

International Journal of Learning, Teaching and Educational Research
Vol. 25, No. 3, pp. 317-342 March 2026
<https://doi.org/10.26803/ijlter.25.3.14>
Received Jan 4, 2026; Revised Feb 26, 2026; Accepted Mar 3, 2026

Ethical and Value-Based Dimensions of Artificial Intelligence Integration in Saudi Higher Education: Faculty Perspectives from King Khalid University

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Abstract. This study investigates the ethical and value-based challenges associated with adopting artificial intelligence (AI) in higher education, using King Khalid University in Saudi Arabia as a case study. The study aims to identify core ethical principles guiding educational AI use, examine value-oriented risks accompanying deployment, and propose context-sensitive approaches for preserving ethical, religious, and cultural foundations in AI-mediated learning environments. A descriptive quantitative design was employed using a validated 30-item questionnaire across three dimensions: ethical values and principles of AI use, value-based challenges and risks, and ethical approaches to AI application. Data were collected from 110 faculty members and analyzed using appropriate statistical techniques. Findings indicate strong consensus regarding the primacy of data security, transparency, accountability, and the protection of human rights as essential ethical requirements for educational AI. Results also demonstrate the importance of structured AI ethics literacy and continuous professional development in strengthening faculty awareness, trust, and effective pedagogical use of AI tools. Moreover, the study underscores the need to embed religious and cultural considerations within AI-based educational systems to reinforce Islamic values while safeguarding learner autonomy, well-being, and safety. Overall, the findings confirm that ethical, culturally responsive, and value-oriented governance frameworks are central to responsible AI adoption in higher education. The study concludes with practical recommendations for institutionalizing value-based AI governance in Saudi universities through clearly articulated ethical

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policies, ongoing faculty training, data protection standards, and human-centered oversight mechanisms. The proposed framework informs future comparative research globally.

Keywords: artificial intelligence; ethical and value; higher education; challenge; faculty perspective

1. Introduction

Modern technologies have become an integral part of education in this increasingly digital world. As such, educational institutions today must undertake strategic investment, not only in using cutting-edge technology but also in preserving both the moral aspects of these new technologies and cultural values, as opposed to solely adopting Western methodologies to deliver high-quality education to all. This obligation is especially keen in Muslim Arab societies, where education is intrinsically linked to character, with piety and with identity. Therefore, higher educational institutions have an imperative to find a suitable balance between technological progress and their ethical duty and the conservation of society-wide values. Among recent technologies, the emergence of artificial intelligence (AI) is one of the most revolutionary forces reshaping systems of education.

AI applications provide considerable opportunities to personalize learning experiences, fine-tune instructional and administrative processes, and provide data-driven insight into student performance and engagement. Notwithstanding the many advantages, AI raises a myriad of ethical issues, such as how to protect privacy, secure data, detect algorithmic bias, increase transparency, maintain accountability, and potentially reduce the level of meaningful human interaction. In line with international bodies such as UNESCO (2022), responsible AI implementation in education must safeguard private data, prevent discriminatory practices, and respect the fundamental dignity of teaching and learning.

The emergence of AI technologies (machine learning, robotics, natural language processing) also complicates matters with the need for strong regulatory and institutional oversight on ethical governance. International policy, academia, policy and educational actors around the world, including academic leaders, policymakers, and educational institutions, have repeatedly stressed the importance of responding to AI-related ethical challenges with urgency. UNESCO reports and summits recommend that AI systems must be developed to provide well-structured, ethical, and regulatory approaches to be comprehensive at a global level for the future, so that they maintain transparency, accountability, and respect for human dignity and privacy (UNESCO, 2022).

Technology innovators emphasize that AI has a bright future and can address the challenges raised by complex global problems, but they are also critical of untrammelled progression and overreliance on automated decision-making tools. Academics and researchers also underscore the lack of a cohesive ethical philosophy that can cover AI's wider implications for socialization, education,

and culture, particularly in contexts of strong association with religious and moral values (Floridi et al., 2018).

Despite growing global scholarship on AI ethics in education, much of the existing literature remains conceptual, policy-driven, and largely Western-oriented, with limited empirical attention to culturally grounded higher education systems. In the Saudi and Gulf context – where education is closely intertwined with religious values, moral responsibility, and national transformation agendas – there is a clear need for context-specific investigation. Few studies have explored how faculty members interpret ethical AI governance through a value-based lens that integrates cultural and religious principles. Moreover, prior research often isolates technological adoption from ethical risk and institutional oversight, rather than examining them within a unified framework. This study addresses that gap by providing empirical evidence from King Khalid University on the ethical, cultural, and governance dimensions shaping responsible AI integration in higher education.

In light of these concerns, the current study explores the ethical aspects and value perspectives around the adoption of AI in higher education, specifically in King Khalid University, Saudi Arabia. It intends to explore the fundamental ethical and educational principles that should underpin AI deployment in the future, evaluate the potential fundamental value issues and risks resulting from AI integration, and assess frameworks, approaches, or policies that prevent the abolition of ethical principles. By investigating attention to data privacy, algorithmic bias, depersonalization of learning, and cultural sensitivity, the researchers aim to create a responsible and context-sensitive AI integration model at the university level. These principles are important for the ethical and culturally driven adoption of AI in higher education. Through Islamic ethical lenses, educational technologies should respect principles of justice, accountability, transparency, and respect for human dignity.

The findings of this study offer important implications for institutional policy development, strategic planning, and professional practice, while also enhancing awareness among educators, policymakers, and academic leaders regarding the ethical use of AI in higher education. Conducted over one academic semester at King Khalid University, the researchers focused on the ethical and value-based dimensions of AI use in educational contexts. By integrating technological advancement with ethical responsibility, the study contributes to the development of a sustainable and ethically informed AI strategy relevant to higher education institutions in Saudi Arabia and the wider Gulf region.

Beyond its immediate national context, this study's results address ethical challenges associated with artificial intelligence in higher education that are increasingly shared across global educational systems. As universities worldwide adopt AI in teaching, learning, and institutional governance, concerns related to data privacy, algorithmic bias, accountability, and the preservation of human-centered education transcend cultural and national boundaries. By foregrounding ethical and value-based considerations, the study results offer a transferable

framework to inform AI governance in diverse educational environments. Emphasis on aligning technological innovation with societal values makes the findings relevant to both faith-based and secular higher education contexts. Moreover, the focus on faculty perceptions underscores the central role of educators in shaping responsible and context-sensitive AI adoption.

