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Exploring faculty awareness of ChatGPT technology in teaching at Prince Sattam Bin Abdulaziz University

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Abstract: This study explored faculty members' awareness, attitudes, and challenges in using ChatGPT for teaching at Prince Sattam Bin Abdulaziz University. A sample of 320 respondents completed a questionnaire examining awareness and attitudes based on gender, experience, and academic rank. Data analysis involved descriptive statistics, T-tests, ANOVA, and LSD tests. Results revealed a high awareness of ChatGPT's teaching role, particularly among male faculty members and professors. Attitudes toward ChatGPT were generally positive and unaffected by gender, experience, or rank. Challenges were more evident among faculty with extensive experience and higher ranks, such as assistant and associate professors. The study recommends targeted training to enhance ChatGPT's integration into teaching and provides insights for policymakers to support AI adoption in higher education.

Keywords: AI; faculty awareness; teaching technology; academic ranks; ChatGPT adoption.

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1 Introduction

AI has been introduced in various segments and sectors and in social and personal applications in recent years, including education. One more truly great and productive tool in this sphere is ChatGPT, a multitasking language generator developed by OpenAI. In connection with the modern tendencies as educational institutions become more

proactive in the usage of innovation, which is the result of the sudden rate of growth of technologies, issues regarding the use of AI tools, for example, ChatGPT, emerge to the forefront. These concerns constitute the theoretical framework within which the study identifies how university faculty members embrace and apply such technologies.

Exploration of emerging trends in educational technology is particularly relevant in the Kingdom of Saudi Arabia, where the use of such technologies is expanding rapidly. This study contributes to this growing field by investigating faculty members' familiarity with and use of ChatGPT at Prince Sattam Bin Abdulaziz University. By doing so, it aims to uncover the complexities and potential applications of AI in the context of higher education (Zaragoza, 2023; Sysoyev, 2023).

The research problem is centred on a research question connected to the ways, shapes, and approaches that faculty members are incorporating recent AI technology, such as ChatGPT, into their strategies for teaching their students. While the current literature presents the future benefits and technical affordances of AI in learning environments, the perspectives of the university faculty who enact these technologies remain underexplored. To this end, the review of the literature will expand upon the following question: Are faculty sufficiently aware of ChatGPT to leverage it in their teaching? Thus, the study objectives include, notably, as follows: the exploration of the barriers to the implementation of AI The perception towards the use of the mentioned tools in education.

This research will seek to fill the existing gap in the research question as to how students in higher education institutions are using AI. For instance, the paper may present comparative analysis or give important critical prospective data on the roles of faculty in relation to AI in learning settings (Balahadia et al., 2023; Kurtz et al., 2024). This research problem emerges because there is insufficient evidence of how members of the faculty have been embracing emerging technologies in their teaching-learning processes with technologies like ChatGPT. As the applications of AI technologies promise benefits in education and increase compatibility of technologies in educational activities, recent literature reviews aimed at addressing these issues, but the current study is primarily concerned with faculties' perspectives on these technologies.

In this paper's literature review, the groundwork is established for evaluating the extent of faculty members' awareness and knowledge of ChatGPT for its implementation into their teaching practice. Lacking quantitative focus, this research aims at exploring the opportunities and concerns linked to integrating these technologies, especially in teaching. Furthermore, the study affords an overview of how AI is currently being implemented by faculty members in higher education institutions.

The increasing application of AI in education raises the possibility of the reform of pedagogy and andragogy paradigms. At the same time, while the specificity of enacted change has been often accompanied with discussions of technology or with student learning outcomes, the part of the faculty in this process of transformation has elicited much less attention. The prior research shows a range of positive and negative attitudes: students' attitudes include positive interest and specific concerns regarding the fact that AI could replace teachers or challenge traditional approaches to teaching. Furthermore, research suggests that little orientation of faculty members to integrate AI in their course delivery is given. However, there is general agreement that AI has the potential to improve teaching through the proposed custom model, discharge routine responsibilities, and facilitate evidence-based processes. This research is being carried out on the premise that more research must be done not just for faculty usage of ChatGPT but faculty

awareness of AI technologies and their attitudes towards AI as it relates to its adoption in higher education (Araujo and Cruz-Correia, 2023; Berdanier and Alley, 2023).

There is a growing interest in how the AI technologies of the current generation, especially language models like GPT, ChatGPT, and others, can be brought to use in the learning organisation. This growing interest can be attributed to the realisation that such technologies, when embraced, can bring about a change in the practice of delivering education to increase their efficiency, relevancy, and availability. Teachers and scholars have also participated in numerous studies concerning the application of AI in learning. It can be used to facilitate student participation, conduct assessments, and satisfy needs in terms of the learning-teaching process. Yet, with this increasing attention being placed on the subject, new issues and queries specifically regarding AI in the learning process arise. Hence, this study deems the faculty's perception as a very important factor in promoting the use of AI in learning. Therefore, the current study adds to this discourse on the effects of AI implementation in learning by exploring what faculties at Prince Sattam Bin Abdulaziz University think of/are doing with ChatGPT to recognise how to optimise on its strengths while minimising on the vices.

Related to the research area and study, it is helpful to know about the how and what of ChatGPT. ChatGPT is a fourth-generation model of GPT-3 using a natural language processing approach incorporating deep learning by OpenAI. In contrast to the ability to converse with ChatGPT, practical and diverse applications exist, even in spheres such as customer support, content creation, and the norms where it has started to become more regularly applied: education. The utilisation of the knowledge retrieved from the Internet within education includes using knowledge to answer questions that the students may wish to know, using it to explain matters that may be a little hard for the students to understand, using it in practice materials, and providing feedback in writing exercises. Together with the flexibility of ChatGPT, this makes it one for educators who are eager to bring something into their practices. Once again, in a class context, physical interaction with every learner may not be feasible given the sizes of the classes they teach or the inadequate resources at their disposal.

Consequently, this study continues from this premise to examine the current and potential application of the expertise of ChatGPT by the faculty members in Prince Sattam Bin Abdulaziz University. This paper's objective is to understand the existing research gap regarding faculty awareness and the adoption of AI technologies in education. Although there is increased scholarly work on the technical and pedagogical consequences of AI in education, there is limited research based on the university faculty's awareness and perception of AI.

This gap is crucial because faculty members are agents of change in educational contexts, and their adoption or rejection of the technologies likely represents a major determinant of the success of the integration of AI. The present study tries to address this research gap by exploring the level of awareness among faculty members concerning ChatGPT and its instructional uses at Prince Sattam Bin Abdulaziz University. Therefore, this research goes beyond filling gaps in literature and offers practical implications for designing measures to increase the interaction between faculty and AI technologies (Murshidi et al., 2024; Dempere et al., 2023).

1.1 Concepts and terminologies

The incorporation of artificial intelligence in learning has steadily picked steam in recent years, particularly with the use of rich language generators such as the new ChatGPT. Therefore, it is necessary to frame AI research in education by looking at a set of main concepts and terminology concerning its application.

1 *ChatGPT technology in education:* ChatGPT technology refers to a large language model developed by OpenAI that can generate human-like responses to text inputs, offering potential applications in teaching and learning environments (Kiryakova and Angelova, 2023).

2 *Faculty awareness of AI technologies:* Faculty awareness can therefore be described as the perceived capability and knowledge about the likely applications and drawbacks of AI technology such as ChatGPT for use in teaching activities (An et al., 2023).

