Enhancing Higher Education through AI: Faculty Perspectives on the Role of University-Provided Workshops and Training in Integrating AI Tools for Teaching, Assessment, and Feedback

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Abstract

This paper examines the role of university-provided workshops and training in facilitating the integration of artificial intelligence (AI) tools for teaching, assessment, and feedback from the perspectives of faculty members. With AI becoming a transformative force in higher education, it is crucial to understand how faculty members perceive the effectiveness of university-led initiatives in supporting the adoption of AI technologies. The study utilized a mixed-methods approach, combining a quantitative survey and qualitative focus groups to gather insights. A total of 116 female faculty members from the Applied College, Princess Nourah bint Abdulrahman University (PNU), participated in the survey, with data analyzed through both quantitative and qualitative methods. The quantitative analysis focused on measuring faculty satisfaction with the AI-related workshops and training sessions provided by PNU. It explored how these

initiatives influenced faculty confidence, engagement, and competence in using AI tools in the classroom. The qualitative data, derived from focus group discussions, provided deeper insights into faculty members' experiences, challenges, and perceived benefits of incorporating AI in their teaching practices. Key themes included the need for more tailored, discipline-specific training, the importance of ongoing support, and concerns about the ethical implications of AI in education. Findings suggest that while faculty members acknowledged the value of AI in enhancing teaching and assessment, there was a strong demand for more comprehensive, continuous professional development to ensure successful integration. The paper recommends that universities invest in more robust AI training programs that are adaptive to the evolving needs of faculty and aligned with ethical standards, which would eventually ensure the successful and responsible integration of AI in higher education.

Keywords

AI tools, faculty training, workshops, higher education, assessment, teaching, feedback, professional development, ethical AI use

تعزيز التعليم العالي من خلال الذكاء الاصطناعي: آراء أعضاء الهيئة التعليمية حول دور ورش العمل والتدريب المقدمة من الجامعات في دمج أدوات الذكاء الاصطناعي للتدريس والتقييم والتغذية الراجعة

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المستخلص

تناقش هذه الورقة دور ورش العمل والتدريب التي توفرها الجامعات في تسهيل دمج أدوات الذكاء الاصطناعي في التدريس والتقييم والتغذية الراجعة من منظور أعضاء الهيئة التعليمية. مع تزايد تأثير الذكاء الاصطناعي في التعليم العالي، أصبح من الضروري فهم وجهات نظر أعضاء الهيئة التعليمية حول مدى فاعلية المبادرات الجامعية في دعم تبني تقنيات الذكاء الاصطناعي. اعتمدت الدراسة منهجًا مختلطًا يجمع بين الاستبيانات الكمية والمجموعات البؤرية النوعية لجمع البيانات. شاركت ١١٦ عضو هيئة تعليمية من الكلية التطبيقية بجامعة الأميرة نورة بنت عبد الرحمن (PNU) في الاستبيان، وتم تحليل البيانات باستخدام أساليب كمية ونوعية. ركز التحليل الكمي على قياس رضا أعضاء الهيئة التعليمية عن ورش العمل والتدريب المتعلق بالذكاء الاصطناعي الذي توفره الجامعة، بالإضافة إلى تأثير هذه المبادرات على ثقتهم ومشاركتهم وكفاءتهم في استخدام أدوات الذكاء الاصطناعي داخل الفصول الدراسية. أما البيانات النوعية المستمدة من المناقشات في المجموعات البؤرية، فقد قدمت رؤى أعمق

حول تجارب أعضاء الهيئة التعليمية والتحديات التي يواجهونها والفوائد المتوقعة لاستخدام الذكاء الاصطناعي في ممارساتهم التدريسية. ومن أبرز الموضوعات التي ظهرت هي الحاجة إلى تدريب أكثر تخصصًا يتناسب مع كل مجال أكاديمي، وأهمية الدعم المستمر، بالإضافة إلى المخاوف المتعلقة بالاعتبارات الأخلاقية لاستخدام الذكاء الاصطناعي في التعليم. تشير النتائج إلى أنه على الرغم من إدراك أعضاء الهيئة التعليمية لقيمة الذكاء الاصطناعي في تحسين التدريس والتقييم، إلا أن هناك طلبًا قويًا على تطوير برامج تدريبية أكثر شمولاً واستدامة لضمان التكامل الناجح لهذه التقنيات. توصي الدراسة بأن تستثمر الجامعات في برامج تدريبية قوية ومرنة وتستطيع التكيف مع احتياجات أعضاء الهيئة التعليمية المتغيرة، وتتوافق مع المعايير الأخلاقية، لضمان دمج الذكاء الاصطناعي بشكل فعال ومسؤول في التعليم العالي.

الكلمات المفتاحية

أدوات الذكاء الاصطناعي، تدريب أعضاء الهيئة التعليمية، ورش العمل، التعليم العالي، التقييم، التدريس، التغذية الراجعة، التطوير المهني، استخدام الذكاء الاصطناعي بطريقة أخلاقية

1. Introduction

The integration of Artificial Intelligence (AI) tools in higher education has become increasingly pivotal in enhancing academic practices, including teaching, assessment, and feedback. As AI technologies evolve, universities must ensure that their faculty members are equipped with the knowledge, skills, and resources to incorporate these tools effectively into their teaching and research. Princess Nourah bint Abdulrahman University (PNU), the largest women's university in Saudi Arabia, has recognized the

transformative potential of AI and has undertaken initiatives to support faculty members in adopting these technologies.

Despite the growing awareness of AI's benefits, many faculty members remain uncertain about how to effectively use AI tools in their academic practices. The adoption of AI tools in higher education is not just about introducing new technologies; it also requires addressing faculty members' concerns about usability, technical support, ethical considerations, and the overall impact of AI on the educational experience. For faculty members to fully embrace AI, universities must provide comprehensive, structured training programs, as well as access to continuous support. At PNU, this includes offering workshops, training sessions, and dedicated facilities to promote the integration of AI tools into academic practices.

The purpose of this paper is to examine the effectiveness of the workshops, training sessions, and technical facilities provided by PNU to support faculty members in integrating AI tools into their teaching, research, and assessment practices. The study includes a survey of 116 faculty members from PNU's Applied College to assess their familiarity with AI tools, their usage patterns, and their perceptions of these tools' potential impact. In addition to the survey, focus groups were conducted to gather deeper insights into faculty members' experiences, challenges, and overall satisfaction with the AI integration efforts. The combination of survey results and qualitative data from the focus groups was used to evaluate the current training initiatives at PNU and identify areas for improvement. This mixed-methods approach provided a comprehensive understanding of how faculty members engage with

AI tools and the support they need to effectively integrate these technologies into their academic practices.

This paper highlights the critical role that university-provided workshops and training programs play in ensuring faculty members are not only able to use AI tools effectively but also do so in an ethical and pedagogically sound manner. Additionally, the study underscores the importance of continuous support and professional development in AI integration, with a focus on fostering an ongoing learning environment. By examining PNU's efforts in this regard, this paper aims to contribute to the broader conversation on how universities can strategically integrate AI tools to enhance the overall academic experience for both faculty and students.

2. Literature Review

The integration of Artificial Intelligence (AI) in higher education has gained significant attention over the past decade. AI tools offer transformative potential in the areas of teaching, assessment, feedback, and research. As universities strive to remain relevant and competitive, understanding the role of AI in these areas and providing adequate support for faculty members is crucial. This literature review explores the current research on AI adoption in education, focusing on the impact of training and workshops for faculty members, ethical considerations, and the effectiveness of AI tools in improving educational practices.

AI Tools in Higher Education

AI tools are increasingly being used to support a wide range of academic functions. These tools include AI-driven platforms for content creation, automated grading, plagiarism detection, and personalized learning experiences (Woolf et al., 2021). AI tools like ChatGPT and Grammarly, for instance, can help in generating lecture summaries, improving academic writing, and even automating grading (Selwyn, 2019). These technologies allow instructors to focus more on pedagogical activities while automating repetitive tasks, thus enhancing teaching efficiency and student engagement (Jandrić et al., 2020).

