AI in Mass Communication:

PR departments in Jordanian university

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The study aimed to analyze the use of Artificial Intelligence in Public Relations departments at Jordanian universities, focusing on the current state and the challenges faced. This research falls under the category of descriptive studies, and the survey method was used to gather data. The study population consisted of public relations practitioners from several Jordanian universities, including the University of Jordan, Jordan University of Science and Technology, Yarmouk University, Mutah University, Jadara University, Middle East University, and Irbid National University. An intentional sample of 65 practitioners was selected, and data was collected using a questionnaire. Results revealed that only 17% of public relations practitioners in Jordanian universities possess extensive knowledge of artificial intelligence techniques. Among the critical challenges identified was the practitioners' "poor knowledge in programming and algorithms," which hinders the effective use of AI. One of the primary recommendations was to use artificial intelligence techniques by fostering collaboration between AI and human intelligence rather than relying exclusively on one. Besides, the study found that, from the perspective of public relations practitioners, the media field is the area most in need of AI integration within Jordanian universities, with 47.7% of respondents highlighting this need.

Keywords: Artificial Intelligence, Public Relations, Jordan, Descriptive Research, Higher Education

1.   Introduction

Over the past four decades, the world has experienced remarkable advancements in various fields, profoundly impacting individuals and institutions alike (Türksoy, 2022). An unprecedented technological and information revolution drives these changes, compelling countries and organizations to embrace these innovations due to their significant positive effects on performance and development. As a result, the world has become a global village with minimal technical barriers to exchanging services and knowledge across borders (Anjani & Wolor, 2024). The information revolution, fueled by the emergence of the internet and artificial intelligence, has driven change in countless aspects of life. Artificial intelligence, in particular, has permeated various fields, transforming the public relations landscape (Çerçi, 2024). AI tools have imposed a new reality on the field, prompting public relations practitioners to adopt these technologies to enhance their competitive edge. Many have increasingly relied on AI for numerous tasks, benefiting from unique opportunities to measure public perceptions, gather feedback, and reveal smart insights. AI's power lies in its data-driven approach, facilitating innovative solutions, better planning, and faster knowledge sharing within public relations, especially amid the ongoing revolution of modern technologies poised to further transform the field (Attar et al., 2024; Huang & Rust, 2018). As a crucial component of institutional media, public relations provides fertile ground for the growth of AI technologies, which have become essential in all facets of life, particularly in public relations (Galloway & Swiatek, 2018a). The integration of AI in public relations work is accelerating rapidly, becoming a vital strategy for augmenting human capabilities with automated technology. This enhances the effectiveness of public relations activities, ensuring survival, continuity, and adaptation to digital technology (Almesafri & Habes, 2023; Bdoor & Habes, 2024; Habes, Alanani, et al., 2024; Habes, Alhazmi, et al., 2024; Tahat et al., 2023). AI facilitates the transformation of data, whether numbers, audio, or video—into text within seconds, creating content, designing campaigns, managing crises, and anticipating potential crises before they escalate. It automates routine tasks, targets audiences more precisely, and enables effective customer communication through instant responses to inquiries and interactions (Soegiarto et al., 2024a). These developments strongly justify the need for the current study, which aims to explore the extent to which AI techniques are employed in public relations within universities. Public relations is a critical component of any organization's administrative and communication process, whether in the public or private sector, and it is particularly impacted by modern technological developments that support its work. Employing AI applications can significantly enhance institutional performance, leading to growth and development by formulating more accurate and efficient strategies (Soegiarto et al., 2024a). As technological

transformations sweep the globe, the importance of public relations within organizations has grown, and the urgent need to integrate modern mechanisms and emerging applications has become apparent. AI represents the pinnacle of digital progress, enriching all aspects of life and various scientific fields. Integrating public relations and AI has resulted in a pivotal shift within organizations, allowing tasks to be completed more quickly and efficiently through advanced, less costly, and labor-intensive tools. AI's role in public relations has become a driving force for human development and a crucial requirement for institutional adaptation (Jeong & Park, 2023).

This study aims to identify the extent of public relations practitioners' awareness of artificial intelligence techniques within Jordanian universities and examine the advantages of employing these technologies. It also seeks to explore the proposals offered by public relations practitioners in Jordanian universities regarding adopting AI tools while identifying the obstacles they face in implementing these techniques. Furthermore, the study aims to pinpoint the areas within Jordanian universities that most need AI technology from the perspective of public relations practitioners. This study, therefore, seeks to answer the primary question: To what extent are artificial intelligence techniques employed in the public relations departments of Jordanian universities, considering both the current reality and the obstacles faced?

Study Significance

The importance of this study arises from its focus on a significant and original topic within the media field, addressing a modern technology that is rapidly being integrated into organizations across sectors. This technology has become a rudimentary strategy for digital transformation. However, scientific research remains scarce examining the intersection of public relations and artificial intelligence, particularly within the humanities. As organizations increasingly prioritize artificial intelligence applications to automate operations and enhance performance, interest in these tools has surged in recent years. This study proposes strategies for public relations practitioners at Jordanian universities to leverage artificial intelligence more creatively, effectively, and efficiently, thereby elevating their work. Also, it highlights the growing necessity for further scientific research on artificial intelligence, one of the most vital pillars of modern technology. It emphasizes the importance of connecting AI with public relations, which remains at the heart of institutional operations and organizational communication.