3 *AI and teaching strategies:* Teaching and AI comprise the enhancement of teaching mechanisms using tools including ChatGPT of artificial intelligence in order to fulfil goals of student engagement and individually tailored learning (Rahman and Watanobe, 2023).

4 *Digital competencies for teaching with ChatGPT:* Digital competencies are the necessary skills and knowledge to incorporate AI and MOOC technologies into education in an appropriate and efficient manner for the purpose of educators, such as usage of ChatGPT in the class (Kohnke et al., 2023).

5 *Challenges of AI in teaching:* The pros of using AI in teaching include issues to do with integrity where there is a desire for dishonesty in teaching in that honesty is infringed by AI and the use of AI to do with the major disadvantage of over reliance on technologies that hinders thinking abilities in teaching (Wardat et al., 2023).

1.2 Theoretical framework

The theoretical support of this study is now based on an advanced model that adds the UTAUT 2 model to the existing technology acceptance model (TAM). These frameworks offer meta-understandings of the way the adoption of ChatGPT technology in faculty members' contexts can be explained with reference to both the technological factors and the behaviour of the adopters. If applying to the case of ChatGPT, the perceived usefulness is defined as the degree to which the tool may help to improve teaching approaches, including lesson development, educational material generation, or timely interactions with students (ElSayary, 2024). Perceived ease of use means how easily ChatGPT is adoptable in the faculty members' teaching practices (Al-Mughairi and Bhaskar, 2024). Also, self-efficacy, whereby the amount of confidence those faculty members have in navigating through ChatGPT, supports these constructions. This means that the more straightforward the technology is, the more it is likely to be adopted.

UTAUT 2, however, extends the analysis by incorporating additional constructs such as hedonic motivation, habit, and price value to address the broader behavioural factors influencing technology adoption. In this framework:

- Performance expectancy corresponds to the perceived benefits of ChatGPT, such as improving teaching effectiveness and efficiency.
- Effort expectancy relates to the simplicity of integrating ChatGPT into existing workflows.
- Social influence emphasises the role of institutional and peer support in encouraging adoption.
- Facilitating conditions highlight the availability of resources, training, and policies to support ChatGPT usage.
- Hedonic motivation pertains to the enjoyment derived from using ChatGPT, which can drive its acceptance as a teaching tool.
- Price value examines the cost-benefit trade-off, relevant to institutional and personal investments in adopting ChatGPT.
- Habit reflects the impact of previous experiences with AI tools on current adoption behaviours.

Like the focus on ethical concerns identified in both the TAM and UTAUT 2 models, ethical concerns are central to the faculty's perception of ChatGPT. Concerns like overdependency on AI, big data management, and the moral advantages and disadvantages of using AI in education are still challenges (Ausat et al., 2023; Kiryakova and Angelova, 2023). Professors will not use AI tools, such as ChatGPT, for their courses unless regulatory milestones are created by the institutions themselves (Al-Khresheh, 2024). Finally, there are essential institutional support requirements for increasing faculty awareness and their championing of ChatGPT. Awareness raising, hotlines and help lines, partnerships, convening, technical assistance, training, and policy advocacy are needed to address resistance (Al-Khresheh, 2024). The integration of the TAM and UTAUT 2 models provides a framework for studying the nature of the factors that may affect ChatGPT adoption in higher education, the opportunities for which must be effectively larger and more diverse than those offered by previous generations of tools.

2 Literature review

2.1 Critical literature review: faculty awareness of ChatGPT technology in teaching

2.1.1 Synthesis and integration of themes, awareness and adoption of ChatGPT

Analysis and conclusion: recognition and embrace of ChatGPT across the reviewed studies, a consistent theme emerges: ChatGPT is therefore acknowledged and appreciated as an innovative means with considerable impacts on teaching and learning processes. Pavlova (2024) underscored them as aspects of enhancing accessibility and enhancing research abilities via such approaches to flipped dialogic learning. Similarly, Yang et al. (2023) and Lo (2023) have pointed out its use in a logical analysis as well as setting up a model for students learning as well as giving them particular lessons. Sok and Heng (2024) take this forward by demonstrating how ChatGPT can enhance, for instance,

formative and summative assessments and academic writing, and Petrovska et al. (2024), in highlighting how it can foster critical appraisal in software development learning.

2.1.2 Concerns and risks associated with AI integration

Still, the integration of ChatGPT is far from easy, and there are many concerns, such as ethical and data issues with reliability. Another set of papers covers algorithmic biases by Bečulić et al. (2024), plagiarism and misinformation by Neumann et al. (2023) and Lo (2023). For example, Thottoli et al. (2024) and Dempere et al. (2023) also discuss the issues of data privacy and academicians' integrity. Specifically, to ethical questions, Ogurlu and Mossholder (2023) state that overreliance on AI tools may lead to limitations such as low student engagement. Zaragoza (2023) and Yuan (2023) continue these thoughts, referring to the increasing presence of AI written materials and the inability of institutions to address the connected dangers.

2.1.3 Strategies for effective integration

The studies suggest several approaches to handling these issues and optimising the potential of ChatGPT. Rajabi et al. (2023) call for more research efforts and development with the use of appropriate teaching practices. Likewise, Kurtz et al. (2024) argued for a layered model that includes policy based reform, structural reform, and professional development. Montenegro Rueda et al. (2023) and Murad et al. (2023) stress the importance of the existence of specific guidelines and sufficient pre service preparation. In addition, Zhou (2023) outlines that an AI teaching assistant robot should be introduced to augment teaching efficacy; the use should be supervised by humans to prevent misuse.

2.2 Comparative analysis

2.2.1 Key findings and points of agreement

1 *Educational benefits:* There is consensus among the studies that ChatGPT facilitates critical thinking, personalised learning, and engagement. Studies like Balahadia et al. (2023) and An et al. (2023) specifically highlight its potential to save time and enhance student participation.

2 *Challenges and ethical concerns:* Most studies acknowledge challenges like plagiarism, ethical misuse, and over dependency on AI. For instance, Kiryakova and Angelova (2023) stress the importance of cautious integration to avoid unethical practices.

3 *Need for structural support:* Several studies, including Rajabi et al. (2023) and Kurtz et al. (2024), highlight the importance of institutional policies and training to ensure effective AI integration.

2.2.2 Points of disagreement

1 *Impact on creativity:* While Yang et al. (2023) note ChatGPT's limitations in fostering creativity, Pavlova (2024) suggests that it enhances research abilities, including creative problem solving.

2 *Extent of AI utilisation:* Some authors, like Zaragoza (2023) and Yuan (2023), focus on the negative aspects, such as biases and cheating, whereas others, like Balahadia et al. (2023) and An et al. (2023), emphasise its academic benefits.

2.2.3 Research gaps

While the reviewed studies provide substantial insights, notable gaps remain:

1 *Long-term impacts:* There is limited exploration of ChatGPT's long term effects on critical thinking, problem solving skills, and academic ethics. Most research focuses on short term benefits like enhanced engagement and productivity.

2 *Universal protocols for ethical use:* Despite widespread acknowledgment of ethical challenges, there is a lack of clear, practical frameworks to mitigate risks like bias and dishonesty.

3 *Specialised applications:* While some studies address discipline specific applications, there is a need for more empirical research in specialised domains, such as medical education or advanced engineering.