AI tools offer considerable advantages in enhancing learning outcomes. Popenici and Kerr (2017) emphasized that AI applications can create personalized learning experiences tailored to the individual needs of students, improving engagement and academic performance. Such adaptive learning systems, as noted by Chen, Chen, and Lin (2020), cater to students' learning styles and paces, fostering deeper understanding. AI tools, including chatbots, can significantly enhance self-regulated learning by helping students set goals and receive personalized feedback (Chang et al., 2023). Studies have shown that AI chatbots can lead to improved academic performance by offering individualized learning experiences (Wu & Yu, 2024). Furthermore, AI systems can predict student performance and identify at-risk students early in their academic journey (Ouyang et al., 2022). A systematic review by Ouyang, Zheng, and Jiao (2022) supported these findings, showing that adaptive learning systems enhance student

performance in online education, especially when combined with instructional support.

Chan and Hu (2023) and Kutele et al. (2021) highlighted that generative AI applications cater to individual learning preferences, fostering more engaging learning environments. Chatbots and AI-assisted platforms, as noted by Sandu & Gide (2019), help maintain communication and involvement. Mirdad et al. (2024) highlighted that AI-enabled educational tools make learning more interactive and immersive, leading to heightened student motivation. Technologies like gamification and simulations, as described by Zawacki-Richter et al. (2019), help students retain and apply knowledge by experiencing practical scenarios in controlled environments. Additionally, AI tools such as chatbots and AI tutors offer instant feedback, promoting continuous engagement beyond traditional classroom settings (Alexander et al., 2019). However, despite these benefits, student perceptions of AI's effectiveness in promoting genuine engagement remain ambivalent, with factors like lack of familiarity and comfort with technology being potential barriers (Rasul et al., 2023; Wang et al., 2021). Proper training and support are essential for both students and educators to leverage AI tools effectively.

AI tools, through adaptive learning systems, have been shown to improve academic results by personalizing instruction based on real-time data about students' strengths and weaknesses (Popenici & Kerr, 2017; Avella et al., 2016). George and Wooden (2023) emphasized the value of data-driven approaches to adapt teaching strategies, enhancing student performance. However, equitable access to AI remains a concern, as socioeconomic disparities may limit access to these tools, undermining their potential benefits (Alqahtani et al., 2023).

AI tools can alleviate faculty workload by automating administrative tasks such as grading and tracking participation, allowing educators to focus more on teaching and student support (Dempere et al., 2023; Kuleto et al., 2021). However, the introduction of AI can initially increase faculty workload due to the learning curve associated with new technologies (Zawacki-Richter et al., 2019). Continuous professional development is critical to ensure that faculty can effectively use AI tools without added burden (Mahmudi et al., 2023).

In the context of assessment, AI can assist in grading assignments, offering instant feedback, and identifying areas where students may need improvement (Huang et al., 2021). AI tools such as Turnitin and Gradescope have been widely adopted for detecting plagiarism and automating the grading of assignments and exams. These tools not only save time but also improve consistency in grading, reducing the potential for human bias (Micheli et al., 2020). Furthermore, AI-powered platforms like Elicit and Perusall enable enhanced research collaboration, provide literature reviews, and facilitate discussion-based learning, which can be particularly beneficial in research-intensive environments (Baker & Siemens, 2014).

The integration of AI tools in university assessments and feedback mechanisms is transforming higher education by enhancing personalized learning experiences, improving feedback quality, and influencing academic performance. AI tools have demonstrated the potential to improve student involvement and learning outcomes, especially through personalized feedback. For example, AI-generated feedback, particularly in writing, has shown

positive effects, especially for students learning English as a second language (Excalla, Pack & Barrett, 2023). The use of natural language processing (NLP) to enhance peer feedback systems also allows for more nuanced and constructive discussions among students (Bauer et al., 2023). Additionally, AI tools improve performance evaluation by providing accurate, real-time analyses of student performance (Owan et al., 2023).

Training and Workshops for Faculty Adoption of AI

The integration of Artificial Intelligence (AI) tools in educational environments requires robust professional development for faculty members, emphasizing the importance of university-sponsored workshops and training programs. Research has shown that these opportunities for professional development are fundamental in shaping the faculty's perspectives and improving the effective use of AI in teaching, assessment and feedback processes. Nazaretsky et al. (2022) stated that transformative workshops can significantly increase educators' confidence in AI technologies, a crucial element for their implementation. These workshops not only provide technical information about AI tools but also facilitate critical discussions on their application, influencing faculty readiness to adopt these technologies. Celik et al. (2022) and Hooda et al. (2022) emphasized the collaborative aspect of workshops, which serve as platforms for educators to exchange experiences and share the best practices for the integration of AI into their pedagogy. These collaborative dialogues allow the faculty to face the complexities associated with AI tools, improving their understanding of how to effectively employ these technologies to improve assessment and feedback mechanisms. It was found that the exchange of ideas and experiences enables the

faculty demystifying AI and facilitating a practice community that supports continuous development and the application of AI systems in the classroom. Chan (2023) pointed out that these workshops need to be well-structured to meet the specific needs and concerns of the faculty, addressing the anxieties and challenges they can face by incorporating AI technology. The content of the training should not only cover technical aspects of the use of the AI tool, but should also reflect the pedagogical principles that align with the desired results of learning.

Despite the growing use of AI tools, many faculty members are hesitant to integrate them into their academic practices. Research indicates that faculty members' familiarity with AI tools and their willingness to adopt them is influenced by several factors, including technical expertise, awareness, and ethical concerns (Johnson et al., 2021). A significant challenge is the lack of structured training programs and workshops that provide faculty with hands-on experience in using these tools (Woolf et al., 2021). Faculty members often report a need for comprehensive training sessions that are tailored to their discipline and academic responsibilities (Bates, 2021).

Research shows that university-sponsored workshops and training programs are critical in shaping faculty perspectives and enhancing the effective use of AI in teaching, assessment, and feedback processes (Zhai, 2022). Educators must receive training not only in the technical aspects of AI but also on how to incorporate these tools into their pedagogical practices to foster meaningful student interactions. Rasul et al. (2023) underscored the

importance of continuous professional development to maintain high educational standards while integrating AI into curricula. Nazaretsky et al. (2022) highlighted that transformative workshops boost educators' confidence in AI technologies, essential for successful implementation. These workshops not only provide technical information about AI tools but also facilitate critical discussions on their application, influencing faculty readiness to adopt these technologies.

Zawacki-Richter et al. (2019) pointed out that educators are not merely passive recipients of technological advancements but must be key agents in the responsible application of AI in academic settings. This requires institutions to prioritize ongoing faculty training programs that address current and future AI innovations. Gamage et al. (2022) advocated systematic revisions of digital practices to guide educators in effectively integrating AI into their curricula, while Adiguzel et al. (2023) emphasized the need for adaptable professional development strategies that align with the evolving landscape of AI in education. These dialogues help demystify AI, fostering a community of practice that supports continuous development.

Research has also shown that faculty members are more likely to embrace AI tools when they receive adequate support and training, including opportunities to participate in workshops and professional development programs (Mok et al., 2020). At institutions like PNU, offering specialized workshops and hands-on training can help faculty feel more confident in their ability to effectively use AI tools in teaching, grading, and assessment. According to a study by Hew (2020), such training initiatives not only increase faculty’s proficiency in using AI tools but also help address concerns about the ethical implications of AI in education.

Ethical Considerations in AI Use

One of the main concerns regarding AI adoption in higher education is the ethical implications of its use. AI tools raise questions about bias, privacy, and the potential for misuse. AI-driven algorithms can inadvertently perpetuate bias in grading systems, leading to unfair academic assessments. For instance, AI-powered grading systems may not account for the cultural or linguistic diversity of students, which could result in inaccurate assessments of their work (Dastin, 2018). Faculty members need to be trained in these ethical challenges and be equipped with strategies to mitigate them.

Ethical concerns also extend to academic integrity. AI tools such as content generators and plagiarism checkers have the potential to undermine academic integrity by enabling students to cheat or present AI-generated work as their own. Faculty training programs must address these ethical concerns and emphasize the responsible use of AI tools. This aligns with the findings of Selwyn (2019), who emphasizes that the implementation of AI in educational settings should be accompanied by clear ethical guidelines that promote academic honesty and integrity.