2.   Review of Literature

Integration of AI in Public Relations

A study by (Galloway & Swiatek, 2018b) aimed to assess how public relations practitioners at Saudi Airlines utilize AI applications and evaluate their influence on professional competencies. Employing a quantitative and analytical survey method, the study sampled 31 public relations practitioners based at the airline′s Jeddah headquarters. Data was collected using a questionnaire, revealing that AI applications were moderately used to formulate media messages, write news, and measure customer satisfaction. The senior management at Saudi Airlines provided considerable support for AI integration, leading to benefits like reduced time and effort and faster responses to inquiries and complaints. However, practitioners faced challenges in understanding AI's application in interpreting social emotions and values. (Syed et al., 2024) further examined the perspectives of public relations practitioners on using AI tools, identify the areas of AI application, and assess the positive effects and challenges of AI use. Conducted through a survey of 100 public relations practitioners in Saudi companies, the study found that AI contributed significantly to planning and influencing behavioral intent, ultimately producing diverse, high-quality content. However, controlling advanced AI software was cited as a significant challenge. Practitioners proposed placing complete trust in automated systems to enhance AI usage.

A study by (Zuiderwijk et al., 2021) analyzed the impact of AI on social media marketing from the viewpoint of public relations officials. Data was gathered from 200 officials across various government and private institutions using a survey method. Key findings highlighted the benefits of AI in customizing content based on public interests. However, the study also noted a negative impact: AI′s role in potentially replacing human jobs related to social networking sites.

(Sunday et al., 2023)explored emerging trends in AI′s use for managing government services. Utilizing content analysis, the study focused on digital platforms in the UAE, finding that AI significantly improved customer experience by customizing services via instant chat applications. It also highlighted the superior performance of voice chat over traditional text-based chatbots, as voice chat was faster, more intuitive, and offered a more personalized customer experience.

(Munandar & Irwansyah, 2020) investigated the role of AI tools, systems, and programs in enhancing public relations and marketing communications. The study employed a qualitative approach, sampling specialized engineers from an AI company in Egypt. It revealed that AI is increasingly used in public relations to send direct messages to target audiences and to assist professionals in providing relevant content to customers. AI was seen as a supportive tool for professionals rather than a threat to organizations. (Haleem et al., 2022) focused on the role of the digital environment in enhancing institutions' administrative, productive, and marketing capabilities, as well as public relations contribution

to this development. The study used a survey method to gather data from 400 public relations practitioners in government and private institutions in Cairo and Giza. It found that public relations practitioners demonstrated significant interest in acquiring AI-related information and that a positive correlation existed between their knowledge of AI and their favorable evaluation of its role in digital marketing.

Integration of AI in Public Relations in Global Context

(Anjani & Wolor, 2024) aimed to analyze the impact of communication efficiency, organizational culture, and professional competence of public relations staff on the quality of public service in the AI era. This descriptive research included 100 individuals working in public relations or who had undergone training. Data was collected via questionnaires, and the study found that communication efficiency significantly improves public service quality. Careful word choice and respectful interactions foster trust and comfort in social exchanges, while organizational culture enhances service quality by promoting trust, mutual respect, and cooperation among employees.

(Jin & Youn, 2023) examined the factors that drive customers to continue using AI-powered chatbots. Using a survey method with 279 American participants, the researchers found that chatbots' human resemblance positively influences customers' sense of social presence and imagery processing. This, in turn, fosters their intention to keep using AI chatbots, which also evoke a sense of shared presence between users and the technology.

(Mohamed Abdelhafiz Hussein et al., 2022)highlighted the importance of association rule mining (ARM) for public relations practitioners in improving the effectiveness of data mining tools like WEKA. Using an electronic questionnaire, the study surveyed 300 participants from Northern Cyprus and Egypt. Key findings included that ARM contributes to marketing and promotional activities such as cross-selling and targeted campaigns. It also enhances public relations activities, with data volume playing a crucial role in the accuracy of augmented reality software, underscoring the importance of data in producing more accurate results. A study by (Arief & Gustomo, 2020a) sought to understand how big data and AI might automate and simplify public relations work, particularly concerning efficiency and the potential replacement of certain PR functions. The study used descriptive research and surveyed 320 public relations practitioners, collecting data through questionnaires and interviews. The results revealed that 45% of the sample believed AI and big data could replace news clipping functions. Meanwhile, another 45% viewed media monitoring and social listening as the following areas likely to be automated.

Theory of Replacing Jobs with Artificial Intelligence

The theory of replacing jobs with artificial intelligence proposing AI will gradually replace human intelligence through four levels: mechanical, analytical, intuitive, and emotional (Benhamou, 2020; Khogali & Mekid, 2023). These levels are organized in increasing order of complexity, with mechanical intelligence handling simple, routine tasks and emotional intelligence focusing on understanding and influencing human emotions. The theory indicates that organizations must select the appropriate level of AI intelligence to match their specific activities, allowing AI to progressively take over tasks that range from essential functions to more complex, creative, and emotional work. The theory is built on the idea that AI will mainly replace human labor at the task level rather than the job level. As AI advances, it begins by taking over more straightforward mechanical tasks (Shen & Zhang, 2024). It gradually moves toward handling more complex responsibilities, eventually replacing human workers when it can manage all tasks associated with a job. This progression is expected to follow a predictable path, starting with mechanical tasks and moving toward analytical, intuitive, and emotional tasks (Al Hadeed et al., 2023). AI becomes increasingly competent in tasks involving creativity and emotional understanding. This theory is applied to explore how AI techniques are employed in the current study's Jordanian university public relations departments, examining the realities and challenges (Abuselidze & Mamaladze, 2021). The theory has helped shape the research questions and objectives, providing a framework to understand how AI might integrate into public relations work and what obstacles practitioners may face as they adapt to AI's growing role in their field (Yue, 2023).

