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Understanding Teachers' Perspectives on ChatGPT-Generated Assignments in Higher Education

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ABSTRACT

The rapid integration of AI in education has transformed instructional methodologies and administrative tasks. However, higher education teachers face challenges in creating quality assignments amidst increasing administrative burdens. This study investigates the potential of AI, specifically ChatGPT, in streamlining assignment creation. By automating aspects of assignment development, AI tools support teachers while maintaining pedagogical integrity. The study explores teachers' and students' perceptions of AI-generated assignments, focusing on their impact on student learning outcomes. Findings suggest that ChatGPT helps reduce administrative workload while enhancing academic integrity. Students found the assignments beneficial for subject knowledge, with teachers encouraging problem reconsideration, persistence, and peer collaboration. The study also discusses AI's transformative potential for education.

Keywords: Administrative burden, Assignment creation, ChatGPT, Generative AI, higher education, university education

INTRODUCTION

The swift adoption of artificial intelligence (AI) is evident across diverse sectors including healthcare, business, commerce, banking, transportation, and more. Another important field which is witnessing a lot of AI possibilities is education. Not only has AI brought forth a paradigm shift in instructional methodologies in the educational setting but, it can be utilized for carrying out a lot of administrative tasks. In contemporary higher education institutions, teachers find themselves occupied with an increasing burden of administrative tasks, a phenomenon that has become a prevalent concern affecting academic professionals globally (Smith & Johnson, 2023; Brown et al., 2022). The evolving landscape of higher education has seen a surge in administrative responsibilities for faculty members, ranging from increased paperwork related to student assessments to the demands of accreditation processes (Jones, 2021). As higher education institutions navigate complex regulatory frameworks and strive to meet accountability standards, the administrative workload on educators has surged, often diverting their attention and time away from core teaching and research activities (Miller & White, 2024). This escalating administrative burden not only takes up a significant amount of faculty's time but also impacts the overall job satisfaction of faculty and may also have broader implications for the quality of education and student outcomes. Among all the administrative responsibilities mentioned, the creation of high-quality assignments and rubric in educational settings is an inherently time-consuming task, demanding meticulous attention to detail and pedagogical expertise (Brown & Thompson, 2023; Smith et al., 2022). Crafting assignments that align with learning objectives, stimulate critical thinking, and engage students in meaningful ways requires educators to invest substantial time and effort (Jones, 2021). Additionally, the development of clear and comprehensive rubrics, integral for providing constructive feedback and ensuring fair evaluation, adds to the complexity and time investment associated with assignment creation (Miller & Johnson, 2024). Despite the temporal challenges, the significance of this undertaking cannot be overstated. Well-designed assignments and rubrics not only serve as instruments for gauging student understanding but also contribute to the overall effectiveness of the learning experience, fostering a culture of continuous improvement and academic excellence in higher education (White & Davis, 2023). The faculty members are expected to strike a balance between the execution of administrative tasks and doing justice with their academic content delivery. To ensure that both these responsibilities are done justice with, technology, especially Artificial Intelligence can be leveraged which has brought forth tools that significantly streamline the process of creating assignments and rubrics, offering educators valuable support in curriculum development (Johnson & Clark, 2022). These tools present a promising solution by automating certain aspects of assignment creation, allowing for efficient customization and adaptation to diverse learning needs. By leveraging these tools, teachers can save time while maintaining a focus on the pedagogical aspects of assignment design, ultimately enhancing their ability to provide meaningful and engaging learning experiences for students. The availability of such tools marks a positive shift towards more resource-efficient and effective educational practices in the digital age.

Challenges encountered by students

The existing body of research reflects that the students encounter challenges when faced with unclear assignment instructions, as it can impede their understanding and hinder successful completion of tasks (Jones & Smith, 2022). Ambiguous instructions may lead to confusion, anxiety, and a lack of confidence in students, impacting their overall academic performance. In this context, the role of teachers becomes pivotal in providing clarity and guidance to students about assignments. Clear communication of expectations and objectives is crucial to facilitate effective learning experiences (Brown et al., 2023). Teachers, by offering detailed explanations, exemplars, and opportunities for clarification, contribute significantly to students' comprehension of assignment requirements. This proactive role not only mitigates student apprehension but also enhances the likelihood of successful task execution, fostering a positive and constructive learning environment.

Role of Generative Artificial Intelligence (AI)

The evolution of online education has been accelerated by the global shift towards digital learning environments, driven in part by the ongoing COVID-19 pandemic (UNESCO, 2020). As educators grapple with the challenges of adapting to remote teaching, the role of AI in assisting curriculum development and assignment creation becomes increasingly significant. Understanding the nuances of teachers' perceptions is vital for the successful integration of AI tools in educational practices (Li & Ni, 2023). Generative AI, a subset of artificial intelligence, has emerged as a transformative force in the field of education, offering innovative solutions to pedagogical challenges. These systems, capable of producing human-like text and content, have found applications in various educational domains, including content creation, automated grading, and personalized learning experiences (Smith & Williams, 2023; Brown et al., 2024). ChatGPT, developed by OpenAI, is a notable example of generative AI that has gained traction in educational settings. By leveraging natural language processing, ChatGPT facilitates the generation of assignments, discussions, and other educational materials, demonstrating the potential to enhance efficiency and creativity in educational content creation (Jones & Miller, 2023). As the educational landscape continues to evolve, the integration of generative AI holds promises to foster more personalized, adaptive, and engaging learning experiences.