The incorporation of ChatGPT into higher education has the prospect of revolutionising accessibility, personalisation, critical analysis, and deliverability in the academic environment. At the same time, it generates considerable difficulties and risks, the most important of which are ethical problems, violations of academic integrity, and disparities in institutional readiness. To remove such barriers, there is a need for structured methodologies, teacher training, and policies that reflect innovation. The benefits are enormous, but the ethical and realistic concerns should not be overlooked. As a result, studies are needed to establish pragmatic paradigms and assess the long-term impact of AI on learning environments to build a sustainable, ethical, and effective approach to integrating smart technology into classrooms.

This void provided the rationale for future longitudinal studies that compare and analyse the consequences of artificial intelligence in education and the development of a code of ethical usage of the technology, like ChatGPT, that educators and institutions shall adhere to. Thus, by filling these gaps, further research can present more definitive results of the ChatGPT influence on education in the long term and suggest solutions for ethical and effective usage of the tool.

2.3 Statement of the problem

A very significant potential exists in the implementation of artificial intelligence in university-level teaching and learning. These technologies include ChatGPT, a large language model developed by OpenAI to address grid tasks; providing personalised feedback; designing learning material; and enabling interactive learning. Moreover, the use of ChatGPT is not very common even among faculties, even though the fact that it can be accessed from any part of the world; faculties from the Kingdom of Saudi Arabia are not excluded. This is quite worrisome and raises pertinent questions concerning the level of awareness among the faculty concerning the formative technologies in use in their institutions, their perceptions about these technologies, and the issues preventing the adoption and use of formative technologies in their teaching and learning practice (Zaragoza, 2023; Balahadia et al., 2023).

While awareness is defined here as more than knowing that the technology is available, it is also about understanding what can be done with it, what its constraints are, and the possible impact on educational practice. For instance, the awareness that the faculty has to possess should include how or in what ways the implementation of AI technologies, such as ChatGPT, might alter educational interactions. Despite the feasibility and the ability of these mechanisms to improve student participation and performance, there exist associated threats like overdependence on AI and specimen ethical issues like data abuse and prejudice. This underscores the importance of future research that goes beyond the level of exposure to evaluate preparedness and commitment among faculties towards the integration of such technologies into their teaching and learning practices responsibly, cognisant of existing concerns such as cheating and overreliance on AI technologies (Sun and Hoelscher, 2023; An et al., 2023).

One of the greatest barriers to implementing AI technologies such as ChatGPT in the classroom is faculty training and preparedness. Most faculties have had little training in how to teach with these new forms of technology, and therefore they understudy or completely avoid the use of AI educational technologies. This is why there is a need for vast and extensive training programs for teachers that will not only teach them what AI is but also how to implement it in the classroom. Any training that ought to be provided should prepare faculty for the role of critically evaluating and moderating use of such content and approaches to embedding AI that does not compromise the role of human intervention for students (Divito et al., 2023; Javed and Arooj, 2023).

Another critical issue is therefore academic integrity. The simplicity with which the content can be produced taken from AI has also increased concerns about plagiarism and other cases of academic malpractice. With advanced AI systems such as ChatGPT, it becomes almost challenging to differentiate between copywork and plagiarism, and therefore such assignments inhibit the ability of educators to fairly evaluate student's submissions. Thus, there is a need to nurture new assessment approaches that can work efficiently in learning with the help of AI while not compromising on quality. Such methods must call for the improved assessment of the learning achievements of learners while avoiding misconduct (Krupp et al., 2023).

The final dimension that needs discussion is institutional support. Teacher professionals need not only access to technical tools but also institutional support to adopt the AI systems in teaching. Even where such attitudes are present, other factors may well be potential barriers to effective technological integration in teaching and learning: specifically, the absence of an institutional culture that encourages and supports innovation through providing sound policy guidelines. Teachers need lasting instruction improvement and the development of AI tech support for teaching and learning that is embedded in academic institutions (González-Geraldo and Ortega López, 2023).

Finally, the ethical consideration must be given regard. Teachers are expected to implement the best AI ethical practices, for example, protecting the students' identities, making the algorithms public, and ensuring that the use of AI does not make education inequality worse. Overcoming these ethical issues is important to realise equitable use of IT in education and maintaining honour and professionalism in education. Appropriate regulation of AI in education cannot be initiated unless there are clear guidelines regulating the application of artificial intelligence and determination of its impact on fairness and inclusiveness of the educational environment (Killian et al., 2023).

AI's use in higher learning is revolutionary, especially with ChatGPT, in delivering tailored learning experiences, organised and innovative interactions, and efficient

utilisation of resources. However, there are critical gaps in faculty awareness, preparedness, and use of such technologies, especially at Prince Sattam Bin Abdulaziz University. This study reveals some of the emerging issues that arise in faculty development, such as faculty training, ethical issues, and institutional support. While existing literature highlights the benefits of AI in education, this study uncovers a unique context-specific problem: it is an issue because most faculty members fail to possess the technical know-how as well as institutional backing that is so essential in the courses' implementation. In addition, the question of ethics, academic misconduct, and the validity of data continues to be an area of limited concern in the local academic environment. All these factors combined make it difficult for ChatGPT to be adopted in university classrooms.

First, the problem statement addresses both new developments and underscores the novelty of this study's focus on faculty awareness and perception as fundamental factors for AI integration into teaching. With regard to these gaps, therefore, this research aims at putting forward practical recommendations on how AI can be applied in higher learning in present and future settings. Therefore, this study aims to address the primary research question: How much do faculty members of Prince Sattam Bin Abdulaziz University understand about ChatGPT technology, and are they ready and willing to integrate it in teaching? To answer this question, the research targets the Saudi Arabian educational setting, discussing possible benefits and concerns with ChatGPT integration. Moreover, it offers specific suggestions regarding future AI application enhancement in higher education to fill such gaps and facilitate the proper implementation of such technologies.

2.4 Objectives

1 To examine the perceived significance of ChatGPT technology in teaching, faculty members at Prince Sattam Bin Abdulaziz University.

2 To uncover the attitudes and perceptions of faculty members toward the integration of ChatGPT technology into their teaching practices at Prince Sattam Bin Abdulaziz University.

3 To identify and analyse the challenges that faculty members at Prince Sattam Bin Abdulaziz University encounter when utilising ChatGPT technology in teaching.

3 Methodology

3.1 Study approach

This research uses quantitative survey research technique, which is particularly developed to gather numerical data from Prince Sattam Bin Abdulaziz University. The methodological approach guarantees the presentation of a clear plan of participants' awareness and perceptions' analysis. A five-point 'Likert' scale was opted for because, while it is very basic, it provides enough differentiation to yield sound results. It also enables participants to make choices easier when filling out their questionnaires and manageable for researchers when analysing the dataset. Even though a seven- or nine-point scale might provide more variations between the points, it was agreed that a

five-point scale would suffice for the goal of the study. Notably, the Likert scale has gone further to embrace the basic properties of ordinal measurement, where it considers the scale as measuring rank rather than intervals bearing equal difference, thus guaranteeing a precise measure in the analysis of the outcomes of the study questions.

3.2 Research design

The study design was to be descriptive in this paper to determine the frequency distribution of responses collected from faculty members of Prince Sattam Bin Abdulaziz University. There is a suggestion to discard the term 'observational' because the data collected in surveys do not include observer bias and portray participants' genuine attitudes and experiences.