3.   Research Methodology

This study falls within the realm of descriptive research, which seeks to collect and analyze facts and data about a specific phenomenon or situation to provide a clear explanation. Descriptive research is instrumental in identifying patterns and generalizations concerning the subject under investigation (Franzese & Iuliano, 2019). It provides a foundation for understanding and interpreting a phenomenon's intricacies, helping researchers form meaningful conclusions based on the collected evidence. The survey method was employed to carry out this research, a widely used technique in quantitative research across various fields of study. The survey method is crucial in obtaining accurate and comprehensive information that captures the social and practical realities influencing different sectors. It plays a crucial role in understanding the administrative, economic, educational, cultural, political, and scientific

activities that impact the analysis of phenomena (Fisher & Marshall, 2009; Stapor, 2020). Using this method, the study effectively captures the nuances of the subject matter, ensuring that the data reflects the complexities of the issue under investigation. Thus, combining descriptive research and the survey method allows for thoroughly exploring the phenomenon in question. The approach ensures that the facts gathered are detailed and interpreted in a manner that contributes to broader generalizations and insights. This methodological approach helps bridge the gap between raw data collection and more profound understanding, formulating well-supported conclusions.

4.   Sampling

The study population consisted of Jordanian public and private universities, and a deliberate sample (Acharya et al., 2013; Etikan, 2017) of them was selected based on the largest Jordanian universities in terms of establishment, the number of students and faculty members, and the presence of effective public relations departments. The sample consisted of 65 individuals from the following universities: University of Jordan, Yarmouk University, Mutah University, Jordan University of Science and Technology, Jadara University, Middle East University, Irbid National University.

Data Analysis Methods

This study used the statistical package program for the social sciences, commonly called SPSS, to process its data effectively. Several statistical methods were employed to analyze the data comprehensively. Frequency tables and percentages were used to assess the distribution and frequency of personal data within the study sample, providing a clear overview of the demographic characteristics (Bhatia, 2017). Besides, arithmetic averages were calculated to determine the mean responses of the study participants, offering insights into the central tendencies of their answers. The standard deviation was applied to measure the variability and dispersion in the participants' responses, highlighting how much individual answers deviated from the average (Olsen & Marie St George, 2004). The Cronbach alpha coefficient was used to ensure the reliability and consistency of the study instrument, which evaluated the stability and internal consistency of the measurement tools used in the research. Using these statistical methods, the study could analyze and interpret the data with precision, contributing to the robustness of its findings.

Data Collection Tool

In this study, the researcher employed a questionnaire as the primary data

collection tool to assess the extent to which artificial intelligence techniques are utilized in Jordanian university public relations departments, specifically focusing on the realities and obstacles involved. To measure participants' responses, the study utilized a Likert scale with three levels of approval: Agree (3 points), Neutral (2 points), and Disagree (1 point) (Aguinis et al., 2021; Zozus, 2017). This scale allowed for a nuanced evaluation of how artificial intelligence techniques are integrated into public relations practices within these institutions. Table (1) presents the distribution of trend levels and category boundaries based on the arithmetic averages derived from the responses. This table illustrates the varying extent to which artificial intelligence techniques are used, reflecting the current state and challenges faced by public relations departments in Jordanian universities.

Table 1: Trend levels and category limits to the extent of employing artificial intelligence techniques in Jordanian university public relations departments "reality and obstacles"

Trend level	Category limits
low	From 1.00 – less than 1.667
medium	From 1.667 – less than 2.334
High	from 2.334 – 3.00

The results in Table (2) indicate that the values of the Cronbach alpha stability coefficient ranged between (82% - 86%), which are values that indicate that the resolution is the study tool with a high degree of internal consistency between the paragraphs and that the axes of the resolution have high reliability and applicability, as the total stability value of the resolution amounted to 0.85%.

Furthermore, The questionnaire designed for this study was structured around several key axes: the personal data of public relations practitioners in Jordanian universities, their familiarity with artificial intelligence techniques, the advantages of employing these techniques, their proposals for further utilization, and the obstacles they face in implementing artificial intelligence. This comprehensive framework aimed to capture a broad spectrum of information related to AI integration in public relations within these institutions. Procedures for honesty and consistency were meticulously applied to ensure the questionnaire's accuracy and reliability. For honesty, the questionnaire was reviewed by a panel of esteemed professors with significant scientific and practical expertise in public relations. Their feedback led to revisions, including adding, deleting, and modifying certain sections, thereby enhancing the content's validity and ensuring that the questionnaire accurately reflects the intended measurements. For consistency, the Test-Retest method was employed to assess the stability of the questionnaire. A pre-study was conducted with 10%

of the original sample to test the instrument's reliability. The consistency of the responses was measured using Cronbach's Alpha equation, as detailed in Table (2). This technique confirmed the stability and reliability of the questionnaire, reinforcing its effectiveness as a tool for gathering precise data on the employment of artificial intelligence techniques in Jordanian university public relations departments. The results in Table (2) indicate that the values of the Cronbach alpha stability coefficient ranged between (82% - 86%), which are values that indicate that the resolution is the study tool with a high degree of internal consistency between the paragraphs and that the axes of the resolution have high reliability and applicability, as the total stability value of the resolution amounted to 0.85%.

Table 2 Cronbach alpha coefficients values for internal consistency of main resolution axes

Cronbach alpha value	Number of paragraphs	Axis
0.88%	14	Features
0.82%	9	Constraints
0.85%	7	Propositions
0.85%	30	Overall Scale

5.   Data Analysis and Discussion

Table (3) shows the personal data of the study sample starting from the 65 gender variables, where it showed that the percentage of males was 61.5% while the percentage of females was 38.5%.

