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AI and Academic Productivity: Evaluating Its Impact on Research Output in Kurdistan's Public Universities

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Abstract

The use of Artificial Intelligence (AI) within public educational institutions creates a paradigm shift that produces elevated academic performance quality in addition to boosted research outputs. This study examines the effects of AI technology on public university productivity levels in the Kurdistan Region of Iraq, specifically analyzing the relationship between AI knowledge and estimated advantages and moral concerns affecting research performance. The study employs AI as its independent variable through three separate analysis dimensions: AI awareness and usage behaviors; perceived benefits from AI implementations; and related ethical challenges. Research productivity and research performance outcomes serve as the two components through which the dependent variable, academic productivity, is measured. The study used a structured questionnaire to collect data from 11,641 permanent academicians and staff members at public universities in the Kurdistan Region. A total of 320 questionnaires were returned, of which 314 were valid and used for the analysis. To achieve the research objectives, the researchers adopted a descriptive and analytical approach. The study provides data that can enable educational leaders to develop policies and design institutional practices for adopting AI in pursuit of scientific progress and academic sustainability. The research evaluates the relationship between AI technology usage and productivity measures, advancing the digital transformation discussion in higher education practices.

Keywords:
Artificial Intelligence, Academic Productivity, Research Output, Public Universities, Kurdistan Region

1. Introduction

Modern advancements in artificial intelligence (AI) technology produce revolutionary changes that impact higher education institutions, along with scientific research facilities. Education research now transforms through AI technologies because these tools provide innovative data methods for scholarly work, research design, and review workflows. The critical analysis of AI applications in public universities becomes essential because AI represents a pathway to enhance research productivity, together with improved research effectiveness.

The educational and scientific development of the Kurdistan Region heavily relies on its 16 multidisciplinary public universities, together with their 11,641 permanent academic staff members. Due to global institutions integrating AI for enhancing research capacity and innovation, there is a critical need to understand how AI technologies function within the Kurdistan Region's higher education academic environments. The research examines how thoroughly AI tools combined with systematic writing systems facilitated by artificial intelligence integrate into research activities and affect scholarly output.

Public universities in the Kurdistan Region need to advance their AI usage past its initial stage despite beneficial AI opportunities. The situation calls for first-hand research that handles the benefits and challenges regarding AI implementation within academic environments. Research productivity influenced by AI demands complete awareness from policymakers alongside academic leaders and institutional stakeholders to build specific strategies supporting sustainable academic growth through AI implementation and ethical and resource-based competency management.

To further examine this subject, together with the role of artificial intelligence in academic productivity, researchers should answer three essential questions about the matter:

1. Does artificial intelligence hold any role in supporting academic productivity?
2. Academic productivity depends on the roles AI dimensions play in research projects.
3. What influence do artificial intelligence dimensions apply toward academic productivity?

Artificial Intelligence (AI) is transforming higher education by boosting research productivity. In Kurdistan's public universities, effective use hinges on awareness, perceived value, and ethical concerns. This study explores AI's impact on academic productivity. The core research questions are:

- To what extent are academic staff in Kurdistan Region's public universities aware of and engaged with AI technologies in their research activities?
- How do academicians perceive the potential benefits of AI in enhancing academic productivity and research performance?
- Is there a statistically significant correlation between AI awareness and usage and the level of academic productivity among researchers in the Kurdistan Region's public universities?
- How do perceived benefits of AI correlate with improvements in research productivity and performance outcomes?
- What institutional or infrastructural factors influence the successful integration of AI technologies in research within the context of Kurdistan Region's public universities?

Accordingly, the research includes four hypotheses, which are as follows:

First Hypothesis:

- ✓ Null Hypothesis (H0): There is a significant correlation between (AI and Academic Productivity) at a significant level (0.05)
- ✓ Alternative Hypothesis (H1): There is no significant direct correlation between (AI and Academic Productivity) at a significant level (0.05)

Second hypothesis:

- ✓ Null Hypothesis (H0): There is no significant direct correlation between the dimensions (AI and Academic Productivity) at a significant level (0.05)
- ✓ Alternative Hypothesis (H1): There is a significant direct correlation between the dimensions (AI and Academic Productivity) at a significant level (0.05)

Third Hypothesis

- ✓ Null Hypothesis (H0): AI does not have a significant positive effect on (Academic Productivity) at a significant level (0.05).
- ✓ Alternative Hypothesis (H1): AI has a significant positive impact on (Academic Productivity) at a significant level (0.05).

Fourth Hypothesis

- ✓ Null Hypothesis (H0): The dimensions of AI do not have a significant positive impact on (Academic Productivity) at a significant level (0.05).
- ✓ Alternative Hypothesis (H1): The dimensions of AI have a significant positive impact on (Governance of Higher Education) at a significant level (0.05).

Hence, ainning at identify the impact of AI on academic productivity in public universities in the Kurdistan Region, the study seeks to achieve the following objectives:

1. Identify the concept of AI and its dimensions.
2. Identify the concept of Academic Productivity and its importance.
3. Identify the relationship between AI and Academic Productivity
4. Identify the role of AI in improving the Academic Productivity in pubic universities.

As for the scope of the research, the study is defined by several human, spatial, temporal, and scientific determinants, as follows:

- Human Scope: The current study tested its hypotheses on a sample of academicians from public universities in the Kurdistan Region of Iraq. A total of 314 respondents were selected from the overall population of 11,641 researchers.
- Place Scope: The study included 16 public universities in the Kurdistan Region of Iraq.

The importance of this research lies in its contribution to the development of scientific research in the field of AI and academic productivity in higher education in the Kurdistan Region of Iraq. It also provides practical recommendations for researchers on applying AI to enhance academic productivity in public universities in the Kurdistan Region. Moreover, the study offers insights for policymakers and institutional leaders on integrating AI strategically to support sustainable academic growth, improve research quality, and foster innovation across the higher education sector.

2. Previous Studies

In recent years, Artificial Intelligence has increasingly been integrated into university research, prompting substantial dialogue among universities worldwide. The increasing popularity of open-access publishing enables scholars to observe an essential change in how research content is generated and distributed, along with its assessment process. The research collection examines the convergence of AI technology with academic output measurement while assessing the performance change in research activities through open-access systems. The drive for this study comes from figuring out how AI technologies, from sophisticated data analytics to generative language models, are influencing research methods, scholarly communication, and academic engagement. Through an examination of open-access articles from various fields and establishments, this research aims to reveal the advantages and disadvantages of academia's digital revolution.

To commence with, in his bibliometric study "AI-Driven University Research: A Bibliometric Perspective," Castro et al. (2023) evaluated the effects of open-access publication and artificial intelligence on university research production over a five-year span. According to their findings,

research productivity, citation frequency, and multidisciplinary cooperation significantly increased at universities that used AI-supported open-access models. Building upon this bibliometric perspective, Mok and Jiang (2023) examined how open-access regulations and AI technology have impacted academic research in the Asia-Pacific area in their paper "The Rise of AI and the Changing Nature of Academic Research". They concluded that the combination of AI with open-access procedures improves research quality and inclusivity by bridging the divide between established and up-and-coming academic institutions.

In a similar context, Vineis (2024), in the work *Scientific Publishing: Crisis, Challenges, and New Opportunities*, explored the sweeping changes taking place in academic publishing due to the rise of AI and open-access frameworks. The study highlighted that when AI is used in harmony with open-access ideals, it can significantly enhance both the reach and the quality of scholarly communication, especially supporting early-career researchers and institutions with limited resources. Along the same lines, Rosenkranz (2024) explored how AI and open-access publishing intersect within the field of biomedical research. In his study, *Drug Outcomes Research and Policies – Trends and Challenges*, he found that AI significantly boosts the speed, accuracy, and worldwide accessibility of research findings, ultimately strengthening the connection between academic scholars and clinical practitioners. Building on this theme within engineering education, Gharieb, Gabry, and Soliman (2024) investigated the role of personalized AI tools in their study *Personalized Generative AI in Advancing Petroleum Engineering and Energy Industry*. Focusing on the University of Houston as a case study, their research found that open-access AI platforms support scalable knowledge integration and significantly enhance research productivity across STEM fields.