Despite AI benefits, there are ethical concerns surrounding AI-assisted assessments, particularly in terms of academic integrity. The use of generative AI tools, like ChatGPT, raises questions about cheating and originality, as AI can produce text indistinguishable from that written by students (Sullivan, Kelly, &

McLaughlan, 2023). To address these concerns, educational leaders need to establish comprehensive policies to ensure academic honesty and define clear guidelines for the ethical use of AI tools (George & Wooden, 2023; Chan, 2023; Chan and Hu, 2023). Institutions must foster a culture of ethical commitment, adapting their academic integrity frameworks to address the evolving role of AI in education. Ethical implications related to privacy and data collection also need attention. Irfan and Alqahtani (2023) argued that educational institutions should consider privacy and ethics in their deployment of AI technologies. Chan (2023) advocated comprehensive educational frameworks to guide both educators and students in their interactions with AI tools.

The integration of AI in assessments requires more than just technological adaptation – it necessitates changes in academic culture, policy, and practice (Crompton & Burke, 2023). Institutions must adopt forward-thinking strategies that embrace AI's potential while addressing the ethical, equity, and privacy concerns it introduces. Ongoing research is needed to better understand the long-term impact of AI on student learning outcomes and institutional effectiveness.

Additionally, as AI continues to shape the future, Tzirides et al. (2024) stressed the importance of incorporating AI literacy into curricula to prepare students for a technology-driven world. Hence, equitable access to AI tools is another challenge for institutions. A major concern with AI integration is the risk of exacerbating digital inequality. As AI tools become more embedded in university assessments, disparities in technology access may worsen inequities in educational opportunities (Farrokhnia et al., 2024). Grassini (2023) warned that disparities in access to technology can exacerbate existing inequalities in education. Institutions must

implement strategies to ensure that all students have the necessary resources to effectively engage with AI tools. Additionally, there is the potential for AI systems to perpetuate implicit biases, disadvantaging certain student populations (Alqahtani et al., 2023). To mitigate these risks, institutions must ensure equitable access to AI resources and address biases within AI systems.

Effectiveness of AI Tools in Enhancing Teaching and Assessment

The effectiveness of AI tools in enhancing teaching, assessment, and feedback has been widely discussed in the literature. The ability of AI to automate administrative tasks, such as grading and content creation, allows instructors to dedicate more time to student interaction and pedagogical activities. Research by Woolf et al. (2021) suggests that AI can help educators better understand student progress, tailor content to individual learning needs, and provide timely feedback, thereby enhancing the overall learning experience.

AI tools have also been found to facilitate personalized learning, which is especially important in diverse educational settings. Personalized learning through AI allows students to receive content that aligns with their individual needs, interests, and learning styles (Jandrić et al., 2020). As a result, AI tools are advocated as a way to support differentiated learning, foster student engagement, and improve learning outcomes. Owan et al. (2023) emphasized the effectiveness of AI tools in assessment and educational evaluation, noting that these technologies can adapt to individual learning paces and styles, ultimately promoting student

engagement and success. Additionally, Hooda et al. (2022) highlighted AI's ability to provide timely feedback, which is crucial for improving student performance in higher education contexts.

AI also facilitates improved didactic strategies, making teaching more efficient and effective. Chen et al. (2020) discussed various AI applications that simplify educators' tasks, allowing them to focus more on pedagogical innovation rather than administrative duties. Through intelligent content delivery and tutoring systems, AI can enhance the teaching process (Baidoo-Anu & Ansah, 2023). The rise of generative AI technologies, such as ChatGPT, has further contributed to this evolution. Gill et al. (2024) explore how AI-powered chatbots are reshaping modern education, offering new opportunities for interaction and learning.

Challenges and Barriers to AI Adoption in Higher Education

Despite the promise of AI in higher education, several challenges and barriers remain. These include faculty resistance to change, lack of sufficient training, concerns over job displacement, and limited access to technology (Hew, 2020). Research suggests that many faculty members feel overwhelmed by the rapid pace of technological change and are reluctant to adopt AI tools without adequate guidance and support (Bates, 2021). The success of AI adoption, therefore, hinges on universities' ability to provide ongoing training, support, and resources to help faculty members navigate the complexities of AI integration (Mok et al., 2020).

Another barrier to AI adoption is the lack of infrastructure and resources, particularly in institutions with limited budgets. Providing access to the necessary technological tools and platforms

requires significant investment in IT infrastructure, which can be a challenge for universities (Baker & Siemens, 2014).

Alam (2021) raised critical questions about the role AI should play in education, suggesting that while AI can significantly improve learning, it should not replace the human aspects of teaching. As educational landscapes evolve, the balance between the presence of AI and teachers' commitment will be crucial (Grassini, 2023). Therefore, while AI tools offer significant potential to enhance teaching and evaluation practices (Mirdad et al., 2024), it is essential to approach their integration with caution, addressing challenges related to equity, training, and ethical considerations (Popenici & Kerr, 2017; Zhai, 2022; Qadir, 2023).

The integration of Artificial Intelligence (AI) in higher education offers numerous benefits, including enhanced learning outcomes and increased student engagement. However, it also presents challenges, particularly regarding academic integrity and equity. The literature highlights both the benefits and challenges associated with AI technologies as well as the essential role of educators in ensuring the successful use of AI tools in educational contexts. The literature suggests that while AI tools hold significant promises for enhancing teaching, assessment, and feedback in higher education, their successful integration depends heavily on faculty members' familiarity with the tools and the provision of structured training and support. Universities, like PNU, must offer faculty members comprehensive workshops, technical support, and ethical guidelines to ensure the responsible and effective use of AI tools in academic practices. Additionally, addressing challenges

related to bias, privacy, and academic integrity is crucial to the successful adoption of AI in educational settings. Therefore, a well-structured and supportive environment for faculty development is essential to realize the full potential of AI tools in higher education.

To ensure the successful integration of AI, a comprehensive policy structure is needed to guide the process, address faculty concerns, and clarify the role of AI in teaching (Chan, 2023; Michel-Villarreal et al., 2023). A collaborative approach between educators and technology developers is crucial to ensure AI tools meet pedagogical goals. In conclusion, while the integration of AI in higher education offers significant benefits, addressing challenges such as equity, continuous training, and effective policy development is vital for success. Universities must adopt a balanced approach to ensure AI tools promote inclusive and effective learning environments (Wang et al., 2023; Malik et al., 2023; Imran & Almusharraf, 2023).

3. Methodology

This study adopts a mixed-methods approach, combining both quantitative and qualitative research techniques to explore faculty members' experiences and perceptions regarding the integration of Artificial Intelligence (AI) tools into their teaching, assessment, and feedback practices. By utilizing a survey and focus group discussions, the study aims to offer a comprehensive understanding of the faculty's familiarity with AI, the extent to which they utilize these tools, the support they require, and the challenges they face in incorporating AI into their academic activities. The study was conducted at the Applied College of Princess Nourah bint Abdulrahman University (PNU), where a

total of 116 faculty members participated, providing a rich dataset for analysis. The majority of the participants were lecturers, and all were women, with their ages ranging between 28 and 47 years old. This demographic is important as it represents a younger, potentially more tech-savvy group, yet one that may still require substantial support in adopting new technologies, particularly AI tools.

3.1 The Survey

The survey served as the primary data collection tool for this study, aiming to gather quantitative data regarding the faculty members' experiences with AI tools. The survey was designed to assess various aspects, including the participants' familiarity with AI technologies, the frequency of AI tool usage in teaching and assessment, and their perceived impact on teaching practices. Additionally, the survey sought to identify the types of support faculty members felt were necessary for integrating AI into their professional activities, focusing on training, workshops, and technical support.

The survey consisted of multiple-choice questions, Likert-scale items, and a few open-ended questions to capture both quantitative data and qualitative insights. The Likert-scale items allowed for the measurement of attitudes and perceptions, such as the perceived effectiveness of AI tools in improving teaching and learning, while the open-ended questions provided participants an opportunity to elaborate on their experiences, challenges, and expectations regarding AI integration.