The personal data of the study sample for the 65-age variable shows that the percentage of 33-23 reached 11%, 44-34 amounted to 26%, while 45 years and over was the highest percentage reaching 63%. The following is a breakdown of the study population based on personal data:

Table 3 Gender distribution of community members

Percentage	Iteration	Gender
61.5%	40	male
38.5%	25	female
100%	65	Total
Percentage	**Iteration**	**lifetime**
11%	7	From 33-23
26%	17	From 44-34
63%	41	45 years and above
100%	65	Total
Percentage	**Iteration**	**Education Qualification**
7.7%	5	diploma
61.5%	40	Bachelor

30.8%	20	Graduate
100%	65	Total
Percentage	**Iteration**	**Work Experience**
10.8%	7	Less than 4 years
38.4%	25	5 to 9 years
50.8%	33	More than 10 years
100%	65	Total

As for the personal data of the study sample for the 65 educational qualification variables, the results showed that the percentage of public relations practitioners in Jordanian universities who obtained a diploma degree was 7.7%, the percentage of public relations practitioners in Jordanian universities who obtained a bachelor's degree was 61.5%, and the percentage of public relations practitioners in Jordanian universities who obtained postgraduate studies was 30.8%.

The personal data of the study sample shows for the 65 educational qualification variable, where the results showed that the experience of public relations practitioners in Jordanian universities less than 4 years amounted to 10.8%, the experience of public relations practitioners in Jordanian universities from 5 years to 9 years amounted to 38.4%, and the experience of public relations practitioners in Jordanian universities amounted to more than 10 years. 50.8%.

The main question of the study " What is the extent of employing artificial intelligence techniques in the Jordanian university public relations departments" reality and obstacles" was answered by answering the questions of the sub-study emanating from it, and the following is a presentation of the results of the study according to the sequence of its questions: How knowledgeable are you in artificial intelligence techniques?

Table 4 Knowledge in artificial intelligence techniques

Percentage	**Iteration**	**Categories**
17%	11	A thing or two
52.3%	34	Medium knowledge
30.7%	20	Little knowledge
100%	65	Total

Table (4) shows the extent to which public relations practitioners in Jordanian universities know artificial intelligence techniques, where the percentage of public relations practitioners in Jordanian universities who have

extensive knowledge in artificial intelligence techniques was 17%, the percentage of public relations practitioners in Jordanian universities who have medium knowledge in artificial intelligence techniques is 52.3%, and the percentage of public relations practitioners in Jordanian universities who have little knowledge in artificial intelligence techniques 30.7%. This result is expected because artificial intelligence techniques are a modern digital tool that is still in its early stages and its use is somewhat limited, and the level of awareness of public relations practitioners in Jordanian universities is relatively low due to the lack of human competencies specialized in artificial intelligence techniques and the limited technological competencies capable of dealing with them professionally, in addition to the weak confidence of the owners of organizations in dealing with artificial intelligence techniques as they violate privacy and confidentiality.

The first question: What are the advantages resulting from the employment of public relations practitioners in Jordanian universities in artificial intelligence techniques?

Table 5 Advantages resulting from the employment of public relations practitioners in Jordanian universities artificial intelligence techniques

Grade	Standard deviation	Arithmetic mean	Items	Rank	figure
High	0.47	2.80	Professional content production	1	1
Medium	0.55	2.21	Technical skills development	14	2
High	0.61	2.51	Solve problems easily	9	3
High	0.57	2.72	Foster creativity and innovation	4	4
High	0.59	2.65	Improve design skills and increase efficiency	6	5
High	0.65	2.42	Enhancing competitiveness	10	6
High	0.69	2.35	Save time and effort	12	7
Medium	0.58	2.23	Improving the image of the organization through the services it provides	13	8
High	0.58	2.68	Easy to set up PR campaigns	5	9
High	0.43	2.77	Reduce human error	2	10
High	0.63	2.61	Speed in response and completion of tasks	7	11
High	0.72	2.40	Keeping pace with modern technology	11	12
High	0.48	2.75	Conduct public opinion polls	3	13
High	0.66	2.57	Crisis Avoiding	8	14

Table (5) shows that the most prominent advantages resulting from the employment of public relations practitioners in Jordanian universities in artificial intelligence techniques were represented in the paragraph that states "professionalism in content production" with an arithmetic mean of 2.80 and a standard deviation of 0.47, while the paragraph that states "improving the image of the organization through the services it provides" ranked last among the advantages resulting from the employment of public relations practitioners in Jordanian universities artificial intelligence techniques with an arithmetic average of 2.23 and a standard deviation of 0.58.

Artificial intelligence techniques create professional and creative content using the technologies they provide, and content production is the most important field through which artificial intelligence can make an impact, as smart robots work in collecting material quickly and accurately that surpasses humans in producing traditional content, automating tasks, generating data and creating automated texts, and thus contributes to improving the professional competence of public relations practitioners and speed in the production process, the theory of replacing jobs with artificial intelligence was employed in this question, as the theory focuses On mechanical intelligence, which requires training and non-extensive experience, and here the production of content for Jordanian universities falls within the Artificial intelligence, which is based on creating press reports, bulletins or data more efficiently and accurately.

This result agreed with the Al-Shuaibi study 2023, which revealed that the expected benefit of employing artificial intelligence in public relations was represented by a high percentage in the paragraph that states "benefiting from it in the production of diverse and high-quality content", and this result differed with the 2024 premium study, as it showed that the most important advantages it provides to Saudi Airlines to employ artificial intelligence in the public relations department are the economy of time and effort and the speed of response to inquiries and complaints, and with the study of Thabet 2023 Which showed that the use of artificial intelligence applications in the platforms under study achieves improving the customer experience and achieving customer management standards by customizing services using the instant chat application, and with the Montaser 2023 study, which showed that the most important uses of artificial intelligence in the field of public relations are sending direct messages to the target audience of organizations' customers and helping professionals to provide the content that customers need, and with the Abdul Hamid study 2023 Which indicated that the most prominent benefits expected to be achieved from adopting artificial intelligence applications in e-marketing through social networking sites are "customizing content according to the interests of the audience."

