raised under Theme 1 (Challenges). For this theme, however, the consensus remains positive and confident. **Table 2** summarises the theme "Benefits and Potential of AI".

Table 2. Summary of: Benefits and Potential of AI.

Subtopic	Description	Example Quote(s)	Interpretation
2.1. Co-creation	AI supported the collaborative design of creative outputs such as posters and videos.	Int 4.3: "Also, it helped us. We used an AI tool to create a video about the topic we have."	AI enabled the co-production of digital materials and helped students present their ideas visually.
2.1. Idea Generation and Brainstorming	AI tools contributed to the creative process by helping students come up with ideas or visual concepts.	Int 1.1: "It helped us like to brainstorm... what does that mean and how can we, like, put it in our poster." Int 1.2: "It gives us information directly... and summarised the information."	AI was seen as a thinking partner, especially in early stages of idea development.
2.1. Diverse Choices & Features	AI tools provided flexible options in layout, design, and content generation that inspired students.	Int 1.1: "There is like landscape and portrait... we had the option to choose whatever we wanted." Int 2.2: "It provides design ideas, schemes and font combinations that match the theme of our site."	Students appreciated AI's capacity to offer a variety of customisable choices that enhanced their creative expression.

Table 2. *Cont.*

Subtopic	Description	Example Quote(s)	Interpretation
2.2. Efficiency and Usability	AI simplified tasks by summarising, clarifying, and speeding up research or poster development.	Int 1.2: "ChatGPT made our work easier... it summarised the information... we have everything ready for us." Int 2.1: "It really made the process much easier for us."	Strong agreement on AI's practical usefulness in reducing time and effort.
2.2. Work Facilitation	Students felt AI made their workload more manageable, especially with multiple tasks and deadlines.	Int 3.2: "It facilitated the process, especially when we have a lot of words and assignments." Int 4.1: "It was so helpful in a way that managed our time and also it makes the work easier for all of us."	Clear agreement that AI contributes to productivity, task completion, and time management.
2.2. Easy to Use	Most students found AI tools accessible and intuitive in their day-to-day learning tasks.	Int 1.2: "So it is so easy in terms of the compass... we have everything ready for us."	Many users found AI user-friendly and appreciated its ability to deliver fast, understandable outputs.

4.3. Attitudes and Beliefs About AI

4.3.1. Human vs AI Identity and Role: *"This is Me"*

Participants frequently expressed the importance of preserving their own identity and voice in work produced with the aid of AI tools like ChatGPT, ChatPDF, and Google Gemini. This theme was evident in reflections on authorship and the intrinsic satisfaction that comes from creating something personally:

> **Int 3.1**:
>
> "I want to add something about designing the poster template. I tried more than one free AI tool. The designs were good, and that was the purpose. But I love design and care about the small details. I had the feeling that if I design it myself… that's why in the end, I found myself designing the poster from scratch."

> **Int 1.2**
>
> "We have to be experts as well in this. In this area, they are beneficial, but human beings have to go through them. Ensure the accuracy as well as the creativity that is needed to accomplish the mission."

This reflects a broader belief among participants that AI can assist, but should not replace, the human in creative processes. AI was often positioned as a starting point rather than a solution.

This example highlights a broader belief across participants: AI can assist, but it should not replace the human contribution. For several interviewees, AI was positioned as a useful **starting point**, yet insufficient as a **final solution**—particularly for tasks tied to creativity, aesthetics, or self-expression.

4.3.2. Trust and Technological Scepticism

Trust in AI tools such as ChatGPT, ChatPDF, and Google Gemini was variable across participants. While many valued the convenience and support these tools provided—particularly in summarising, designing, or brainstorming—there was also significant scepticism rooted in concerns about accuracy, source transparency, and the risk of over-reliance.

Participants noted that while AI could provide quick information or generate creative ideas, it often lacked depth, contextual awareness, and cultural sensitivity:

> **Int 2.1:**
>
> "It really doesn't go in deep… it doesn't have a full understanding of your culture or your situation unless you fully tell it everything. So, it offers modern solutions that don't fit your criteria. It might hinder in these terms."

Several participants described using AI as a preliminary step in the process—useful for generating a base

idea—but still needing to be verified, edited, or even discarded depending on its relevance and quality.

Int 3.2:

> "I review the summary and check sharp terms. I use my mind. I use my critical thinking skills."