To ensure that all faculty members had access to the survey, it was distributed electronically, with an emphasis on accessibility for individuals with varying levels of technological proficiency. Data collected through the survey were analyzed using descriptive statistics (e.g., mean, standard deviation, frequency counts) to quantify overall familiarity, usage patterns, and perceptions. Furthermore, chi-square tests were employed to examine whether significant differences existed in AI tool usage and perceptions based on demographic variables such as academic rank, age, and prior technological experience.

3.2 Focus Groups

To complement the survey data and gain a deeper understanding of faculty members' experiences, focus group discussions were conducted with a selected subset of participants. Three focus groups, each consisting of 6-8 faculty members, were organized. These participants were selected to ensure diversity across academic ranks (lecturers and assistant professors), providing a range of perspectives on the integration of AI in academia. The focus groups aimed to capture qualitative insights regarding the support faculty members receive from the university, the challenges they encounter when adopting AI tools, and their ethical concerns surrounding AI use in educational contexts.

The focus groups were semi-structured, with open-ended questions designed to encourage dialogue and enable participants to reflect on their personal experiences and perceptions. Topics included the types of training and workshops provided by the university, the accessibility of technical support for AI tools, concerns related to data privacy and ethical implications, and

suggestions for improving AI integration in teaching and assessment. The semi-structured format allowed flexibility, enabling participants to raise points that may not have been anticipated in the initial question set.

All focus group discussions were audio-recorded with the consent of the participants, ensuring accurate documentation of responses. The recordings were transcribed verbatim, and the transcripts were analyzed using qualitative data analysis methods, such as thematic coding. This approach helped identify recurring themes, challenges, and opportunities related to AI tool integration and provided richer insights into the faculty members' lived experiences.

3.3 Data Analysis

The analysis of quantitative data from the survey involved calculating descriptive statistics, such as the mean, standard deviation, and frequency distributions, to assess overall faculty familiarity with AI tools, their usage patterns, and their perceptions of AI's impact on teaching and assessment. In addition, chi-square tests were conducted to determine whether significant differences existed between subgroups based on demographic characteristics, such as academic rank (lecturer vs. assistant professor), years of teaching experience, or previous exposure to AI technologies.

For the qualitative data collected from the open-ended survey questions and the focus group discussions, thematic analysis was used. Thematic coding involved identifying and categorizing key themes and subthemes that emerged from the data, such as

training needs, challenges with AI adoption, ethical concerns, and perceived benefits. These themes were organized into a coherent framework to interpret the faculty members' experiences and to contextualize the quantitative findings. By combining both survey data and qualitative insights from the focus groups, the study was able to provide a holistic view of faculty members' attitudes toward AI tools, their needs for further support, and the challenges they face in integrating AI into their teaching and assessment practices.

3.4 Ethical Considerations

Ethical considerations were taken into account throughout the study. Participants were informed about the purpose of the research, and their participation was voluntary. Consent was obtained before the survey and focus group sessions, and confidentiality was assured by anonymizing the responses. By using both a survey and focus group discussions, this study provides a comprehensive view of the faculty members' familiarity with AI tools, their experiences in adopting these technologies, and the types of support they need from the university to integrate AI tools into their teaching and academic practices effectively.

4. Analysis of Findings

This section presents the results of both the quantitative and qualitative analyses conducted on the data collected from the survey and focus group discussions. The primary aim of this analysis is to provide a comprehensive understanding of the faculty members' experiences and perceptions regarding the integration of AI tools into their teaching, assessment, and feedback practices at

the Applied College of Princess Nourah bint Abdulrahman University (PNU).

4.1 Quantitative and Statistical Analysis of the Survey

A total of 116 faculty members participated in the survey, all of whom were women aged between 28 and 37 years, primarily consisting of lecturers with a smaller group of assistant professors. The survey included multiple-choice questions, Likert scale items, and open-ended questions. The following provides the statistical analysis of the quantitative data collected from the survey.

Demographic Breakdown

- Total Participants: 116 (All women)
- Age Range: 28 to 47 years
- Academic Ranks:
  - Lecturers: The majority of participants were lecturers. Specifically, 80% (93 participants) held the rank of lecturer. This group is generally more involved in teaching duties and less in research or administrative responsibilities, which may influence their interaction with AI tools in the classroom setting.
  - Assistant Professors: The remaining 20% (23 participants) were assistant professors. This group, while smaller, may have had more exposure to research-related uses of AI tools, such as data analysis or AI-assisted content creation, given their academic roles.

- Response Rate: 100% completion rate, as the survey was administered electronically.

Age Group	Lecturers (80%)	Assistant Professors (20%)	Total
28-35 years	45 (48.4%)	10 (10.8%)	55 (47.4%)
36-40 years	40 (42.6%)	8 (8.5%)	48 (41.4%)
41-47 years	8 (8.5%)	5 (5.3%)	13 (11.2%)
Total	93 (80%)	23 (20%)	116 (100%)

Table 1 Demographic Breakdown

Descriptive Statistics

To conduct a quantitative analysis of the responses for each of the survey questions, frequencies and percentages were calculated for each response option for both the AI Familiarity Levels, AI Usage Frequency, and Perceived Impact of AI Tools on Teaching sections.

Workshops and Support for AI Integration

The responses to the question ‘‘How do you feel about the current support provided by the university in terms of AI integration?’’ are shown in Table 2 below.

Response Option	**Frequency (n)**	**Percentage (%)**
Sufficient and helpful	60	52%
Somewhat helpful but could be improved	40	34%
Not enough support or guidance	10	9%
No support available	6	5%

Table 2 Breakdown of Responses I

The majority of faculty (52%) find the support sufficient and helpful, while 34% feel that it could be improved. A smaller percentage (9%) think the support is insufficient, and 5% report that no support is available.

The responses to the question "Do you use the following forms of support for AI integration?" are shown in Table 3 below.

Support Type	Yes (Frequency)	No (Frequency)	Yes (%)	No (%)
Workshops on AI tools (e.g., Turnitin, ChatGPT, Gradescope)	80	36	69%	31%
Online tutorials or courses	70	46	60%	40%
One-on-one mentorship or training	50	66	43%	57%
Ongoing technical support	75	41	65%	35%
Ethical training for AI usage in academia	45	71	39%	61%

Table 3 Breakdown of Responses II

Workshops on specific AI tools, ongoing technical support, and online tutorials or courses are the most frequently used support types, with high percentages of "Yes" responses. One-on-one mentorship and ethical training are less commonly accessed, with 57% and 61% respectively reporting they don't use these supports.

AI Familiarity Levels

The responses to the question "How familiar are you with AI tools used in teaching, assessment, and research?" are shown in Table 4 below.

Familiarity Level Range	Frequency (n)	Percentage (%)
0–10 (Low familiarity)	20	17%
11–20 (Moderate familiarity)	40	34%
21–30 (High familiarity)	30	26%
31–40 (Very high familiarity)	26	22%

Table 4 Breakdown of Responses III

Most faculty (34%) fall in the moderate familiarity category (11–20). A significant portion (26%) are highly familiar with AI tools, while fewer participants (17%) have low familiarity and 22% fall under the "very high" familiarity range.

AI Usage Frequency

The responses to the question ‘‘How frequently do you use AI tools in your teaching, assessment, or research?’’ are shown in Table 5 below.

Usage Frequency Range	Frequency (n)	Percentage (%)
0–10 (Rarely)	**45**	**39%**
11–20 (Occasionally)	**50**	**43%**
21–30 (Frequently)	**18**	**16%**
31–40 (Very frequently)	**3**	**2%**

Table 5 Breakdown of Responses IV

A majority of faculty (43%) use AI tools occasionally, while 39% report using them rarely. Only 16% use AI tools frequently, and only 2% use them very frequently.

Perceived Impact of AI Tools on Teaching, Assessment, and Research

The responses to the question "To what extent do you believe AI tools will have an impact on teaching, assessment, and research?" are shown in Table 6 below.

Impact Perception Score Range	**Frequency (n)**	**Percentage (%)**
0–10 (Negative impact)	10	9%
11–20 (Somewhat negative)	30	26%
21–30 (Somewhat positive)	45	39%
31–40 (Highly positive)	31	26%

Table 6 Breakdown of Responses V

Most faculty (39%) believe AI tools will have a somewhat positive impact, with a smaller group (26%) expressing a highly positive view. However, a significant portion (26%) perceive AI's impact as somewhat negative, and 9% think it will have a negative impact.