LITERATURE REVIEW

Teachers play a crucial role in assisting students in understanding assignment instructions clearly. One effective strategy is to provide detailed explanations of the assignment objectives and requirements, breaking down complex instructions into manageable parts (Brown & Jones, 2021). Additionally, another study emphasized that offering examples or model assignments can help students visualize expectations and clarify any uncertainties. Teachers should also encourage students to ask questions and seek clarification if needed, fostering open communication, and ensuring that all students grasp the assignment's scope and objectives (Smith & Miller, 2022). Johnson & White (2023) advocated that clear assignment instructions lead to several benefits and improvements in students. Firstly, students' experience reduced anxiety and confusion, allowing them to approach assignments with confidence and focus (Johnson & White, 2023). Secondly, clear instruction enhances student comprehension and engagement, as students have a better understanding of what is expected of them. This, in turn, leads to improved academic performance and a higher quality of work submitted by students (Taylor et al., 2024).

Research Questions

What is the perception of teachers regarding the quality of assignments generated through ChatGPT? How effective are assignments created using ChatGPT in promoting student learning and engagement? To what extent do teachers believe that ChatGPT contributes to or detracts from the development of critical thinking skills in students?

RESEARCH METHOD

Qualitative case study methodology was used for conducting this research which involves a comprehensive investigation and portrayal of a specific system or phenomenon (Merriam, 2009; Patton, 1990). The qualitative case study methodology is highly useful in research for its ability to provide rich, in-depth insights into complex phenomena within their natural contexts (Yin, 2014). By employing techniques such as interviews, observations, and document analysis, researchers can explore the intricacies and nuances of human behaviour, experiences, and social interactions (Merriam, 2009). This method enables researchers to uncover detailed, contextually rich data that may not be accessible through quantitative approaches alone, thus contributing to a deeper understanding of the researched phenomenon (Creswell, 2013).

Participants

For this research, the authors utilized the criterion sampling method to determine the respondents. Patton (1990) suggests that critical situations can serve as a valuable resource for criterion sampling due to their wealth of information. In this study, the critical situation consists of teachers who utilize ChatGPT to create assignment for their students in their respective courses, observe the students while they attempt the assignment and resolve their queries and problems that student encounter while attempting the assignment. Table 1 presents the description data about the respondents.

Table 1

Teachers and Students Distribution of Demographic Information

	Demographic variables	Value and Range of Demographic variables	F	%
Teachers	Gender	Female	17	62.96
		Male	10	37.03
	Age	25-29 years old	7	25.92
		30-34 years old	8	29.62
		35-39 years old	6	22.22
		40-44 years old	3	11.11
		45-49 years old	3	11.11
	Teaching Experience	1-5 Years	6	22.22
		6-10 Years	8	29.62
		11-15 Years	9	33.33
		16-20 Years	4	14.81
Students	Gender	Female	211	51.58
		Male	198	48.17
	Age	18-22 Years	209	50.90
		23-27 Years	134	32.72
		28-32 Years	66	16.13
	Stream	Management	345	84.35
		Computer Science	64	15.64

It also includes students who attempted the assignments developed by teachers on ChatGPT platform. Participation in faculty development program (FDP) focused on using ChatGPT for creating assignments and integrating this learning into practice with students were established as criteria for inclusion in the research.

Following an explanation of the research's purpose and process, 27 teachers working in the university environment from management and computer science domain chose to participate in the study voluntarily.

The data from Table 1 indicates that most participants in the study were female teachers, with ages ranging from 25 to 39 years (N=21). Most of these participants had between 11 and 15 years of teaching experience (N=9). On average, there were approximately 15 students in each teacher's classroom. Specifically, six teachers had 16 students, seven had 15 students, nine had 17 students, and five had 11 students. The students involved in the study consisted of 211 girls and 198 boys, aged between 18 and 32 years, with the largest proportion falling into the 18–22-year-old group (50.90%). Three hundred forty-five students came from management backgrounds, while 64 were from computer science streams. None of the students had received special education or mainstreaming, and all came from intact families.

Faculty Development Program (FDP)

The teachers participating in this study also engaged in a faculty development program aimed at utilizing ChatGPT for crafting effective assignments. One incentive for their involvement was the research's emphasis on generating high-quality assignments efficiently. However, none of the teachers in the selected region had prior experience with any generative AI tool for assignment creation. As a result, a two-day faculty development program was developed to bridge this knowledge gap. The FDP included the following:

1. Presentations and discussions: PowerPoint presentations include conceptual information like introduction to generative AI, ChatGPT, its usefulness in education field for teachers and application examples.
   In this regard, two presentations were made to teachers. A small group and extensive group discussions followed each presentation. Discussions about generative AI applications in education were planned during and after the presentation process. A sample discussion was as follows:
   Based on what we discussed today, think about the usefulness of ChatGPT in an ethical way and how it can be utilized effectively by teachers. The presentations aimed to inform teachers about various uses of generative AI in the field of education and prepare them for workshops. The presentations lasted two days.

2. Workshops: The workshops were organized to further explore and deliberate on the information presented during the presentations. The workshops, conducted with teachers, spanned a duration of two days. Two workshops were developed as part of the teachers' professional development processes. Each workshop focused on using Generative AI

for preparing meaningful and engaging assignments for students. During the initial workshop, teachers actively engaged with ChatGPT, an AI-based tool, to gain practical experience and learn how to obtain responses to various general inquiries. Emphasis was placed on ensuring teachers' proficiency in using ChatGPT and their ability to pose diverse questions to the platform.