In light of the ethical, cultural, and educational issues associated with the expanding use of artificial intelligence in higher education, we examined faculty perceptions of AI adoption within a value-based and ethical framework. Accordingly, the following study questions guided the investigation:

1. What ethical and educational principles do faculty members at King Khalid University perceive as necessary for the responsible use of artificial intelligence in higher education?
2. What value-based challenges and ethical risks do faculty members perceive as associated with the integration of artificial intelligence into teaching, learning, and academic decision-making at King Khalid University?
3. What ethical frameworks, institutional approaches, or governance mechanisms do faculty members perceive as effective in ensuring that artificial intelligence use in higher education remains aligned with cultural, religious, and moral values?

Although conducted within Saudi higher education, this study holds strong international relevance, as AI integration in TESOL reflects a global transformation rather than a local phenomenon. Universities worldwide face similar challenges related to AI literacy, ethical governance, academic integrity, and digital readiness. By examining AI adoption within a culturally value-oriented context, the study demonstrates how innovation can align with ethical responsibility. The proposed human-centered framework offers transferable insights for institutions navigating rapid digital transformation across diverse educational settings.

2. Literature Review

2.1 Conceptual Framework

The conceptual model guiding this study integrates three interrelated dimensions: students' readiness for responsible AI use, their perceptions of AI integration in TESOL, and the implementation needs and challenges associated with such integration. These dimensions are theoretically connected, as students' AI literacy, confidence, and ethical awareness influence how they evaluate AI tools, which in turn shape institutional and pedagogical requirements. The model therefore clarifies the relationship between individual preparedness and systemic support structures, ensuring coherence between the study's theoretical framework, research variables, and empirical measures. By examining these dynamic interconnections, the framework offers a comprehensive understanding of how effective and responsible AI integration in TESOL depends on the balanced alignment of cognitive, ethical, and institutional factors.

2.2 Concept of AI Values in Education

Artificial Intelligence (AI) is not a single technology but a broad conceptual domain encompassing diverse methods designed to simulate aspects of human cognition and behavior (Russell & Norvig, 2021). It integrates algorithms, neural networks, data mining, and machine learning to enable systems to analyze data, learn from patterns, and make informed predictions. Although AI is often perceived as a recent innovation, its foundations have evolved over decades and now permeate everyday life, transforming sectors such as education, healthcare, communication, and decision-making. Its rapid advancement stems from the convergence of behavioral and neural sciences with computational modeling and machine learning.

Contemporary AI systems demonstrate adaptive learning and cross-context generalization, supporting increasingly autonomous decision processes (Luckin et al., 2016). In educational contexts, AI must be guided by ethical principles that shape its design, implementation, and use. Responsible AI deployment seeks to uphold human rights, promote fairness and transparency, mitigate algorithmic bias, and safeguard data privacy, thereby enhancing educational outcomes while protecting societal values (UNESCO, 2022).

2.3 Value and Ethical Considerations that Surround AI in Education

The 1st International Conference on Computational Research and Data Analytics in 2021 (Singh et al., 2021) was particularly dedicated to the role of AI in higher education because of its relation to the design, development, and testing of AI-based systems that would be adjusted for university environments. At the conference, many problems were related to the ethical implications of fair, transparent, and secure AI use, emphasizing the urgency to build AI that adapts to different students' requirements and preferences in a digital world.

Discussions focused on the importance of incorporating ethics in AI implementation and design of personalized and inclusive learning, with no bias or unfair affective harm to learners. Furthermore, the conference presenters emphasized the need for broad and transparent evaluation frameworks that consider student rights along with the trustworthiness of AI use cases. Cross-disciplinary collaboration and ongoing research underpin the development of ethical applications of AI in education and the successful ethical use of AI in academic contexts while preserving their foundational moral and social tenets.

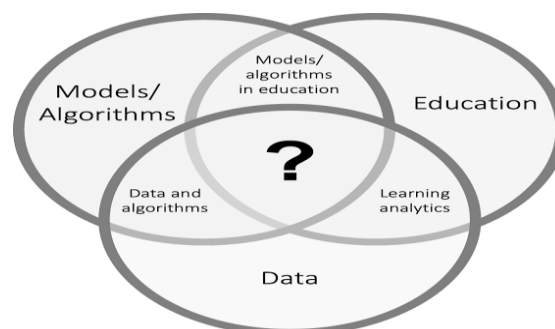


Figure 1: Ethical dimensions of AIED systems

Source : Holmes et al. (2019, p. 520)

2.4 Value-Related Challenges of AI

As artificial intelligence becomes increasingly embedded across sectors, it raises complex ethical and value-based concerns that require sustained attention. Scholars emphasize the need for transparent global frameworks and effective governance to strengthen public trust and guide responsible AI deployment. Despite its computational sophistication, AI lacks human consciousness and contextual moral judgment, limiting its ability to resolve nuanced ethical dilemmas. Moreover, reliance on large-scale data collection and algorithmic profiling heightens privacy and security risks. Addressing these challenges demands a balanced approach that integrates technological innovation with enforceable legal safeguards, robust cybersecurity measures, institutional accountability, and comprehensive ethical oversight.

2.5 Strategies and Procedures to Address the Value Challenges

International professional organizations have played a pivotal role in shaping ethical standards for artificial intelligence in higher education. Bodies such as the Association for the Advancement of Artificial Intelligence, the International Association for Computing and Philosophy, and the Institute of Electrical and Electronics Engineers have developed comprehensive frameworks to guide the responsible research, design, and deployment of AI systems. At the same time, rising concerns about student data privacy have strengthened the call for robust legal protections, exemplified by the General Data Protection Regulation (EU, 2018), which regulates the lawful collection, storage, and use of personal information. Ethical AI integration further demands adherence to principles of academic integrity, accessibility, and inclusivity, particularly for students with disabilities.

Universities must therefore provide clear training on plagiarism, copyright compliance, and transparent data governance. The Asilomar AI Principles (2017) reinforce these commitments by emphasizing safety, fairness, transparency, accountability, and human oversight. Collectively, these frameworks serve as flexible ethical guides that institutions can adapt to their unique cultural and educational contexts.