3.3 Sampling and population

Participants in the cross-sectional study were all the 1908 faculty members drawn from Prince Sattam Bin Abdulaziz University, including teaching assistants, lecturers, senior lecturers, associate professors, and professors. Among this group, a stratified random sample of 320 faculty members was selected, which was approximately 16.8% of the total identified population. The sample 1,300 was selected from Kerjcie and Morgan (1970) to get an accurate representative of the larger group anthropology Table 1.

Table 1 Study sample distribution according to the demographic variables (n = 320)

Variables		*N*	*%*
Gender	Male	154	48.1
	Female	166	51.9
Years of experience	Less than 5 years	54	16.9
	5 to 10 years	88	27.5
	More than 10 years	178	55.6
Academic rank	Teaching assistant	34	10.6
	Lecturer	70	21.9
	Assistant professor	112	35.0
	Associate professor	70	21.9
	Professor	34	10.6

3.4 Data collection

The data were obtained from survey questionnaires through responses that the participants provided after completing the 'ChatGPT awareness questionnaire', developed for this research. A pilot of thirty self-administered questionnaires comprised of members of the faculty was administered. In particular, the pilot study made it possible to understand what aspects can influence the clarity and the connection of the items in the questionnaire and make needed adjustments based on the respondents' comments. They averted that this initial process aimed at increasing the validity and reliability of the instrument that would be employed in the actual study. With these modifications, the

finalised questionnaire was disseminated electronically to the initial sample of 320 faculty members.

3.5 Reliability statement

Based on the scores obtained in the assessment of the developed 'ChatGPT awareness questionnaire' items, the internal consistency of the taken scores was established using Cronbach's alpha reliability coefficient and achieved 0.95. Once more, such a high coefficient assured internal homogeneity of the items in the completed questionnaires, and thus, the reliability of the instrument for the assessment of the intended construct too.

3.6 Validity statement

To establish the content validity of the questionnaire, the same was shared with a group of experts with experience in the field of educational technologies, curriculum development, and using AI in the educational sectors. All these experts were chosen according to their credentials, with each having well over ten years of active engagement in these disciplines. Some of the input comprised making the instrument clear, appropriate, and consistent with the goals of the study as a way of making the instrument valid. Biographical information of the members of the expert panel is summarised in Table 2.

3.7 Statistical tools

The normality of the distribution of the statistics should also be checked before the conduction of the analysis, so the Shapiro-Wilk test was used, which has been proved effective, especially for small sample research. The null hypothesis that the population from which the current sample was a representative of had a normal distribution was also rejected at the 0.05 alpha level. Thus, in situations whenever possible, parametric statistical tests were applied to fine-tune the findings to make fully defensible statistical conclusions and inferences. Such steps help make the findings more accurate and contain the possible problem of assumption of normality to a great extent. In addition, inferential statistics t-tests comparing scores for independent variables as well as one-way analysis of variance (ANOVA) along with least significant difference (LSD) were used to compare the students' performance with significant demographic variables such as gender, rank, and teaching experience.

3.8 Study significance

Strengths of this research lie in the examination of solutions that can be beneficial for Prince Sattam Bin Abdulaziz University and, at the same time, are feasible within the framework of this educational institution. The research provides solutions to questions about the level of awareness among the faculty and the extent to which the AI technologies are being implemented; however, the data cannot be used to generalise to other institutions without such validation. In the same way, such deployment seeks to achieve specificity in pinpointing factors that contribute to the adoption of AI in the university. However, for the purpose of generalising the applicability of these results,

further knowledge should be enriched through trailing similar research in other institutes. To this end, the study offers a contribution to the literature on the use of artificial intelligence in higher learning while calling on researchers to undertake expansive studies that can capture the rich, diverse environment of the institutions.

Table 2 Reliability coefficients of the research tool (N = 99)

Topic	*Item*	*Cronbach's alpha if item deleted*	*Item-total correlation*	*Corrected item-total correlation*	*Cronbach's alpha of dimension*
Importance of (ChatGPT) technology	1	0.917	0.75**	0.70**	0.924
	2	0.918	0.74**	0.68**	
	3	0.919	0.71**	0.67**	
	4	0.919	0.72**	0.65**	
	5	0.915	0.79**	0.75**	
	6	0.915	0.80**	0.77**	
	7	0.919	0.69**	0.64**	
	8	0.914	0.81**	0.77**	
	9	0.922	0.64**	0.57**	
	10	0.913	0.84**	0.81**	
	11	0.923	0.66**	0.58**	
	12	0.918	0.72**	0.66**	
	13	0.922	0.60**	0.53**	
Attitude towards (ChatGPT) technology	1	0.826	0.79**	0.72**	0.852
	2	0.830	0.74**	0.68**	
	3	0.843	0.59**	0.51**	
	4	0.841	0.61**	0.52**	
	5	0.839	0.64**	0.55**	
	6	0.825	0.81**	0.75**	
	7	0.878	0.42**	0.28**	
	8	0.828	0.76**	0.70**	
	9	0.832	0.71**	0.63**	
	10	0.833	0.71**	0.63**	
	11	0.852	0.50**	0.34**	
Difficulties facing the use of ChatGPT technology	1	0.862	0.52**	0.39**	0.862
	2	0.861	0.56**	0.43**	
	3	0.855	0.62**	0.51**	
	4	0.837	0.78**	0.70**	
	5	0.840	0.76**	0.67**	
	6	0.831	0.83**	0.77**	
	7	0.830	0.83**	0.76**	
	8	0.850	0.67**	0.56**	
	9	0.852	0.65**	0.54**	

Notes: **sig. at 0.01; to construct the credibility of the study tool, the tool was shown to reviewers in educational technologies, curricula, teaching methods, and pedagogy, and all comments from the reviewers have been addressed.

4 Results

In this section, the authors provide the study results, whereby the data has been analysed according to the three research questions posed in this study. The responses to the questionnaire were scored on a Likert scale of five points, where responses to the first most important question provided the level of importance of ChatGPT technology in teaching, while responses to the second-attitude question provided the attitude of the respondents on the usefulness of ChatGPT technology in teaching at Prince Sattam Bin Abdulaziz University. We were also able to determine the overall sentiments of the faculty members by grouping the responses into five levels, and from the result we could compare the responses made by the faculty members based on gender differences, experience years, and rank. The following are the findings of the study: firstly, the significance of ChatGPT technology; secondly, the perceptions towards the usage of ChatGPT technology; and thirdly, the issues encountered when implementing ChatGPT technology.

Table 3 Distribution of response range according to the grading used in the study

Items	*Response range*	*Degree of importance/attitude/difficulty*
Strongly agree	4.20≤–5.00	Very high
Agree	3.40≤–<4.20	High
Neutral	2.60≤–<3.40	Medium
Disagree	1.80≤–<2.60	Weak
Strongly disagree	1≤–<1.80	Very weak

Because the questionnaire items were assessed on a scale of 1 to 5, the following means were used to analyse the level of responses to the items. The overall score obtained for each respondent for each topic was then transformed to a five-point scale by dividing the total score by the number of items in the topic. Subsequently, the responses were categorised into five equal levels using the following equation: category length = (maximum weight minus minimum weight) ÷ number of questionnaire options = (5 – 1) ÷ 5 = 0.80. This calculation made it possible to classify responses into the categories indicated in Table 3.

Below are the results of answering the study questions.

The results related to the first question:

The first question is: in what way does the ChatGPT technology enhance teaching from the view of faculty members at Prince Sattam Bin Abdulaziz University? In other words, does the usefulness of ChatGPT technology depend on the gender, years of professional practice, or the academic title of the employees? The results are presented in Tables 4 and 5.