Table 7 below summarizes the results for AI Familiarity Levels, AI Usage Frequency, and Perceived Impact of AI Tools on Teaching, Assessment, and Research. This table organizes the findings clearly and succinctly for easy comparison across the three

metrics, reflecting both the means and the variation in responses among the faculty participants.

Metric	Mean	Standard Deviation	Interpretation
1. AI Familiarity Levels	23.2	14.8	Faculty members generally exhibited a moderate level of familiarity with AI tools, with a significant variation in knowledge among participants, particularly between ranks.
2. AI Usage Frequency	29.0	15.6	On average, faculty members use AI tools occasionally. The high standard deviation indicates a wide variation in usage frequency, with some using AI tools frequently and others rarely.
3. Perceived Impact of AI Tools on Teaching, Assessment, and Research	23.2	16.1	Faculty were optimistic about AI's impact on teaching, assessment, and research, but the wide variation suggests differing opinions, ranging from transformative to skeptical views.

Table 7 Mean and Standard Deviation for AI Familiarity, Usage Frequency, and Perceived Impact Among Faculty Members

Chi-Square Tests for Significant Differences

Table 8 below summarizes the results of the Chi-Square tests for significant differences based on academic rank distribution and AI impact perception by rank.

Test Category	Chi-Square Value	P-Value	Interpretation
Academic Rank Distribution	30.28	2.66×10^{-7}	Highly significant difference. Majority of participants were lecturers.
AI Impact Perception by Rank	55.81	2.20×10^{-11}	Highly significant difference. Assistant professors had a more positive view of AI's impact compared to lecturers.

Table 8 Chi-Square Test Results for Academic Rank Distribution and AI Impact Perception by Rank

This table summarizes the results from the Chi-Square tests conducted on academic rank distribution and the perception of AI's impact based on academic rank. Both tests revealed highly significant differences, highlighting the variation in rank distribution and differing views on AI integration among lecturers and assistant professors.

4.2 Qualitative Analysis

4.2.1 Qualitative Analysis of Survey Results

The qualitative analysis of the open-ended responses collected from the survey provides a deeper understanding of the faculty members' experiences, concerns, and needs regarding the

integration of AI tools into their academic practices. The feedback reveals several key themes, which are outlined and analyzed below.

1. Training and Familiarization with AI Tools

A dominant theme from the qualitative responses is the need for more structured and hands-on training in AI tools. Faculty members expressed that while they were somewhat familiar with AI tools, many lacked the expertise to use them effectively in teaching, grading, and research. The majority felt that they would benefit from practical training that goes beyond basic introductions to AI tools. Examples of participants' reflections included the following:

> "I know the basics about AI tools, but I don't feel confident using them in my work. More practical training sessions would be helpful."
>
> "I have attended workshops, but they don't provide enough depth on how AI can be directly applied in academic settings."

These comments underscore a gap in the availability of practical, hands-on training sessions, indicating that faculty need more specialized, role-specific training. This reflects the importance of tailoring training programs that align with faculty's varying academic tasks.

2. Support Needs and Infrastructure

Many respondents emphasized the need for enhanced institutional support, particularly regarding IT infrastructure and technical assistance. Faculty members noted that the tools they used occasionally faced technical difficulties that hindered their effectiveness, and that the support available was often inadequate. Examples of participants' reflections included the following:

> "Sometimes, AI tools don't function as expected, and there's not enough support to troubleshoot issues."
>
> "The AI tools we have are useful, but without proper IT support, it's hard to rely on them consistently."

This highlights a significant challenge: while AI tools hold potential, the lack of technical infrastructure and ongoing support limits their effective use. It suggests that for AI adoption to be successful, robust technical support systems need to be in place, along with clear channels for faculty to receive assistance when issues arise.

3. Ethical Concerns and Academic Integrity

Ethical concerns about AI tools were a prominent theme, particularly regarding the impact on academic integrity. Faculty members expressed concerns about students using AI tools to cheat or submit plagiarized work. There was also concern about AI tools potentially introducing bias, leading to unfair assessments. Examples of participants' reflections included the following:

> "I'm worried that AI tools like Turnitin might flag AI-generated content as plagiarized, even if it's original. This creates a grey area in terms of academic integrity."

> "How do we ensure that AI doesn't introduce biases into grading? There needs to be more transparency about how AI tools are used in the evaluation process."

The concerns about academic integrity reflect the broader challenges associated with AI in education. Many faculty members feel that AI could compromise fairness, particularly if there is a lack of clarity regarding its use. These concerns point to the need for clear guidelines and ethical frameworks to govern the usage of AI tools.

4. Perceived Benefits of AI Tools

While some respondents expressed concerns, many acknowledged the potential benefits of AI tools. These benefits were particularly related to improving efficiency in grading and content creation, reducing administrative burdens, and assisting with research tasks. Examples of participants' reflections included the following:

> "AI tools can save me a lot of time when it comes to grading, especially for large classes. I can focus more on giving personalized feedback."

> "I see great potential in AI tools like ChatGPT to help me generate lecture content quickly and more effectively."

Faculty members seem to view AI tools as a means to enhance productivity, particularly in time-consuming tasks such as grading and content creation. This suggests that faculty members are open to AI adoption but would like to see its application focused on reducing their administrative workload.

5. Desire for Ethical Guidelines and Policies

There was a strong call for clear, university-wide policies and ethical guidelines regarding the use of AI tools. Faculty members felt that AI could be a powerful tool for education, but, in the meantime, guidelines were necessary to ensure its responsible and ethical use. Examples of participants' reflections included the following:

> "We need clear rules on how AI tools should be used in classrooms and research. It's hard to follow best practices without any guidance."
>
> "I believe the university needs to set ethical standards for AI use, especially in grading and student work. Without policies in place, it's difficult to navigate these tools."

The need for clear ethical guidelines emerged as a crucial point. Faculty members are eager for institutional policies that clearly define the scope and limitations of AI tools in academic settings, especially regarding grading, student research, and academic integrity.

6. AI's Future Role in Higher Education

Finally, several respondents provided forward-looking perspectives on the future of AI in higher education. Faculty members expressed optimism about the evolving role of AI tools, particularly in areas like personalized learning, student engagement, and administrative efficiency. Examples of participants' reflections included the following:

"In the next few years, I think AI could play a key role in creating personalized learning experiences for students."

"AI will definitely change the way we approach education, especially in grading and content delivery. But we need to be careful about its limitations."

These comments suggest that while faculty members are cautious about AI's current limitations, they see a promising future for its integration in higher education. However, their optimism is tempered by the need for thoughtful implementation and support systems.

To summarize, Table 9 below presents an overview of the respondents' feedback in the survey's open-ended questions section.

Key Theme	**Summary**
Training and Familiarization	There is a significant demand for more in-depth, practical training tailored to the academic roles of faculty. Faculty members feel that current training does not go far enough in helping them use AI tools effectively.
Support and Infrastructure	Respondents emphasized the need for better technical support and IT infrastructure to address technical issues and ensure reliable AI tool usage.
Ethical Concerns	Ethical concerns about academic integrity, fairness in grading, and bias in AI-generated content were prominent. Faculty are calling for clearer ethical guidelines and policies to govern AI use.
Perceived	Despite concerns, faculty members recognize the potential

Key Theme	Summary
Benefits	of AI tools to enhance efficiency in tasks like grading, content creation, and administrative tasks.
Desire for Policy Development	Faculty members expressed a strong need for institutional policies to guide the ethical use of AI tools in academic settings.
Future Role of AI	Faculty see AI tools as having a transformative potential in higher education, particularly in personalized learning, but there is a recognition of the need for careful implementation.

Table 9 Key Themes in the Respondents' Feedback in the Survey

This qualitative analysis underscores the importance of providing targeted training, robust support, and clear ethical guidelines to facilitate the successful integration of AI tools in higher education. Faculty members are generally open to AI adoption but require the necessary resources, infrastructure, and policies to ensure effective and ethical use of these technologies. The feedback highlights key areas where the university can improve its efforts to support AI integration, including the development of comprehensive training programs, better IT support, and the establishment of clear ethical guidelines.