2.6 Most Prominent Global Frameworks and Systems Concerned with AI Values and Ethics in Education

Leading international educational platforms have progressively integrated AI ethical principles into their governance frameworks through detailed terms of use, privacy policies, and procedural safeguards. These systems commonly uphold core values such as transparency, privacy by design, data minimization, security, user autonomy, and nondiscrimination. Open edX, established through the edX initiative by Harvard University and MIT, was created to deliver high-quality online education while ensuring strong ethical oversight and regulatory clarity.

Similarly, Moodle emphasizes data protection and responsible digital conduct, supporting institutions in maintaining academic integrity and minimizing privacy risks. Sakai promotes ethical engagement by enabling collaborative learning and secure assessment management. IBM Watson Education further

incorporates AI-driven analytics within structured governance and trust frameworks. Collectively, these platforms reflect a sustained commitment to embedding ethical standards in educational technologies, fostering secure, inclusive, and trustworthy digital learning environments.

2.7 Previous Studies

Recent research across the Arab world highlights the expanding role of AI across all levels of education, with growing evidence of its positive pedagogical and institutional impact. Studies by such scholars as Al-Talouhi (2023) demonstrate that AI-assisted platforms can significantly enhance Arabic language learning, reinforcing broader claims about AI's potential to improve student achievement and institutional effectiveness. At the same time, this body of research stresses that successful integration depends on strategic, context-sensitive implementation rather than uncritical adoption. Although ethical issues surrounding AI in education have gained global prominence, cultural perceptions increasingly shape how ethical norms are understood, negotiated, and operationalized within local educational systems.

Empirical evidence from Saudi Arabia further illuminates these dynamics. Research at King Khalid University has shown that faculty exhibit moderate innovation in AI-supported teaching and engagement, with more cautious adoption in assessment practices and clear variations by academic rank, experience, and research productivity (Al-Shehri et al., 2025). Perceived usefulness consistently emerges as the strongest predictor of faculty attitudes toward generative AI, mediated by trust, institutional culture, and peer norms, while self-efficacy plays a limited role (Alotaibi, 2026; Shata & Hartley, 2025).

Although faculty perceptions are generally positive, confidence in the reliability and ethical implications of AI remains uneven (Al-Zahrani et al., 2025). From a governance perspective, concerns have been raised about centralized AI models that may conflict with academic freedom and shared governance (Dotan et al., 2024). Against this backdrop, the present study contributes by foregrounding cultural, religious, and regulatory specificities in Saudi Arabia, integrating global AI ethics frameworks with Islamic ethical principles. By doing so, it advances a context-sensitive, values-driven approach to AI governance that aligns technological innovation with deeply rooted social and ethical norms.

3. Methodology

3.1 Research Design

The research applied a descriptive survey method, a structured research methodology that involves gathering and analyzing data pertaining to a topic within a given period. Using this method allows scholars to obtain complete information that accurately reflects the current situation and prevailing trends in the phenomenon being investigated and is mainly utilized for obtaining exact scientific conclusions based on the thorough analysis of empirical data. Post collection of data, the researcher uses an objective interpretive process to analyze and explain the findings in the context of the research problem and its contextual framework (Creswell & Creswell, 2018).

3.2 Research Population and Sample

The research population of the current study comprised faculty employed at King Khalid University in the Kingdom of Saudi Arabia. Of the faculty who served at the university for the academic year 1446 AH, approximately 3,588 were recruited. This population consisted of academic faculty members from various colleges and departments and who represented institutions and universities with diverse expertise. As the descriptive surveys aimed to confirm the character of the population, a delineated population was therefore required (Creswell & Creswell, 2018).

The selection of faculty at King Khalid University as a research sample was designed not only to enhance the subject of investigation but also to provide insight within an institution that is of major relevance in public higher education worldwide and thus render the study findings more contextually authentic. The sample utilized in the study was drawn from the population by a simple random sampling method, one widely recommended in survey research because it ensures equal chance of selection among all members of a population and minimizes sampling bias. The research tool was used on a sample of 110 faculty members at King Khalid University. This sample size was sufficient for the purposes of the study (the objective) to support the relevant statistical analyses required.

3.3 Demographic Characteristics of the Research Sample

Frequencies and percentages were calculated for the selected background variables to describe the demographic characteristics of the research sample, as recommended in descriptive survey research for summarizing sample attributes and ensuring clarity in data interpretation (Creswell & Creswell, 2018). One of the key demographic variables examined in this study was years of professional experience, which reflects participants' accumulated academic, instructional, and institutional expertise, all of which may influence respondents' perceptions and responses (Fraenkel et al., 2012).

3.3.1 Years of Experience

Table 1: Frequency and percentage distribution of participants according to years of experience (N = 110)

Years of Experience	Frequency (f)	Percentage (%)
Less than 5 years	11	10.0%
From 5 to less than 15 years	22	20.0%
15 years or more	77	70.0%
Total	110	100%

Table 1 presents the distribution of participants according to years of professional experience. The results indicate that the majority of respondents (70.0%) have 15 years or more of academic experience, reflecting a highly experienced faculty sample. Participants with five to less than 15 years of experience accounted for 20.0% of the sample, while those with less than five years of experience comprised 10.0%. This distribution suggests that the study's recommendations are largely informed by the perspectives of senior faculty members with extensive

professional expertise. Such representation enhances the credibility of the findings, as experienced academics are more likely to possess a deeper understanding of institutional practices and the pedagogical integration of learning technologies (Creswell & Creswell, 2018). Moreover, reporting demographic characteristics in this manner aligns with established best practices for descriptive survey research (Fraenkel et al., 2012).

3.4 Academic Qualification

Table 2: Frequency and percentage distribution of participants according to academic qualification (N = 110)

Academic Qualification	Frequency (f)	Percentage (%)
Bachelor's Degree	3	2.7%
Master's Degree	26	23.6%
Doctorate (PhD)	81	73.7%
Total	110	100%

Table 2 presents the distribution of study participants according to their academic qualifications (N = 110). The results indicate that the majority of respondents hold a doctoral (PhD) degree (73.6%), suggesting that the sample is largely composed of highly qualified faculty members. This is followed by participants with a master's degree (23.6%), further reflecting a strong postgraduate academic profile among the respondents. In contrast, only a small proportion of the sample (2.7%) reported holding a bachelor's degree.