For others, trust was conditional and task-dependent: AI was acceptable for surface-level tasks like spelling, image generation, or layout suggestions but was not trusted for deeper thinking or sourcing complex academic content.

Int 1.2:

> "Maybe it helps us to evaluate the information, criticise the provided information… but I don't think there is a strong relationship between AI and critical thinking. I even did a study and didn't find a significant link—it was shocking."

In contrast, some viewed AI as a cognitive shortcut that could suppress the development of independent thought and critical thinking if excessively relied upon.

Int 2.2:

> "It hinders the way we think. It gives you the simplest answers… you don't get creative unless you ask it to be creative. It just puts you on the surface."

Int 2.1:

> "Why do I need to try thinking or finding solutions for my problem if I already have AI? I think it has a negative effect."

Despite the scepticism, many participants agreed that the human role in reviewing, selecting, and editing AI-generated output was essential to preserving quality, trust, and integrity.

Int 2.1 (additional reflection):

> "I think it charged our critical thinking skills because we had to constantly evaluate and refine AI's work. For example, we had to review every sentence to ensure it accurately reflected our message."

Clearly, this represented a key challenge encountered while utilizing AI.

4.4. Guiding Principles

Participants emphasised the importance of developing **AI literacy** among both students and teachers. They believed that equipping users with a clear understanding of AI's functions, limits, and ethical use is essential for maximising its benefits in educational contexts.

Int 3.2:

> "I would recommend my students to use AI for designing their posters... when I explain how to use it, it helps them become more confident and creative."

In parallel, many participants stressed the need to address the **over-reliance on AI**. They expressed concern that excessive dependence might limit students' independent thinking and problem-solving abilities.

Int 1.1:

> "You start and expand by yourself. You don't need to rely excessively on these tools."

4.5. Implementation Suggestions

There was strong support for thoughtful **AI integration in teaching and learning** (T&L). Participants suggested that AI could effectively support both teachers in lesson planning and students in creative tasks, provided its use is purposeful and pedagogically sound.

Int 3.1:

> "As an English teacher, I use AI a lot for designing activities and lesson planning. I used to struggle finding suitable resources—now I can make my own."

Another key recommendation was to follow the principle of **"Human starts, then AI"**, to ensure that AI supports, rather than replaces, original thought.

Int 1.1:

> "You can ask students to use AI generators, but you should tell them to use it wisely—start with their ideas first."

Participants also noted the need for **better AI applications**, especially paid ones, which are more accessible, ethical, and tailored to educational needs. Overall, student

teachers reported that AI was highly beneficial for both themselves in their practice and for their students. However, the caveat that the human should always be in control was reiterated as a guiding principle.

5. Discussion

Having presented the main findings, the discussion is organised around the four research objectives, taking into account the findings in relation to relevant literature.

Objective 1: Explore the extent to which AI tools promote creativity with EFL students as perceived by the students in creating their posters.

The data showed that AI tools played a significant role in enhancing students' creativity, especially during the early stages of brainstorming and designing their posters. Many students reported that tools like ChatGPT, graphic generators, and video editors helped them quickly generate ideas, explore different layouts, and create visual content, which is in line with Treve [13]. These tools gave them instant access to a wide range of templates and creative suggestions (Int 1.1), making it easier to get started. This supports the findings of Hwang and Tu [42] , who view AI as a driver of divergent thinking by offering varied options and alternative perspectives. However, students noted that while AI can generate content quickly, it often lacks the depth of human contextual understanding and critical thinking. This concern is echoed by Sheikh et al. [43] and Dahal [44], who warn that relying too heavily on AI may hinder the development of higher-order thinking skills.

Despite these concerns, many students appreciated how AI could summarize information, simplify complex concepts, and provide ready-made content. These features were especially helpful during the early creative phases, allowing students to conserve mental energy for more complex decision-making later on (Int 1.2, Int 4.1). This aligns with Pardede's [12] view that AI can be a valuable tool for supporting student creativity.

However, some students expressed caution about becoming too dependent on AI for quick answers, warning that this might lead to surface-level learning and lower engagement — a point also raised by Woo, Guo and Salas-Pilco [21]. Others worried that AI could limit creativity by offering overly polished or generic ideas, reflecting Shu and Xu's [23] argument that overly structured tools can suppress original thinking.