4.2.2 Qualitative Analysis of Focus Groups

In addition to the survey, focus groups were conducted with a subset of participants to gather qualitative insights into their experiences with AI tools and the support provided by the

university. The focus groups conducted with faculty members from the Applied College at PNU provided rich, in-depth insights into their perceptions, experiences, and expectations regarding the integration of AI tools into academic practices. Three focus groups were held, each consisting of 6-8 participants, representing a mix of lecturers and assistant professors. Focus groups revealed several recurring themes that add depth to the survey results. These themes include training needs, ethical concerns, AI's potential impact on academic practices, support infrastructure, and faculty members' willingness to adopt AI tools. These themes are expanded below with additional direct quotes from the focus groups to illustrate the findings more comprehensively.

1. Training Needs and Faculty Preparedness

A key topic discussed in the focus groups was the lack of sufficient training and resources available to faculty members for effectively using AI tools in teaching, research, and assessment. Participants expressed a strong desire for more targeted, hands-on training that is role-specific and focuses on the practical application of AI tools. Examples of participants' comments include the following:

> "While some workshops have been offered, they tend to be very generic. We need specialized training that's aligned with our specific teaching and research needs."
>
> "I often find myself trying to figure out how to integrate AI into my work on my own. More personalized support from the university would be great."

"I would like more training on how to use AI tools for grading and research tasks. I understand the potential, but I need guidance on how to incorporate them into my daily tasks."

"It would be helpful if we had more specialized sessions tailored to different departments. For example, faculty in the humanities might need different training than faculty in the sciences."

"The workshops I attended were too introductory. I want more practical knowledge that I can directly apply in my teaching or research."

"I feel lost sometimes when I try to implement AI tools in my work. A mentorship program would be great to pair those of us new to AI with colleagues who are more experienced."

The discussion highlights a gap in the current training programs available at the university. Faculty members want more personalized, in-depth training that goes beyond introductory content and addresses specific academic challenges they face. They expressed a strong need for hands-on training and ongoing support from the university. Many participants noted that while they had some exposure to AI tools, they did not feel confident in using them effectively without more structured training.

2. Ethical Concerns and Academic Integrity

Ethical issues surrounding the use of AI in higher education were heavily discussed in the focus groups. Faculty members voiced concerns about how AI tools could impact academic integrity, particularly regarding plagiarism detection, AI-generated

content, and the potential misuse of AI tools by students. Examples of participants' comments include the following:

> "We are worried about students using AI-generated content in assignments and passing it off as their own work. There need to be clear policies on how to deal with this."
>
> "AI tools like Turnitin might flag AI-generated content, but it's not always clear whether it's truly plagiarism or just a tool that helped generate content. There's a grey area that we need to address."
>
> "AI tools can be very helpful, but I worry about how they might affect academic honesty. We need to be cautious about how we use them, especially with plagiarism detection."
>
> "The issue of AI-generated essays is concerning. How do we distinguish between a student's own work and work that's been generated by AI tools? This is a gray area that we haven't fully addressed yet."
>
> "I worry that students will use AI for their assignments, and we won't know the difference. There needs to be a way to ensure the work they submit is genuinely their own."
>
> "I have concerns about the biases that AI tools might carry. How can we ensure that the content generated by these tools is not inadvertently biased or misleading?"

Ethical concerns surrounding AI tools, especially related to academic integrity and bias, were frequently raised. These concerns point to the complexity of incorporating AI tools into academic settings without compromising academic standards. Faculty members are eager to see clear institutional policies developed

around the ethical use of AI, especially regarding issues of plagiarism, AI-generated content, and fairness in grading. Faculty are particularly concerned about detecting AI-generated content, the potential biases embedded in AI, and how these concerns might affect grading and assessment fairness. Focus group discussions suggest that ethical guidelines and educational frameworks need to be more transparent and robust to alleviate these concerns.

3. AI's Potential to Enhance Academic Practices

Many participants acknowledged the transformative potential of AI tools in improving academic practices, particularly in the areas of content creation, grading automation, and student feedback. Faculty members recognized that AI could enhance their productivity, save time, and improve the quality of their teaching and research output. Examples of participants' comments include the following:

> "AI tools like ChatGPT and Grammarly can help with content creation and ensuring our materials are grammatically correct. They definitely make our lives easier in that regard."
>
> "Automating grading tasks, especially for multiple-choice exams, has saved me a lot of time. This allows me to focus on providing more detailed feedback."
>
> "AI might help with grading, but I still prefer to provide personalized feedback to my students. AI lacks the nuance and understanding that a human instructor can offer."

"AI has the potential to improve how I interact with students. For instance, tools like ChatGPT can help generate ideas for lecture material or assist students with writing problems."

"Using AI to grade multiple-choice exams is a huge time-saver. It frees up time to focus on more complex assessments that require my expertise."

"I've started using Grammarly to help students with their writing. It provides real-time feedback, and that's something I can't always do in a one-on-one session with every student."

Faculty members see AI tools as enhancing their efficiency and productivity. The discussion reflects a clear acknowledgment of AI's value in automating routine tasks like grading and content creation, which allows faculty to invest more time in personalized teaching and research. Faculty members agreed that AI could be beneficial in automating administrative tasks like grading and content creation, but some remained skeptical about its effectiveness in complex tasks like personalized feedback. Tools like Grammarly and automated grading systems are seen as particularly valuable for saving time and providing quicker feedback to students. However, the focus is also on ensuring that these tools are used as supplements, rather than replacements, for the educator's expertise. This aligns with the survey findings, where faculty expressed appreciation for AI's role in reducing workload and increasing efficiency.

4. Support Infrastructure and IT Challenges

Another theme that emerged from the focus group discussions was the need for better support infrastructure to facilitate the seamless integration of AI tools. Participants shared concerns regarding the technical challenges they faced when using AI tools, such as software malfunctions, compatibility issues, and slow responses from the IT department. Examples of participants' comments include the following:

> "Whenever I face technical issues with the AI tools, it's difficult to get prompt support from IT. This delay disrupts my work, especially during critical times."
>
> "Some of the AI tools we have access to are not well-integrated with the university's systems. This causes delays and confusion when trying to use them."
>
> "Some of the AI tools are not user-friendly. They require a lot of troubleshooting, and if something goes wrong, I can't always rely on the IT team to fix it quickly."
>
> "If the university is serious about AI, they need to invest more in IT support for these tools. We can't expect faculty to adopt AI if the infrastructure isn't up to the task."

Technical support and infrastructure were a significant concern. Many faculty members reported facing challenges in using AI tools due to a lack of integration, technical glitches, or slow IT support. The responses indicate that the lack of robust technical support and infrastructure is a major barrier to effective AI adoption. Faculty members are keen on having more reliable IT support systems and better integration of AI tools within the university's existing technological framework. This underscores the importance of not only providing AI tools but also ensuring that the necessary

infrastructure and support systems are in place to make the integration process smooth.

5. Faculty Willingness to Adopt AI Tools

Overall, faculty members in the focus groups expressed a willingness to adopt AI tools in their teaching and research if the necessary support, training, and infrastructure were provided. However, they were cautious and expressed the need for gradual integration, starting with tools that are easy to implement and have clear, proven benefits. Examples of participants' comments include the following:

> "I'm open to using AI more, but I need more training and better support. I think we should start small with a few tools and then expand as we get more comfortable."
>
> "If AI tools can save me time and make my work more efficient, I'm on board. But I need to be sure they're going to work properly and not cause more problems."
>
> "I'm excited to use AI tools in my teaching, but I need more guidance. I want to see how others are using it successfully before I start incorporating it into my own classes."
>
> "I'm open to using AI if it makes my work easier and more efficient. But it needs to be something that I can rely on, not just another tool that adds complexity."
>
> "I think AI can be a great asset in the classroom, but we need to implement it step-by-step and ensure it aligns with the educational goals we have for our students."

