

-RESEARCH ARTICLE-

INVESTIGATION OF ARTIFICIAL INTELLIGENCE IN SMALL AND MEDIUM-SIZED ENTERPRISES: A CASE STUDY OF THE COLLEGE OF BUSINESS STUDIES

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—Abstract—

Small businesses serve as the cornerstone of global economies, and as artificial intelligence (AI) becomes increasingly pervasive, understanding the perceptions of students, instructors, and business owners regarding the role of AI tools in fostering small business growth is imperative. This study seeks to provide valuable insights into these perspectives, particularly in the context of small enterprises. Adopting a mixed-methods research approach at the College of Business Studies (CBS), the study

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integrates quantitative metrics with qualitative depth to offer a comprehensive understanding of how AI tools are perceived and envisioned within the student community. The study's participants, including 24 focus group members and 559 survey respondents, expressed diverse views on the challenges and opportunities associated with AI adoption. While many recognized the transformative potential of AI across various domains, significant concerns were raised regarding ethical considerations, job displacement, and data privacy. These apprehensions highlight the risks of overreliance on AI algorithms, particularly in fostering biases or making decisions devoid of human judgment and empathy. The findings revealed a strong positive correlation among key variables. As students' awareness of AI tools increased, they perceived these tools as more effective, believed they exerted a greater influence on small enterprises, demonstrated greater enthusiasm for their utilization, and developed a more nuanced understanding of the associated challenges. Furthermore, the study identified no significant gender differences in students' perceptions of AI or the importance they attributed to small and medium-sized enterprises (SMEs).

Keywords: Artificial Intelligence, Small and Medium Size Enterprises, Entrepreneurship, Perceptions.

INTRODUCTION

SMEs play a pivotal role in the global economy, driving innovation, generating employment, and fostering economic growth. The success of these enterprises, often led by middle-class proprietors, significantly contributes to overall economic development. Providing educational, financial, and psychological resources to small business entrepreneurs is crucial for sustaining societal functionality and supporting the economic well-being of the majority. Over the past two decades, significant technological advancements have driven a reallocation of resources, reshaping the corporate landscape. The advent of internet technologies and the widespread accessibility of big data have revolutionised business practices. These developments have enhanced production efficiency, accelerated operational processes, and enabled instantaneous communication. However, they have also led to a transformation in the employment landscape, resulting in the elimination of certain jobs while simultaneously creating opportunities for new roles.

AI encompasses the development of computer systems capable of performing human-like tasks, including speech recognition, decision-making, problem-solving, and self-learning (Soni et al., 2020). AI plays a transformative role in small businesses, enhancing efficiency, fostering growth, and driving innovation. By providing advanced tools and capabilities, AI significantly contributes to the success and competitiveness of small enterprises in an increasingly digital business environment. Small businesses can harness AI and automation to streamline routine operations and make data-driven

decisions based on customer insights (Munyengeterwa et al., 2023). The implementation of AI technologies can improve efficiency, reduce costs, enhance product quality, and elevate customer service. Furthermore, AI's ability to extract actionable insights from vast datasets enhances decision-making and overall business performance (Campbell et al., 2020). Consequently, the growing adoption of AI has garnered significant interest from small business owners seeking to automate organisational processes and optimise operations (Crockett et al., 2021).

However, its adoption among small businesses remains limited due to factors such as lack of awareness, skills, and financial resources. Despite this, the benefits of AI are undeniable. This study aims to explore the perceptions of students and educators regarding AI's role in SMEs and how they interpret its impact. Understanding these perspectives is essential for business, policy, and technology stakeholders to address challenges, raise awareness, and create an enabling environment for AI adoption in SMEs. Such efforts can drive positive engagement and enhance AI integration to transform small businesses in the digital age. Encouraging investment in SMEs and fostering entrepreneurship aligns with Kuwait Vision 2035, particularly in the knowledge economy. This approach supports economic growth, innovation, and adaptability, equipping nations to thrive in a rapidly changing global landscape. Furthermore, this study emphasises the need for students and instructors to embrace AI as a transformative teaching tool rather than merely a technological shift.

This article is organised as follows: Section 2 defines the research objectives, followed by the literature review in Section 3. The methodology is detailed in Section 4, and the findings are summarised in Section 5. Finally, the conclusion and future research directions are presented in Section 6.

RESEARCH AIMS AND OBJECTIVES

This article aims to explore AI from the perspectives of business students, instructors, and owners, enhancing understanding of the technology while addressing entrepreneurial anxiety and fear surrounding its adoption. The primary objectives of this research are to:

1. Explore students', instructors', and entrepreneurs' awareness of AI tools and their understanding of how these tools can be applied to promote small businesses.
2. Shed lights on the importance of AI proficiency among both educators and students, advocating for its integration into the curriculums.
3. Investigate students' perceptions of the potential benefits and challenges associated with integrating AI tools in small business operations.
4. Identify factors influencing students' attitudes towards AI adoption by small businesses.

5. Understand gender differences in respect to students' perception of the potential benefits and challenges associated with integrating AI tools in small business operations.