Additionally, Kaur, Kaur, and Singh (2024) explored how AI can drive sustainability and systemic change in education in their work *Re-engineering Education and Training*. Their research highlights that AI and digital technologies, especially when used within open-access models, can boost institutional effectiveness and improve educational outcomes. Expanding on this institutional perspective, Sadeghi Naeini and Golestaneh (2024) examined how AI and data analytics can strengthen university-driven social innovation efforts. In their study, *The Transformative Role of Design for Social Innovation*, they discovered that embedding AI within open-access frameworks boosts research productivity while also enhancing the broader impact on communities.

Taking a more philosophical and policy-driven approach, Blackmoor (2024) explored the ideological dimensions of AI and open-access publishing in academia in the study *AI Policy and Ideological Polarisation in Art Ownership*. The research suggests that when AI aligns with open-access values, it challenges established hierarchies in knowledge creation and encourages more inclusive and democratic academic discourses. The research by Saragih (2025) focused on studying student perspectives in *Student Perception of ChatGPT for Academic Assignments* from a teaching and learning perspective. The research indicates that educational tools such as ChatGPT boost productivity rates for students when they access open-access educational resources. Academic integrity concerns continue to bother educators. Lastly, García del Castillo-López (2025) explored how AI is being applied in psychosocial and behavioral health research through the study "*An Integrative Proposal in Addiction and Health Behaviors Psychosocial Research"*. The findings indicated that AI-driven open-access platforms help create more efficient and health-oriented academic settings by streamlining behavioral data analysis and promoting cross-disciplinary collaboration.

The main purpose of presenting previous studies is the completion of what the other researchers have reached, as well as the statement of the areas of benefit and what distinguishes the current research from previous studies. The reviewed studies demonstrate that AI systems used in open-access infrastructure enhance university productivity, together with access and collaboration performances. Data management improvements along with innovation represent the key advantages

of these systems, but they require responsible handling, and fair access must be maintained as a priority. Organizations need strategic integration to create academic settings that include and function effectively.

3. Literature Review

3.1 The Concept of AI

Artificial Intelligence (AI) is a vibrant and complex field within computer science, centered on creating systems that mimic human cognitive functions like learning, reasoning, decision-making, and understanding language. In the academic world, AI is quickly becoming an asset, enhancing human potential, optimizing tasks, and driving innovation in both teaching and research. To begin with, Gomis and Perea (2025, p. 87) argue that AI is no longer a distant concept in academic settings - it's now a present-day force shaping how teaching, assessment, and research are carried out. Their systematic review stresses the importance of AI literacy as a core skill for both educators and students, especially with the growing presence of intelligent tutoring systems, recommendation tools, and generative AI in academic writing. Rather than being just a tool for automation, AI is increasingly viewed as a collaborative partner in academic work requiring thoughtful and informed engagement.

Moreover, Blitz et al. (2025, p. 212) also view AI through the broader framework of academic ecosystems. In their report from a university-led summit, they describe AI as a key engine for innovation in higher education, with impactful uses in areas like cybersecurity, designing machine learning curricula, and analyzing student performance. They emphasize that AI's real value goes beyond improving operations—it also opens doors to digital equity and supports lifelong learning, particularly when institutions embrace open-source approaches. Similarly, Nogueira (2025, p. 34) provides a unique perspective on AI's conceptual relevance to academic libraries and information science. In her study on AI-assisted scholarly databases, she emphasizes that AI systems, such as semantic search engines and chatbots, are becoming gatekeepers to gain knowledge access. She notes that the integration of AI into academic infrastructures enhances user experience and speeds up the retrieval of high-quality, peer-reviewed content - thereby supporting both academic productivity and digital inclusivity.

Furthermore, Nguyen (2025, p. 108) uses a netnographic approach to examine how academic users perceive AI. Her study highlights a shifting understanding of generative AI tools like ChatGPT and Bard, particularly among early-career researchers. These tools are seen not just as computational aids, but as creative partners that help spark ideas and support writing flow. Still, Nguyen cautions that this evolving view needs to be balanced with ethical and educational guidance to avoid overreliance or misuse. Finally, Jose et al. (2025, p. 5) delve into the cognitive paradox of AI in academic settings, pointing out the delicate balance between enhancing intellectual engagement and potentially undermining it. While AI can make complex ideas more accessible and improve understanding through adaptive learning tools, the authors caution that relying on it without critical thought may devalue intellectual effort. Their study calls for a thoughtful, ethically grounded integration of AI, backed by strong educational policies.

Collectively, these studies show that AI has moved from being a side curiosity to playing a major role in academia. It's not just a tool anymore; instead, it is a partner pushing schools and universities to rethink how they teach, learn, and conduct research. As AI continues to grow, academic institutions need to evolve too, making sure it is used in ways that support thoughtful engagement, equal access to technology, and high standards of learning.

3.2 AI in Academic Research

Artificial Intelligence (AI) integration has redefined academic research through transformations in research development methodology as well as knowledge distribution processes. Ambulatory

systems used to process limited computational tasks, but AI subsequently became an essential research methodology used by multiple academic fields of study. The most crucial visible elements of AI application support the enhancement of literature reviews and automation of data analytics and peer review tasks alongside manuscript development capabilities that boost research output.

For instance, the author August (2025, pp. 158–164) presents in her free guide for health science writing how generative AI technology, including ChatGPT, has become a standard component of academic writing practices. The implementation of AI for peer review assistance alongside collaborative writing prompts at institutions allows students and researchers to collaborate with AI for better writing skills while developing self-assurance. August describes how AI writing tools create equalization in student academic opportunities, particularly for students whose primary language is not English, thus solving discrepancies in publishing chances. In addition, Choi and Chang (2025, p. 4) conduct a capability analysis of large language models (LLMs) operating in research-based environments. LLMs from commercial sources and open-source environments show their strength in abstract generation, scientific text summarization, and reference classification according to the authors. The authors recommend implementing LLMs inside digital libraries and institutional research tools to generate unified academic experiences, which eliminates repetitiveness and enhances research efficiency.

Moreover, the paper of Castillo-López (2025, p. 6) analyzes the way artificial intelligence connects limited funding researchers with worldwide publication opportunities in social science and behavioral health studies. The combination of open-access environments with AI systems allows for expanded opportunities in knowledge production because it provides high-quality editorial assistance along with structured educational content to more scholars. The research demonstrates how AI tools let new researchers create their research questions in a streamlined manner while building a precise manuscript structure. Meanwhile, Saragih (2025, p. 2) studies how students use generative AI tools for academics and reports widespread university acceptance of ChatGPT and related solutions because of their easy access and educational capabilities. Using AI without pedagogical guidance leads to barriers in the development of students' original thinking, according to him. Saragih suggests making AI literacy part of academic training because this will help researchers utilize artificial intelligence positively for research tasks.

Taken together, research projects benefit from AI implementation because it changes normal academic cycles between initial concept development and publication distribution. The open-access model of infrastructure proves favorable to AI implementation, which results in equalizing academic output across the globe. Therefore, the integration requires both strong moral guidelines and digital teaching models for maintaining academic standards and preventing improper usage.

3.3. Generative AI and Academic Productivity

The academic domain has undergone a rapid transformation through the development of generative Artificial Intelligence (GenAI), which changes the composition and communications of academic content. Generative Artificial Intelligence models, including ChatGPT, Bard, and Deep Seek, play essential roles within educational institutions to solve productivity issues specifically for researchers starting their careers, along with underrepresented students and academic establishments handling limited support frameworks.