This distribution demonstrates that the study population possessed substantial academic expertise and extensive professional experience, which is likely to enhance the depth, rigor, and credibility of the collected data. Prior research has consistently shown that participants with higher academic qualifications tend to exhibit stronger analytical capacity, methodological awareness, and informed judgment when responding to research instruments, particularly in studies related to education and technology (Creswell & Creswell, 2018). Accordingly, the predominance of doctoral- and master's-level participants in this study strengthens the reliability of the findings and supports their relevance and applicability within higher education contexts.

3.5 Research Instrument

This study mainly used questionnaires as the instrument for data collection to collect the appropriate data for study material subjects. The use of a well-structured questionnaire provided the researcher with a reliable data source that made the data suitable for comparative analysis.

3.5.1 Validity of the Research Instrument

The reliability of the study results was also ascertained by examining the credibility of the research instrument. Validity refers to how accurately the survey questionnaire represents what it's supposed to measure. A panel of experts in the field screened the questions in several rounds to determine whether they were clear, relevant, and comprehensive. The tool was revised to improve the user experience and content validity on the basis of their feedback, Validation

employed means that the instrument can provide valid data from which true findings drawn from the phenomena being studied can be reached.

3.5.2 Internal Consistency Reliability of the Questionnaire Items

The internal fidelity of the questionnaire items was measured to assess their consistency in each dimension to measure the same construct. This type of consistency reflects consistency among the items and their alignment with the constructs of the instrument. Item-total correlation coefficients were computed to evaluate internal consistency by correlating the score of each item to the total score of that dimension, removing the item itself from the total score. This approach is extensively recommended in scale validation studies, in which the coherence of constructs, and therefore consistency in the measurement, is ensured (Field, 2018).

Correlation analysis between item and total provides statistical evidence of the extent to which each element contributes to its component dimension. Moderate-high correlation coefficient items suggest high alignment with whole construct while poor correlations could be indicative of conceptual misalignment or measurement error (Hair et al., 2019). In educational and social science research, correlation coefficients of 0.30 or greater are considered an acceptable measure of internal consistency.

Table 3: Item-total correlation coefficients for Axis One

Item Number	Statement	Correlation Coefficient
1	Educational smart applications must conform to security standards and cannot endanger students and teachers.	0.547**
2	Data collected from students must be transparent and in compliance with ethical constraints.	0.695**
3	Smart applications should be applied to education equitably and not discriminate or bias against any student or student group.	0.744**
4	Students' privacy shall be protected, and their personal data shall not be subjected to disclosure under unlawful circumstances.	0.669**
5	Educational intelligent applications will need to be accurate and reliable in data and information.	0.700**
6	Students should be free to decide whether to use smart applications in education; however, they should not be compelled to use them.	0.658**
7	Mechanisms to hold accountability and periodic evaluation of the implementation of smart apps in education must be put into place, such that they adhere to ethical standards and prevailing laws.	0.702**
8	Using an AI system in education should be able to avoid a bias or prejudice against individuals, groups or categories.	0.768**

Table 3 lists item-total correlation coefficients for the statements that form Axis One: Key Values and Principles on the Use of Artificial Intelligence in Education.

At a threshold of 0.01, all measures positively and significantly correlate with the total score on the axis, with correlation coefficients ranging from 0.547 to 0.768. More importantly, these results exceed the minimal allowable level for item–total correlations ($r \geq 0.30$) and can imply that each item correlates exactly with the construct that it is supposed to measure and thus has substantial contributions to the overall construct (Hair et al., 2019).

For fairness, nondiscrimination, and bias avoidance in AI-based educational applications (Items 3 and 8), we found the largest correlations, underlining equity and justice as foundational ethical principles used to guide the AI's application in education. Similarly, dimensions related to data transparency, data privacy, accuracy, reliability, and accountability mechanisms were significantly correlated where they appeared to be significant for trust and ethical compliance in AI-enabled learning environments. Although Item 1 had the lowest correlation coefficient, it still belonged to the acceptable and statistically significant lines, indicating importance to the axis without redundancy. Overall, item–total correlations provide strong empirical evidence supporting the internal consistency (in Axis One), construct validity with respect to the items, and thus, the correctness of Axis One to assess the ethical values and guiding principles of AI use in education.

Table 4: Internal consistency validity between each item of Axis Two (Key ethical challenges and risks that may be encountered when using AI in education) and the total score of the Axis

Item Number	Statement	Correlation Coefficient
1	Anxiety over using smart technologies in education among students.	0.610**
2	When applying AI technologies to education, cultural and religious aspects should also be considered.	0.799**
3	AI technology needs to be built on balanced and reliable data.	0.719**
4	The application of AI technology to education should also promote equity.	0.808**
5	Legal liability needs to be clearly defined in the event of ethical or legal issues.	0.723**
6	What had been a robust and reliable AI system meant to defend its values can flounder in the face of unknown or unexpected events.	0.730**
7	AI integration will require experts in AI and subject matter specialists to work together to meet the regulatory requirements for the application of AI in education.	0.801**
8	Effective AI governance requires collaboration among legal experts, policymakers, and technologists to balance innovation, accountability, and stakeholder protection.	0.780**
9	Disruptions in AI-related software can negatively affect educational continuity and therefore require proactive technical management.	0.684**
10	One of the largest barriers to the incorporation of AI in education is the limited knowledge with which it is employed.	0.784*

In Table 4, the internal consistency validity of Axis Two is shown, addressing the primary ethical issues and risks of AI in education. The item–total correlation coefficients are between 0.610 and 0.808; the coefficient for each item is statistically significant, and that value exceeds the accepted minimum reliability of 0.30. This result suggests that each item is highly correlated with the total score of the axis and measures the construct as it should.

Items with the highest correlation coefficients promote equity in educational AI applications (Item 4, $r = 0.808$), collaboration between AI experts and subject matter specialists to be compliant with the regulations (Item 7, $r = 0.801$), and cultural and religious value consideration (Item 2, $r = 0.799$). Our study suggests that fairness, interdisciplinary collaboration, and cultural sensitivity are key to dealing with ethical challenges around AI use in education.

Finally, aspects pertaining to legal liability, data reliability, and governance structures are highly correlated with each other, highlighting the key role of clear legal accountability and reliable data for ethical usage of AI. Although items regarding student anxiety (Item 1) and technical disruptions (Item 9) demonstrate relatively low correlations, their coefficients remain within acceptable values and therefore confirm their relevance to the construct.