LITERATURE REVIEW

Integrating AI technology has the potential to revolutionise SMEs by enhancing competitiveness, operational performance, and digital marketing capabilities. Existing literature highlights the heterogeneity of SMEs across industries, sizes, and structures while underscoring the benefits of AI adoption, including improved decision-making, faster processes, enhanced customer satisfaction, and cost optimisation (Haenlein & Kaplan, 2019; Taylor, 2023). AI technologies enable SMEs to address operational challenges through automation, machine learning, and data-driven insights, improving operations and overall performance (Wamba-Taguimdje et al., 2020). AI tools, such as chatbots and virtual assistants, provide continuous customer support, resolve real-time issues, and address common queries, further enhancing customer relations (Chalmers et al., 2021; Pfau & Rimpp, 2021). Additionally, AI optimises organisational processes, augments production, and transforms marketing and sales through predictive analytics, offering SMEs insights into customer behaviour, trends, and future sales forecasts (Lee et al., 2019). These advancements collectively contribute to operational efficiency, productivity, and business growth, positioning SMEs to thrive in an increasingly digital economy (Pfau & Rimpp, 2021; Wamba-Taguimdje et al., 2020).

The utilisation of AI-powered chatbots and virtual assistants has enabled small enterprises to enhance customer service and support capabilities. The integration of AI into small businesses has significantly bolstered their digital marketing strategies, optimising operations and allowing firms to achieve greater sophistication and effectiveness in their marketing efforts. AI's cost-effectiveness offers transformative potential for marketing and sales, empowering small businesses with analytics and predictive algorithms to gain deeper insights into their target audience, identify trends in consumer behaviour, and generate more accurate sales forecasts (Lee et al., 2019). These capabilities enable small businesses to refine their marketing and advertising strategies, ensuring that they reach the right audience with tailored messages, thereby increasing sales conversion rates (Huang & Rust, 2021). Furthermore, AI facilitates the automation of various marketing tasks, such as email campaigns and social media management (Huang & Rust, 2021). By analysing customer data and preferences, AI also enhances customer experience and engagement, assisting small businesses in delivering personalised and impactful marketing strategies (Lee et al., 2019; Ying et al., 2023).

The traditional perspective on the utilisation of AI in small enterprises is closely tied to the enhancement of entrepreneurial skills, particularly through online self-education

initiatives. AI tools play a pivotal role in simplifying corporate operations, improving decision-making processes, and fostering innovation. Consequently, entrepreneurs must acquire proficiency in these technologies to remain competitive (Ahmed, 2019). The explicit knowledge necessary for effectively employing AI tools is now more accessible than ever, thanks to online self-learning platforms. These platforms provide a wide array of resources, including instructional lessons, modular content, and immediate feedback mechanisms, enabling entrepreneurs to effectively understand and integrate AI into their organisations (Campbell et al., 2020). Moreover, these platforms keep new entrants in the AI domain informed about the latest advancements, while allowing entrepreneurs to tailor their acquired knowledge to address specific business needs, thereby enhancing efficiency and competitiveness. The adoption of AI in small businesses is also intrinsically linked to the development of leadership skills. By leveraging data analysis, predictive analytics, and automation, AI solutions generate critical insights, empowering leaders to make informed and strategic decisions (Campbell et al., 2020).

Furthermore, the application of AI can alleviate leadership teams from time-consuming tasks, allowing them to redirect their focus towards value-added activities, such as strategic planning, team development, and the creation of sustainable, innovative solutions (Almonawer et al., 2023). AI-driven tools can also enhance the functionality of mobile learning platforms, providing contextual and adaptable learning experiences that are crucial for small business owners as they continue to develop their skills and enhance their capabilities. From the perspective of Human-Computer Interaction (HCI), it is essential to exercise significant caution regarding the usability, accessibility, and user experience of AI tools developed for mobile platforms. These considerations are crucial to ensure that the tools effectively serve a broad user base and are accessible to a diverse range of entrepreneurs.

Despite the numerous advantages associated with the adoption of AI, SMEs face several challenges, as highlighted by scholars. These include limited financial resources, a shortage of skilled personnel, concerns over data security, and perceived complexities in implementing AI technologies (Chowdhury et al., 2023). Overcoming these barriers is essential for SMEs to fully realise the potential of AI. Taylor (2023) emphasised that AI solutions should be tailored to the specific needs of SMEs and be easily customisable. AI applications in SMEs must align with industry characteristics and operational changes, ensuring that they are adaptable and scalable. Government support and policies, particularly in countries like Kuwait and other Gulf states, can also play a crucial role in driving the growth of SMEs through AI adoption (Sharma, 2023). Moreover, addressing the ethical considerations surrounding the use of AI in small business contexts, as outlined in the literature review, is vital. AI technologies raise ethical concerns primarily due to the extensive collection and analysis of customer data (Blanco-González-Tejero et al., 2023). Key issues include data privacy and the risk of

biased decision-making within AI systems. Potential solutions to these challenges involve the continuous assessment of AI systems, the incorporation of bias-reduction strategies, and the utilisation of diverse training datasets to mitigate biases in AI applications (Bhattacharya, 2020). The literature further indicates that financial incentives, targeted training, and policy support are necessary to help SMEs overcome these obstacles and facilitate the adoption of AI.

The literature review highlights a growing trend in the adoption of AI by SMEs, accompanied by anticipations of potential challenges in its application. As such, further research is essential to validate and expand upon these findings in subsequent phases. It is widely recognised that government policies play a pivotal role in fostering AI adoption, particularly in Kuwait and the Gulf region, where small firms face unique challenges (Ahmed, 2019). Several scholars emphasise the importance of financial incentives, training programmes, and supportive legislation to help SMEs address these challenges and successfully implement AI technologies (Ahmed, 2019). This research proposal holds significant value for the academic community and aims to provide practical recommendations for SMEs in Kuwait, facilitating their adaptation to the evolving landscape of AI implementation.