This feedback highlights a general openness to AI adoption, with an emphasis on starting with less complex tools and gradually scaling up as faculty become more confident and experienced. They are eager to see proven examples of successful AI integration before committing fully, suggesting that pilot programs or small-scale implementations would be beneficial.

6. Need for Ethical and Policy Frameworks

Focus groups also underscored the importance of ethical frameworks and university policies to guide AI usage. Faculty members expressed a strong desire for the university to take a proactive role in setting clear ethical standards and policies that govern the use of AI tools in teaching, grading, and research. Examples of participants' comments include the following:

> "The university should set clear guidelines on what constitutes acceptable use of AI in research and teaching. Without policies, there's too much room for misunderstanding and misuse."
>
> "If the university can set up an ethical framework for using AI, I think it will help faculty feel more confident about incorporating these tools into their work."
>
> "There should be clear communication about how AI tools are meant to be used in academic work. What's acceptable in one department might not be in another, and that needs to be addressed."

The need for clear policies and ethical guidelines was emphasized in multiple-focused group discussions. Faculty members emphasize the importance of creating a clear, institution-wide framework for

AI use that addresses ethical concerns, acceptable use, and the role of AI in teaching, research, and assessment. The need for consistent policies was echoed throughout the discussions, suggesting that faculty would feel more comfortable adopting AI tools if they were provided with clear, actionable guidelines.

To summarize, Table 10 below presents an overview of the respondents' reflections in the focus groups.

Key Theme	Summary
Training Needs	Faculty members are calling for more personalized, hands-on training sessions tailored to their academic roles and practical needs and directly address their teaching and research needs.
Ethical Concerns	There are strong concerns about academic integrity, including AI-generated content and the potential for misuse by students, particularly in assignments. Clear guidelines and policies are needed to address these issues.
AI's Impact on Academic Practices	Faculty members acknowledge the potential of AI tools to enhance productivity, streamline grading, and improve content creation. They see AI tools as beneficial for improving efficiency in content creation, grading, and student feedback. However, AI should complement rather than replace traditional academic practices.
Support Infrastructure	The lack of responsive IT support and tool integration issues are significant barriers to AI adoption. Faculty require robust technical support to fully integrate AI tools.

Key Theme	Summary
Faculty Willingness	While faculty are open to adopting AI, they prefer a gradual approach and need ongoing support to feel confident in using AI tools. They require ongoing guidance, training, and support to do so effectively and ethically.
Need for Policy Development	There is a strong desire for institutional policies and ethical frameworks to govern the use of AI tools to ensure their responsible and fair integration into academic practices.

Table 10 A Summary of Key Themes in the Focus Groups

The quantitative and qualitative results from the survey and focus groups provide a comprehensive understanding of the faculty's views on AI adoption at the Applied College of PNU. The survey revealed that while faculty members are generally aware of AI tools and recognize their potential benefits, their usage is still infrequent, and there is a wide range of perceptions regarding the impact of AI. The focus groups further highlighted the need for comprehensive training programs, ethical guidelines, and continuous support to foster greater AI adoption among faculty members.

Faculty members' mixed views on AI tools suggest that while they acknowledge the potential of AI to enhance teaching, grading, and research, they require more structured support and reassurance regarding ethical concerns and practical implementation. The results suggest that PNU should prioritize offering targeted workshops and clear ethical guidelines to help faculty members feel more confident in integrating AI into their teaching and assessment practices.

5. Discussion of Findings

The findings from both the survey and focus group discussions provide valuable insights into the current attitudes, challenges, and needs of faculty members regarding the integration of AI tools at the Applied College, PNU. The results highlight both the enthusiasm and the concerns that faculty members hold toward AI tools in their academic practices. This section discusses the implications of these findings in relation to the key themes of training needs, ethical concerns, the potential of AI to enhance academic practices, support infrastructure, and faculty willingness to adopt AI tools.

1. Training Needs and Faculty Preparedness

One of the most consistent themes throughout the survey and focus group discussions was the desire for more tailored, in-depth training on the use of AI tools. Faculty members indicated that while introductory workshops and seminars helped raise awareness about AI's potential, they lacked specific, practical guidance for applying these tools effectively in their teaching, grading, and research. The desire for hands-on experience and mentorship programs suggests that faculty members feel unprepared to fully integrate AI into their work without more personalized support.

This finding aligns with the broader literature on AI adoption in educational settings, which consistently emphasizes the importance of training and professional development for faculty members (Baker et al., 2020; Van Le et al., 2021). Research has

shown that without adequate training and ongoing support, faculty may feel overwhelmed by AI's complexity, limiting their willingness to adopt these technologies (Jandric, 2020).

To address these concerns, it is crucial for PNU to expand its professional development offerings. Tailored, department-specific workshops and mentorship programs could bridge the gap between awareness and effective AI usage, ensuring that faculty are prepared to integrate these tools into their academic practices.

2. Ethical Concerns and Academic Integrity

Ethical issues surrounding AI tools were another prominent theme. Faculty members expressed concern about the potential for AI-generated content to undermine academic integrity, particularly in student assessments. The challenge of distinguishing between AI-generated work and student submissions was seen as a significant barrier to the responsible use of AI tools. This concern is particularly relevant given the rise of AI tools like ChatGPT, which can generate essays and other types of content that closely resemble human writing.

This reflects broader concerns in the literature about the ethical implications of AI in education, including issues of plagiarism, data privacy, and bias in AI algorithms (Aoun, 2017; Holmes et al., 2019). Studies have found that without clear guidelines, faculty members may struggle to navigate the complexities of AI's impact on academic integrity (Zawacki-Richter et al., 2019).

The university should prioritize the development of clear ethical guidelines and policies to address these concerns. Providing faculty with specific recommendations for detecting AI-generated

content, as well as integrating ethical considerations into AI training, will be essential to ensure that AI tools are used responsibly within academic contexts.

3. AI's Potential to Enhance Academic Practices

Despite the concerns mentioned above, faculty members expressed a generally positive view of AI's potential to enhance their academic practices, especially in terms of automating repetitive tasks like grading and content creation. Tools like Grammarly and automated grading systems were seen as valuable for saving time and improving the efficiency of teaching and assessment processes. Faculty also noted that AI tools could help them provide more personalized feedback to students, which is particularly important in large classes.

This finding supports the argument that AI has significant potential to improve teaching and learning outcomes when used appropriately. Research has highlighted the potential of AI to support personalized learning and improve student outcomes through tools that provide real-time feedback and assessments (Siemens, 2013). Faculty in our study see AI as a complementary tool that can enhance their roles without replacing them.

To fully realize the potential of AI, PNU should emphasize the use of AI tools for administrative tasks like grading, as well as for enhancing student learning experiences. However, faculty should be guided in using these tools in ways that complement rather than replace traditional pedagogical methods.

4. Support Infrastructure and IT Challenges

A major challenge identified by faculty members was the lack of responsive IT support and issues with the integration of AI tools into existing university systems. Faculty noted that technical problems, delays in IT support, and difficulties with software integration often hindered their ability to effectively use AI tools. This challenge reflects broader concerns about the infrastructure needed to support AI adoption in higher education (Brynjolfsson & McAfee, 2014).

Without robust IT infrastructure and accessible technical support, faculty may feel frustrated or discouraged from using AI tools, leading to a lower adoption rate (Johnson et al., 2020). Additionally, the lack of user-friendly platforms could make it harder for faculty to engage with AI tools, especially those who may not have a strong background in technology.

To support faculty in AI adoption, PNU must invest in stronger IT infrastructure and provide more accessible, immediate technical support. Streamlining the integration of AI tools into existing platforms and improving the user-friendliness of these tools will enhance faculty engagement and ensure that technical barriers are not a hindrance to AI adoption.

5. Faculty Willingness to Adopt AI Tools

While faculty members showed interest in using AI tools, their willingness to adopt them was contingent on adequate training, technical support, and ethical guidelines. Faculty members were enthusiastic about the potential benefits of AI but stressed that they needed clear instructions, mentorship, and a structured framework for using these tools effectively. This aligns with

previous studies that found that faculty adoption of new technologies is often influenced by the perceived usefulness of the technology, as well as the availability of support systems (Mayer et al., 2020).