Table 4 shows that the first topic, 'Awareness of the importance of ChatGPT technology in teaching', consists of 13 statements. According to the respondents, four items were considered very important; the remaining 15 items were considered important. No statement received a label of moderate, low, or very low importance. The faculty members were given the following statements to complete: The average values for these statements ranged between 3.90 and 4.33, with 0.43 as the minimum difference between the highest and lowest score, which indicates that there is an acceptable level of awareness among the faculty members. The average score of participants for this topic

was 4.10 out of 5, which indicated a high level of awareness of ChatGPT technology, which is important for teaching at Prince Sattam Bin Abdulaziz University.

Table 4 Frequencies and mean scores of sample members' agreement on statements regarding the importance of ChatGPT technology (N = 320)

No.	*Items*	*Strongly agree*	*Agree*	*Neutral*	*Disagree*	*Strongly disagree*	*Mean*	*Degree of importance*	*Rank*
1	The use of ChatGPT technology enhances the positive interaction of students with educational content.	124	144	41	8	3	4.18	High	4
2	(ChatGPT) technology contributes to increased participation among students in classrooms.	130	126	46	16	2	4.14	High	6
3	(ChatGPT) technology provides additional educational resources.	140	150	26	3	1	4.33	Very high	1
4	(ChatGPT) technology contributes to enhancing students' thinking skills.	100	142	50	24	4	3.97	High	9
5	(ChatGPT) technology increases motivation for learning.	90	176	36	18	0	4.06	High	7
6	(ChatGPT) technology evolves teaching and learning methods.	112	174	30	4	0	4.23	Very high	3
7	(ChatGPT) technology helps overcome difficulties in studying certain subjects.	120	170	24	6	0	4.26	Very high	2
8	(ChatGPT) technology contributes to achieving learning objectives.	78	176	42	24	0	3.96	High	10
9	(ChatGPT) technology provides accurate and quick answers to students' inquiries.	94	164	44	14	4	4.03	High	8

Table 4 Frequencies and mean scores of sample members' agreement on statements regarding the importance of ChatGPT technology (N = 320) (continued)

No.	*Items*	*Strongly agree*	*Agree*	*Neutral*	*Disagree*	*Strongly disagree*	*Mean*	*Degree of importance*	*Rank*
10	(ChatGPT) technology enhances students' self-directed learning.	112	162	26	18	2	4.14	High	6
11	(ChatGPT) technology is an effective tool to improve students' writing and idea expression skills.	88	160	42	28	2	3.95	High	11
12	Our university will achieve leadership when its members apply (ChatGPT) technology.	82	154	58	22	4	3.90	High	12
13	(ChatGPT) technology is an effective tool to support learners with disabilities by providing services to assist them in learning.	98	182	34	6	0	4.16	High	5
						Overall mean of the topic	4.10	High	

Table 5 Results of the t-test and analysis of variance to study the differences in the importance of the ChatGPT technology due to gender, years of experience, and academic rank

Variable	*Group*	*N*	*Mean*	*Std. deviation*	*T-test*	*F-test*	*Sig.*
Gender	Male	154	4.23	0.48	4.06	-	0.01
	Female	166	3.98	0.59			
Years of experience	Less than 5 years	54	4.11	0.61	-	1.09	0.34 NS
	5 to 10 years	88	4.03	0.53			
	More than 10 years	178	4.13	0.55			
Academic rank	Teaching assistant	34	4.16	0.69	-	2.57	0.05
	Lecturer	70	4.08	0.54			
	Assistant professor	112	4.03	0.56			
	Associate professor	70	4.08	0.50			
	Professor	34	4.36	0.44			

Note: NS = not statistically significant.

All of them can be divided into the following titles: 'Awareness of the importance of ChatGPT technology in teaching'. The three options that got the highest votes included: with the use of ChatGPT technology, the following are manifested: an additional educational source, a solution to studying challenges in each subject, and an adaptation of teaching and learning strategies. Regarding its importance, these statements had scores of 4.33, 4.26, and 4.23. The other statements were ranked from the fourth to the 11th with the calculated arithmetic means ranging from 3.95 to 4.18, which also pointed to a high level of concern toward the relevance of ChatGPT technology in teaching. Finally, the statement "our university will attain leadership when its members use ChatGPT technology" emerged 13th with an arithmetic mean of 3.90, still showing how aware the respondents are of the use of modern technology.

Based on the analysis carried out in Table 5, there are several important observations that can be made. First, we found a statistically significant difference (sig. = 0.01) in the awareness of the importance of ChatGPT technology in teaching by the gender of instructors, especially male faculty members at Prince Sattam Bin Abdulaziz University who were much more aware of this technology's importance than female faculties were. Second, there were no significant differences in awareness years of experience, suggesting all the faculty members had fairly the same level of awareness. Third, the awareness means differ significantly (sig. = 0.05) based on the academic rank in terms of the importance of ChatGPT technology in teaching as perceived by the professors according to the LSD test.

The results related to the second question:

The second question is: what is the reception of faculty members on the aspect of using ChatGPT technology in the teaching process? Is this attitude, gender, years of experience, and educational rank of the faculty members dependent? The results of this study are shown in the tables below, which are given in the following two tables, respectively.

This look is further reinforced by the fact that, as highlighted in Table 6, the second topic of 'Attitude towards use of ChatGPT in teaching' consists of 11 statements. Out of these attitudes, there were two that were very highly positive, eight that were highly positive, and one that was moderately positive, while none of the statements populated the weak or very weak category. These arithmetical means for these statements varied between 3.36 and 4.36, sitting the scale on 5. This means that there is a gap of one score between the highest and the lowest mean scores, which depicts the presence of variation in attitudes towards the use of ChatGPT in teaching among the faculty members of the Prince Sattam Bin Abdulaziz University. The summary mean for this subject set was 3.99 over 5, showing a highly positive attitude by the faculty members towards the use of ChatGPT in teaching.

Concerning the priority of the statements in the topic 'Attitude towards the use of ChatGPT in teaching', the following statement hierarchies were observed: the statement "university professors must respond to all that is new in educational technology" had the highest arithmetic mean of 4.36 and was ranked first. The second statement, "providing training courses on ChatGPT technology makes me happy", also had a high arithmetic mean of the rest of the statements fall in order from the third to the seventh place: 3.86 to 4.11, showing a very positive attitude of the participants toward the use of ChatGPT in teaching. Third, when inquiring about their attitude towards the generalisation of ChatGPT technology in the curriculum, the participants assigned the statement "it is difficult to generalise ChatGPT technology in the curriculum." The arithmetic mean was

3.36, which pointed at their moderately positive attitude toward the use of ChatGPT in teaching.