The second question: What are the obstacles facing public relations practitioners in Jordanian universities towards employing artificial intelligence techniques?

Table (6) shows that the most prominent obstacles facing public relations practitioners in Jordanian universities towards employing artificial intelligence techniques were represented in the paragraph that states "poor knowledge in programming and algorithms" with an arithmetic mean of 2.78 and a standard deviation of 0.50, while the paragraph that states "the difficulty of the social and economic environment" ranked last among the obstacles facing public relations practitioners in Jordanian universities towards employing artificial intelligence

techniques with an arithmetic average.2.39and standard deviation 0.71. This result is attributed to the fact that artificial intelligence techniques require high and continuous training to deal with software, deep knowledge of algorithms, and the need for high skills in data analysis, application development and problem solving.

Table 6 Obstacles facing public relations practitioners in Jordanian universities towards employing artificial intelligence techniques

Grade	Standard deviation	Arithmetic mean	Items	Rank	figure
High	0.65	2.58	High cost of AI applications	6	1
High	0.51	2.66	The difficulty of training public relations practitioners in how to use artificial intelligence techniques	3	2
High	0.48	2.73	Dispensing with the human element	2	3
High	0.71	2.39	The difficulty of the socio-economic environment	9	4
High	0.66	2.57	Lack of specialized human competencies in artificial intelligence and limited technological competencies	7	5
High	0.60	2.52	Violation of privacy and loss of data confidentiality	8	6
High	0.63	2.61	Lack of confidence in artificial intelligence technologies and lack of acceptance of decision-makers to deal with them	5	7
High	0.50	2.78	Poor knowledge in programming and algorithms	1	8
High	0.57	2.64	Inability to track unethical practices	4	9

This result agreed with the Al-Shuaibi 2023 study , which showed that the most prominent obstacles and potential challenges from the use of artificial intelligence tools in public relations are the difficulty of controlling advanced software applications due to lack of knowledge, and differed with the 2024 premium study, which showed that the most prominent obstacles to artificial intelligence and its applications faced by public relations practitioners at Saudi Airlines are represented in: The difficulty of understanding social feelings and values in applications, and disagreed with Abdul Hamid's 2023 study, which revealed that the negative effects resulting from the use of artificial intelligence technology in e-marketing through social networking sites were represented in "dispensing with the human element in most jobs related to social networking sites."

The third question: What are the proposals of public relations practitioners in Jordanian universities towards employing artificial intelligence techniques?

Table (7) shows that the most prominent proposals of public relations practitioners in Jordanian universities towards employing artificial intelligence techniques were represented in the paragraph that states "cooperation between artificial intelligence and human intelligence without dispensing with one of them" with an arithmetic mean of 2.58 and a standard deviation of 0.39, while

the paragraph that states "attention to infrastructure" ranked last among the proposals of public relations practitioners in Jordanian universities towards employing artificial intelligence techniques with an arithmetic average of 2.55 and a standard deviation of 0.61.

Table 7 Proposals of public relations practitioners in Jordanian universities towards employing artificial intelligence techniques?

Grade	Standard deviation	Arithmetic mean	Items	Rank	figure
High	0.48	2.73	Enacting laws and legal legislation to protect privacy and confidentiality	2	1
High	0.58	2.65	The need to provide continuous technical support	4	2
High	0.39	2.85	Cooperation between AI and human intelligence without dispensing with one of them	1	3
High	0.50	2.57	Subjecting PR practitioners to training on the use of artificial intelligence applications	6	4
High	0.61	2.55	Attention to infrastructure	7	5
High	0.55	2.63	Benefiting from the successful experiences of international universities in employing artificial intelligence techniques	5	6
High	0.59	2.67	Raising awareness of the importance of employing artificial intelligence through courses and seminars	3	7

There is no doubt that the basis of public relations practice is based on personal communication between the organization and its audience and not on dealing with machines, robots or robots, but artificial intelligence applications are a new technology that has begun to make its way to work in all organizations and it has become an absolute necessity to apply and benefit from it without dispensing with the human element, which is described as the origin of creativity and the root of thinking, and the need for cooperation between human intelligence and artificial intelligence and striking a balance between them to automate tasks and enhance performance more effectively and efficiently. This result differed with the Shuaibi 2023 study, which showed that the most prominent suggestions of public relations practitioners to promote the use of artificial intelligence tools were "not putting full trust in automated systems."

Fourth question: What are the areas most in need of employing artificial intelligence techniques in Jordanian universities from the point of view of public relations practitioners?

Table (8)

Percentage	Iteration	Categories
33.8%	22	Administrative field
18.5%	12	Advertising Industry
47.7%	31	Media field
100%	65	Total

Table (8) shows that the area's most in need of employing artificial intelligence techniques in Jordanian universities from the point of view of public relations practitioners are the media field with 47.7%, followed by the administrative field with 33.8%, and the advertising field with 18.5%.

This result is attributed from the researcher's point of view because the media field in Jordanian universities is more necessary to employ artificial intelligence applications for its contribution to the creation of media content and press reports easily, and the speed in the process of producing news and providing digital content dedicated to the target audience based on its interests, and the use of automated chat to respond to inquiries, in addition to translation techniques, linguistic correction, verifying the source of the news and many others, and this would improve work productivity, enhance strategies, raise efficiency and accuracy, which will reflect positively On the approval of the public and the achievement of satisfaction towards the organization.