The data also highlighted a more nuanced view of AI's role in creative work. While many found AI helpful for getting started, some students emphasized the importance of maintaining personal involvement and authenticity. For instance, one participant (Int 3.1) chose to redesign their poster manually, despite having used AI initially, explaining that the process felt more satisfying and personally meaningful. This reflects Cosgun and Atay's [11] argument that true creativity is rooted in originality and emotional connection — qualities that AI cannot fully replicate.

Objective 2: Evaluate the effectiveness of AI tools in enhancing students' critical thinking skills after implementing the tools within EFL courses

The role of AI in supporting critical thinking sparked more debate among students. While some found it helpful, especially in breaking down complex terms and assisting with decision-making by summarizing information (Int 1.2, Int 2.1), others were wary of relying too heavily on it, worrying that it might weaken their ability to think independently or solve problems of their own (Int 2.2). The responses revealed a mix of appreciation and scepticism, with students' opinions largely depending on how they used the AI tools. These findings align with Cosgun and Atay [11], who argue that well-structured technological interventions can support EFL learners by scaffolding their critical thinking and problem-solving processes. Similarly, Darwin et al. [4] point out that when used thoughtfully, digital tools can help close cognitive gaps by encouraging reflection and analytical discussions.

However, several participants raised concerns that over-reliance on AI could backfire. Some noted that AI often delivers quick, superficial answers, which can limit opportunities for deeper thinking and meaningful analysis (Int 3.2, Int 2.1, Int 1.2). This concern Korucu-Kış [19] warns that while technology can support cognitive growth, it must be paired with tasks that encourage self-reflection and independent reasoning. In addition, Darwin et al. [4] and Ghedir and Gasmi [45], add that uncritical use of AI tools may reduce students' intrinsic motivation to fully engage with learning content. Instead of grappling with material themselves, students might begin to accept AI outputs

at face value, weakening their ability to think critically.

Students' mixed perspectives suggest that AI's influence on critical thinking depends greatly on the way it is integrated into learning. When used for idea generation, brainstorming, or gathering initial insights, AI appeared to enhance cognitive engagement (Int 1.1, Int 4.3). But when used merely to complete tasks with minimal personal input, it seemed to limit critical development (Int 3.2). This tension reflects the findings of Melisa et al. [24] , who emphasize that while AI has the potential to improve educational outcomes, its impact depends on thoughtful, ethical, and reflective use in the classroom.

Objective 3: Investigate the Influence of AI Tools in Fostering Teamwork among Students in Completing Their Projects.

Students acknowledged the supportive role of AI in collaborative assignments, particularly when working together on posters and video projects. They described how AI tools facilitated shared access, enabled real-time collaboration, and provided structured frameworks that improved the flow of communication and coordination within digital workspaces (Int 1.1, Int 4.3). These insights are consistent with Mena-Guacas et al. [30], who highlighted AI's capacity to strengthen group dynamics and task management. Although students did not always credit AI as the primary factor behind successful teamwork, many noted its usefulness in managing the transition between different project phases [33]

Students also expressed appreciation for how AI simplified the early stages of group projects. They found AI beneficial in summarizing key information, breaking down complex ideas, and suggesting initial directions, which teams later developed collaboratively (Int 1.1, Int 1.2). This process appears to support the idea of AI as a cognitive scaffold—an observation also made by Atchley et al. [28], who argued that AI enhances learners' mental processes by offering structure and inspiration. Similarly, Kim and Cho [25] and Kim, Ham and Lee [46] emphasize AI's role in generating varied input that stimulates creativity and supports idea development. Tools used for visual design, such as AI-based platforms offering templates and layout suggestions, were particularly praised. These features encouraged students to discuss and negotiate design choices collectively (Int 1.1), mirroring the conclusions of Renz and Vladova [31] who found that AI can stimulate deeper group discussion through creative diversity when teachers are also present as collaborators to set ethical guidelines.

However, while AI was seen as a useful aid in enhancing collaboration, students did not always attribute the success of teamwork solely to AI. They described AI as a facilitator—something that helped divide tasks, foster communication, and inspire creativity—rather than a replacement for human interaction or decision-making (Int 1.1, Int 4.3). This viewpoint echoes Molenaar's [47] argument that AI, while supportive, does not diminish the importance of human agency in collaborative learning environments. Thus, the participants portrayed AI as a valuable partner in group work, one that enhances but does not overshadow human input [28,47].

Objective 4: Explore students' perceptions of the main challenges they encounter in utilizing AI tools in EFL classes.