RESEARCH METHOD

This research aims to explore individuals' perceptions and attitudes towards the use of AI tools to enhance small businesses and entrepreneurship. The study employs a sequential explanatory mixed-methods design, consisting of two distinct phases: a qualitative phase followed by a quantitative phase. This approach follows a broad-to-narrow strategy, allowing for a comprehensive understanding of the perspectives of students, faculty, and business owners within the college. The qualitative phase will provide in-depth insights, while the quantitative phase will gather data for statistical analysis to support and expand upon the qualitative findings.

Qualitative Phase: Focus Group Discussion

Instrument

A focus group discussion session was conducted to gain in-depth insights into the perceptions of students, faculty, and entrepreneurs. The discussion centred on key themes, including the perceived benefits and challenges of AI, attitudes towards AI in entrepreneurship, and suggestions for its improvement. This qualitative phase aimed to capture a range of perspectives, offering valuable contextual understanding to complement the subsequent quantitative phase of the study.

Sampling & Data Collection

Purposeful sampling was employed to gather in-depth views and foster meaningful

discussions. The sample consisted of students, faculty, and entrepreneurs, representing a diverse range of awareness levels and experiences with AI tools and SMEs. The focus group session was held in the seminar room at the College of Business Studies (CBS). To facilitate thorough analysis, the discussion was audio-recorded, ensuring that all perspectives could be accurately captured and examined.

Data Analysis

Thematic analysis was utilised to identify recurring themes and patterns within the data, allowing for the generation of insights into the nuanced aspects of participants' perceptions. This approach enabled the researchers to systematically examine the content of the focus group discussions, uncovering key themes related to the benefits, challenges, and attitudes towards AI in entrepreneurship, as well as potential areas for improvement.

Quantitative Phase: Survey Design and Administration

Population and Sample

The target population consists of students from the CBS at PAAET in Kuwait, with instructors excluded from the quantitative analysis. A stratified random sampling technique was used to ensure representation across various academic levels and programmes. The study included 559 students (113 male and 446 female) from CBS at PAAET. [Table 1](#) displays the demographic and sample distribution, including gender, year of study, and major.

Table 1: Sample Distribution

Variables	Frequency (F)	Percent %
Gender	Male	113
	Female	446
Year in College	First Year	128
	Second Year	431
Major	Accounting	110
	Banking and Insurance	52
	Computers	41
	Business	201
	Law	155

Questionnaire Design

A structured survey questionnaire was specifically designed for this research to gather participants' (students') opinions and explore both the challenges and opportunities of AI in small businesses. The questionnaire comprises two sections: Part 1 collects demographic data, including gender, year of study, and major, while Part 2 includes 27 questions divided into five key variables: students' awareness of AI tools, perceived

effectiveness of AI, the perceived impact of AI on promoting small businesses, willingness to utilise AI, and challenges related to AI adoption in business. Each of these five groups is measured using a 5-point Likert-type scale. The research instruments were piloted to ensure the questionnaire met its objectives, assessed its viability, and validated the initial results.

Data Collection and Analysis

The questionnaire was administered electronically to the sampled students, with data collection also conducted electronically to ensure confidentiality and encourage honest responses. Descriptive statistics, including frequencies, percentages, mean, and standard deviation, were used to analyse the quantitative survey data. Inferential statistical tests, such as t-tests, were employed to identify any significant differences in perceptions across different student groups.

Research Procedures

Multiple methodologies were employed in this study. A literature review provided insights into the current perceptions and utilisation of AI in business. A qualitative approach was used to explore the rationales, perspectives, motivations, and challenges of participants, yielding new ideas and insights. A focus group session, involving 24 participants (academicians, students, and entrepreneurs), was conducted to gather diverse viewpoints (Al-Hajri et al., 2011). The two-hour session took place at CBS. Additionally, a quantitative approach was employed, with a questionnaire administered to students, resulting in 559 valid responses.

SPSS was used for statistical analysis, employing various methods such as mean, standard deviation (SD), frequency, and percentage. To identify any statistically significant differences between the means of two independent variables (male and female students), an independent-sample t-test was applied. SPSS was also utilised to compute the correlation coefficients, which showed high correlations between individual dimensions and the aggregate score ($p < 0.01$).

Table 2: Reliability Statistics

	Group	N of Items	Cronbach's Alpha
A	AI Awareness	4	0.78
B	Perceived Benefits of AI	6	0.87
C	Perceived Impact of AI on SMEs	8	0.92
D	Willingness and Future Involvement with AI	3	0.86
E	Challenges	6	0.87
	Total	27	0.95

Additionally, the reliability of the questionnaire was assessed using Cronbach's alpha, which indicated high reliability with coefficients ranging from 0.78 to 0.92 for the individual dimensions, and a total Cronbach's alpha of 0.95. [Table 2](#) presents the Cronbach's alpha coefficients for each dimension. Thus, the questionnaire is reliable for the study sample, and the findings can be considered dependable.

RESULTS AND FINDINGS

This section integrates the quantitative and qualitative findings to provide a comprehensive understanding of students', instructors', and entrepreneurs' awareness of AI tools and their perceptions of how these tools can be applied to promote small businesses.