Accordingly, Kerr and Kim (2025, pp. 3-4) show that academic workflow integration of generative AI tools now supports researchers during the phases of scholarly draft creation, brainstorming, and content design. Their research shows academic experts and graduate researchers use AI technology to develop manuscripts alongside human scholars during the initial stages of writing. The writing tools create context-sensitive recommendations that help writers overcome writer’s block and simultaneously speed up research timeframes to establish a less intimidating and more progressive

composition process. Similarly, the research by Nulton and Fenton (2024, p. 212) demonstrates how General Artificial Intelligence (GenAI) adds value to academic collaboration by enabling co-authoring and enhancing classroom interaction among different professional groups. GenAI uses its natural language generation abilities to enable direct knowledge sharing between academic and industrial partners, which expands productivity activities into educational and applied outcomes beyond publication figures.

Moreover, Nyaga (2024, p. 5) examines a stakeholder analysis of two African universities showing that generative tools, including ChatGPT, enhance student involvement and improve their research deliverables. Generative AI provides academic empowerment for students who encounter difficulties in writing and writing assignments, according to the author's observation. The research indicates how GenAI operates as an equitable scholarly aid that assists students with their assignments and demonstrates specific value for underfunded academic settings. In the same vein, the study conducted by Kalva et al. (2024, pp. 2-3) demonstrates how generative AI benefits teaching professional development when used for creating educational resources and developing clear instructional materials and personalized learning content. Academic productivity benefits from these interventions because they lead to enhanced classroom interactions that serve as the basis for research activities conducted by students. The authors demonstrate through their evaluation that AI serves two functions: supporting learning delivery and advancing academic guidance for dense educational content. At the same time, Kelly and Smith (2024, p. 4) present professional military education insights that outline the relationship between artificial intelligence productivity tools and academic integrity maintenance strategies. Academic processes become more efficient through the use of GenAI tools but require structured frameworks with built-in critical thinking and authorship education throughout GenAI-supported workflows. The authors propose that academic institutions should adopt “AI stewardship” as an approach that both teaches responsible ethical usage of GenAI while also giving users the power to use it properly.

To conclude the studies, demonstrate how generative AI transforms academic work productivity because it saves time and makes opportunities available to more authors. GenAI continues to emerge as a ubiquitous tool in academic practice because it brings students from idea development to peer collaboration and fair writing assistance. The complete adoption of generative AI technology needs institutional oversight and ethical guidelines, as well as digital literacy training, in order for improved productivity to maintain academic integrity.

3.4 AI and Ethical Considerations in Academia

The wide adoption of Artificial Intelligence (AI) in advancing academic productivity has led institutions of higher education, along with research teams, to consider multiple ethical dilemmas. The ethical conflict emerges from AI’s capability to increase academic efficiency, yet its capacity to damage core values, which include originality and fairness, together with accountability and integrity. To start with, Buniel et al. (2025, p. 10) confirm that AI tools, including ChatGPT, together with other generative models, help create and modify content, yet create dilemmas about who should be credited for work and academic standards. Academic contributions created through AI tools create a risk that students and university teachers will struggle to distinguish their personal academic work from systems-driven assistance. The absence of mandatory disclosure rules, according to them, threatens to degrade scholarly writing credibility while compromising established peer-review evaluation systems.

Similarly, the scholarly writing dependency on AI systems has triggered rising academic community alerts according to Doskaliuk and Zimba (2023, p. e207). Metaphorically speaking, their research uncovers how total reliance on this system results in academic work becoming more uniform and supports existing bias patterns present in data. The ethical problem becomes worse because AI output goes directly to publication without enough human screening, which makes it

challenging to establish the genuineness of scholarly work, particularly in high-ranking journals. Additionally, the research conducted by Carobene et al. (2024, pp. 835–836) explores how AI influences peer-review combined with editorial work. The adoption of AI to automate manuscript evaluations enhances manuscript processing time but might result in fairness complications unless ethical rules are established. The evaluation process through AI could inherit its training data discrimination patterns, which could determine which publications get preferred treatment. Scholarly communication depends on complete disclosure regarding AI applications during editorial procedures to protect its credibility.

Furthermore, in their 2024 research, Wu, Duan, and Ni analyze the issues related to data privacy and academic surveillance (pp. 103–104). AI academic service providers need universities to establish protocols for protecting students' privacy because their applications use user data for customized offerings. Data governance requires robust policies to control AI implementation in higher education institutions because there exist ethical risks that threaten sensitive information, including grades, writing signatures, and intellectual property. On a broader level, researchers devise a comprehensive philosophical structure to analyze AI tool ethics as they appear in educational settings. According to Stahl and Eke (2024, p. 2), AI goes beyond procedural issues to question the foundational learning principles of education, such as critical thinking and reflective learning, and independent voice development. According to their position, ethical stewardship requires AI implementation to be supported by explicit guidelines, user training, and continuous evaluations, which maintain institutional values and learning targets.

In light of these insights, the understanding of AI integration in academia demands ethical frameworks as an imperative organizational tool. Every stage of AI implementation needs active integration of ethical design combined with transparent and accountable processes at universities. Educational facilities must provide both policy standards about suitable AI applications and training initiatives about AI functions to assist researchers in appropriate AI implementation within their academic projects.

3.5 The Impact of AI on Research Output in Universities

The academic landscape currently experiences change through Artificial Intelligence (AI) because it boosts research productivity, improves collaborative work, and spreads knowledge rapidly. The adoption of AI tools in research-intensive universities defines how scientific workflows work, thus enhancing measurable research output through higher quality and more research products. The tools enable scholars to conduct quicker research literature reviews, automated data cleansing, and intelligent research analysis, which leads to global collaboration and produces substantial research findings with enhanced efficiency.

To illustrate, AI tools shorten the duration needed for research foundation work, which includes gathering data, analyzing literature, and generating theoretical frameworks according to Yousif and Yousif (2025, pp. 3–4). New research techniques have simplified every stage of the research method so scholars can direct their efforts toward novel interpretations instead of administrative tasks. AI-based systems improve the quality of scientific data by correcting errors in large datasets, which increases the reliability and reproducibility of research outcomes, according to their research findings. Moreover, Zipf, Wu, and Petricini (2025, p. 534) conducted a mixed-methods analysis, which revealed how generative AI, along with other AI technologies affect research output equality between institutions. The researchers established that AI brings different impacts according to how resources are distributed and what training institutions provide, along with their infrastructure capabilities. Research teams in well-funded institutions gain exceptional value from artificial intelligence capabilities for processing data at advanced levels, product creation, and network collaboration features. Institutional shortcomings in AI infrastructure result in growing productivity gaps because researchers from these institutions face limited access to AI resources.

Similarly, Salazar-Altamirano and Martínez-Arvizu (2025, p. 5) share similar findings in a study comparing public and private university environments. Discoveries and innovations boosted by AI

are extensively recognized in private academic institutions because those institutions have advanced AI platforms. Research output fueled by artificial intelligence depends on institutional funding for digital transformation, together with faculty skill development across different institutions. Furthermore, according to Zipf et al. (2025), AI provides researchers with tools for multidisciplinary teamwork through its ability to speed up foreign-language source analysis and author multilingual abstracts and automate large database meta-analyses. The ability to dismantle disciplinary and linguistic barriers produces greater participation for universities in worldwide scientific discussions. In the same context, Albuhairy and Algaraady (2025, p. 6) conducted research about user opinions toward AI-based research platforms, specifically DeepSeek. AI-enhanced academic tools lead to improved consistency in research practices when users demonstrate positive experience and engagement levels, according to their research study. These benefits improve both the efficiency of research activities and lower citation errors and redundancy occurrences. Lastly, the strategic value of including AI as part of university curricula and research training programs is a critical matter according to Blitz et al. (2025, p. 211). The summit, organized by universities, documented that academic institutions that adopt AI arrive at new research environments where static knowledge transformation evolves into innovative data-driven practices. Research institutions need to develop forward-thinking and comprehensive policies that will provide all their scholars with full AI benefits beyond the STEM field as the technology develops.