Overall, the findings validate a reasonable level of internal consistency and construct validity in Axis Two as an assessment tool of ethical challenges and risks associated with the integration of AI into education. These findings align well with recent psychometric and methodological guidelines within educational research that highlight the relevance of strong item–total correlations in validating measurement instruments (Hair et al., 2019).

**Table 5: Item–total correlation coefficients for Axis Three
(Ethical procedures and applications governing the use of AI in education)**

Item number	Statement	Correlation Coefficient
1	These technologies shall be designed to promote fairness, equality, transparency, and equity.	0.772**
2	Human control shall be enforced around the utilization of smart technologies in education.	0.791**
3	The ethical use of AI in education should be continually evaluated and reviewed.	0.761**
4	Learners should be given notification on their rights and responsibilities related to AI.	0.750**
5	Community participation in policy and procedure development should be incorporated in drafting AI in education.	0.753**
6	Policies and procedures should be set up in place that will protect the privacy of all students and safeguard information security.	0.828**
7	The technical architecture of the AI system must be connected to a full set of rules in addition to a complete approach to checking the quality of the AI system.	0.790**

8	Regular human supervision of AI systems in educational use must exist.	0.696**
9	Documentation of datasets and processes that elucidate AI system decisions in education should take into account value considerations.	0.615**
10	Ethics and values in AI systems for education need to be reviewed at regular intervals to mitigate any changes and developments.	0.721**

Table 5 presents the core ethical values and principles guiding the development, application, and governance of AI in educational contexts, as indicated by the correlation coefficients associated with each item. Notably, all items exhibit strong positive correlations (ranging from 0.615 to 0.828), indicating broad agreement on their importance among stakeholders. The highest correlation ($r = 0.828$) relates to the imperative of establishing policies and procedures that protect student privacy and information security. This finding resonates with the broader literature, which emphasizes privacy as a fundamental concern in AI applications within education (Floridi et al., 2018). Similarly, the strong endorsement of human control and supervision (Items 2 and 8) aligns with calls for maintaining human agency in AI decision-making processes to avoid over-reliance on automated systems and ensure accountability (Luckin et al., 2016).

Transparency and fairness, indicated in Items 1 and 9, are also crucial ethical dimensions because AI systems must be designed to promote equity and elucidate decision-making processes to foster trust and inclusivity (Jobin et al., 2019). The importance of ongoing ethical evaluation and community participation (Items 3 and 5) highlights an adaptive and participatory approach to AI governance, recognizing that social values and technological contexts evolve over time (Holstein et al., 2019). In summary, the table affirms the necessity for a multifaceted ethical framework in educational AI systems, emphasizing privacy, human oversight, transparency, fairness, and continuous review, all of which are critical to ensuring responsible and equitable AI integration in educational environments.

3.6 Reliability of the Research Instrument

Cronbach's alpha coefficient was calculated for the items of the major axes to validate the reliability of the questionnaire. Using this statistical measure, we looked at the internal consistency of the instrument and whether the items within each axis are interrelated. Overall, all these axes have satisfactory levels of reliability; hence, items in the questionnaire were stable and consistent in measuring the intended constructs.

Table 6: Cronbach's alpha reliability coefficients for research instrument axes

Axis Title	Number of Items	Cronbach's Alpha Value
Key values and principles related to the use of AI in education	10	0.884
Key ethical challenges and risks that may be encountered when using AI in education	10	0.910
Key procedures and applications that help preserve values and ethics when using AI in education	10	0.912
Overall instrument	30	0.958

Results in Table 6 show that the instrument demonstrates high to excellent internal consistency reliability on all its axes. The first axis (Key values and principles related to the use of AI in education) obtained a Cronbach's alpha of 0.884, demonstrating high reliability and indicating that a set of items in this axis measures the same construct. The second axis (Key ethical challenges and risks that may be encountered when using AI in education) has a Cronbach's alpha of 0.910, demonstrating excellent internal consistency and verifying the integrity of the items that assess ethical risks that may be encountered in AI use in education.

Similarly, the third axis (Key procedures and applications that help preserve values and ethics when using AI in education) presented a Cronbach's alpha of 0.912, which further confirmed the reliability and stability of the measurement scale. In addition, an excellent reliability on the items with a Cronbach's alpha coefficient of 0.958 was observed for the overall instrument, which contains 30 items, indicating good correlation among the items of the whole questionnaire. Cronbach's alpha thresholds set by established methodological standards are acceptable, whereas values exceeding 0.90 indicate excellent reliability. The integrated result of the psychometric tests shows that the instrument is psychometrically robust and appropriate for educational research to evaluate the ethical and value dimensions of AI in education.

3.7 Statistical Methods Used

Responses from the data collected were analyzed using several statistical methods. Distribution of responses and central tendencies are summarized using statistics such as frequencies, percentages, and means (Field, 2018). The construct validity of the questionnaire was investigated using a Pearson correlation coefficient to evaluate the strength and direction of association between variables and thus establish construct validity. Reliability was assessed via the Cronbach's alpha coefficient, which has been a conventional indicator of internal consistency and stability over time. These techniques establish the validity and reliability of the instrument and thereby the credibility and rigor of the present study.

4. Results and Findings

4.1 Results Related to the First Question

To answer the first question, we used a descriptive analysis of the mentioned domain to highlight the most crucial values and principles pertaining to the use

of AI in education at King Khalid University in the Kingdom of Saudi Arabia. The results of this analysis seek to give an overall perspective on what ethical, educational, and societal values govern the introduction of AI technologies within the university's educational framework. As a result, by analyzing the responses to the appropriate questionnaire items, this study aims to identify the main principles, which include transparency, fairness, accountability, respect for privacy, and the promotion of equitable access to educational resources. Descriptive statistics indicate the prevailing attitudes and perceptions of participants in this regard and contribute to identifying which values are prioritized and the responsible and effective use of AI to facilitate teaching and learning activities at the study institution.