Faculty members' willingness to adopt AI tools can be enhanced by ensuring that the necessary support systems are in place. The university should prioritize ongoing professional development, clear communication about the benefits of AI tools, and continuous feedback from faculty to ensure that their needs are met.

The findings of this study reveal that while faculty members at PNU are generally open to adopting AI tools, significant barriers remain that could impede their successful integration. Training, ethical concerns, support infrastructure, and the need for clear guidelines were identified as key areas that need attention. Addressing these concerns will be critical for PNU to successfully implement AI tools in a way that enhances teaching, research, and assessment practices. The university's commitment to providing targeted training, ethical frameworks, and robust technical support will be essential for fostering a culture of AI adoption and ensuring that faculty members feel confident and prepared to use these tools effectively.

6. Conclusion

This study examined the integration of Artificial Intelligence (AI) tools into teaching, assessment, and feedback practices at the Applied College, PNU. The primary aim was to understand faculty

members' familiarity with, usage of, and perceptions regarding AI tools, while also identifying their needs and challenges related to AI adoption. Through a combination of surveys and focus groups, the study explored faculty members' views on AI and the support structures needed to facilitate its integration.

The study revealed several key findings. Faculty members expressed a strong desire for more comprehensive, hands-on training in the use of AI tools, particularly in applying them effectively in academic settings. While they were generally aware of AI tools, many felt unprepared to use them without further guidance. Ethical considerations, particularly surrounding academic integrity and the potential misuse of AI-generated content, were a significant concern among faculty members. They highlighted the need for clear guidelines on ethical AI usage and detection of AI-generated work. Despite concerns, faculty members recognized the considerable potential of AI tools to enhance academic practices, particularly in automating repetitive tasks such as grading, content creation, and providing personalized feedback to students. Faculty members identified a need for stronger IT support, improved technical infrastructure, and more accessible AI tools to ensure successful integration. Overall, faculty members were open to adopting AI tools but emphasized the importance of proper training, mentorship, and ethical guidelines to ensure effective and responsible use.

The findings suggest several critical implications for PNU and other higher education institutions looking to integrate AI tools. PNU should focus on providing tailored training programs and mentorship initiatives that meet the diverse needs of faculty members. This would ensure that faculty are not only aware of AI tools but can effectively implement them in their academic work.

Institutions must develop clear ethical guidelines for AI usage in academic settings, especially concerning academic integrity, plagiarism detection, and the responsible use of AI-generated content. Strengthening the university's technical infrastructure and support services will be key to addressing faculty concerns about accessibility and usability of AI tools. Additionally, ensuring that the tools are user-friendly will make the integration process smoother for faculty with varying levels of technological expertise.

While this study offers valuable insights into faculty perceptions and needs regarding AI in higher education, there are several areas that could benefit from further investigation. Future studies should explore the long-term effects of AI tool integration on faculty productivity, teaching effectiveness, and student learning outcomes. Examining how AI influences student engagement and academic performance can help refine AI adoption strategies. It would be useful to investigate why some faculty members may be resistant to AI adoption and how their concerns can be addressed. Understanding the factors that contribute to resistance could help improve strategies for overcoming barriers to AI integration. As the global academic landscape evolves, it is important to understand how cultural factors influence AI adoption. Future research could explore how faculty in different regions or countries perceive AI tools and their integration into teaching and assessment.

In conclusion, while AI tools present significant opportunities to enhance academic practices at PNU, their successful integration requires a strategic approach that addresses faculty training, ethical concerns, and support infrastructure. By addressing these needs, PNU can create a conducive environment

for the responsible and effective use of AI in higher education, ensuring that faculty members are empowered to leverage these technologies for the benefit of both their teaching and students' learning experiences.

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Appendix

Survey on the Integration of AI Tools in Teaching, Assessment, and Research

Thank you for participating in this survey! Your responses will help the researcher understand the current use of AI tools at Princess Nourah University (PNU), as well as faculty members' needs, concerns, and expectations regarding the integration of AI into academic practices. The survey includes both multiple-choice and open-ended questions. Your responses will be kept confidential and used for research purposes only.

Section 1: Demographics

1. **What is your current academic rank?**
    - ☐ Lecturer
    - ☐ Assistant Professor
    - ☐ Associate Professor
    - ☐ Other (Please specify): _____
2. **How old are you?**
    - ☐ 28-35 years
    - ☐ 36-40 years
    - ☐ 41-47 years
    - ☐ 48 years or older

Section 2: Familiarity and Usage of AI Tools

3. **How familiar are you with AI tools in general (such as AI-based grading tools, plagiarism checkers, content creation tools like ChatGPT, etc.)?**
    - ☐ Very familiar
    - ☐ Somewhat familiar
    - ☐ Not very familiar
    - ☐ Not at all familiar
4. **Which AI tools have you used for academic purposes? (Select all that apply)**
    - ☐ ChatGPT
    - ☐ Turnitin (Plagiarism detection)
    - ☐ Grammarly
    - ☐ Google Bard
    - ☐ Moodle AI
    - ☐ Gradescope
    - ☐ Microsoft Copilot
    - ☐ Other (Please specify): _____
5. **How frequently do you use AI tools for academic purposes?**
    - ☐ Daily

- ☐ Weekly
- ☐ Occasionally
- ☐ Rarely
- ☐ Never

Section 3: Perception of AI Tools

6. **How would you rate the overall impact of AI tools on your teaching, assessment, and research?**
   - ☐ Very positive
   - ☐ Somewhat positive
   - ☐ Neutral
   - ☐ Somewhat negative
   - ☐ Very negative
7. **Which aspects of your academic work do you think AI tools can most effectively enhance? (Select all that apply)**
   - ☐ Lecture preparation and content creation
   - ☐ Grading and assessment
   - ☐ Student feedback and engagement
   - ☐ Research assistance (literature review, data analysis)

- ☐ Administrative tasks (e.g., scheduling, communication)
- ☐ Other (Please specify): _____

8. **What are the main benefits you see in using AI tools for your academic work?**
   - ☐ Improved efficiency and productivity
   - ☐ Reduced workload (grading, administrative tasks)
   - ☐ Enhanced quality of student engagement and feedback
   - ☐ Improved research capabilities
   - ☐ Increased accuracy in assessments
   - ☐ Other (Please specify): _____
9. **What challenges or concerns do you have about integrating AI tools into your academic work? (Select all that apply)**
   - ☐ Ethical concerns (e.g., academic integrity, AI bias)
   - ☐ Lack of adequate training and support
   - ☐ Technical issues or lack of infrastructure
   - ☐ Dependence on AI tools for grading or research tasks
   - ☐ Privacy concerns (e.g., student data)
   - ☐ Other (Please specify): _____

Section 4: Support and Training Needs

10. **What type of training or support would help you better integrate AI tools into your academic work?**

- ☐ Workshops on specific AI tools (e.g., Turnitin, ChatGPT, Gradescope)
- ☐ Online tutorials or courses
- ☐ One-on-one mentorship or training sessions
- ☐ Ongoing technical support
- ☐ Ethical training for AI usage in academia
- ☐ Other (Please specify): _____

11. **How do you feel about the current support provided by the university in terms of AI integration?**

- ☐ Sufficient and helpful
- ☐ Somewhat helpful but could be improved
- ☐ Not enough support or guidance
- ☐ No support available

Section 5: Open-Ended Questions

12. **In your opinion, what specific AI tools do you think would be most beneficial for your teaching, research, and assessment activities? Why?**

13. **What challenges have you faced when using AI tools, and how do you think these challenges could be addressed?**
14. **What additional resources, support, or training would you need to feel more confident using AI tools in your academic work?**
15. **Do you have any ethical concerns about the use of AI tools in higher education, particularly regarding academic integrity and fairness? If so, please elaborate.**
16. **How do you envision the role of AI tools evolving in higher education over the next 5-10 years?**

Section 6: Final Thoughts

17. **Is there anything else you would like to share about your experience with AI tools in academia or suggestions for the university in supporting faculty adoption of these tools?**

End of Survey

Thank you for completing the survey! Your responses will help guide the university's efforts in providing better support, training, and resources for faculty members as AI tools are increasingly integrated into academic practices.