Qualitative Analysis (Focus Group Discussion)

To collect data and gain insights regarding the impact of AI solutions on the development and diversification of small enterprises, a focus group session was conducted with 24 participants: 8 professors, 9 students, and 7 small business owners. A moderator was assigned to present the study overview and facilitate the discussion. The line of questioning used by the researchers shaped the focus group discussion, which lasted approximately two hours. Data collection relied on notes taken by the facilitator during the session and written remarks from the participants. Following [O. Nyumba et al. \(2018\)](#), the "three coding methodology" was employed to analyse the feedback, enabling the researchers to understand the dynamics of current challenges, opportunities for professional development, and competencies needed to adapt to the evolving professional landscape. The question-and-answer format encouraged open discussion, providing subjective views, feelings, and suggestions. Thematic analysis was then adopted to identify key themes, patterns, and significant concerns ([Nowell et al., 2017](#)). Key topics included the theoretical concepts and prospects of AI, its impacts on the economy and businesses, challenges faced, and potential solutions. The ensuing discussion provided a deeper understanding of the participants' perspectives, and the researchers affirmed and assessed the findings from the report.

Instructors' Perspectives

Instructors noted the growing adoption of AI tools across various sectors, including small businesses. They recognised AI's potential to optimise workflows, enhance decision-making, and improve overall efficiency. One instructor stated, "The integration of AI tools is likely to transform small enterprises by streamlining daily tasks, enhancing data analysis, and improving decision-making." However, he also highlighted the importance of small business owners understanding the constraints and ethical issues related to AI. A faculty member from the economics department emphasised, "AI offers small and medium-sized enterprises the chance to compete with

larger organisations, boosting productivity and customer satisfaction, thereby promoting sustainable development." A former dean of the College of Business Studies added, "The success of AI in small businesses hinges on proper training and education." He stressed the need for foundational knowledge of AI technologies to maximise benefits and mitigate potential risks.

Contrasting views were expressed by faculty members. An instructor from the statistics department argued, "AI will stifle entrepreneurs' creativity." A Law professor called AI a "double-edged sword," acknowledging its potential to boost productivity and creativity, but emphasising the need for careful implementation. An accounting faculty member highlighted AI's role in automating business data and VAT preparation but stressed the importance of understanding core algorithms and industry regulations. A human resource professor noted AI's potential to automate recruitment and performance evaluation, but warned of concerns over data privacy, bias, and algorithmic transparency. A marketing instructor pointed out that AI-driven market research could aid in understanding consumer trends and competition, crucial for small businesses facing stiff competition. Finally, an insurance and banking faculty member mentioned that AI-based risk management tools could help SMBs control risks across various domains.

Students' Perspectives

The students actively engaged in the discussion, offering insightful perspectives. A business department student remarked, "As someone aspiring to own a business, I believe AI greatly enhances efficiency and competition, saving both time and money in the process." A banking student noted, "AI tools can transform small businesses' marketing strategies by providing analytics and recommendations for targeting audiences, enabling stronger and more effective campaigns." A computing undergraduate highlighted, "AI presents virtual opportunities for small businesses, such as using robots for customer service or analytics for market trends." A business law student raised concerns about job loss and privacy issues, emphasising the importance of ethical considerations. A marketing student mentioned, "AI algorithms optimise content performance, analyse audience engagement, and deliver targeted ads on social media, helping to reach the right audience and drive conversions cost-effectively." Another student pointed out that "AI can promote sustainability by optimising resources, reducing waste, and identifying eco-friendly practices." However, one student expressed concern over a lack of time to learn AI tools due to academic pressures, while another questioned why the college doesn't offer practical, credited courses covering AI tools and applications, especially given its business focus.

Business Owners' Perspectives:

Several small business owners shared their views on the advantages and challenges of

AI tools for their businesses. One owner highlighted, "The insights from AI-driven analytics are invaluable, helping us improve services and better meet customer needs." Another entrepreneur noted, "AI helps us manage stock more effectively, avoiding wasted expenses, and even reducing operational costs." A restaurant owner remarked, "AI allows us to grow without needing to hire more staff, and we continuously find ways to integrate AI to enhance customer satisfaction." However, some expressed challenges with AI adoption. A commercial representative mentioned, "Setting up AI is complicated, but once overcome, it proves advantageous." Another business owner said, "High-quality AI tools are expensive, and obtaining affordable solutions is a challenge for small businesses." Some also voiced concerns about data quality, with one entrepreneur noting, "AI is only as good as the data it receives, and we currently lack sufficient quality data for meaningful analytics." Others questioned the return on investment, stating, "It's difficult to determine when we will see ROI from AI tools." Employee resistance was also a challenge, with one owner recalling, "It took months to get my staff to adopt AI tools."

Additionally, ethical considerations were raised, with one entrepreneur emphasising the need for transparent and ethical AI integration, stating, "AI must be adopted with care, ensuring positive impacts on both businesses and communities." These concerns were echoed by educators, students, and entrepreneurs, who recognised the complexities of AI acquisition in small businesses, balancing its potential benefits with financial, social, and ethical implications. In general, participants expressed the belief that AI has the potential to enhance the capabilities of small businesses. However, they also emphasised that the success of AI implementation hinges on ethical decision-making, careful planning, and a thorough understanding of the technology. This study aims to explain how small businesses can effectively balance innovation with responsibility when adopting next-generation AI technologies. By doing so, businesses can harness AI's full potential to foster growth and achieve a competitive advantage within the small business context.