The cited research demonstrates that AI represents a fundamental transformation that affects the core structure of research institutions beyond being an additional operational tool. The implementation of equity-minded strategies with artificial intelligence leads to research democratization and increased academic innovation and helps close institutional productivity differences. The future success of academic AI applications relies on developing policies to create equal access to education facilities, together with training programs and standards of ethical use in all academic environments.

3.6 Types of Artificial Intelligence

Three main categories for Artificial Intelligence describe how it works through capabilities, functionality, and application systems that display specific intelligence simulation modes. Academic environments need a fundamental understanding of AI dimensions because these categories determine how machine models empower administrative work as well as present sophisticated design methods and analytical capabilities. To commence with, Gürsoy (2025, p. 2 presents a core concept that defines artificial intelligence through its three main categories as narrow AI, general AI, and superintelligent AI. Narrow AI or weak AI performs particular tasks such as text translation or facial recognition. Such AI exists in numerous educational programs as research assistants and tutors, where it appears as the principal implementation. General AI exists only as a theoretical concept describing a system that has the potential to execute all intellectual operations a human being can accomplish. The theoretical concept of superintelligence that goes beyond human thinking remains a philosophical idea instead of something that can be practically implemented yet. In a complementary view, Cui et al. (2025, pp. 3-4) validate this classification before adding cognitive ability categories that match with AI types, including reactive machines along with limited memory and theory of mind and self-aware AI. IBM's Deep Blue represents an example of reactive machines that operate without memory storage capabilities. Such self-driving cars fall under the limited memory category of AI since they base their decisions on previously recorded data. The two unachieved goals represent the potential future of AI technology, which endeavors to enable machines to understand emotions and develop self-consciousness. Furthermore, Mendonça et al. (2025, p. 5) illustrate functional AI systems for educational assessment by explaining supervised learning alongside unsupervised learning and reinforcement learning. The three learning types play crucial roles in adaptive learning environments as well as academic achievement forecaster systems. The grading algorithm relies on supervised learning because AI requires labeled datasets for its training process. Surveying data without supervision enables models to discover concealed patterns that help academic data mining operations. Systems enabled through reinforcement learning tend to

gain knowledge by conducting tests and attempting multiple experiments.
Using socio-economic methodology, Adefioye et al. (2025, p. 4) identify assistive AI, automated AI, and autonomous AI. Assistive AI, such as chatbots and AI grammar correctors, supports human decisions. Automated AI takes the place of repetitive human functions, being useful in academic administration. Autonomous AI systems function by themselves while raising vital ethical problems, mostly visible in student evaluation processes and automated feedback platforms. According to Gursoy (2025, pp. 6-7), both functional applications of AI types need to exist alongside sufficient AI literacy. General-purpose AI expansion necessitates precise regulatory guidelines along with ethical standards because educational institutions primarily use narrow AI for operational efficiency. Through his study, the author establishes relationships between income levels, digital accessibility, and professional areas against specific AI applications, which demonstrates varying implementation patterns in different contexts.

3.7 The Goals of Artificial Intelligence

The development and integration of Artificial Intelligence (AI) in academia and broader society are basically shaped by its goals, including automation, enhancement of human decision-making, knowledge creation, personalization, and fostering equitable access to information. In higher education and research, these goals are actively highlighted to align with emerging pedagogical needs, student-centered models, and global innovation frameworks.

1. Enhancing Learning Efficiency and Personalization: AI in education pursues two fundamental objectives according to Luong and Luong (2025, pp. 94–95), including customized learning route development along with intelligent chatbots serving for academic guidance. They developed FIT-Advisor and other AI tools for Vietnamese higher education to automate academic counseling and estimate student achievements while recommending the most suitable courses. The main objective focuses on relieving human advisors from their workload through accurate, personalized, timely support.
2. Supporting Human-Centered Learning and Equity: Runceanu et al. (2025, p. 4) establish that AI aims to create inclusive learning spaces that specifically assist students with special needs. AI systems exist to perform automated tasks while simultaneously creating environments with accessible functions that engage and consist of all learning groups. The use of artificial intelligence provides instant help along with intelligent learning methods that enable more equal educational experiences and help resolve learning disparities in academic institutions.
3. Facilitating Data-Driven Decision Making: According to Cui et al. (2025, p. 6), the objective of AI is to process unprocessed academic data so that it becomes relevant information. For example, AI technologies in education now aim to improve feedback circles through predictive analytics, real-time performance monitoring, and student engagement metrics. Educational decision-making improves through this capability because educators receive better tools to deliver customized teaching that anticipates and addresses student learning issues.
4. Advancing Scientific Innovation and Research Productivity: Prasetya et al. (2025, p. 5) explain how Artificial Intelligence aims to increase research efficiency through automated processing of activities such as data analysis, literature reviews, and simulation tasks. Researchers should gain freedom from routine computational work so they can devote themselves to creativity, theoretical work, and critical thinking. As part of their SDG 4 research (Quality Education) regarding vocational education, the authors demonstrate how AI modernizes educational systems.
5. Ensuring Sustainable Educational Models: Jose et al. (2025, p. 3) maintain that the academic goal for AI should be sustainability because it will lead to adaptive intelligent systems that grow through learner interactions and contextual changes. The implementation of lifelong

learning capabilities must be combined with interdisciplinary support while developers create ethical AI models that correspond with institutional values and human development targets.

3.8 Dimensions of Artificial Intelligence (AI)

The key dimensions of Artificial Intelligence (AI) in higher education include user awareness and engagement, the perceived benefits of AI applications, and the ethical and practical challenges associated with its implementation. Examining these dimensions helps clarify how AI influences academic productivity and informs strategies for its effective integration.

1. AI Awareness and Usage: Instinctive technologies such as ChatGPT have increased their usage in higher education, but students and faculty show varied comprehension levels of these tools. For instance, Shahidi Hamedani et al. (2025, p.5), the lack of adequate AI understanding within user communities acts as an impediment toward expanded AI application since the majority of these users do not comprehend these tools effectively. In a related finding, according to Aristovnik et al. (2024, p. 3) most students regularly encounter AI, although they lack confidence in using it for academic pursuits. Likewise, Sánchez-Paniagua-López and Rodríguez-Rodríguez (2024, p. 4) explained the mismatch between student interest and educator reluctance through targeted training along with clear policies.
2. AI's Perceived Benefits: Academic institutions gain significant advantages from AI technology because it improves both the quality of work and productivity levels. For instance, Badulescu et al. (2024, p. 6) highlight that the method enables real-time monitoring for feedback and enhances accessibility, along with aiding large-scale data analysis. Building on this, Rehman et al. (2025, p. 5) underline AI's potential in supporting mental health through predictive analytics and virtual counseling. Furthermore, Shahidi Hamedani et al. (2025, p. 7) emphasize the administrative task automation, which helps universities operate more efficiently. The collaborative efforts showcase AI as an essential force that promotes educational equality, as well as the success of the students.
3. Challenges and Ethical Considerations: The implementation of AI in education systems faces important obstacles despite bringing solutions to various difficulties. For example, Shahidi Hamedani et al. (2025, p. 9) express concerns because the study lacks proper protections for data privacy as well as strong governance frameworks alongside satisfying evidence showing data privacy. Similarly, Bouhouita-Guermech et al. (2023, p. 2) express concern about authorship ethics challenges together with user tendencies of employing AI-based tools without appropriate scrutiny. In addition, according to Kasun et al. (2024, p. 8), the insufficient digital infrastructure faced by marginalized students creates more educational disadvantages. The resolution of these problems calls for extensive ethics training coupled with equal opportunities for students and clear AI practice standards.