The subsequent workshop focused on utilizing ChatGPT to generate original assignments tailored to specific course needs. Teachers executed basic as well as advanced commands within the ChatGPT platform and formulated assignments according to their curriculum requirements. The authors prepared workshop materials, outlining steps such as creating user accounts, essential procedures, and progressively refining queries to achieve desired outcomes. Likewise, in the second workshop, teachers practiced executing queries to develop assignments on specific topics, evaluating platform-provided results, refining queries to include specific requirements, determining assignment format and rubric criteria, and other relevant tasks.

3. Briefing: Briefing of participating teachers was carried out where they were briefed about how to observe students while they attempt the assignments that were provided by them.
4. Evaluation: Assessment took place following both presentations and workshops. Evaluation forms, analytical rubrics, and reflective diaries were utilized for this purpose. Participants shared their feedback on the faculty development program (FDP) via evaluation forms. The authors assessed teachers' learning processes using analytical rubrics. These assessments were focused on the FDP and results from the evaluation are discussed in the findings section. Consequently, data gathered from these assessments were not incorporated into the study's findings.

Data Collection

Data was collected from teachers who took part in the faculty development program (FDP) and utilized ChatGPT to generate assignments. Participating teachers also collected data from students who attempted these assignments. While attempting the assignments, students were instructed to read the assignment instructions, complete the assignment question, and provide feedback on the assignment's quality from their perspective. Data collection was conducted through qualitative research methods, employing observation and interviews (Merriam, 2009).

Guided Interviews

Participating Teachers involved in the study participated in the guided interviews. Prior to conducting these interviews, input from experts was sought. These experts included three researchers from behavioral science and psychology field. The interview format was finalized based on the recommendations provided by the experts. Additionally, a trial interview was conducted with a teacher who was not part of the study group to ensure clarity and effectiveness of the questions. On similar lines, a trial interview was conducted with a student as well.

The researchers conducted interviews with teachers in two stages, over the course of two days. The first interview, conducted prior to the teachers initiating the assignment creation process on the ChatGPT platform, centered on how they intended to address students' inquiries and their expectations for the assignment. These individual interviews with teachers lasted approximately 18–20 minutes each. The second interview, conducted after the teachers had completed the assignment creation and assigned the task to their students, focused on discussing the challenges faced by the students during the process. These interviews, lasting 15–22 minutes each, were conducted at the teachers' respective institutions.

Sample questions with respect to teacher's experience with using ChatGPT platform for assignment creation: *Did you discover the overall usage of ChatGPT to be intriguing and captivating? Were you successful in acquiring the assignment in the preferred format? Could you produce a refined version of the assignment when you adjusted the instructions? What is your assessment of the response time of the ChatGPT platform? In your opinion, do you anticipate that students will find the assignment generated by ChatGPT challenging to attempt? How would you describe your perception of the difficulty level of the assignment produced by ChatGPT?*

Sample questions with respect to teacher's perception about student's feedback of the assignment: *What is your response when student encounter difficulties in understanding the assignment instructions and question? Have you noticed whether students demonstrate patience and optimism when facing setbacks while attempting the assignment? Could you share your observations on this? How do you encourage students who encounter challenges to find solutions to the assignment question? Can you recount a memorable experience of supporting children in problem-solving?*

The interviews were conducted with each teacher individually.

Data analysis

The information gathered in this study underwent examination through the process of content analysis which is a research method used to systematically analyse and interpret the content of qualitative data, such as text, images, or audiovisual materials, to identify patterns, themes, and meanings within the data (Krippendorff, 2018). This method involves systematically coding and categorizing the data according to predefined criteria or emergent themes, allowing researchers to gain insights into the underlying patterns and relationships present in the data (Elo & Kyngäs, 2008). Content analysis can be applied to various types of qualitative data, including interviews, focus groups, documents, and social media posts, making it a versatile and widely used approach in social science research (Neuendorf, 2016). In accordance with content analysis principles, all data underwent thorough review and monitoring, iteratively. Subsequently, in the second phase, data were systematically coded, and themes were derived through the interconnectedness of related codes (Merriam, 2009). This analytical process unfolded across four stages. Initially, the authors meticulously reviewed each participant's interview transcripts and observation records. Then, an external researcher was enlisted to independently code the transcripts and observations. Thirdly, discrepancies were reconciled by comparing codes and categories. Finally, emerging themes were identified, and consensus was achieved with the external coder. Additionally, representative quotes were selected, and categories within themes were identified by independent coders and researchers (Seidman, 2006). Participants in the interviews which were teachers were denoted as "T1, T2, T3, … T17," while their observation notes were labelled as "O1, O2, O3, … O17." To enhance the transferability of study findings, detailed descriptions were crafted, supplemented by participant quotations. Apart from word processors, no other software was utilized for qualitative analysis.

Validity of the study

Trustworthiness

Various measures were taken to ensure the credibility and validity of the study. These included empowering participants to influence the findings, maintaining continuous observations throughout the research process, disclosing any researcher biases, spending sufficient time with participants in their natural settings, and validating research data through an independent researcher (consensus). Expert input was sought to refine the semi-structured interview protocol. Additionally, efforts were made to assess the transferability of the study findings across diverse contexts. The study's coding and themes were cross-checked by an independent researcher during analysis. Findings were presented with detailed descriptions and supported by examples. Furthermore, obtained themes were critically evaluated and contextualized within existing literature. Detailed information regarding the study's focus, research environment, and participants was provided.