Quantitative Analysis

The following sections present and discuss the findings from the questionnaire, which explores students' perceptions of the potential benefits and challenges associated with the integration of AI tools in small business operations. [Tables 3 to 7](#) provide statistical data on factors organised into five groups: students' awareness of AI, the perceived effectiveness of AI, the perceived impact of AI on the promotion of small businesses, students' willingness to utilise AI, and the challenges related to the use of AI in business. These data offer a comprehensive overview of students' views and help to contextualise the broader findings of the study.

Students' Awareness of AI

Table 3 shows that the mean value of each item is above 3.0, except for the final question, which reflects a neutral attitude towards students' involvement in AI-related activities throughout their college studies, with a mean value of 2.96. The mean value of item 1 is 3.67, indicating that respondents have a moderate to high level of familiarity with the concept of AI. Overall, the mean scores presented in Table 3 suggest that students possess a moderate level of awareness of AI and its applications.

Table 3: Students' Awareness of AI (Frequency)

No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD	Rank
1	I am familiar with the concept of AI	85	277	147	29	21	3.67	0.925	1
2	I am aware of specific AI tools that are used in the context of small businesses.	64	238	162	70	25	3.44	0.998	2
3	I have experience using AI tools and applications.	50	189	179	99	42	3.19	1.068	3
4	I have taken course/s or participated in activities related to AI during my Study.	46	158	134	167	54	2.96	1.139	4

Perceived Effectiveness of AI

The following section examines students' perceptions of the effectiveness of AI. The mean values for the six questions presented in Table 4 are all above 3.57, suggesting that students generally hold a positive attitude towards the effectiveness of AI.

Table 4: Students' Perceived Effectiveness of AI (Frequency)

No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD	Rank
1	I believe that AI tools can contribute to Automation of tasks	99	253	162	33	12	3.70	0.900	5
2	I believe that AI tools can improve decision-making.	91	222	176	56	14	3.57	0.961	6
3	I believe that AI tools can increase competition	100	275	132	34	18	3.72	0.935	4
4	I believe that AI tools can improve media design	171	246	101	22	19	3.94	0.974	1
5	I believe that AI tools can contribute to cost savings	130	243	135	30	21	3.77	0.988	2
6	I believe that AI tools can enhancing efficiency	124	238	149	27	21	3.75	0.978	3

Specifically, item 4 has an average score of 3.94, indicating that students believe AI tools have the potential to enhance Media and Graphic Design. Similarly, AI tools are perceived to offer cost-saving benefits, as reflected by the mean value of 3.77 for item 5. The mean score of 3.75 indicates that respondents also believe AI tools can foster increased competition, while a score of 3.70 for item 1 suggests that students recognise the potential of AI in automating work processes. The final item, regarding students' belief in AI tools' ability to improve SMEs' decision-making, received a mean score of 3.57.

The Perceived Impact of AI in Promoting Small Business Operation

As shown in Table 5, the results highlight students' perceptions of the positive impact of AI on improving small business performance. The mean values for the eight items range from 3.57 to 3.73. Item 3 indicates that students perceive the use of AI tools as beneficial for promoting enterprises, with a mean value of 3.73. Similarly, item 1 reveals that students agree that AI tools can improve the efficiency of business processes, with a mean value of 3.72. Item 8, which focuses on students' trust in AI to handle employment and business responsibilities, received a mean score of 3.57.

Table 5: Students' Perceived Impact of AI in Promoting Businesses (Frequency)

No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD	Rank
1	AI tools have the potential to enhance the efficiency of business operations.	100	259	158	29	13	3.72	0.896	4
2	I believe that AI tools can contribute to better decision-making for businesses.	87	234	180	39	19	3.59	0.948	7
3	I believe that AI tools can positively impact the promotion of businesses.	106	254	157	27	15	3.73	0.914	2
4	I believe that AI tools can make Innovation for business	100	235	172	32	20	3.65	0.957	5
5	I believe that AI help in cost saving for business	116	237	161	28	17	3.73	0.947	1
6	The use of AI tools is essential for the growth and success of small businesses.	95	238	166	39	21	3.62	0.971	6
7	AI has value in business	106	254	154	24	21	3.72	0.946	3
8	I trust AI to do jobs and tasks to increase businesses operations	93	212	201	28	25	3.57	0.973	8

Willingness to Utilize AI

This section analyses students' self-reported readiness to adopt AI. As presented in Table 6, the mean values of the three variables all exceed 3.58, indicating a positive attitude towards using and implementing AI applications, whether for small businesses or other purposes. All students demonstrated interest in acquiring knowledge and using AI tools to support small businesses, reflected in the average response of 3.67 for item 1. Additionally, students expressed a desire to use AI or similar technology in their future activities, as indicated by the mean value of 3.64 for item 3. Item 2 shows a high willingness to pursue careers or projects related to AI in the future, with a mean score of 3.58.