Table 7: Arithmetic mean, standard deviation, ranking, and level of agreement for items related to the axis of values and principles concerning the use of AI in education at King Khalid University, Saudi Arabia

Item Number	Axis Statements	Mean	Standard Deviation	Rank	Degree of Agreement
1	Smart applications for education must meet security requirements and not endanger the safety of both students and teachers.	4.72	0.56	1	Very High
2	Data from students must be transparent and ethical.	4.50	0.62	6	Very High
3	The use of smart applications in education must be a fair development that does not lead to any bias or discrimination against any student or group.	4.50	0.73	7	Very High
4	No violation of student privacy can be allowed; personal information about the student must remain private, and should not be disclosed, nor can confidential information be unauthorized.	4.59	0.65	2	Very High
5	Smart educational applications must be applied on accurate and reliable data and information.	4.55	0.70	4	Very High
6	Students should be free to choose if and how to use smart applications in education and not be forced to.	4.54	0.69	5	Very High
7	There needs to be accountability and a mechanism to regularly evaluate smart applications to ensure compliance with ethics and laws.	4.56	0.70	3	Very High
8	An AI system in education would not discriminate or prejudice individuals, groups of people or different groups of people from one another.	4.44	0.71	9	Very High

9	In educational settings, AI should be leveraged to respond flexibly to students' learning paths, providing tailored support and feedback that help learners progress at their own pace and achieve meaningful learning outcomes.	4.35	0.86	10	Very High
10	The influence of AI in education has social and environmental value.	4.49	0.70	8	Very High
Overall Mean		4.52	0.49	Very High	

Table 7 shows the arithmetic mean, standard deviation, ranking, agreement of items related to the axis values and principles for the use of AI toward education of King Khalid University. The findings demonstrate a very high degree of consensus among respondents to construct AI in education, with a mean of 4.52 and a low SD = 0.49, illustrating a high level of agreement concerning the moral and ethical elements. The first most popular item (Item 1; M = 4.72, SD = 0.56) is the need to ensure its security and the safety of students and teachers in the smart education applications. This finding also demonstrates participants' very strong awareness of cybersecurity and risk avoidance, a well-recognized international ethical principle for the responsible use of AI in education (Floridi et al., 2018; UNESCO, 2022). Item 4 indicates that participants have high agreement on data privacy and data confidentiality (Item 4; M = 4.59, SD = 0.65), and Item 7 has higher agreement on accountability and continued evaluation of AI systems (Item 7; M = 4.56, SD = 0.70).

These findings are consistent with global frameworks of AI governance that emphasize data protection, transparency, and institutional accountability when implementing AI technologies in educational systems (OECD, 2019). Items on accuracy and data reliability (Item 5; M = 4.55, SD = 0.70), along with students' ability to select their own applications for AI (Item 6; M = 4.54, SD = 0.69), also received an extremely high level of response. This result means that respondents perceived the importance of technical stability and learner independence and support the idea that AI shall assist rather than inhibit educational choices (Holmes et al., 2019). In addition, fairness, nondiscrimination and ethical data use (Items 2, 3, 8, and 9) received consistently high mean scores, which further emphasize access to fairness and justice in AI-based education settings.

These findings align with other works on the risks of algorithmic bias and the importance of fair and inclusive AI systems. Importantly, Items 8 and 9 have conceptually similar results, which may be an area of redundancy that could be improved in the instrument. Lastly, Item 10 (M = 4.49, SD = 0.70) speaks of users' acceptance of the social and environmental value of AI in education, which is representative of a more holistic view that perceives AI as part of the strategy for sustainable and socially responsible educational development. In essence, these findings show a robust institutional and ethical basis for the integration of AI at

King Khalid University, one that is informed by internationally shared values of security, privacy, fairness, accountability, and social responsibility.

Although the present analysis focuses on higher education at King Khalid University, the prominence of values such as privacy, fairness, accountability, and learner autonomy suggests that these principles are transferable to other educational levels within Saudi Arabia. In primary and secondary education, where learners are more vulnerable and regulatory oversight is heightened, these values may assume even greater significance, particularly in relation to data protection, parental consent, and safeguarding mechanisms.

4.2 Results Related to the Second Question

Many ethical issues are associated with the use of AI at King Khalid University in Saudi Arabia, such as data privacy issues, algorithmic bias, academic integrity, and impact on human-centered teaching. This study adopts descriptive analysis over survey responses to investigate these value-based risks, situated within the university's cultural and institutional contexts. Furthermore, it explores the proficiency of teachers in the Al-Baha region in terms of employing AI to formulate multiple choice questions for formative assessments in high schools by using statistical measures such as means, standard deviations, and agreement levels. The results are detailed in Table 8.

Table 8: Descriptive statistics for ethical challenges and risks of AI use in education at King Khalid University

Item Number	Statement	Mean	Standard Deviation	Rank	Degree of Agreement
1	Students are worried about employing smart technologies in education.	4.45	0.72	9	Very High
2	Cultural and religious considerations should also take place while bringing AI technologies into the educational context.	4.42	0.79	10	Very High
3	AI technologies must depend upon balanced and trustworthy data.	4.52	0.75	5	Very High
4	AI technologies need to reach equity in education.	4.57	0.68	2	Very High
5	Legal responsibility must be determined in case of ethical or legal issues.	4.46	0.80	8	Very High
6	Defending the system with a strong, reliable AI to protect values, when something unknown or unexpected happens, might fail the system.	4.48	0.82	7	Very High

7	AI integration will take place through the cooperation of AI specialists and field specialists, to facilitate compliance with the demands of regulatory requirements for AI in education.	4.55	0.74	3	Very High
8	Safeguarding the legal front of AI needs a mix of lawyers, policymakers, and tech professionals who collaborate over the legal framework to establish clear regulations that weigh innovation, accountability, and stakeholder rights.	4.51	0.76	6	Very High
9	Interruptions in AI-related software at any time cause embarrassment in the educational process and must be addressed.	4.58	0.76	1	Very High
10	Limited knowledge of AI is one of the major challenges that education faces with its implementation.	4.53	0.73	4	Very High
Overall Mean		4.50	0.55	-	Very High

Descriptive statistics summarizing faculty perceptions of ethical dilemmas and risks associated with the use of AI in education at King Khalid University are presented in Table 8. Overall, the findings reveal a high level of consensus among faculty members regarding the significance of ethical and risk-related considerations in AI integration, as reflected by a high overall mean score ($M = 4.50$, $SD = 0.55$). This result indicates a strong collective awareness that ethical challenges are not peripheral concerns but central to the responsible implementation of AI in academic contexts.

Among the identified risks, disruption in AI-related software emerged as the most critical concern ($M = 4.58$, $SD = 0.76$), highlighting faculty apprehension about technical instability and its potential to disrupt teaching and learning processes. This finding aligns with prior research emphasizing system reliability as a prerequisite for effective and ethical AI adoption in education. Closely related is the strong agreement regarding the necessity of equity in AI-supported education ($M = 4.57$, $SD = 0.68$), reflecting a shared expectation that AI technologies should enhance fairness and widen access rather than exacerbate existing inequalities. This perspective is consistent with international ethical AI frameworks that prioritize justice and inclusivity.