Several challenges emerged from students' experiences with AI tools. An important concern was the lack of cultural and contextual depth in AI-generated responses, which at times led to content that felt disconnected or superficial. One participant (Int 2.1) noted this issue explicitly, and it was echoed by others, reflecting a broader difficulty with AI's ability to account for situational and cultural nuances. This limitation poses a particular challenge in EFL contexts, where cultural relevance is tightly interwoven with language learning. Burke and Akhtar [32] similarly observed that large language models frequently fall short in demonstrating cultural sensitivity, often producing generic or context-inappropriate content. This aligns with the findings of Kavanagh et al. [48], who highlighted how the absence of localized data inputs reduces AI's instructional effectiveness in culturally diverse learning environments.

Students also reported mixed experiences in terms of usability. While many found AI interfaces user-friendly, some encountered technical difficulties that hindered their productivity. For instance, inappropriate suggestions generated during video production (Int 4.2) disrupted the creative process and added extra workload. These frustrations are consistent with Hwang and Tu's [42] study, which found that, despite the creative potential of AI, technical issues and inaccuracies can negatively affect learner engagement.

Additionally, several participants expressed disappointment with the impersonal nature of AI-generated content. They felt that the outputs often lacked emotional resonance and failed to reflect their personal voice (Int 3.1). Ji, Han, and Ko [49] supported this sentiment, emphasizing that students value expressive tone and individuality, elements often absent in AI-generated texts.

These concerns point to the importance of thoughtful integration of AI in education. Students suggested that AI should serve as a support tool rather than replace human judgment and creativity. Moldt et al. [50] also stressed the need to view AI as an aid to critical thinking and not a substitute for it, especially in environments that rely heavily on cultural expression and learner identity.

6. Conclusion and Implications

This study examined Omani (EFL) student teachers' views on the use of generative AI tools—such as ChatGPT, ChatPDF, Google Gemini, and Canvas—over a 15-week university semester, focusing on the impact of these tools on creativity, critical thinking, collaboration, and learning challenges. The results showed that student teachers generally considered AI to be a valuable support system, scaffolding creativity and critical thinking with tasks such as generating ideas, summarizing texts, designing visuals, and coordinating teamwork. This improved the efficiency of completing academic tasks, preparing lessons as student teachers and supporting students with AI. However, despite these benefits, student teachers also expressed serious concerns and challenges related to cultural constraints, lack of customization, and the risk of over-reliance on AI tools. They emphasized that AI can be a source of inspiration or a tool for writing rough drafts, but it cannot replace deep human creativity, emotional expression, and reflective thinking, which are essential elements of language learning and communication. The results of this study reveal several important implications for teaching and learning practices in Oman (EFL) in general. The study suggests carefully integrating AI tools into EFL teaching—not as a substitute for human effort, but as supportive tools that foster creativity, critical thinking, and collaboration. The findings suggest that student teachers should be given space to design activities that encourage students to meaningfully interact with AI and reflect on its output. The study also highlights the need to increase digital and AI awareness among both student teachers and their students through training that covers the ethical use and limitations of these tools. As the next generation of teachers, in particular, experimenting with interventions that support effective AI use and guide student learning can be highly valuable. Finally, organizations must ensure that AI use respects cultural contexts and student autonomy by establishing clear ethical guidelines. Overall, it has been seen that a balanced and thoughtful approach to AI in education is essential so that it can indeed empower student teachers and their learners to be creative and collaborative critical thinkers, innovatively meeting future challenges at a local and global level.

7. Limitations and Future Suggestions

This study, although insightful, had several limitations. It was conducted in a specific context—a small group of EFL student teachers at a single university in Oman—which limits the generalizability of the findings. Only a few AI tools (ChatGPT, ChatPDF, Google Gemini, and Canva) were explored, despite the rapid development of AI technologies. The study focused only on students' perspectives, excluding the views of teachers and other stakeholders who are essential for the successful integration of AI. It relied primarily on qualitative data without incorporating quantitative methods that could provide objective measurements of the impact of AI. Additionally, the study was limited to a 15-week period, which may not capture long-term effects on skills such as creativity, critical thinking, and collaboration. The absence of triangulated data sources, such as classroom observations and performance assessments, limited the depth of analysis. Challenges such as cultural insensitivity and over-reliance on AI were identified but not addressed through intervention or training. Finally, as AI tools continue to evolve, ongoing research is needed to assess their updated capabilities and educational relevance.