Table 6: Students’ Willingness to Utilize AI (Frequency)

No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD	Rank
1	I am willing to learn and use AI tools to support small business activities.	95	244	179	24	17	3.67	0.911	1
2	I see myself pursuing a career or projects related to AI in the future	93	216	194	37	19	3.58	0.956	3
3	I plan to use AI or similar tools in the future	94	227	195	30	13	3.64	0.902	2

Challenges of Using AI in for Business Operations

This section presents the students' perceptions regarding the challenges associated with using AI and its related technologies. The average score on the five-point Likert scale regarding the participants' opinions is approximately 3.4. As shown in Table 7, the mean values for all six items exceed 3.36. Respondents expressed concerns in the following order, based on mean values, listed in descending order of their concern: data security and privacy, job displacement, the high cost of implementing AI applications, the complexity and difficulties associated with using the required AI tools, ethical considerations, and, finally, the potential over-reliance on AI systems, which may lead to decision-making that is excessively influenced by algorithmic inputs.

Table 7: Challenges of Using AI for Business Operations (Frequency)

No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD	Rank
1	I have concerns about the adoption of AI tools that might lead to faulty decisions	61	184	236	55	23	3.37	0.946	6
2	I have concerns about ethical issues with the adoption of AI in business	67	181	233	56	22	3.38	0.956	5

Table 7: Challenges of Using AI for Business Operations (Frequency) (Cont...)

No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD	Rank
3	The cost of AI tools and applications is a major challenge for small businesses.	72	184	240	45	18	3.44	0.927	3
4	I have concerns about data security and privacy when adopting AI in businesses.	81	201	217	36	24	3.50	0.963	1
5	The complexity of AI technologies is a major challenge for small businesses.	61	191	235	49	23	3.39	0.938	4
6	AI could cause job insecurity (Job Displacement).	89	180	221	48	21	3.48	0.983	2

Gender Differences

The diverse attributes and individual traits, which may vary according to gender, can influence the way students interact with and utilise online technologies, such as AI tools and applications. A student's perspective is shaped by various factors, including gender, age, and prior experiences, which influence their attitudes and behaviours. Gender, in particular, plays a crucial role in Kuwait, where men and women often exhibit distinct attitudes towards technology use. Understanding the underlying reasons for this phenomenon, in relation to cultural norms, is important for aligning technological systems with the cultural values of a predominantly traditional society. It is anticipated that both men and women in Kuwait will increasingly embrace AI technology to enhance their social connections, notwithstanding the influence of a collectivist culture. [Table 8](#) demonstrates that there are no significant differences between male and female students regarding their perceptions of AI and its relevance to SMEs.

Table 8: Gender Differences in the Perceptions of Using AI for Businesses (Frequency 557)

Group	Gender	Mean	SD	Significance
AI Awareness	Male	3.21	0.777	0.13
	Female	3.34	0.808	
Perceived Benefits of AI	Male	3.71	0.760	0.62
	Female	3.75	0.748	
Perceived Impact of AI on Business Promotion	Male	3.62	0.726	0.51
	Female	3.68	0.774	
Willingness or Future Involvement with AI	Male	3.62	0.800	0.84
	Female	3.64	0.821	
Challenges	Male	3.39	0.817	0.53
	Female	3.44	0.729	
Total	Male	3.53	0.630	0.41
	Female	3.59	0.651	

The t-test results, with a p-value of $p < 0.05$, indicate no evidence of gender disparities in the data. A closer inspection of the average values presented in the table reveals that students, regardless of gender, maintain a neutral-to-positive outlook on AI and SMEs, with no notable difference observed between the genders.

Correlations

Table 9 reveals that the correlation coefficients, ranging from .432 to .935, indicate a strong positive relationship among the variables: awareness of AI tools, perceived effectiveness of AI, perceived impact of AI on the promotion of small enterprises, willingness to utilise AI, and challenges. As students' awareness of AI tools increases, their perceptions of AI's effectiveness, influence on small enterprises, willingness to use AI, and understanding of related challenges also tend to improve. Conversely, a decline in one variable is generally associated with reductions in the others. The strong and consistent correlation underscores the interdependence of students' attitudes and perceptions towards AI, suggesting that changes in one aspect of their views are closely linked to changes in other related factors. This statistical relationship highlights the interconnected nature of students' perspectives on AI within the surveyed population.

Table 9: Correlation Coefficient (Frequency 557)

	AI Awareness	Perceived Benefits of AI	Perceived Impact of AI on SMEs	Willingness to Use AI	Challenges	Total
AI Awareness	1	.578**	.602**	.568**	.432**	.735**
Perceived Benefits of AI	.578**	1	.829**	.721**	.496**	.883**
Perceived Impact of AI on SMEs	.602**	.829**	1	.797**	.579**	.935**
Willingness to Use AI	.568**	.721**	.797**	1	.536**	.848**
Challenges	.432**	.496**	.579**	.536**	1	.742**
Total	.735**	.883**	.935**	.848**	.742**	1

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

In the scatter plot illustrated by Figures 1, 2, 3, and 4, the data points align in a straight line, which is characteristic of a strong positive correlation between the two variables. As one variable increases, the other also tends to increase. This relationship is visually represented by a tight cluster of points that slope upwards from left to right. The clear upward trajectory of the points reflects the consistent pattern where higher values of one variable are associated with higher values of the other, demonstrating a strong positive correlation.