Authors' role and ethical aspects

The authors possess expertise in publishing research papers concerning higher education and technological advancements, which validates the pursuit of the current work. All authors have contributed equally to this research across all stages, including data gathering and analysis, and have acted as facilitators (Creswell, 2008). Every effort has been made to maintain objectivity, refraining from passing judgment on participant behaviours or words and avoiding the creation of expectations. Prior to commencing the study, written and verbal consent were subsequently obtained from the institution administrator and participating teachers. The research findings were shared with the teachers. Throughout the study, participants were selected from volunteers, their identities were kept confidential, and questions that could potentially cause distress were avoided.

DATA ANALYSIS AND RESULTS

In this segment, the first sub-section offers an example illustrating how teachers employed ChatGPT to generate the assignments. The next sub-section outlines teachers' feedback regarding their overall experience with crafting assignments using ChatGPT, while in the next subsection, the teacher's view of student assignment attempt and feedback is discussed. The last sub-section presents the results about students' responses and feedback about the assignment quality.

Sample Hands-On Assignment Creation

This section presents a sample of how teachers utilized ChatGPT for creating assignments. This task was covered as part of the two workshops as mentioned in section 2.3. Initially, the teachers were guided to create an account on ChatGPT (http://chat.openai.com/ /auth/login). After signing up, the teachers logged in to ChatGPT with their user credentials. Figure 1 shows the home page with ChatGPT offering help like an individual. The textbox at the bottom of the figure is used to interact with ChatGPT where the teacher can write customized message for ChatGPT to act upon.

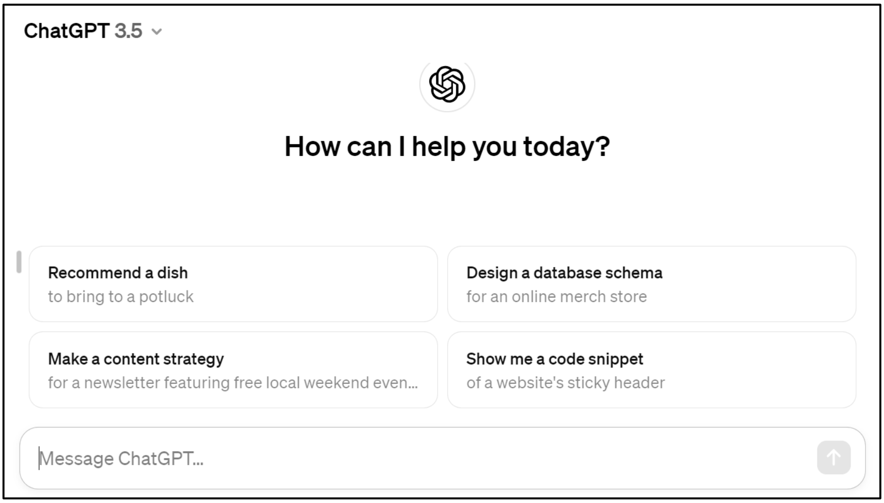

Fig 1. Home page of ChatGPT

The teachers were guided to input a simple query relevant to their subject into ChatGPT. For instance, a computer science teacher submitted the query: "generate an assignment on database models." The output of this query is depicted in the figure 2.

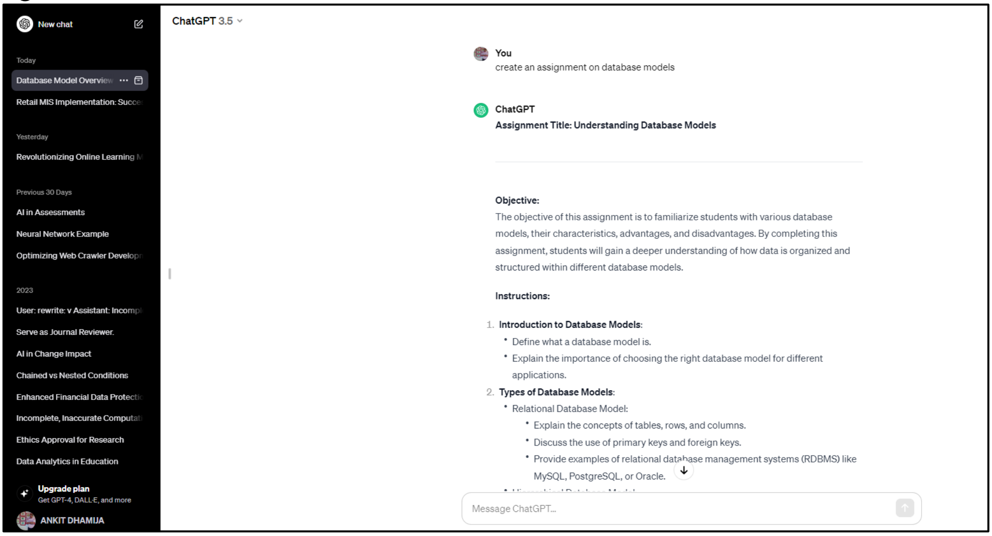

Fig 2. Simple query execution on ChatGPT

As it is visible from figure 2, there are many database models and ChatGPT provided two-three questions on each of such models. Note that the assignment objective, instructions, and submission guidelines were automatically created. Now, the teacher was asked to update the query and confine it to a specific database model which was again put on to ChatGPT as follows: “create an assignment on relational data model”. The output of this query is visible in figure 3.