3.9 The Concept of Academic Productivity

Academic productivity refers to the measurable output of scholars and institutions, including publications, citations, grants, teaching, and societal impact, echoing their role in creating and sharing knowledge. Buechele et al. (2025, p. 2) measure academic productivity through research results that consist of published peer-reviewed papers and external funding. Their research on German academic institutions shows that public as well as private educational institutions now use international performance standards based on publication output and citation metrics and external funding initiatives to determine academic success. Expanding this perspective, Basilio (2025, p. 4) expands academic productivity through Marxist analysis to demonstrate that knowledge system reproduction and intellectual property management are components that extend the concept beyond conventional measurements.

Building on this, Monteiro and Fernandes (2025, p. 6), based on knowledge productivity, highlight that institutional and regional development depend on available resources together with disciplinary

variety and technological enhancement, which boost public university networking ability. In a complementary view, Naderi et al. (2025, p. 7) analyze how academic administrators and teachers performing dual roles can face role conflicts that harm their research standards and teaching competence. The authors emphasize the importance of organizational backing to maintain productivity. Lastly, Numerous institutions benefit from the combination of AI literacy with digital tools, according to Gursoy (2025, p. 3), because these technologies produce better-quality academic work at higher volumes.

3.10 Definition of Academic Productivity

The concept of academic productivity focuses on quantitative outputs, which include publications, together with teaching responsibilities, securing grants, and performing service activities. The focus used to be on counting publications, yet the assessment approach now incorporates various metrics, including societal impact, knowledge transfer, and collaboration measures. Naderi et al. (2025, p. 6) combine quantitative metrics with qualitative measures to define academic productivity through various duties, which include research work, teaching, and administrative management. Research-based measurement of productivity contributes to a limited understanding of academic functions that include mentoring, as well as curriculum development and engagement in the community.
Expanding on this, Rezende et al. (2025, p. 3) demonstrate how Brazil's CNPq system functions as a national framework when students embrace indexed publications and funding and postgraduate supervision metrics to drive academic conduct. In a more tech-oriented perspective, Gursoy (2025, p. 2) shows that AI technology, together with digital tools, transforms educational workplaces because facilitated access to review automation and data analytical systems causes higher teaching effectiveness. Meanwhile, Basnyat et al. (2025, p. 5) emphasize the significance of considering contextual elements and gender dynamics since structural barriers restrict the opportunities of marginalized groups, particularly women working in STEM. The authors recommend using diversity-responsive productivity assessment approaches that reflect both fairness and inclusiveness. Lastly, Antunes (2025, p. 4) uses these changes in universities to study academic productivity while noting the performance-based nature of institutions through metrics such as h-index, but highlighting how metrics can impact academic freedom and independence.

3.11 Dimensions of Academic and Research Productivity

1. Academic Productivity: Researchers must demonstrate quality academic performance through their published works and citations in regard to journal impact and external funding outcomes. Research productivity serves as an essential tool for performing faculty evaluations, funding allocations, and university ranking improvement. According to Szulc (2024, p. 282), research productivity consists of numerical evaluation elements such as publications and citations in combination with institutional and resource-related factors, together with collaboration. The assessment policies prioritize quality together with relevance as well as volume according to his perspective. Building on this, Rashidi and Rahimi (2024, p. 4) observe that universities have structured their research productivity to match strategic targets by focusing on combination studies and team projects alongside journal articles with established indexes instead of independent work. Furthermore, Tasker (2025, p. 6) highlights the transformative role of digital tools and open-access platforms, enhancing visibility, boosting citation rates, and enabling more efficient knowledge production through AI-powered support.
2. Research Performance Outcomes: Research performance assessment traces an outcome path that goes beyond productivity to evaluate how well research produces results aimed at both academic and societal impact and policy advancements. Szulc (2024, p. 284) proves that outcomes from research can be valued using Environmental Net Present Value (ENPV) metrics to create economic quantification of sustainability effects. Building on this, Antunes (2025, p. 5) discusses the current change occurring in academic cultures, which combines emphasis on innovation and societal influence with traditional citation performance measures. In the same

vein, Kawtar and Khadija (2025, p. 7) endorse assessment frameworks that evaluate societal developments supported by research investments through social return on research investment. Collectively, these viewpoints support a more inclusive, accountable, and impact-oriented research model aligned with global priorities such as the UN Sustainable Development Goals (SDGs).

4. Research Methodology

This study adopted a descriptive and analytical approach to investigate the impact of artificial intelligence on research productivity in public universities in the Kurdistan Region of Iraq. Data were collected through a structured questionnaire distributed to a sample of university academics, with the aim of capturing their perceptions, awareness, and engagement with AI technologies. The research focused on sixteen public universities, drawing responses from a total of 314 participants. After the data cleaning process, 313 completed questionnaires were retained for analysis, ensuring the accuracy and reliability of the findings.

Quantitative methods were employed to analyze the collected data, with the Statistical Package for the Social Sciences (SPSS) serving as the primary platform for data processing. The study utilized descriptive statistics, including means and standard deviations, to summarize participant responses, while reliability analysis using Cronbach's alpha ensured the consistency of the measurement instruments. Correlation analysis through Pearson's coefficient was conducted to examine relationships between key variables, and linear regression analysis assessed the influence of AI dimensions on academic productivity.

The questionnaire design incorporated a five-point Likert scale, allowing participants to express the extent of their agreement with statements related to AI awareness, perceived benefits, and ethical considerations. In addition to the survey, literature reviews were employed to provide context and support for the study's theoretical framework. Together, these methods enabled a comprehensive assessment of how AI adoption affects research productivity, offering insights for policymakers and academic leaders seeking to enhance institutional performance through technology-driven strategies.

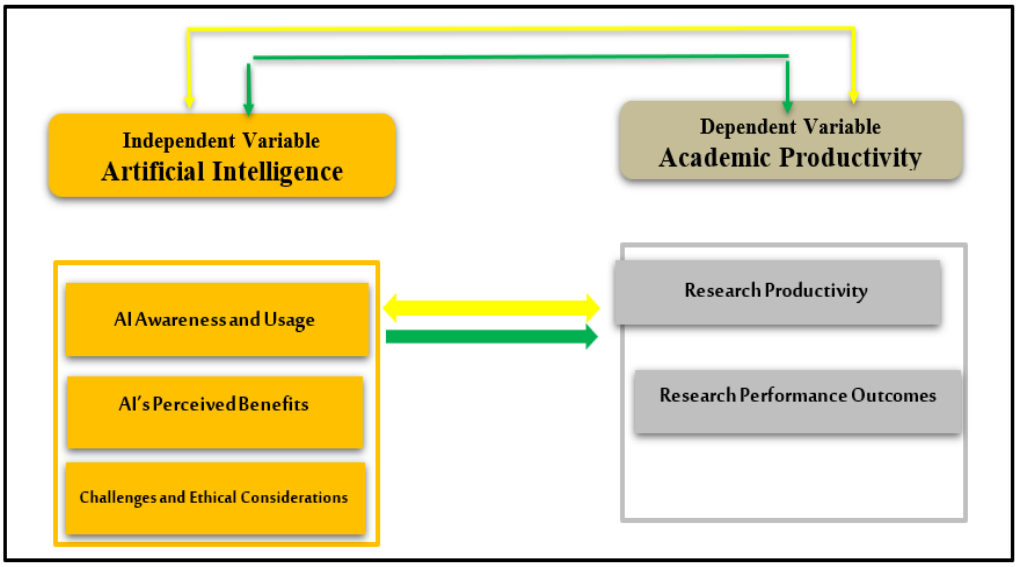

Figure 1. Research Model

Correlation relationship ⟷

Influence relationship →

As shown in Figure 1, a hypothetical model was developed by researchers to illustrate the potential for fostering an AI-enabled environment in public universities in the Kurdistan Region of Iraq. The model incorporates three dimensions of AI and two dimensions of academic productivity, highlighting the influence of these factors on research outcomes and their alignment with the institutional work environment.