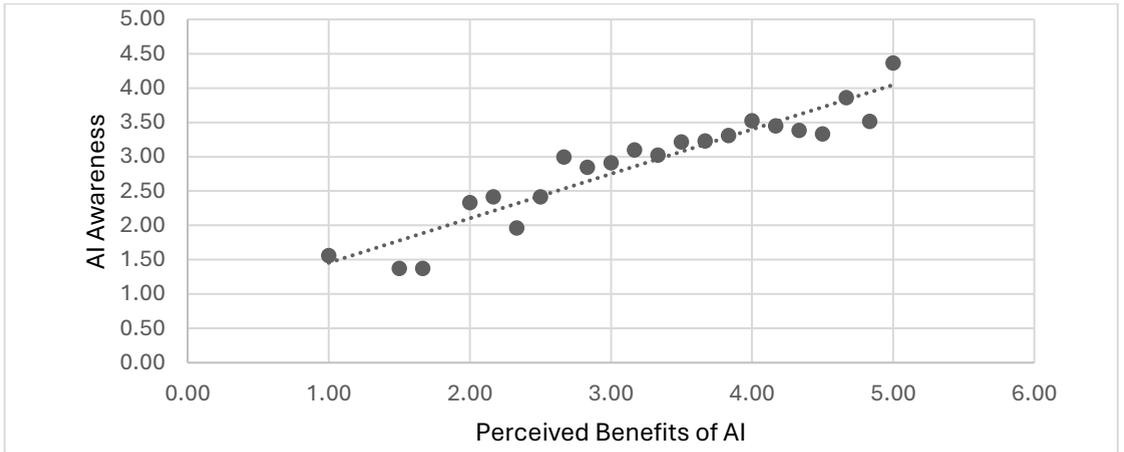


Figure 1: Awareness and Perceived Benefits

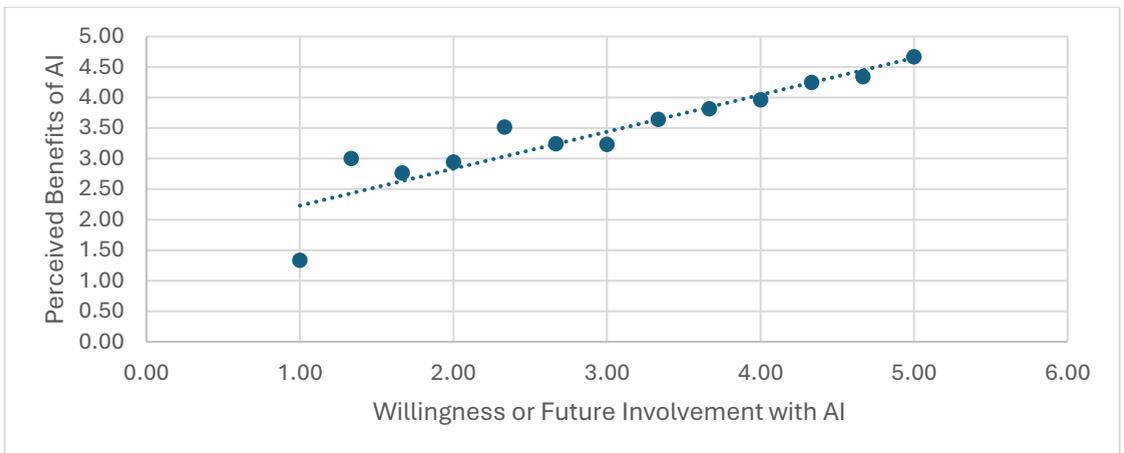


Figure 2: Perceived Benefits and willingness

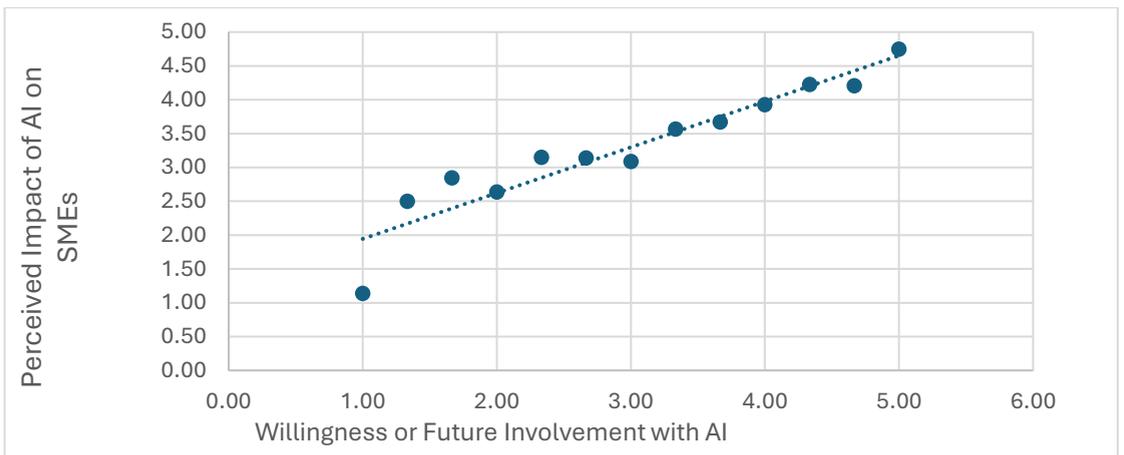


Figure 3: Perceived Impact and Willingness

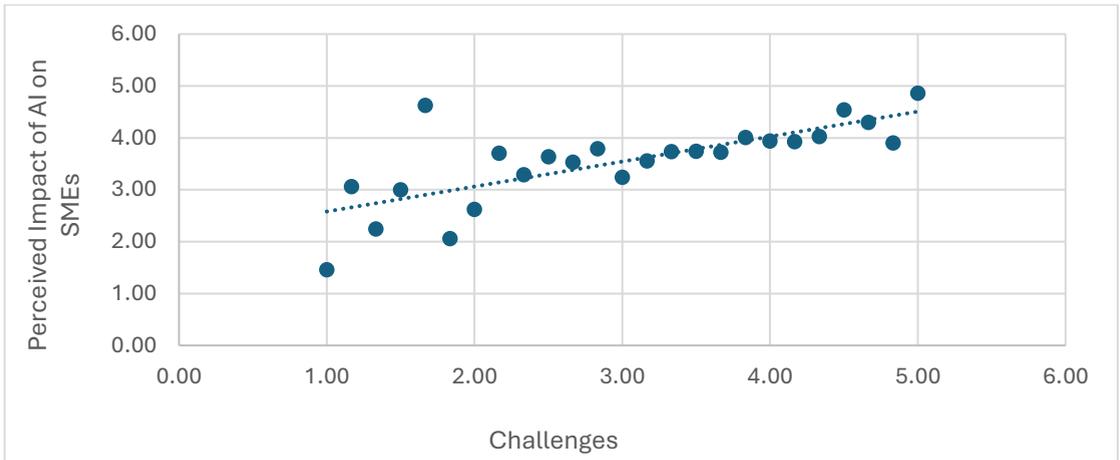


Figure 4: Perceived Impact and Challenges

Smaller businesses are experiencing profound changes as they incorporate AI technologies along with modern technological developments. The decision by Jordanian SMEs to adopt AI rests upon both their technological orientation and organizational structure, as demonstrated by [Almashawreh et al. \(2024\)](#). Organizations need to develop full organizational readiness because AI integration goes beyond being a technological change to truly deliver its benefits effectively. The authors of [Dörr et al. \(2024\)](#) create a larger framework regarding SME foresight, which shows that organized trend forecasting enhances strategic planning systems, especially during periods dominated by AI technology. Human resource development strategies of SMEs need to shift toward effective AI technology utilization, according to [Ekuma \(2024\)](#), who describes how AI and automation affect workforce development. The essential requirement for SMEs to adopt change management procedures finds additional verification through [Lemos et al. \(2022\)](#). Success in adapting to new situations becomes important for controlling changes caused by AI-based system implementation, according to their findings. According to [Lu et al. \(2022\)](#), SMEs encounter major problems from AI adoption but still need to use AI to access multiple opportunities for change in their post-pandemic operations. [Mishrif and Khan \(2023\)](#) investigate SME resilience in crises, especially the COVID-19 pandemic, by showing that adopting technology has emerged as an essential factor for business survival. The current state of AI implementation in SMEs receives detailed analysis by [Oldemeyer et al. \(2024\)](#), who outline the main obstacles businesses encounter when deploying the technology. [Salisu et al. \(2021\)](#) explain how sector-specific dynamics affect business intelligence system adoption within the healthcare domain. The researchers at [Schwaeke et al. \(2024\)](#) highlight the fundamental transformation of business strategy that includes AI as a primary element in SME operations. Organization-wide AI adoption by SMEs requires a comprehensive strategy that starts with technological preparation and ends with human capital development, including strategic planning and efficient change

leadership.

CONCLUSION AND FUTURE DIRECTIONS