6.   Discussion on Results

This research examined the familiarity of public relations practitioners in Jordanian universities with artificial intelligence (AI) technologies. Only 17% of these professionals possessed adequate knowledge of AI approaches. This finding highlights a significant gap in understanding and awareness of emerging technologies in the field. Such a low percentage suggests that many practitioners may need to be fully equipped to leverage AI in their day-to-day responsibilities, which could hinder the advancement of public relations practices in an increasingly digital world. The lack of widespread AI knowledge may also impact the ability of these professionals to stay competitive and innovative within the global public relations landscape as suggested by the existing literature (James, 2024; Soegiarto et al., 2024b; Swiatek et al., 2024). Among the advantages of integrating AI into public relations activities within Jordanian universities, the most notable was the enhanced professionalism in content production. This aspect was quantitatively assessed, yielding an arithmetic mean of 2.80 and a standard deviation of 0.47. AI tools, such as automated content generation and data-driven insights, significantly improve public relations content creation efficiency, accuracy, and quality. According to (Nurlaela Arief et al., 2019), the ability to use AI for professional content production enables practitioners to craft more targeted, consistent, and engaging messages that resonate with their audiences, thereby increasing the overall effectiveness of their communication strategies.

Despite the potential benefits, notable obstacles hinder the adoption of AI by public relations professionals in Jordanian universities. The most noticeable challenge is a deficiency of knowledge in programming and algorithms, as reflected in the results showing an arithmetic mean of 2.78 and a standard

deviation of 0.50. This issue underscores a critical skills gap that prevents practitioners from fully utilizing AI tools. Notably, (Kaleel & Alomari, 2024) consider that a strong foundation in the technical aspects of AI, public relations professionals may be able to effectively implement AI-driven strategies, further highlighting the need for specialized training and educational programs to bridge this gap.

One of the key proposals from public relations practitioners for overcoming these challenges involves promoting cooperation between artificial intelligence and human intelligence without entirely relying on one over the other (Mehmood Qadiri et al., 2020). This indication was highly regarded, with an arithmetic mean of 2.58 and a standard deviation of 0.39. The notion of synergy between AI and human skills highlights the importance of balancing automation and the creative, strategic thinking that human professionals bring to the table. By working together, AI can assist human intelligence by handling repetitive, data-intensive tasks, allowing professionals to focus on higher-order functions such as relationship-building, crisis management, and strategic planning (Santa Soriano & Torres Valdés, 2021; Wang et al., 2021). Finally, from the perspective of public relations practitioners, the media field was identified as the area most in need of AI adoption within Jordanian universities, with 47.7% of respondents indicating this as a priority. Given the rapidly evolving media terrain, integrating AI into media operations could help enhance the dissemination of information, improve audience targeting, and foster more interactive and personalized communication experiences. Therefore, public relations practitioners can better manage media relations (Arief & Gustomo, 2020b), predict trends (Santa Soriano & Torres Valdés, 2021), and engage with audiences across various platforms by using AI (Çataldaş & Özgen, 2023), ensuring they remain relevant and effective in a digital-first environment (Arief & Gustomo, 2020b; Kuşku Özdemir, 2024).

7.   Study Recommendations

This study concluded with several key recommendations to advance the integration and application of artificial intelligence. First, given its significance in the modern era, there is a critical need to intensify scientific research on artificial intelligence. This includes augmenting scientific libraries with relevant research and studies on emerging technologies transforming various fields and sectors. Further, incorporating an "Artificial Intelligence" course into school and university curricula is crucial for developing a generation equipped to handle and innovate with these technologies. Furthermore, it is essential to activate legal frameworks that regulate the use of artificial intelligence to safeguard privacy and data confidentiality while preventing potential abuses. Public relations practitioners in Jordanian universities should acquire targeted training

on artificial intelligence techniques through courses, seminars, and workshops. This will help refine their skills and enhance their awareness of digital technologies, which are increasingly critical across various domains. To keep pace with the technological advancements of the Fourth Industrial Revolution, Jordanian universities must also focus on implementing artificial intelligence techniques to restructure and improve educational institutions. Raising awareness about the benefits of AI in organizations and institutions is also essential, as is learning from the successful experiences of international universities. Adopting the most appropriate technological tools for public relations from these global practices can further enhance the effectiveness of AI in Jordanian universities.

8.   Limitations

The study's limitations encompass several vital aspects. Firstly, the temporal scope of the research was limited to a specific period, with the study being conducted from February 2024 to June 2024. This timeframe may affect the relevance and applicability of the results to different periods or future developments. Spatially, the study was restricted to the Hashemite Kingdom of Jordan, so the results may not be generalizable beyond this geographic region. Also, the study focused exclusively on public relations practitioners within both public and private universities in Jordan. This human-centric limitation emphasizes that the insights gathered are specific to this group and may not reflect the experiences or perspectives of practitioners in other sectors or regions. These boundaries define the study's scope and must be considered when interpreting the results and their broader implications.