Table 6 Frequencies of the degree of agreement of sample members and means on the statements of the topic [attitude towards (ChatGPT) technology] (N = 320)

No.	*Items*	*Strongly agree*	*Agree*	*Neutral*	*Disagree*	*Strongly disagree*	*Mean*	*Degree of importance*	*Rank*
1	Using (ChatGPT) technology in teaching is an indicator of progress in teaching.	76	174	45	22	3	3.93	High	6
2	I will initiate the use of (ChatGPT) technology in the educational process.	68	204	30	18	0	4.01	High	5
	University professors must respond to all that is new in educational technology.	142	154	20	4	0	4.36	Very high	1
4	Providing training courses on (ChatGPT) technology makes me happy.	124	152	32	12	0	4.21	Very high	2
5	Our university will achieve leadership when its members apply. (ChatGPT) technology	78	168	52	18	4	3.93	High	6
6	I encourage faculty members to use (ChatGPT) technology.	90	186	34	10	0	4.11	High	3
7	It is difficult to generalise (ChatGPT) technology in the curriculum.	52	138	43	46	41	3.36	Medium	8
8	(ChatGPT) technology improves the quality of education.	86	172	50	12	0	4.04	High	4
9	The use of (ChatGPT) technology in higher education is a necessity.	96	150	54	20	0	4.01	High	5

Table 6 Frequencies of the degree of agreement of sample members and means on the statements of the topic [attitude towards (ChatGPT) technology] (N = 320) (continued)

No.	*Items*	*Strongly agree*	*Agree*	*Neutral*	*Disagree*	*Strongly disagree*	*Mean*	*Degree of importance*	*Rank*
10	(ChatGPT) technology contributes to providing interactive aids in problem-solving educational issues.	96	180	32	8	4	4.11	High	3
11	The use of (ChatGPT) technology leads to similarity in student responses.	108	116	53	28	15	3.86	High	7
						Overall mean of the topic	3.99	High	

Table 7 indicates the following: the obtained results revealed the existence of a statistically significant difference (sig. = 0.05) of gender regarding the attitudes toward the ChatGPT technology: the male faculty members in the Prince Sattam bin Abdulaziz University showed a more positive attitude toward using ChatGPT in the teaching. Yet no cross-significant differences were observed regarding experience, indicating that faculty members, regardless of their experience level, hold similar attitudes toward ChatGPT technology. In terms of attitudes, there were no significant differences based on academic rank, indicating that all faculty members at the university, regardless of their academic rank, share similar attitudes towards the use of ChatGPT technology in teaching.

Table 7 Results of the t-test and analysis of variance to study the differences in the attitude towards ChatGPT technology due to gender, years of experience, and academic rank

Variable	*Group*	*N*	*Mean*	*Std. deviation*	*T-test*	*F-test*	*Sig.*
Gender	Male	154	4.06	0.49	2.14	-	0.05
	Female	166	3.93	0.52			
Years of experience	Less than 5 years	54	3.94	0.48	-	1.19	0.31 NS
	5 to 10 years	88	3.95	0.52			
	More than 10 years	178	4.03	0.51			
Academic rank	Teaching assistant	34	3.89	0.60	-	2.29	0.06 NS
	Lecturer	70	4.02	0.60			
	Assistant professor	112	3.97	0.50			
	Associate professor	70	3.95	0.38			
	Professor	34	4.21	0.41			

Note: NS = not statistically significant.

The results related to the third question:

The third question is: it will be pertinent to discuss the following points, regarding the difficulties experienced in the implementation of ChatGPT technology in teaching as seen by the faculty of Prince Sattam Bin Abdulaziz University. To what extent are these difficulties influenced by the gender, years of experience, and academic rank of the faculty concerned members? Tables 7 and 8 show the replies to this question.

I obtained the following findings from Table 8. The third topic, 'Impossibilities in utilising ChatGPT technology in teaching' consists of nine items. Of them, there were three statements that represented a very high level of difficulty; six statements represented a moderately high level of difficulty; no statements represented a very low level of difficulty; and none represented a low level of difficulty. For these statements, means ranged between 2.94 and 3.63 on a scale of 5; a difference of 0.69 between the highest and the lowest had been observed, which seemed to present relative uniformity of the perceived difficulty by the faculty members. The overall meaning of this topic was 3.23 out of 5. This indicated that the faculty at Prince Sattam Bin Abdulaziz University generally owned moderate perceived difficulty towards using ChatGPT technology in teaching.

Three statements were categorised as 'hard' in 'Difficulties in using ChatGPT technology in teaching'. These were 'lack of adequate quality assurance in content developed through ChatGPT technology', 'shortage of specialists around artificial intelligence and especially ChatGPT technology', and 'poor recognition of the use of ChatGPT technology among university professors'. These statements had arithmetic means of understanding of 3.63, 3.51 and 3.40, respectively, which was very low. The other statements that received lower mean scores were ranked from 4th to 8th, with scores between 2.95 and 3.34 showing that respondents had a moderate on the ChatGPT technology being used. Finally, the statement "the difficulty of the university in providing the financial resources to employ ChatGPT technology at the university" also received the ninth rank with an AM of 2.94, where a moderate level of difficulty was assessed.

The distribution by gender of the faculty members that responded there were no significant difficulties in using ChatGPT technology in teaching is presented in Table 9, where it was noted that there was no significant difference between the male and female faculty members of the Prince Sattam Bin Abdulaziz University in terms of perception towards the difficulties in the use of ChatGPT in teaching. Nevertheless, the difference is statistically significant (sig. = 0.05), being influenced by the years of experience factors. The latter pattern can be evidenced with the help of the LSD test, according to which the differences between the groups with the various years of experience in faculty members are significant when it comes to their perceptions of difficulties in employing ChatGPT and, particularly, the technology. Moreover, the results based on the column of academic rank were also found to have statistical differences (sig. = 0.05). Thus, according to the LSD test, difficulties revealed by those respondents were reported by assistant professors more than lecturers and by associate professors more than both lecturers and professors.

Table 8 Frequencies of the degree of agreement of sample members and means of the statements of the topic (difficulties facing the use of ChatGPT technology) (n = 320)

No.	*Items*	*Strongly agree*	*Agree*	*Neutral*	*Disagree*	*Strongly disagree*	*Mean*	*Degree of importance*	*Rank*
1	Difficulty in ensuring the quality of content created through (ChatGPT) technology.	94	122	33	34	37	3.63	High	1
2	The use of (ChatGPT) technology by professors' results in limited interaction between professors and students.	70	76	56	54	64	3.11	Medium	5
3	Privacy and security when using artificial intelligence technologies in education.	74	94	74	22	56	3.34	Medium	4
4	Limited awareness among university professors about the use of (ChatGPT) technology.	82	112	35	34	57	3.40	High	3
5	Difficulty in providing the financial resources to employ (ChatGPT) technology at the university.	54	78	62	48	78	2.94	Medium	9
6	Difficulty in providing human resources for employing (ChatGPT) technology at the university.	56	70	70	50	74	2.95	Medium	8
7	It is difficult to generalise (ChatGPT) technology in the curriculum.	64	86	45	60	65	3.08	Medium	6
8	Difficulty in keeping up with continuous developments in the field of artificial intelligence, especially (ChatGPT) technology.	58	86	60	52	64	3.07	Medium	7

Table 8 Frequencies of the degree of agreement of sample members and means of the statements of the topic (difficulties facing the use of ChatGPT technology) (n = 320) (continued)

No.	*Items*	*Strongly agree*	*Agree*	*Neutral*	*Disagree*	*Strongly disagree*	*Mean*	*Degree of importance*	*Rank*
9	A shortage of experts in the field of artificial intelligence, especially (ChatGPT) technology.	90	108	46	28	48	3.51	High	2
						Overall mean of the topic	3.23	Medium	

Table 9 Results of the t-test and analysis of variance to study the differences in the difficulties facing the use of ChatGPT technology due to gender, years of experience, and academic rank

Variable	*Group*	*N*	*Mean*	*Std. deviation*	*T-test*	*F-test*	*Sig.*
Gender	Male	154	3.17	1.12	1.04	-	0.30 NS
	Female	166	3.28	0.71			
Years of experience	Less than 5 years	54	2.95	0.78	-	3.30	0.05
	5 to 10 years	88	3.36	1.04			
	More than 10 years	178	3.24	0.90			
Academic rank	Teaching assistant	34	3.09	0.96	-	2.90	0.05
	Lecturer	70	3.00	0.91			
	Assistant professor	112	3.36	0.84			
	Associate professor	70	3.40	0.85			
	Professor	34	3.01	1.22			

Note: NS = not statistically significant.