Understanding the core dynamics of AI-driven transformations within the business environment is essential, as small business entrepreneurs must possess at least a foundational understanding of the areas under investigation. This study adopts a mixed-methods approach to effectively capture the diverse perspectives of students, integrating both quantitative and qualitative data. This approach enabled a comprehensive exploration of the topic, with quantitative measurements supporting emerging trends and qualitative data providing in-depth descriptions and contextual insights. By merging both data types, the research expands the subject's scope and validates the findings. The results significantly contribute to the knowledge surrounding students' perceptions of AI tools in relation to small businesses and entrepreneurship, revealing a complex landscape of both opportunities and challenges. Participants exhibited varying attitudes, with some recognising AI's potential to drive revolutionary innovation, particularly in productivity enhancement. The study thus offers a nuanced understanding of the benefits and obstacles associated with adopting AI tools in small business development. AI's applications span a wide range of business functions, including finance, marketing, supply chain management, and human resources. To fully leverage AI for innovation, growth, and competitiveness in the digital age, small businesses must adopt a collaborative, multi-disciplinary approach.

The study also highlighted positive expectations regarding AI's potential to enhance business operations and contribute to future growth. However, alongside these optimistic views, participants raised concerns about ethical issues, job displacement, and data protection, reflecting an apprehensive attitude towards AI implementation. These concerns emphasise the need for careful attention to ethical considerations and responsible AI deployment to mitigate associated risks. The findings indicate no significant difference between male and female students in their perceptions of AI or the significance they place on SMEs. The study also offers valuable insights for updating educational methodologies and forming a foundation for the development of new political frameworks related to AI in entrepreneurship. Furthermore, it supports the integration of AI technologies into all levels of Kuwait's education system, which would enhance knowledge of these tools and help alleviate concerns. Additionally, the research could inform the creation of educational programs that better prepare students for work environments increasingly influenced by AI solutions. By acknowledging diverse perspectives and balancing the potential benefits and risks of AI, this study enriches the ongoing discourse on AI in small businesses and entrepreneurship. Future research could focus on detailed strategies for addressing ethical issues while harnessing AI technologies for small business growth and survival.

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