High levels of agreement were also observed for items addressing collaboration between AI specialists and domain experts ($M = 4.55$, $SD = 0.74$) and limited AI knowledge as a key challenge ($M = 4.53$, $SD = 0.73$). These findings underscore

the importance of interdisciplinary cooperation and continuous professional development to ensure informed and ethical AI use. Furthermore, strong endorsement of concerns related to data balance and trustworthiness ($M = 4.52$, $SD = 0.75$), as well as legal and regulatory accountability ($M = 4.46$, $SD = 0.80$), reinforces the central role of transparency, governance, and clearly defined responsibility frameworks.

Although rated comparatively lower, concerns regarding student anxiety toward smart technologies ($M = 4.45$, $SD = 0.72$) and the need to consider cultural and religious values ($M = 4.42$, $SD = 0.79$) remained notably high. These results emphasize the importance of human-centered, culturally responsive approaches to AI adoption, particularly within the Saudi educational context. Overall, the findings demonstrate a well-developed ethical awareness among faculty and highlight the need for comprehensive policies, sustained training, and robust technical and legal infrastructures to support responsible AI integration.

Notably, the high levels of agreement on cultural and religious considerations indicate that faculty perceptions of AI ethics are shaped not only by global governance frameworks but also by Saudi Arabia's Islamic ethical tradition and national educational values. This contextual grounding reinforces the view that ethical AI adoption in Saudi education must align with religious norms, social responsibility, and nationally endorsed moral frameworks rather than relying solely on imported regulatory models.

4.3 Results Related to the Third Research Question

In relation to the third research question (i.e., what are the most significant measurements and functions of maintaining values and ethics in the application of AI to education at King Khalid University in the Kingdom of Saudi Arabia?), a description on items pertaining to this axis was provided. This analysis seeks to consider the pivotal practices contributing to the successful deployment of AI technologies with respect to cultural, ethical, and religious values. Previous research has stressed that the tools of AI in education should be contextualized and directed from an ethical standpoint, especially in culturally advanced countries such as Saudi Arabia (UNESCO, 2022).

Collectively, the findings across the three axes demonstrate strong internal coherence with the study's conceptual model, in which ethical values, perceived risks, and governance measures function as interdependent components. The high consensus across these dimensions confirms the model's explanatory capacity in capturing how ethical awareness, institutional safeguards, and human oversight jointly shape responsible AI integration in higher education.

Table 9: Descriptive statistics (mean, standard deviation, rank, and agreement level) for items on measures that support ethical AI use in education at King Khalid University, Saudi Arabia

Item Number	Statement	Mean	Standard Deviation	Rank	Degree of Agreement
1	These technologies must be built for fairness, equality, transparency, and equity.	4.64	0.65	1	Very High
2	Smart technologies must be put under human control in education.	4.52	0.66	8	Very High
3	Consistent assessment and review of the ethical use of AI in education requires ongoing evaluation.	4.45	0.82	10	Very High
4	Learners should be made aware of their rights and responsibilities related to AI.	4.54	0.76	5	Very High
5	The community should be invited to be part of the drafting of AI policy and procedures in education.	4.51	0.82	9	Very High
6	Policies and procedures must be created to protect students' privacy and data security.	4.53	0.74	7	Very High
7	The technical structure of an AI system must accompany a complete methodology to test system quality.	4.53	0.75	6	Very High
8	Human supervision of AI systems for education should be available regularly.	4.57	0.67	3	Very High
9	The dataset and processes that explain AI system decisions in education should be documented in accordance with value considerations.	4.58	0.64	2	Very High
10	Ethics and values in AI systems used in education must be periodically updated to address any future changes or developments.	4.57	0.67	4	Very High
Overall Mean		4.54	0.53	Very High	

A strong consensus emerged among King Khalid University faculty regarding effective approaches for enabling the ethical use of artificial intelligence in education, as reflected in Table 9. The high overall mean score ($M = 4.54$, $SD = 0.53$) underscores a shared belief that robust ethical governance is essential for

responsible AI integration in higher education. Faculty members placed particular emphasis on grounding AI technologies in fairness, equality, transparency, and equity ($M = 4.64$), highlighting a clear preference for justice-oriented and trustworthy systems. This orientation aligns closely with international ethical AI frameworks that identify fairness and transparency as foundational principles for responsible educational AI use (Al-Shehri et al., 2025; Floridi et al., 2018; UNESCO, 2022).

High mean scores for maintaining clear records of datasets and decision-making processes ($M = 4.58$), as well as for sustained human oversight of AI systems ($M = 4.57$), further reflect strong support for explainability and human-in-the-loop models. Faculty members clearly favor accountable AI applications over fully autonomous educational technologies, echoing recent ethical guidelines that stress accountability as a safeguard against bias and misuse (Jobin et al., 2019). Moreover, the very high agreement regarding learner awareness of rights, responsibilities, and data protection policies signals growing concern for student privacy and ethical literacy in AI-mediated learning environments. Although ethical awareness is evidently strong, slightly lower rankings for continuous ethical evaluation and community participation suggest the need for more structured, participatory governance mechanisms. Overall, the findings reveal a highly ethical faculty stance and reinforce the importance of clear institutional policies, continuous ethical review, and inclusive stakeholder involvement in sustainable AI adoption.

5. Discussion

Although conducted within Saudi higher education, this study carries significance that extends well beyond its local setting. The integration of artificial intelligence in TESOL reflects a global educational shift, as institutions worldwide grapple with issues of AI literacy, ethical governance, academic integrity, and institutional preparedness. By exploring AI adoption within a culturally grounded and value-oriented context, the study demonstrates how technological innovation can be thoughtfully aligned with ethical responsibility and societal expectations. In doing so, it offers a human-centered framework with both practical and theoretical relevance for higher education systems navigating digital transformation across diverse international landscapes.

The findings of the present study are broadly consistent with prior research across the Arab world, which highlights the growing role of artificial intelligence in strengthening pedagogical practices and institutional effectiveness. In line with Al-Talouhi (2023), the study confirms that AI-assisted platforms can enhance learning outcomes—particularly in language education—while emphasizing that these benefits depend on deliberate, context-sensitive integration rather than uncritical adoption. This convergence reflects a shared scholarly understanding that AI is most effective when embedded within pedagogical and institutional ecosystems, functioning as an enabling tool rather than a stand-alone technological solution.