4.1 Instrumentation and Variable Operationalization

The main research variables received measurement through a structured questionnaire, which served as the primary data collection tool. Research participants received a basic introduction explaining the study subject together with its research goals before continuing. The questionnaire contained two main parts for data collection. The initial part of the survey obtained information about demographics through questions regarding gender and age, as well as academic positions and academic disciplines, followed by years spent in academics. Twenty survey items were distributed within five research-testing constructs throughout the second section of the questionnaire. Five points on a Likert scale from strongly agree to strongly disagree, let researchers run quantitative data analysis. The methodology allowed researchers to change subjective mental perceptions into quantifiable numbers, which made possible the creation of descriptive statistical models for measuring agreement patterns.

4.2 Internal Consistency Reliability

To maintain the reliability of research findings, it is imperative to conduct an internal consistency evaluation of the questionnaire. A measurement scale demonstrates internal consistency when its individual items properly assess the same fundamental construct. Reliable scales display stability when they deliver similar results while operating under similar conditions. This study employed Cronbach's alpha coefficient to determine reliability due to its established status as a measure of internal consistency. Researchers use this coefficient value, which operates between 0 and 1, to judge internal consistency strength. The field of established research accepts Cronbach's alpha values above 0.70, but exploratory studies can reach satisfactory levels with coefficients exceeding 0.60 (Blbas & Faraj, 2022, p. 4). Table 1 presents the Cronbach's alpha values measuring questionnaire variable and dimension reliability as well as scale-level reliability.

Table 1. Internal Consistency Reliability

Constructs	Cronbach's alpha	# of Variables
AI Awareness and Usage	0.842	4
AI's Perceived Benefits	0.817	4
Challenges and Ethical Considerations	0.692	4
Impact on Research Productivity	0.870	4
Research Performance Outcomes	0.915	4

The study's parameters achieved acceptable to excellent reliability levels when evaluated through Cronbach's alpha calculations, shown in Table 1. The reliability measurement indicated good internal consistency for both 'AI Awareness and Usage', which attained a score of 0.842, and 'AI's Perceived Benefits' with a score of 0.817. Research Performance Outcomes demonstrated outstanding reliability because its Cronbach's alpha reached 0.915, indicating very strong item consistency. The "Impact on Research Productivity" construct acquired good reliability standing because it yielded a value of 0.870. The 'Challenges and Ethical Considerations' construct displayed a Cronbach's alpha of 0.692, though it still meets the necessary standards for exploratory research. The research findings establish that all constructs participate in a reliable assessment of their conceptual purpose by generating consistent common themes across their individual items.

4.3. Statistical Description of Demographic Variables

Research data from sixteen public universities across the Kurdistan Region of Iraq is analyzed through demographic statistics in Table 2.

Table 2. Demographic Information

Demographic Variables	Sub	Count	Column N %
Gender	Male	218	70%
	Female	94	30%
Age	Less than 30 years	9	3%
	30 – 39	48	15%
	40 – 49	162	52%
	50 – 59	66	21%
	60 and above	27	9%
Academic Title	Assist. Lecturer	76	24%
	Lecturer	108	35%
	Assist. Professor	95	30%
	Professor	33	11%
Academic Field	Humanities	189	61%
	Natural and Applied Science	123	39%
Years of Academic Service	Less than 5 years	38	12%
	5-10 years	46	15%
	11-15 years	79	25%
	More than 15 years	149	48%
Have you used AI tools in your research?	No	159	51%
	Yes	153	49%

Gender: The participant distribution exhibits a substantial gender difference, where men comprise 70% while women account for 30% of the total group. This disparity likely mirrors broader gender dynamics within the academic workforce of public universities in the Kurdistan Region. AI perceptions can be different among researchers when there is unequal technology use combined with different research resource access and institutional position distribution between male and female researchers.

Age: A large percentage of 52% participants fall into the 40–49 age category, and the survey also includes 21% people within the 50–59 age bracket, along with 9% participants who are 60 years or older. Most respondents belong to older age demographics, as younger participants aged 30 or less make up only 3% of the total, while ages 30–39 total 15%. Most participants demonstrating an age of 40 years or older may influence their willingness toward AI tool adoption, as they prefer established traditional research methods.

Academic Title: The survey indicates an even distribution of participants by academic title, where Lecturers form the biggest group (35%), yet Assistant Professors follow behind them with 30%, and Assistant Lecturers make up 24%, and Professors represent 11%. Most survey participants belong to academic stages starting from beginning careers and extending to mid-career periods, where they actively pursue research pursuits along with their academic advancement. The academic title that faculty occupy affects their contact with research tools as well as their readiness to integrate

AI tools into research duties.

Academic Field: The respondents encompassed two fields – minors from Humanities numbered sixty-one percent, and Natural and Applied Sciences participants made up thirty-nine percent. A high percentage of 61% from the Humanities fields makes up the majority of participants in this research.

Years of Academic Service: The sample contains nearly half of the respondents (48%) who maintain more than fifteen years of experience in education. People with 11 to 15 years of service represent 25% of the participant population, while the remaining individuals with 5 to 10 years received 15% of the total. The population subset consisting of researchers with under five years of experience makes up only a twelve percent portion of the sample participants.

5. Results and Discussion

5.1 Study Constructs and Hypothesis Testing

A thorough evaluation examined participant perception levels about the research's main constructs. The investigation continued with hypothesis testing for exploring the construct relationships. The assessment results can be found in the sections below:

1. First Hypothesis: Is there a direct correlation between AI and academic productivity?
2. Second Hypothesis: Is there a direct correlation between the dimensions of AI and academic productivity?
3. Third Hypothesis: Does artificial intelligence (AI) have a significant positive effect on academic productivity?
4. Fourth Hypothesis: Do the dimensions of artificial intelligence (AI) have a significant positive impact on academic productivity?

First Hypothesis: Is there a direct correlation between AI and academic productivity?

- Null Hypothesis (H_0): There is no significant correlation between (AI and academic productivity) at a significant level (0.05)
- Alternative Hypothesis (H1): There is a significant direct correlation between (AI and academic Productivity) at a significant level (0.05)

Pearson's correlation coefficient (r) stood as the chosen method to analyze the connection between AI and academic productivity because of its established recognition as a statistical tool to evaluate linear correlations between variables. Statistical correlation values extend from -1 to +1 that indicate perfect negative and positive relationships, while zero values signify the absence of linear variable connection. The analysis establishes whether AI integration creates measurable effects on academic output. Table 3 contains the complete findings that present both Pearson correlation coefficients with their respective significance levels for testing this hypothesis.

Table 3. Pearson Correlation

Relationship between	Pearson Correlation	Sig(p-value)
AI and Academic Productivity	0.735	<0.001

Table 3 shows that a Pearson correlation analysis produced 0.867 ($p < 0.001$) as a strong positive correlation between AI usage and academic productivity. Research outcomes indicate that AI tools generate substantial improvements to researchers' work efficiency, together with enhanced research quantity and enhanced work quality.

Second hypothesis: Is there a direct correlation between the dimensions of AI and Academic Productivity?