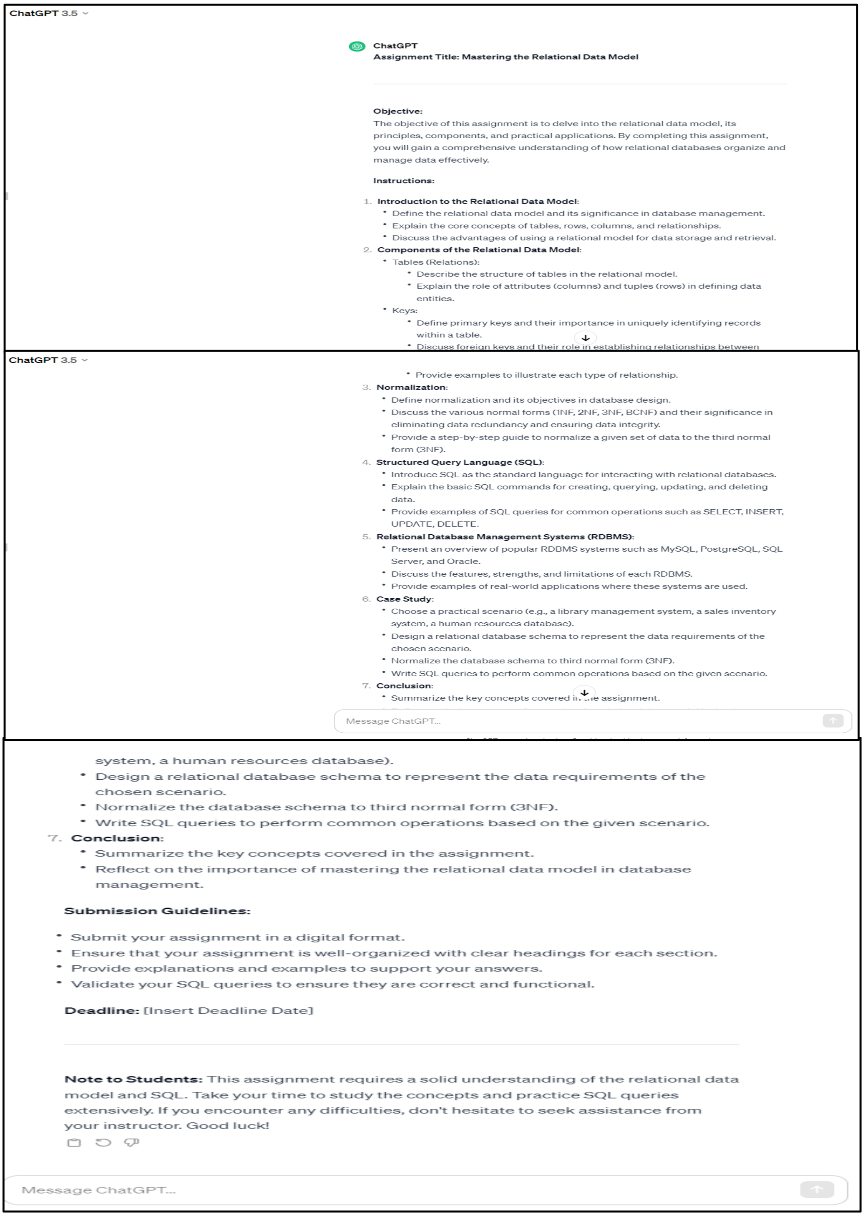

Fig 3. Output for refined query

As visible in the figure 3, the assignment specific to relational data model is created with focus on several aspects of relational data model, the submission criteria, and instructions to students. The teacher is free to use it in the present form or may modify it as per the requirement. Presently, there is no rubric in this assignment which makes it unclear to students. Hence, it can be easily modified to include the rubric. The teacher put the updated instruction to ChatGPT as follows: "include a rubric for this assignment". Figure 4 shows the rubric generated.

Criteria	Excellent (5 points)	Good (3 points)	Fair (1 point)	Poor (0 points)
Introduction to the Relational Data Model	Clearly defines the relational data model, providing insightful explanations and highlighting its importance.	Defines the relational data model adequately, with sufficient explanations on its significance.	Provides a basic definition of the relational data model but lacks depth or clarity.	Does not provide a clear definition of the relational data model.
Components of the Relational Data Model	Provides comprehensive explanations of tables, keys, and relationships, with clear examples illustrating each concept.	Explains tables, keys, and relationships adequately, with examples to support understanding.	Explains some components of the relational data model but lacks clarity or examples.	Provides vague or inaccurate explanations of the components.
Normalization	Demonstrates a thorough understanding of normalization principles, successfully normalizing the given dataset to 3NF with clear	Successfully normalizes the dataset to 3NF but may lack clarity in explanations or steps.	Attempts to normalize the dataset to 3NF but with inaccuracies or incomplete explanations.	Does not attempt to normalize the dataset or normalization attempts are incorrect.
Relational Database Management Systems	Offers an insightful comparison of different RDBMS systems, highlighting their features, strengths, and limitations with relevant examples.	Provides a comparison of RDBMS systems but lacks depth or may have inaccuracies in the analysis.	Lists RDBMS systems with brief descriptions but lacks comparison or relevant examples.	Does not provide a comparison of RDBMS systems or provides inaccurate information.
Case Study	Designs a comprehensive relational database schema for the chosen scenario, successfully normalizes it to 3NF, and writes accurate SQL queries to perform operations.	Designs a relational database schema for the scenario, normalizes it to 3NF, and writes SQL queries, but may have minor errors or omissions.	Designs a basic database schema and attempts normalization and SQL queries but with significant errors or omissions.	Does not provide a satisfactory database schema, normalization, or SQL queries for the case study.
Conclusion	Summarizes key concepts effectively, reflecting on the importance of	Provides a summary of key concepts with some r[illegible]ction on the	Summarizes key concepts but lacks reflection on their	Conclusion is unclear or does not effectively summarize key

Message ChatGPT...