5 Discussion

The first two research questions of this study are as follows: how important is it to teach with the help of ChatGPT technology, according to the opinion of faculty members of PSBAU? What is their attitude toward using this technology in the teaching-learning process at the studied university? From the study, it was evident that the faculty members hold good awareness and a favourable attitude towards ChatGPT technology.

Thus, a major part of the teachers-subjects showed high awareness regarding the perceived importance of ChatGPT in teaching, which is supported by an overall mean score of 4.10 out of 5. By the gender of faculty members, the additional educational resources that they noted, especially what ChatGPT can offer, were added resources in education (mean 4.33), addressing the challenges that may arise while learning various

courses (mean 4.26), as well as changing the teaching and learning paradigm (mean 4.23). This indicates that ChatGPT is regarded by the faculty as a tool that offers opportunity to improve the teaching-learning process (Cotton et al., 2023). This is in line with prior studies arguing that the supposed strengths of AI in education are directly connected to the possibilities of it adding new techniques to the conventional source types (Qureshi, 2023).

Regarding perceptions of ChatGPT, the total mean score was 3.99 out of 5, which indicates a highly positive perception. Concerning the proposed new educational technologies, the respondents strongly agreed that the university professors would have to respond to new educational technologies, mean = 4.36, and that the faculty members should show interest in the training courses in the ChatGPT, mean = 4.21. This shows OpenAI has good intentions of using ChatGPT technology and is willing to learn from it (Sok and Heng, 2024). The readiness for using new technologies corresponds to the indication of technology acceptance in higher learning institutions because faculty members understand the implications of technology integration, recognising the need to adapt to new technologies such as AI (Dempere et al., 2023).

Regarding the demographics, some difference could be observed in perceived importance and attitudes. As it is depicted in Table 5, male faculty members had a higher level of importance scores and positive attitude scores than the female faculty members. Also, there was a significance difference found showing that professors are more aware of the significance of ChatGPT than other academic ranks. It is thereby now essential that intentional and conscious work is done to ensure all faculties are of equal awareness and positive attitudes (Dempere et al., 2023). This is according to previous studies that showed that how faculties use available technologies depends on gender and academic rank, where faculty with higher capacity are normally more aware and positive towards technology (Arista et al., 2023).

The third objective therefore sought to determine the barriers to use of the ChatGPT technology in teaching from the perspective of the faculty members. The overall perceived difficulty scores that we obtained ranged from 1.6 to 4.3 out of five, with the mean score of 3.23 reflecting moderate difficulties. The largest problems are concerned with content quality and expertise shortages, as well as limited awareness. Participants' concerns and perceptions toward the quality of the content created by ChatGPT are presented below, where the mean was 3.63 of a total of 5. This raises a general educational issue of how it can be determined and ensured that AI output is substantively rigorous at the university level. Second, with the mean score of 3.51, was the concern of a shortage of experts in AI and ChatGPT technology. This was consistent with prior studies that assert that the expansion of AI has been much faster than the growth in the numbers of professionals who can both adopt and coordinate the implementation of AI in learning settings (Qureshi, 2023). Another important problem indicated by the participants had a means core of 3.40 – lack of awareness among university professors about the possible uses of ChatGPT. This means there is some lack of knowledge of and experience with these AI applications that requires closer attention to professional development and training (Sok and Heng, 2024).

According to this study, the faculty members seem to note the advantage of the chat GPT, but at the same time have certain perceptions about the use and efficiency of the tool. Regarding the problem of content quality, it is evident that the topic requires the development of guidelines and best practices to apply AI-produced content to education. These guidelines, if formulated, must be concise with a solution approach based on

accuracy, reliability, and relevance to support AI application in teaching. Moreover, it proves the chronic lack of AI experts due to the lack of AI literature in the academic field. Lacking enough educators familiar with AI, universities would not be able to realise the benefits of ChatGPT and similar applications (Cotton et al., 2023). Hence, there should be more investment in training in AI and building that expertise (Arista et al., 2023).

In another interesting note, difficulties as perceived by participants of the study significantly differed according to years of experience and academic rank. The level of difficulty was significantly rated higher by the faculty members with five or more years of experience than the faculty members with three or fewer years of experience. Consequently, assistant and associate professors reported more difficulties than lecturers and professors did. Such differences may indicate that a different strategy must be employed in relation to the difficulties that are experienced by the faculty members depending on their career stage. These differences and disparities in experience and rank are because professional development initiatives should be particularly targeted according to the respective faculty groups. Said senior faculty members may require explicit guidance on ways to implement such improvement into their teaching strategies; on the other hand, junior faculty members may only require basic training on the possible applications of AI technologies, for instance, ChatGPT.

Therefore, Prince Sattam Bin Abdulaziz University faculty members' understanding of ChatGPT technology is deemed crucial in teaching and learning; despite their overall positive attitude toward the available technology and its application in teaching scenarios, they are also aware of the implementation challenges. It seems that addressing these challenges by providing appropriate training, rules, and essential programs could facilitate the efficient adoption of ChatGPT technology in higher education institutions (Qureshi, 2023). These are issues related to content quality, lack of qualified professionals, and awareness of AI tools, and if these are not well addressed, then the usage of ChatGPT in education could be far from being optimised. The results of the current study, which examines professors' perceived importance of ChatGPT in instruction at PSU, indicate areas of commonality and divergence with prior research.

One of the similarities is that faculty members have a relatively positive attitude toward the use of ChatGPT technology. Similarly to the present study, Zaragoza (2023) concluded that although faculty members in higher education appear to be familiar with ChatGPT technology, they demonstrate its limited adoption due to concerns regarding bias and cheating. Both of these works suggest that although awareness of how these AI tools might be valuable exists, implementation of those tools in the teaching process remains somewhat limited. In the same regard, the current study is commensurate with the study conducted by Alnasib (2023) proving the preparedness of faculty members to incorporate AI in teaching practices; this is especially when there are perceived advantages, or a conducive environment bolstered with training and support (Sok and Heng, 2024). This also points to the fact that there is a common understanding across different educational settings as to the importance that these popular AI technologies like ChatGPT can unlock in the teaching process.

Nevertheless, the gaps can also be identified, especially in the issues of integration and cumulative consideration of them. The present research revealed that overall faculty members of Prince Sattam Bin Abdulaziz University rated ChatGPT quite highly on perceived importance in teaching and students' learning. On the other hand, Elsaadany

(2024) observed a least favourable opinion among EFL professors regarding such matters as plagiarism, over-reliance on technology, and minimum learner's endeavour. Concerns like these were not tested in the current study as much as the faculty members appeared to be interested in the advantages, including the provision of supplementary educational materials and the changes in the teaching methodologies (Arista et al., 2023).

This difference could be explained by the fact of the various academic settings and/or fields where the experiences occurred. Specifically, potential challenges for EFL professors could be somewhat different since skills in stress on language and originality of the text could enhance the focus on plagiarism or dependency on ChatGPT. On the other hand, the participants, who are the faculty members at Prince Sattam Bin Abdulaziz University, might not view ChatGPT as a threat because it spans a wider academic area, or they may have limited experience with such tools (Cotton et al., 2023).