- ✓ Null Hypothesis (H_0): There is no significant correlation between the dimensions (AI and Academic Productivity) at a significant level (0.05)
- ✓ Alternative Hypothesis (H1): There is a significant direct correlation between the dimensions (AI and Academic Productivity) at a significant level (0.05)

The research utilized Pearson's correlation coefficient (r) for determining the linear correlation strength, along with direction, between artificial intelligence dimensions and academic productivity.

Table 3. Pearson Correlation

Pearson correlation		Artificial Intelligence			Academic Productivity	
		AI Awareness and Usage	AI's Perceived Benefits	Challenges and Ethical Considerations	AI's Impact on Research Productivity	Research Performance Outcomes
Artificial Intelligence	AI Awareness and Usage	--				
	AI's Perceived Benefits	.596**	--			
	Challenges and Ethical Considerations	0.086	0.078	--		
Academic Productivity	AI's Impact on Research Productivity	.617**	.745**	.150**	--	
	Research Performance Outcomes	.604**	.648**	0.022	.725**	--

** Correlation is significant at the 0.01 level (2-tailed).

Most statistical constructs in Table 4. The Pearson Correlation matrix shows strong significance related to artificial intelligence (AI) and academic productivity. Research data shows that positive AI perceptions create direct and significant connections to increased research outcomes for productivity (r = 0.745) and better research performance results (r = 0.648). Research Productivity shows a correlation of 0.617 with AI Awareness and Usage, while Research Performance Outcomes display a 0.604 correlation with the same construct. This indicates that enhanced awareness of AI tools leads to better academic outcomes. The relationship between research productivity and research performance outcomes stands at a strong r value of 0.725, which demonstrates that AI serves as a vital component for research success and achievement. Academic AI adoption and usage in educational settings show little response to both ethical issues and challenges based on the weak and statistically insignificant correlations between these variables. Academic performance improvement depends on students' AI awareness, together with system benefits and implementation efficiency, according to the constructed matrix.

Third Hypothesis: **Does artificial intelligence (AI) have a significant positive effect on academic productivity?**

- ✓ Null Hypothesis (H_0): Artificial intelligence (AI) does not have a significant positive effect on academic productivity at the 0.05 significance level.
- ✓ Alternative Hypothesis (H_1): Artificial intelligence (AI) has a significant positive effect on academic productivity at the 0.05 significance level.

The research examined how artificial intelligence affects academic productivity. The research used a basic linear regression model that analyzed the impact of artificial intelligence on academic productivity between the variables. The proportion of explained variance was determined through R^2 calculations, while the regression test consisted of an alpha level set at 0.05 for statistical significance. Table 5 reveals complete details of the regression analysis.

Table 4. Regression Model

DV: Academic productivity	Coefficients	t.	sig	F	sig	R^2
Artificial intelligence (AI)	.987	19.064	<.001	363.43	<.001	0.54

The research findings in Table 5 show that artificial intelligence (AI) generates a robust link that exists statistically with academic productivity. Every rise of one unit in AI leads to academic productivity growth by 0.987 units, according to the regression coefficient. The predictor significance is confirmed by the t-statistic value of 19.064, which reaches an extremely low p-value under 0.001. A test of the F-statistic measuring 363.43 ($p < 0.001$) proves the general importance of this regression model. Information technology variables contribute to the explanation of 54% of academic productivity variance. Research output demonstrates a direct correlation to AI usage because increased AI implementation leads to anticipated productivity improvements in academic environments. The test result leads to rejecting the null hypothesis, thus establishing AI as a crucial component that impacts academic research productivity.

Fourth Hypothesis: Do the dimensions of artificial intelligence (AI) have a significant positive impact on academic productivity?

- ✓ Null Hypothesis (H_0): The dimensions of artificial intelligence (AI) do not have a significant positive impact on academic productivity at the 0.05 significance level.
- ✓ Alternative Hypothesis (H_1): The dimensions of artificial intelligence (AI) have a significant positive impact on academic productivity at the 0.05 significance level.

The research investigated how artificial intelligence dimensions affect academic productivity within educational settings. The research used stepwise linear regression to measure academic productivity through its independent variables of AI dimensions. To evaluate the model's performance, the coefficient of determination (R^2) determined the percentage of variance, while the regression achieved statistical significance at an alpha value of 0.05. Table 6 specifies all the information regarding the regression analysis.

Table 5. Stepwise Regression Model

DV: Academic productivity	Coefficients	t.	sig	F	sig	R^2
AI Awareness and Usage	.262	7.595	<.001	182.4	<.001	0.64
AI's Perceived Benefits	.562	13.144	<.001			

A stepwise linear regression analysis examined the predictive power of several artificial intelligence (AI) dimensions on academic productivity (Table 6). The final model was statistically significant ($F = 182.40$, $p < .001$) and accounted for 64% of the variance in academic productivity ($R^2 = .64$). The results indicate that Perceived Benefits of AI was the strongest predictor ($\beta = .562$, $t = 13.144$, $p < .001$), followed by AI Awareness and Usage ($\beta = .262$, $t = 7.595$, $p < .001$). Conversely, the 'Challenges and Ethical Considerations' dimension was excluded from the model due to its non-significant contribution. This finding is consistent with the literature suggesting that positive perceptions and practical application of AI more strongly influence academic outcomes than ethical concerns. Therefore, the null hypothesis was rejected, confirming that specific AI dimensions positively and significantly predict academic productivity.

6. Conclusion and Recommendations

6.1 Conclusion

The research findings collectively demonstrate the influence of artificial intelligence (AI) on academic

productivity through the examination of perceptions, familiarity with AI tools, and the reliability of measurement constructs. The results indicate that AI tools have considerable potential to enhance research efficiency, productivity, and the overall quality of academic work. In addition, the study revealed strong relationships between perceived AI benefits and both research productivity and research performance outcomes, suggesting that more positive perceptions of AI are associated with higher productivity and improved performance. Researchers who reported greater familiarity with AI tools also demonstrated higher levels of research output and better research performance outcomes.

Furthermore, the reliability testing confirmed that all measurement scales functioned effectively in capturing their intended constructs, as the individual items consistently reflected the defined concepts. This supports the suitability of the measurement instruments for academic research. Overall, the findings suggest that positive perceptions of AI and practical engagement with AI tools play an important role in enhancing academic performance, while challenges and ethical concerns appear to exert only a limited influence.

6.1 Recommendations

To maximize the effective use of artificial intelligence (AI) in enhancing research output at public universities in the Kurdistan Region, the following recommendations are proposed:

1. Develop a Comprehensive AI Strategy for Higher Education and Research

- The Ministry of Higher Education and Scientific Research needs to build a comprehensive strategy that defines how AI will be integrated into university activities.
- The strategy must include specific goals together with infrastructure planning and training programs, and protocols for inter-university collaboration.

2. Faculty and Researcher Training and Awareness

- The institution should develop regular programs for faculty education that teach AI tools for research data analysis, along with text extraction, proposal development, and academic writing capabilities.
- The institution should promote awareness about AI tools through educating about their dual benefits and ethical requirements for effective use.

3. Promote AI Integration Throughout the Research Process

- Literature Review: Use AI tools for efficient discovery, organization, and synthesis of scholarly work.
- Data Analysis: Leverage AI technologies to handle large datasets, identify patterns, and support predictive modeling.
- Writing: Utilize AI-based writing assistance tools to enhance the quality, structure, and accuracy of research outputs.
- Collaboration: Promote the use of AI-driven platforms to facilitate interdisciplinary and international research collaborations.

4. Boost AI Research Infrastructure

- The institution should offer access to both high-performance computing systems, together with specialized software and machine learning libraries, in addition to secure cloud storage solutions.
- An inter-university platform should be developed to distribute AI resources along with equal access standards.