Interpretation of these findings was informed not only by statistical trends but also by the researcher's theoretical sensitivity and critical engagement with the Saudi educational context. Drawing on professional experience and ethical scholarship allowed for nuanced interpretation of faculty responses beyond numerical aggregation, particularly where cultural, religious, and governance considerations intersect.

Within the Saudi higher education context, the findings closely align with empirical research conducted at King Khalid University, notably in revealing moderate levels of innovation in AI-supported teaching and student engagement, alongside more cautious use in assessment practices (Al-Shehri et al., 2025). This pattern mirrors broader regional and international evidence identifying assessment as the most ethically and professionally sensitive domain of AI application, given persistent concerns surrounding academic integrity, validity, accountability, and bias. The consistency of this trend across studies suggests that limited adoption in assessment reflects informed risk calibration rather than resistance to innovation.

The study also corroborates earlier research identifying perceived usefulness as the strongest predictor of faculty attitudes toward generative AI, diverging from models that prioritize self-efficacy or ease of use. Consistent with Shata and Hartley (2025) and Alotaibi (2026), perceived usefulness is mediated by trust, institutional culture, and peer norms, indicating that AI adoption is shaped as much by social and ethical confidence as by technical competence. At the same time, the findings extend existing literature by demonstrating that, generally, positive attitudes do not necessarily translate into uniform confidence in AI reliability or ethical implications, reinforcing concerns raised by Al-Zahrani et al. (2025).

The study's most distinctive contribution lies in its governance and ethical framing. Although global scholarship increasingly critiques centralized, top-down AI governance models for their tension with academic freedom and shared governance (Dotan et al., 2024), this study advances the discussion by situating these debates within Saudi Arabia's cultural, religious, and regulatory context. By integrating global AI ethics frameworks with Islamic ethical principles, it proposes a values-driven governance model that moves beyond universalist ethical prescriptions. In doing so, the study differentiates itself from much of the existing literature, which often treats ethics as a procedural compliance issue rather than as a culturally embedded normative system.

Overall, the findings both confirm and extend prior research by demonstrating that AI adoption in Saudi higher education is not merely a technological or pedagogical challenge, but a deeply contextual process shaped by values, governance structures, and ethical worldviews. The study thus contributes a culturally grounded framework for aligning AI-driven innovation with professional responsibility, academic integrity, and societal norms.

5.1 Limitations and Constraints

While the findings are robust, several limitations warrant consideration. The study relies on self-reported perceptions, which may be shaped by social desirability bias, particularly in ethically sensitive areas such as AI use in education. Its focus on a single institutional context also limits broader generalizability, and the descriptive design constrains causal interpretation. Nonetheless, the case study approach and inclusion of faculty perspectives from King Khalid University strengthen contextual depth and credibility. Moreover, triangulating survey and interview data enhances the reliability of the results. Future research should employ mixed-method and longitudinal designs to provide deeper explanatory insights and stronger generalizability.

6. Conclusion

This study explored faculty perceptions of the ethical and value-based dimensions of artificial intelligence integration in higher education, using King Khalid University as a contextual case. The findings reveal a strong and coherent ethical orientation among faculty members, reflected in consistently high agreement on core principles such as data security, privacy, fairness, transparency, accountability, and the necessity of human oversight. Taken together, these results demonstrate that ethical awareness, perceived risks, and governance mechanisms operate as interrelated and mutually reinforcing factors shaping responsible AI adoption in educational settings. The study thus makes a theoretical contribution by extending prevailing AI adoption models to incorporate culturally and religiously grounded ethical frameworks, emphasizing that AI integration in higher education is not merely a technical or pedagogical undertaking but a fundamentally value-driven and context-sensitive process.

From a practical standpoint, the findings highlight the importance of institutionalizing value-based AI governance within the Saudi higher education system through clearly defined ethical policies, sustained professional development for faculty, and culturally responsive regulatory frameworks. University leaders and educational authorities are encouraged to systematically embed AI ethics literacy, robust data protection measures, and human-centered oversight mechanisms across higher education institutions to promote responsible, trustworthy, and sustainable AI use. Although the study is limited by its focus on a single institution and its reliance on self-reported quantitative data, these limitations do not undermine its contextual significance.

Rather, they open important avenues for future research. Subsequent studies may benefit from employing mixed methods or longitudinal designs, expanding the sample to multiple institutions and educational levels, and undertaking comparative analyses across national and cultural contexts. Such research would deepen understanding of ethical AI governance and contribute to the development of globally relevant yet locally grounded models for AI integration in higher education.

6.1 Pedagogical Implications

The findings demonstrate that effective AI integration in higher education requires more than technical proficiency; it demands ethical awareness, cultural sensitivity, and a human-centered pedagogical approach. Faculty development should therefore prioritize AI ethics literacy, enabling educators to critically assess and responsibly apply AI tools in teaching, assessment, and feedback. Embedding ethical principles within curriculum design can enhance transparency, fairness, and learner autonomy in AI-supported environments. Moreover, pedagogical uses of AI should promote reflection and critical engagement rather than mere automation, supporting the development of higher-order thinking skills. Collectively, these implications position AI as an ethical, supportive partner that complements—rather than replaces—human judgment and pedagogical expertise.

7. Consent to Participate

Written informed consent was obtained from all faculty participants prior to their participation in the study. The participants were informed about the purpose of the research, that participation was voluntary and that they were allowed to withdraw at any stage without penalty. Responses were held in trust that their confidentiality and anonymity would be maintained and would only be used for academic research purposes and, therefore, were conducted in accordance with established ethical research guidelines (American Psychological Association, 2020).

8. Acknowledgments

The authors extend their appreciation to the Deanship of Scientific Research in King Khalid University for funding this study through the Large Research Project under Grant Number G.R.P 1, /180/1446.

9. AI Tools for Language Enhancement

We used AI tools for improving the language. The authors note that AI-based tools were employed to sharpen the language quality of this manuscript. QuillBot was primarily used for paraphrasing and improving sentence structure, and Grammarly for grammar checking, punctuation, and clarity. These tools were only employed to refine the language of these contributions; all scholarly content, data interpretation, and conclusions are the exclusive work of the authors.

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