Clarity and Organization	Assignment is exceptionally well-organized, with clear headings, logical flow, and coherent explanations throughout.	Assignment is well-organized, with clear headings and explanations, but may lack some coherence or flow.	Assignment is somewhat organized but may lack clear structure or coherence in explanations.	Assignment lacks organization, making it difficult to follow or understand.
Grammar and Presentation	Writing is clear, concise, and free of grammatical errors. Presentation is professional and enhances readability.	Writing is mostly clear with minor grammatical errors. Presentation is acceptable but may benefit from minor improvements.	Writing contains noticeable grammatical errors that may affect clarity. Presentation could be improved for better readability.	Writing is unclear or contains numerous grammatical errors. Presentation detracts from readability.
Total Points	45-50	30-44	15-29	0-14

Note to Students: Ensure that your assignment meets the criteria outlined in the rubric to achieve the highest possible score. Pay [illegible]tion to clarity, accuracy, and completeness in your explanations, designs, and SQL queries. Good luck!

Fig 4. Assignment Rubric Components

The teachers found the results to be extremely fascinating as ChatGPT provided the desired results within seconds. Now, the teacher can just copy the assignment on to their word processor and modify it, if needed and can share it to students.

Still, if some more updated rubric with specific requirements or point needs to be incorporated, a fresh query could be raised to ChatGPT. The best part about getting results with ChatGPT is that it remembers the previous query and as a user one just need to put the updated query in the simplest words, like "can you update this rubric in bullet points or with fresh criteria?", and the desired output is generated. Hence, the teachers realized that using this ChatGPT platform can make them highly productive as it saves a lot of time which they can utilize in research activities, mentorship, assessment, and many other productive tasks.

Teachers Feedback

The teachers who employed ChatGPT for assignment creation expressed great enthusiasm and found the experience highly engaging, interesting, and meaningful. Several teachers expressed their thoughts, a few of which are listed as follows:

> I had a fantastic overall experience as I gained substantial knowledge from this participation (T11).
>
> I thoroughly enjoyed this activity, and it proved to be an extremely captivating experience (T25).

They enjoyed the process and perceived it as rewarding. For example,

> I gained new knowledge by participating in this FDP (T6) and I feel that I possess new knowledge which many of my peers are unaware of (T15).

Teachers were also impressed by the platform's user friendliness. T1 stated that:

> I found the ChatGPT platform quite easy to use. (T1)

T9 opined that:

> I am impressed with the platform's simplicity and using it is lot of fun. (T9)

Many teachers also felt that utilizing this platform could save a significant amount of time, which could then be allocated more purposefully.

> Using ChatGPT for creating assignment has significantly reduces the time I spend generating the questions and it allows me to focus more on providing personalized feedback to students and facilitating meaningful learning experiences. (T12)
>
> I used to spend a lot of time creating assignment prompts with detailed instructions. With ChatGPT, I can swiftly generate diverse and high-quality prompts tailored to the curriculum and students' needs. (T26)

Moreover, they were impressed by the quality of the assignments generated by the platform, noting that the instructions were clear and concise, and the rubric provided was notably impressive.

> I am surprised with the exceptional quality of the assignment generated by ChatGPT and it surpassed my expectations. (T19)
>
> I was able to generate thought-provoking assignment prompts that challenge students while aligning perfectly with the curriculum objectives. (T22)
>
> The diverse range of topics and formats it can produce ensures that each assignment is unique, engaging, and tailored to meet the learning needs of most student. (T8)

Overall, teachers viewed the utilization of ChatGPT as a valuable tool in their instructional practices, contributing to the enhancement of their teaching materials and fostering a positive learning environment for their students.

Teacher's view of student assignment feedback/attempt

When the teachers asked the students to attempt the assignment generated by ChatGPT, multiple challenges were reported by students which will be uncovered in this section. The teachers supported the students in overcoming these challenges while attempting the assignment. Through their encouragement, teachers facilitated the student's ability to approach assignment from various angles and find solutions. It appears that by asking students to attempt assignments of increased complexity, teachers play a pivotal role in helping student with critical thinking and continuous improvement, assuming three essential roles: (1) prompting a reconsideration of the problem, (2) fostering patience and perseverance, and (3) encouraging communication and collaboration.

Motivation to reconsider the problem

Teachers highlighted that when students encountered difficulties in comprehending and completing the assignment instructions, they employed various strategies to inspire them to address the challenges. As per teachers, these strategies included prompting students to review the entire assignment question and instructions, approaching the task with a fresh understanding, and testing out the solutions they generated. Furthermore, teachers encouraged students to share their attempts and solutions. According to teachers, this sharing process helped students gain a clearer understanding of the assignment instructions, fostered the capacity to consider the assignment question from diverse viewpoints, and facilitated the discovery of innovative solutions. T11 emphasized her thoughts on this issue as follows:

> I tell the student to have a relook on the solution he has produced and take a judgement about whether he adhered to the assignment instructions. I want him to recall the concept of the assignment and cross-verify his submitted solution. (T11)

Initially, the teachers observed the students to grasp the difficulties they were encountering.