5. Accelerate AI Research Growth

- The university should provide support for advanced AI research development across different academic fields through funding allocation and encouragement.
- The development of innovation hubs, combined with excellence centers dedicated to AI research, must be established at universities to promote research innovation and entrepreneurship.

6. Set Ethical Standards for AI in Research

- Develop clear policies for institutions addressing data security, privacy, algorithmic bias, transparency, and accountability in AI use.

- Educational institutions need to strengthen their policies for both academic integrity responsibilities and preventing plagiarism that occurs when using AI tools.

7. Strengthen Global Research Partnerships

- Create strategic partnerships with premier global universities, together with AI research centers for knowledge exchange and innovation development.

- The organization must push forward its members' participation in international workshops and research projects and international AI-related conferences.

8. Promote AI Integration with Grants and Awards

- Research funding, along with competition-based awards, should exist to encourage scientists toward creative and responsible use of AI within their scientific work.
- The program should honor distinctive projects using artificial intelligence successfully to enhance research productivity and influence.

9. Establish Specialized AI Support Units

- University-based AI resource centers, along with advisory units, should function as technical support platforms that give direct assistance and practical training to students and researchers.
- AI specialists must operate as part of research centers to assist researchers throughout the design process and selection of AI tools.

10. Foster Cross-Disciplinary AI Innovation

- The institution should promote interdisciplinary efforts that unite AI technology with fields including humanities education, health sciences, social sciences, business, and education departments.
- Fund projects that unite artificial intelligence solutions to resolve diverse organizational and social problems that span multiple sectors.

11. Build AI Skills for Students and Young Researchers

- Introduce AI literacy courses into undergraduate and graduate programs, focusing on basic machine learning concepts, data science fundamentals, and ethical AI practices.
- Equip future researchers with the skills needed to navigate and innovate in AI-enhanced research environments.

12. Optimize AI Integration Through Evaluation

- Establish a system for monitoring AI adoption rates, measuring its influence on research output, and underscoring areas for improvement.
- The organization should conduct periodic strategy evaluations alongside academic staff feedback to update policies and change training material accordingly.

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ژیریی دەستکردو بەرهەمهێنانی ئەکادیمی: هەڵسەنگاندنی کاریگەرییەکانی لەسەر بەرهەمی توێژینەوە لە زانکۆ حکومییەکانی هەرێمی کوردستان

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پوختە
بەکارهێنانی ژیریی دەستکرد لە ناو دامەزراوەکانی خوێندنی باڵادا گۆڕانکارییەکی چۆنایەتی دروست دەکات کە کوالێتی بەرزبوونەوەی ئەدای ئەکادیمی بەرهەم دەهێنێت جگە لە بەرزبوونەوەی بەرهەمەکانی توێژینەوە. ئەم توێژینەوەیە کاریگەرییەکانی تەکنەلۆژیای ژیریی دەستکرد لەسەر ئاستی بەرهەمهێنانی زانکۆ حکومییەکان لە هەرێمی کوردستانی دەکۆڵێتەوە بە تایبەتی شیکردنەوەی پەیوەندی نێوان گۆڕاوی ژیریی دەستکرد و سوودە خەملێنراوەکان و نیگەرانییە ئەخلاقییەکان کە کاریگەرییان لەسەر ئەدای توێژینەوە هەیە. توێژینەوەکە ژیریی دەستکرد وەک گۆڕاوی سەربەخۆ لە ڕێگەی سێ ڕەهەندی شیکاری جیاوازەوە بەکاردەهێنێت: (هۆشیاری و ڕەفتارەکانی بەکارهێنانی ژیریی دەستکرد، سوودە هەستپێکراوەکان لە جێبەجێکردنی ژیریی دەستکرد، ئالنگاری ڕەوشتی پەیوەندیدار) هەروەها بەرهەمهێنانی توێژینەوەو دەرئەنجامەکانی ئەدای توێژینەوە وەک دوو پێکهاتە کاردەکەن کە لە ڕێگەیانەوە گۆڕاوە وابەستەکراوەکە بەرهەمهێنانی ئەکادیمی شیدەکاتەوە. توێژینەوەکە پرسیارنامەیەکی بەکارهێناوە بۆ کۆکردنەوەی زانیاری لەسەر (11641) ئەکادیمیستی هەمیشەیی لە زانکۆ حکومییەکانی هەرێمی کوردستان. (٣٢٠) پرسیارنامە گەڕێنرایەوە، و ئێمە (314)مان بەکارهێنا. بۆ گەیشتن بە ئامانجەکانی توێژینەوەکە، توێژەران ڕێبازی (وەسفکردن و شیکاری)یان گرتەبەر، توێژینەوەکە داتایەک دەدات کە ڕێگە بە سەرکردە فێرکارییەکان دەدات سیاسەت دروست بکەن و پراکتیکی دامەزراوەیی بۆ ئەنجامدانی ژیریی دەستکرد کە بەدوای پێشکەوتنی زانستی و بەردەوامیی ئەکادیمیدا دەگەڕێن دابڕێژن. توێژینەوەکە پەیوەندی نێوان بەکارهێنانی تەکنەلۆژیای ژیریی دەستکرد و پێوەرەکانی بەرهەمهێنان هەڵدەسەنگێنێت کە باسی گۆڕینی دیجیتاڵی سەبارەت بە پراکتیکەکانی خوێندنی باڵا پێشدەخات.
وشە سەرەکییەکان: ژیریی دەستکرد، بەرهەمهێنانی ئەکادیمی، بەرهەمی توێژینەوە، زانکۆ حکومییەکان، هەرێمی کوردستان.

الذكاء الاصطناعي والإنتاجية الأكاديمية تقييم أثره على مخرجات البحث في الجامعات الحكومية في إقليم كوردستان

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الملخص
يُحدث استخدام الذكاء الاصطناعي (AI) في المؤسسات التعليمية العامة نقلة نوعية تُحسّن جودة الأداء الأكاديمي، بالإضافة إلى تعزيز مخرجات البحث. تدرس هذه الدراسة آثار تقنية الذكاء الاصطناعي على مستويات إنتاجية الجامعات الحكومية في إقليم كوردستان -العراق، مُحللةً على وجه التحديد العلاقة بين معرفة الذكاء الاصطناعي والمزايا المُقدرة والمخاوف الأخلاقية التي تؤثر على أداء البحث. تستخدم الدراسة الذكاء الاصطناعي كمتغير مستقل من خلال ثلاثة أبعاد: (الوعي بالذكاء الاصطناعي وسلوكيات استخدامه، الفوائد المُتصورة من تطبيقات الذكاء الاصطناعي، التحديات الأخلاقية ذات الصلة). تُمثل إنتاجية البحث ونتائج أداء البحث المكونين اللذين يُقاس من خلالهما المتغير التابع، وهو الإنتاجية الأكاديمية. استخدمت الدراسة استبياناً مُهيكلاً لجمع البيانات من (11641) أكاديمياً دائماً في الجامعات الحكومية في إقليم كوردستان. وتم استرداد (320) استبيانًا، واستخدمنا (314) منها. ولتحقيق أهداف البحث، اعتمد الباحثان المنهج الوصفي والتحليلي، ويوفر البحث بيانات تُمكّن القادة الاكاديمية من وضع سياسات وابتكار ممارسات مؤسسية لتطبيق الذكاء الاصطناعي، سعياً لتحقيق التقدم العلمي والاستدامة الأكاديمية. يُقيّم البحث العلاقة بين استخدام تقنية الذكاء الاصطناعي ومقاييس الإنتاجية، مما يُعزز نقاش التحول الرقمي حول ممارسات التعليم العالي.
الكلمات المفتاحية: الذكاء الاصطناعي، الإنتاجية الأكاديمية، مخرجات البحث، الجامعات الحكومية، إقليم كوردستان