References

Abuselidze, G., & Mamaladze, L. (2021). The impact of artificial intelligence on employment before and during pandemic: A comparative analysis. Journal of Physics: Conference Series, 1840(1). https://doi.org/10.1088/1742-6596/1840/1/012040

Acharya, A., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and How of it? Indian Journal of Medical Specilaities. https://doi.org/10.7713/ijms.2013.0032

Aguinis, H., Hill, N. S., & Bailey, J. R. (2021). Best Practices in Data Collection and Preparation: Recommendations for Reviewers, Editors, and Authors. Organizational Research Methods, 24(4), 678–693. https://doi.org/10.1177/1094428119836485

Al Hadeed, A. Y., Maysari, I., Aldroubi, M. M., Attar, R. W., Al Olaimat, F., & Habes, M. (2023). Role of public relations practices in content management: the mediating role of new media platforms. Frontiers in Sociology, 8. https://doi.org/10.3389/fsoc.2023.1273371

Almesafri, A., & Habes, M. (2023). Understanding the Use of Artificial Intelligence (AI) for Human Resources in the Dubai Government. In Digitalisation: Opportunities and Challenges for Business: Volume 1 (pp. 417–428). Springer.

Anjani, N. D., & Wolor, C. W. (2024). Profesionalisme Public Relations Officers Terhadap

Kualitas Pelayanan Era Artificial Intelligence. 2(1), 62–79. https://doi.org/10.61132/manuhara.v2i1.433

Arief, N. N., & Gustomo, A. (2020a). Analyzing the Impact of Big Data and Artificial Intelligence on the Communications Profession: A Case Study on Public Relations (PR) Practitioners in Indonesia. 10(3).

Arief, N. N., & Gustomo, A. (2020b). Analyzing the impact of big data and artificial intelligence on the communications profession: A case study on Public Relations (PR) Practitioners in Indonesia. International Journal on Advanced Science, Engineering and Information Technology, 10(3), 1066–1071. https://doi.org/10.18517/ijaseit.10.3.11821

Attar, R. W., Habes, M., Almusharraf, A., Alhazmi, A. H., & Attar, R. W. (2024). Exploring the impact of smart cities on improving the quality of life for people with disabilities in Saudi Arabia. Frontiers in Built Environment, 10. https://doi.org/10.3389/ fbuil.2024.1398425

Bdoor, S. Y., & Habes, M. (2024). Use Chat GPT in Media Content Production Digital Newsrooms Perspective. In Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom (pp. 545–561). Springer.

Benhamou, S. (2020). Artificial intelligence and the future of work. Revue d'Economie Industrielle, 169(1), 57–88. https://doi.org/10.4000/rei.8727

Bhatia, M. K. (2017). Data Analysis and its Importance. 2(1). https://irjaes.com/wp-content/uploads/2020/10/IRJAES-V2N1P58Y17.pdf

Çataldaş, İ., & Özgen, E. (2023). Artificial Intelligence in Digital Public Relations: A Delphi Study. Etkileşim, 6(12), 84–103. https://doi.org/10.32739/etkilesim.2023.6.12.215

ÇERÇİ, Ü. Ö. (2024). An Innovative Communication Paradigm for the Future of Public Relations: Artificial Intelligence. Türkiye İletişim Araştırmaları Dergisi. https://doi.org/10.17829/turcom.1360264

Etikan, I. (2017). Sampling and Sampling Methods. Biometrics & Biostatistics International Journal, 5(6). https://doi.org/10.15406/bbij.2017.05.00149

Fisher, M. J., & Marshall, A. P. (2009). Understanding descriptive statistics. Australian Critical Care, 22(2), 93–97. https://doi.org/10.1016/j.aucc.2008.11.003

Franzese, M., & Iuliano, A. (2019). Descriptive Statistics. In Encyclopedia of Bioinformatics and Computational Biology (pp. 672–684). Elsevier. https://linkinghub.elsevier.com/retrieve/pii/B9780128096338203543

Galloway, C., & Swiatek, L. (2018a). Public relations and artificial intelligence: It's not (just) about robots. Public Relations Review, 44(5), 734–740. https://doi.org/10.1016/j.pubrev.2018.10.008

Galloway, C., & Swiatek, L. (2018b). Public relations and artificial intelligence: It's not (just) about robots. Public Relations Review, 44(5), 734–740. https://doi.org/10.1016/j.pubrev.2018.10.008

Habes, M., Alanani, A., Youssef, E., & Sharif, H. (2024). Why Do Jordanian Students Prefer Using ChatGPT A Case Study of Higher Education Institutions. In Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom (pp. 127–141). Springer.

Habes, M., Alhazmi, A. H., Elareshi, M., & Attar, R. W. (2024). Understanding the relationship between AI and gender on social TV content selection. Frontiers in Communication, 9, 1410995.

Haleem, A., Javaid, M., Asim Qadri, M., Pratap Singh, R., & Suman, R. (2022). Artificial intelligence (AI) applications for marketing: A literature-based study. In International Journal of Intelligent Networks (Vol. 3, pp. 119–132). KeAi Communications Co. https://doi.org/10.1016/j.ijin.2022.08.005

Huang, M. H., & Rust, R. T. (2018). Artificial Intelligence in Service. Journal of Service Research, 21(2), 155–172. https://doi.org/10.1177/1094670517752459

James, M. (2024). The Ethical and Legal Implications of Using Big Data and Artificial Intelligence for Public Relations Campaigns in the United States. International Journal of Communication and Public Relation, 9(1), 38–52. https://doi.org/10.47604/ijcpr.2273

Jeong, J. Y., & Park, N. (2023). Examining the Influence of Artificial Intelligence on Public Relations: Insights from the Organization-Situation-Public-Communication (OSPC) Model. Asia-Pacific Journal of Convergent Research Interchange, 9(7), 485–495. https://doi.org/10.47116/apjcri.2023.07.38

Jin, S. V., & Youn, S. (2023). Social Presence and Imagery Processing as Predictors of Chatbot Continuance Intention in Human-AI-Interaction. International Journal of Human-Computer Interaction, 39(9), 1874–1886. https://doi.org/10.1080/10447318.2022.2129277