> I observed to understand the areas where the student struggled. (T13)
>
> When a student faced a challenge, I observed their initial actions. (T11)

Another objective of these observations was to comprehend the emotions and sentiments of the students:

> I aim to gauge the student's feelings and emotions through observation. (T13)

Teachers appear to employ guiding questions to encourage students to contemplate the problem. At this point, teacher's attempt to assist student by comforting them with their questions and giving student the impression that teacher there to encourage them and is available for help also caught attention. T21 said they tried to ignite student's thought process by asking basic questions like:

> How are you going to proceed? (T21)

Similarly, as seen in T11's statement, teacher asked student to revisit the solution he had produced, comparing it with the instructions as well as the subject knowledge possessed by the student, with questions:

> Do you feel a need to revisit the solution? Are you sure all the assignment instructions are followed while arriving at this solution? How can this solution be further improved? (T11)

Such questions helped students in refining their solutions while making them confident about their work.

> Do you find the assignment instructions clear? Are there any parts of the instructions that you found unclear? Through these inquiries, I ensure that the student engages in a genuine effort to thoroughly read the entire assignment and comprehend what is expected of them for submission. (T7)
>
> I offer encouragement to students by showing genuine interest in their solution and inquiring about their thought process behind the reasoning applied in their solution. (T4)

> I strive to offer students a fresh perspective on the assignment question. (T2)

As evident from the statements above, teachers frequently employ open-ended questions to facilitate students' problem-solving process. These questions appear to stimulate the students' cognitive processes.

Fostering patience and perseverance

Giving students encouragement to attempt the assignment patiently and have a “never quit” attitude seem to have a positive impact on students who are having challenges while understanding the assignment instructions and attempting it. Many teachers observed that the student tend to give up easily when they are stuck somewhere.

> I noticed a tendency to give up whenever student was unable to comprehend the assignment instruction and question. (T5)
>
> I observed impatience in student as they tend to quickly jump to the assignment questions without paying attention to the instructions. (T11)

Some students did showed perseverance as they continued the effort despite getting stuck by asking doubts about the assignment question and gaining clarity on the instructions as well (T23).

The teachers provided encouraging words to the students to be patient and keep trying to solve the assignment. As a result, improvement in students’ morale was witnessed and it was also reflected in the teachers’ observation notes:

> I have a better clarity of the assignment after reading the instructions multiple times. (T24)
>
> I was able to complete the assignment after seeking help from the teacher. (T2)

Encouraging communication and collaboration

Teachers promoted peer communication and collaboration among students by asking them to discuss the assignment among themselves, in small groups, of two to three students in each group. Teachers reported that students were willing to communicate and collaborate with each other and they discussed several aspects of the assignment ranging from discussion on assignment instructions, the question, and the rubric as well. T2 stated that:

> Students are taking interest in the discussion and are helping each other in understanding multiple aspects of the assignment. (T2)

However, there were also instances where students required teacher's help while discussing. T12 stated that:

> I motivate them to talk with each other and make each other understand various aspects of the assignment. (T12)

Teachers also mentioned that when they asked students to collaborate with each other, it has a positive impact on students.

> I observed students were willing to collaborate with each other and their communication improved. (T23)

Another teacher (T16) observed that:

> student who was less confident about completing the assignment was more confident after collaborating with peers. (T16)

Student's response on assignment quality

Numerous students responded positively to the quality of assignments generated by ChatGPT, expressing satisfaction with their experience and the educational value derived from attempting these tasks. Few noteworthy student feedback are as follows:

> Attempting the AI-generated assignments improved my understanding and boosted my confidence in the subject.
>
> I found the AI-generated assignments to be engaging and thought-provoking, enhancing my learning experience.
>
> The assignments facilitated a deeper exploration of the subject matter and encouraged me to delve into the topics further.

Their feedback indicated a notable increase in knowledge and understanding of the topics covered, attributing this growth to the clarity and coherence of the assignments. By engaging with the AI-generated tasks, students found themselves gaining insights and perspectives that enriched their learning journey. Moreover, the assignments facilitated a deeper comprehension of complex concepts, providing students with a clearer understanding of the subject matter. Also, the students reported satisfaction about the clarity of evaluation criteria and the assignment rubric. Some sample responses from students are as follows:

> The presence of a clear assignment rubric was immensely helpful in ensuring that I stayed on track and met all the necessary criteria.
>
> With a clear assignment rubric in place, I felt more confident in my approach to each task and knew exactly what was required to succeed.

> Thanks to the clear assignment rubric; I was able to assess my progress throughout the assignment process and make necessary adjustments to improve my work.

These responses reflect the students' understanding of the assignment rubric and shows the clarity of instructions mentioned in the assignment. Overall, students reported feeling more confident in their knowledge and abilities, empowered by the opportunity to explore and engage with the material in a meaningful way. Overall, the positive tone of students' responses underscores the efficacy of AI-generated assignments in fostering learning outcomes and enhancing students' educational experiences.

Hence, findings from the above state that teachers have been enthusiastic about the student feedback and their own experience with ChatGPT-generated assignments, finding them enjoyable and beneficial. These assignments have provided a great learning opportunity for students, allowing them to collaborate effectively and refine their skill sets. Additionally, students have expressed their interest in undertaking more challenging assignments like these, recognizing the value they bring in deepening their understanding of the subject matter.