To address these limitations, future research should conduct longitudinal and multi-institutional studies to enhance generalizability, use mixed methods to assess perceived and measurable outcomes of AI use, explore the

relationship between digital culture and the effectiveness of its integration, evaluate a wider range of AI tools and their unique educational applications, investigate strategies to integrate culturally responsive AI and train teachers to ensure meaningful, ethical, and contextualized use of these tools in EFL education. Nevertheless, the study contributes to preliminary understandings of how student teachers perceive creative incorporation of AI within the classroom in practice. Given that this is a relatively new phenomenon, this may well be of interest to teachers, researchers and policy makers as AI use becomes increasingly commonplace.

Author Contributions

Conceptualization, Z.A.-S. and A.A.B.; methodology, A.A.B. and Z.A.-S.; validation, Z.A.-S., A.A.B. and H.K.; formal analysis, Z.A.-S., A.A.B. and H.K.; investigation, A.A.B.; resources, A.A.B.; writing—original draft preparation, Z.A.; writing—review and editing, Z.A.-S., A.A.B. and H.K.; visualization, Z.A.-S., A.A.B. and H.K.; supervision, Z.A.; project administration, Z.A.-S., A.A.B. and H.K.; funding acquisition, A.A.B.

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Institutional Review Board Statement

Ethical approval for this study was obtained from UTAS- Rustaq. Participants were informed that their involvement in the study was entirely voluntary and that they had the right to withdraw from the study at any time without any consequences. This assurance was provided to respect and protect the autonomy and rights of all participants. Ethical Reference Number is: ENGL122024.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

Data collected and analyzed for this study are available from the authors on request.

Conflicts of Interest

The authors declare no conflict of interest.

Appendix A

Focus group semi-structured interview
Participant:
Date: **Time:**
Location:

Introduction:

Thank you for agreeing to take part in this research. As you have read in the participant information sheet, we are going to have a conversation for about 20–40 minutes on the research topic. Please answer the following questions in relation to the recent use of AI tools in the poster/ website creation

Perceptions of Generative AI in Poster Creation

1. What generative AI tools did you use for creating your poster?
2. How would you describe your experience using these tools for this project?
3. To what extent do you feel the AI tools aligned with your creative vision for the poster?

Impact on Creativity

4. How did the AI tools contribute to generating ideas or visual elements for your poster?
5. How the AI tools help you explore design options you wouldn't have considered otherwise?
6. Do you feel the AI tools limit your creative input in any way? Why or why not?

Practical Application

7. How easy or challenging was it to incorporate AI-generated elements into your poster design?
8. Were there specific aspects of the poster (e.g., layout, visuals, text) where AI was particularly helpful or unhelpful?
9. How much of the final poster design was directly

influenced by the AI tools compared to your own ideas?

Collaboration and Iteration

10. Did AI tools assist in brainstorming ideas or collaborating with others during the project? How?
11. How did you balance AI-generated content with your own creative decisions?

Critical thinking

12. To what extent, do you agree with the following statement: AI enhance/hinder your critical thinking skills
13. How did AI tools enhance your critical thinking skills? For example, Evaluating and questioning and analyzing the information/ content provided by AI. you

Enhancement vs. Hindrance of Creativity

14. In what ways did the AI tools enhance your creativity while working on the poster?
15. Were there moments where AI tools hindered your creativity or made you feel restricted? If so, please elaborate.
16. Did using AI tools make the process of creating the poster feel more creative or less? Why?

Reflection and Suggestions

17. Looking back, how would you evaluate the overall impact of AI tools on your creative process for the poster?
18. What would you change about your approach to using AI tools in future projects to better support your creativity?
19. Would you recommend generative AI tools for similar creative projects? Why or why not?
20. In the future, as a teacher of English, would integrate AI tools in your classes? Why? Why not

Final thought

1. Anything else you would like to add concerning the use of AI tools in creating posters that has not been discussed before.

Closing

Thank you for participating in this interview. Your time and contribution are highly appreciated. Once this interview has been transcribed, you will be sent a copy of the transcription to ensure that you feel it is an accurate reflection of our discussion and that you are still happy for the content to be used in my research. You will also be sent a copy of the findings' report to have your final say about the content reported (as per your request).

Please note that the contact details you provide will be stored on a password-protected computer and will not be accessible to anyone else as part of the ethics procedures.

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