Kaleel, A., & Alomari, M. S. (2024). Integrating Artificial Intelligence in Public Relations and Media: A Bibliometric Analysis of Emerging Trends and Influences. Iraqi Journal for Computer Science and Mathematics, 5(1), 13–24. https://doi.org/10.52866/ijcsm.2024.05.01.002

Khogali, H. O., & Mekid, S. (2023). The blended future of automation and AI: Examining some long-term societal and ethical impact features. Technology in Society, 73. https://doi.org/10.1016/j.techsoc.2023.102232

Kuşku Özdemir, E. (2024). Qualitative Evaluation of the Academic Reflections of Artificial Intelligence Applications in the Fields of Communication and Public Relations. Mevzu – Sosyal Bilimler Dergisi. https://doi.org/10.56720/mevzu.1486625

Mehmood Qadiri, R., Shabir, N., & Qadri, M. (2020). Conceptualizing Possibilities of Artificial Intelligence in Furtherance of the Banking Sector: An Effective Tool for Improving Customer Relationship, Customer Service and Public Relations. In International Journal of Finance, Insurance and Risk Management: Vol. X (Issue 2).

Mohamed Abdelhafiz Hussein, K., Altan Bayraktar, Ü., & Mohamed, K. (2022). Artificial Intelligence in Public Relations and Association Rule Mining as a Decision Support Tool. https://doi.org/10.14445/23942703/IJHSS-VXXXX

Munandar, D., & Irwansyah, I. (2020, March 25). Artificial Intelligence Disruption on Public Relations Practice: What do Practitioners Think About it. https://doi.org/10.4108/eai.12-11-2019.2293527

Nurlaela Arief, N., Arkan, M., & Saputra, A. (2019). KOMPETENSI BARU P UBLIC RELATIONS (PR) PADA ERA ARTIFICIAL INTELLIGENCE CASE STUDY PRAKTISI PR D I INDONESIA. In Jurnal Sistem Cerdas (Vol. 02, Issue 01).

Olsen, C., & Marie St George, D. M. (2004). Cross-Sectional Study Design and Data Analysis. www.collegeboard.com.

Santa Soriano, A., & Torres Valdés, R. M. (2021). Engaging universe 4.0: The case for forming a public relations-strategic intelligence hybrid. Public Relations Review, 47(2). https://doi.org/10.1016/j.pubrev.2021.102035

Shen, Y., & Zhang, X. (2024). The impact of artificial intelligence on employment: the role of virtual agglomeration. Humanities and Social Sciences Communications, 11(1). https://doi.org/10.1057/s41599-024-02647-9

Soegiarto, A., Sari, W. P., Kholik, A., & Imsa, M. A. (2024a). 28 Artificial Intelligence (AI) in Public Relations: Corporate Practices in Indonesia. In International Journal of Social Science and Humanity (Vol. 1, Issue 2).

Soegiarto, A., Sari, W. P., Kholik, A., & Imsa, M. A. (2024b). 28 Artificial Intelligence (AI) in Public Relations: Corporate Practices in Indonesia. In International Journal of Social Science and Humanity (Vol. 1, Issue 2).

Stapor, K. (2020). Descriptive and Inferential Statistics. In K. Stapor (Ed.), Introduction to Probabilistic and Statistical Methods with Examples in R (pp. 63–131). Springer

International Publishing. https://doi.org/10.1007/978-3-030-45799-0_2

Sunday, M., Eleojo Michael Agba, G., & Obeten, A. W. (2023). Artificial Intelligence and Public Management and Governance in Developed and Developing Market Economies. In Policy and Governance Research (JPAPGR) (Vol. 1, Issue 2).

Swiatek, L., Galloway, C., Vujnovic, M., & Kruckeberg, D. (2024). Humanoid artificial intelligence, media conferences and natural responses to journalists' questions: The end of (human-to-human) public relations? Public Relations Inquiry, 13(1), 113–121. https://doi.org/10.1177/2046147X231221828

Syed, W., Babelghaith, S. D., & Al-Arifi, M. N. (2024). Assessment of Saudi Public Perceptions and Opinions towards Artificial Intelligence in Health Care. Medicina (Lithuania), 60(6). https://doi.org/10.3390/medicina60060938

Tahat, K., Mansoori, A., Tahat, D. N., Habes, M., & Salloum, S. (2023). Leveraging Soft Power: A Study of Emirati Online Journalism Through Arabic Topic Modeling. International Conference on Business and Technology, 13–20.

TÜRKSOY, N. (2022). The Future of Public Relations, Advertising and Journalism: How Artificial Intelligence May Transform the Communication Profession and Why Society Should Care? Türkiye İletişim Araştırmaları Dergisi, 40, 394–410. https://doi.org/10.17829/turcom.1050491

Wang, Y., Cheng, Y., & Sun, J. (2021). When public relations meets social media: A systematic review of social media related public relations research from 2006 to 2020. Public Relations Review, 47(4). https://doi.org/10.1016/j.pubrev.2021.102081

Yue, Q. (2023). Study on the Impact of Artificial Intelligence on Employment and Income Inequality, Based on Technological Determinism Theory (pp. 329–338). https://doi.org/10.2991/978-94-6463-142-5_37

Zozus, M. (2017). The Data Book: Collection and Management of Research Data. CRC Press. https://books.google.co.uk/books?id=ilAsDwAAQBAJ

Zuiderwijk, A., Chen, Y. C., & Salem, F. (2021). Implications of the use of artificial intelligence in public governance: A systematic literature review and a research agenda. Government Information Quarterly, 38(3). https://doi.org/10.1016/j.giq.2021.101577