DISCUSSION AND IMPLICATIONS

This research work emphasizes the usage of a popular generative AI tool ChatGPT by the teachers to create assignments and the role of teachers in assisting students attempting these assignments and getting their feedback on the assignments. Teachers participating in the FDP had no prior experience of using ChatGPT. However, most of the teachers felt equipped after participating in the FDP. Also, the teachers were able to assist students while they attempted the assignment and were able to resolve their problems. Further, the teachers were also able to receive the positive feedback about the assignment quality from the students after they had finished the assignment attempt. At this point, the aim of the study is meaningful. As visible from the findings, teachers found the whole activity to be engaging and meaningful. They felt empowered to have the knowledge of using a tool that can help them in completing this administrative task of creating assignments in much less time. Also, the teachers were also able to validate the usefulness of this tool through student feedback of the assignment. Teachers reported that while attempting the unique assignments, students were able to reconsider the problem at hand, imbibe important skills of patience and perseverance and better communicate and collaborate with their peers (Boaler, 2016; Bustamante et al., 2018; Stone-MacDonald et al., 2015). To facilitate students' problem-solving process, teachers encouraged students to think again about the problem by using guided questions. Findings reveal that these questions appear to stimulate the students' cognitive processes (Brookhart, 2010). In the literature also, it is emphasized that rethinking the problem can help students find potential failings and provides children with the opportunity to test, develops children's problem-solving skills. (Kuhn & Pease, 2006). Therefore, the findings are consistent with the literature.

To instil patience and perseverance in students, teachers used motivating words and pushed them to keep trying to solve the assignment. Patience and persistence in problem-solving are related to optimism, one of the EHoM (Lippard et al., 2018). Findings suggest that this strategy worked wonders, and the students were able to devote more time on the assignment and were able to complete it on their own, reflecting a sense of optimism. Optimism impacts how children perceive and respond to problems, their ability to shape their learning, and how they deal with the following problem (Pawlina & Stanford, 2011). Therefore, it is meaningful to support it.

Further, the peer discussion and collaboration were promoted by teachers which cleared students' doubts, and they gained new perspective of the assignment. The students assisted and established communication with each other. Also, they discussed their solutions with peers and teachers which further promotes effective communication The literature also suggests that promoting collaboration and communication among students in the classroom leads to increased confidence and clarity about tasks (Johnson et al., 2014; Isabelle et al., 2021). Finally, the findings from this perspective are also consistent with the literature.

Study constraints and future research prospects

This study acknowledges several limitations that must be considered when interpreting the findings. Firstly, the small number of participants restricts the generalizability of the results. While the qualitative nature of the study mitigates this limitation, as it does not aim for broad generalizations, future research could benefit from larger and more diverse participant groups to enhance the robustness of the findings.

Additionally, the involvement of teachers in a professional development process prior to the study may have influenced the data collected, potentially emphasizing post-professional development experiences over routine practices. This factor could shape the perspectives and strategies reported by teachers, limiting the applicability of the findings to everyday teaching contexts.

Another key constraint is related to the potential misuse of AI tools like ChatGPT by both teachers and students. One challenge is the over-reliance on AI by students when preparing assignments, which could compromise the educational objectives of fostering independent and creative thinking. If students become aware that their teachers are using AI to generate assignments, they may be tempted to do the same, leading to a cycle of dependency that diminishes the development of essential academic skills. To address this, it is crucial to establish clear guidelines and promote responsible use of AI. Students must adhere to their institution's code of academic integrity, which explicitly prohibits unethical behaviour, including the misuse of AI tools. Moreover, students should be informed about the AI-enabled plagiarism checkers that institutions will employ to evaluate their assignments. This awareness can help mitigate the risk of AI misuse and preserve the educational value of assignments.

Equally important is ensuring that teachers use ChatGPT appropriately when creating assignments. Teachers should carefully analyze AI-generated responses based on parameters such as alignment with the course objectives and syllabus, the difficulty level of the content, and its relevance to the intended learning outcomes. By conducting a thorough evaluation, teachers can make informed decisions about whether and how to incorporate AI-generated content into their assignments. This careful approach is necessary to maintain the integrity and educational value of the assignments, ensuring they continue to challenge students and promote critical thinking.

CONCLUSION

This research sheds light on the transformative potential of Artificial Intelligence (AI) in addressing the administrative burden faced by teachers in higher education institutions, particularly in the realm of assignment creation. Increasing administrative tasks, coupled with the imperative for maintaining instructional quality, underscore the need for innovative solutions. Through the utilization of AI tools, such as Generative AI, teachers can streamline the assignment creation process, thereby saving time and resources while ensuring pedagogical efficacy.

The findings underscore the pivotal role of clear assignment instructions in enhancing student comprehension, engagement, and academic performance. Teachers' proactive engagement in providing detailed explanations and opportunities for clarification emerges as a critical factor in fostering a conducive learning environment. Additionally, teachers' guidance and encouragement play a crucial role in helping students navigate challenges encountered during assignment attempts, thereby promoting problem-solving skills, patience, and perseverance. Furthermore, the study highlights the enthusiasm and positive experiences of teachers in utilizing AI-generated assignments. The user-friendly nature of AI platforms, coupled with the high-quality assignments produced, underscores their potential in enhancing teaching effectiveness and promoting student learning outcomes. Moreover, the study underscores the importance of ongoing professional development and support for educators to effectively integrate AI tools into their instructional practices.

Overall, this research contributes to the expanding literature on the integration of AI in education by providing empirical evidence on its efficacy in assignment creation. By providing a clarity on the benefits and challenges associated with AI-generated assignments, this study offers insights into the transformative potential of AI in fostering personalized, adaptive, and engaging learning experiences for students. Moving forward, further research is justified to explore the long-term impacts of AI integration on teaching and learning outcomes in higher education settings.

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