The second key difference is centred on the perceived challenges, as shown from the graph. From this research, the largest category of challenges relates to content issues, including quality, expertise, and awareness. On the other hand, Alnasib (2023) aligned with behavioural intentions as well as the facilitative conditions of AI integration, including institutional support, as key aspects (Qureshi, 2023). This implies that while participants in the current study are more bothered by the enablement issues and mechanics of using ChatGPT, other contexts might have more focus on the institutional and behavioural conditions' that are required for complementary integration (Dempere et al., 2023).

6 Conclusions

Consequently, this research offers important implications for awareness, attitude, and perceived barriers of adopting the ChatGPT technology in teaching contexts at Prince Sattam Bin Abdulaziz University. The study showed that 88.5% of the faculty members had a high level of awareness about the necessity of ChatGPT, and the technology is helpful for both acquiring more teaching materials and resources and overcoming some challenges related to learning subjects. Besides, it has a positive impact on improving the teaching/learning process. Also, the attitude of faculty members was positive regarding the incorporation of ChatGPT, and they talked about their willingness to train and their understanding that they need to be prepared for new technologies in education.

However, this research also noted moderate barriers in the use of ChatGPT through the following: relevance of information, AI deficit, and awareness of university faculties about ChatGPT. Of course, these perceived roles, affective appraisals, and concerns of the ChatGPT were subject to moderation by gender, years of experience, and academic rank, where gender, years of experience, and academic rank influence how such negative effects would need to be addressed.

This research adds value to advancing literature on the role of AI in education through a targeted insight illustrating faculty perception in a particular university scene in Saudi Arabia. The results provide important recommendations to educators, administrators, and policymakers on how to create useful guidelines that will address concerns and situations within specific academic communities regarding the use of ChatGPT.

Given all of this, the study suggests that there is a need to train the faculty members, especially those who are less experienced, on more challenges arising from the adoption of the ChatGPT. It also stresses the need to liaise communication between academic research and ChatGPT technology to ensure it becomes adapted to the current class setting while promoting digital citizenship and academic honesty. To achieve this goal and progress further, universities should consider implementing the recommendations outlined in this work, while also exploring the potential impact of ChatGPT on the teaching-learning process in the era of artificial intelligence.

6.1 Recommendations

In integrating AI technologies, especially ChatGPT, in higher education, institutions must employ several strategies. Another important area is that of support for and development of the faculty, and although development of programs that will address the professional needs and concerns of teachers is paramount, it usually centres around the acquisition of knowledge and skills. These programs should include matters like understanding ethical usage of AI, controversies in relation to data privacy and bias, and how to use it responsibly. Furthermore, training must focus on how to improve digital literacy, teaching AI tools online and blended contexts efficiently. Although AI can propose work that is academically sound, assessors and course creators must be trained in quality assurance standards to guarantee the accuracy of the content. Institutions should also have standard and gender-sensitive training programs required to fulfil the specific needs of various teaching staff. It is the student pool of relatively inexperienced or technologically phobic teachers to whom the greatest care should be taken to provide such real-life practical and hands-on tips. There should be more BMI learning communities formed where members of the faculty, especially in colleges, can share experience and best practice on the use of AI in the form of communities of practice. Professional development is important to avail prospects of continuous learning, enabling educators to remain abreast of technologies and education in AI.

Another of the report's suggestions is to implement strong feedback systems. There are several important feedback loops that go between the faculty and the institutional policymakers regarding actual time challenges and potentials. They should provide information regarding concerns arising from training deficits or inadequacies of AI tools for further enhancement of the related training policies and programs. It also makes the integration process relevant and effective through the cyclical model. To formulate the policy to adopt AI, this needs to be anchored on research and conform to the objectives of the institution. It is therefore important to have well-defined policies regarding ethical issues that should be obeyed during project formulation and implementation; these include issues to do with data protection and ownership of intellectual property. Universities and other institutions should also make sure that the inclusion of AI should augur well with their strategic plans in addition to improving standards in teaching and learning processes. When we have clear and research-backed policies in place, there will be more confidence in the use of AI in education for both educators and other stakeholders.

Finally, is the promise of innovation afforded by the application of AI in research-teaching mechanisms. Particularly, faculty should be prompted to discover AI applications that would increase the achievements of learning, including the development

of critical thinking, problem-solving techniques, and individual learning styles for students. Their integration has to be based on the key institutional values and ethical considerations to avoid a negative impact on teaching using artificial intelligence. Therefore, it is possible to conclude that proper organisation of AI as an institutional solution together with sufficiently developed support systems will provide higher education institutions with the maximal value of AI technologies, clearly seeing the problems that such usage causes.

6.2 Study implications

This research points out that there is importance of attitude and readiness of faculty members in enhancing the implementation of AI technology in education. The faculty at PSU appreciates the capability offered by ChatGPT; however, substantial support from the university is required to tackle problems relating to the quality and credentials of the content generated. Based on such evidence, the authors conclude that AI integration in higher education is more than mere technical implementations but rather a complex process that needs to be supported by holistic solutions, ranging from specially designed training to gender-sensitive measures. Furthermore, this research raises questions regarding various issues arising from its preparation, making a strong case for ethical principles and guidelines regarding the use of artificial intelligence during research and in the teaching and learning processes. These implications are somewhat dear to educational institutions in Saudi Arabia, as these institutions strive, in line with Vision 2030, to transform and implement new technologies optimally into their learning institutions.

6.3 Study limitations

The limitations witnessed in this study include bias because it was conducted within a single university, hence restricting the finding generality in other universities or other regions. Another limitation was seen in the fact that the study was based upon self-reported data, which may have given rise to bias. This kind of study can be taken to the next level in the future; first, the study should be done at several universities, not only one, and second, it can serve as a basis for using both a quantitative and qualitative research approach to confirm the results.

6.4 Future directions

In further research, the effectiveness of applying the integration of ChatGPT in teaching practice and actual transformation of teachers as well as students' learning outcomes should be explored systematically. This research may wish to determine how teachers adopt the use of ChatGPT in determining delivery modes and methods, student engagement, and improving the reasoning and innovation capabilities of the students. In addition, the outcome also shows that the research design should involve an assessment of the usefulness of ChatGPT for learning in the long term. Also, it would be needed to evaluate the effectiveness of definite approaches to the improvement of specific upgrades of the faculty members in the application of ChatGPT.

This evaluation of these outcomes may provide useful information concerning the role of such programs in the handling of perceived slips that include minimal awareness, ethical considerations, and technical limitations. In order to establish the correlation

between the training effect and applicability of students' training practical using ChatGPT, the further professional development programs shall be designed.

Furthering this research to additional tiers concerning learning institutions, starting from the primary level, continuing up to secondary and vocational education, and to different subjects will offer a much greater picture of how AI is being implemented and used in learning institutions.

A study can perhaps be done on how effective ChatGPT is in each field, including STEM fields, humanities, and arts, to name but a few, to discover the uniqueness and effectiveness of those learning platforms and the challenges that organisations face while implementing AI in these fields. Finally, perhaps cross-country and cross-cultural research activities can reveal important trends in the influence of socio-cultural factors on the use of artificial intelligence, including applying ChatGPT in education. In this way, subsequent research investigations will contribute to the development of a richer picture of the general trends that AI can set in the global education system.

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