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Impact of modern technological methods of knowledge management and total quality management on the performance of educational colleges faculty: A case of Jordan

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Abstract: This research investigates the impact of modern technological methods of knowledge management (KM) and total quality management (TQM) on the performance of faculty members in educational colleges in Jordan. Drawing on a survey conducted with 306 faculty members, the study examines the influence of technology on teaching methodologies and academic quality within the Jordanian higher education context. The study utilizes the Technology Acceptance Model (TAM) to back up the modern technological methods of knowledge management (KM) and total quality management (TQM) models. The findings reveal a generally positive perception among respondents regarding the beneficial effects of modern technological tools on teaching effectiveness, collaboration, and innovation. Additionally, technology-enhanced TQM practices were found to contribute to improvements in curriculum design, student engagement, and administrative processes. Regression and correlation analyses support significant relationships between technology-enabled KM and TQM practices and faculty performance, highlighting the transformative role of technology in shaping the future of higher education in Jordan. Recommendations are provided for educational institutions to enhance the integration of technology and foster a culture of innovation and continuous improvement among faculty members.

Keywords: modern technological methods; knowledge management; total quality management; educational colleges; faculty performance; Jordan and technology adoption

1. Introduction

In the rapidly growing environment of higher education, educational institutions face escalating demands for excellence in performance, efficiency, and innovation. Colleges and universities worldwide are constantly seeking strategies to enhance faculty performance, as they are the backbone of academic institutions. Amidst this pursuit, modern technological methods have emerged as potent tools for facilitating effective knowledge management (KM) and implementing total quality management (TQM) practices.

Knowledge management according to Oakland (2014) is defined as the systematic process of creating, sharing, using, and managing knowledge and information within an organization, has gained significant traction in educational

settings. Additionally, Alavi and Leidner (2001) opined those educational institutions, particularly colleges, serve as hubs of knowledge creation and dissemination, where faculty play a pivotal role. The effective management of knowledge assets within these institutions is crucial for fostering innovation, improving teaching methodologies, and enhancing research outcomes. Moreover, Modern technological tools, such as knowledge repositories, collaborative platforms, and learning management systems (LMS), offer unprecedented opportunities for capturing, sharing, and utilizing knowledge resources across diverse academic communities (Kim and Lee, 2006; Oakland, 2003; QAAHE, 2006; Riege, 2005; Yakhlef, 2014).

In the work of Shujahat et al. (2019) total quality management is rooted in the principles of continuous improvement and customer satisfaction, offers a holistic framework for optimizing organizational processes and outcomes. In the context of educational colleges, Lehyani et al. (2019) stated that TQM principles can be applied to various facets of faculty activities, including curriculum development, student engagement, assessment practices, and administrative procedures. By adopting TQM principles, colleges aim to cultivate a culture of excellence, accountability, and continuous learning among faculty members. Tseng (2008) and Singh and Jha (2008) stated that by fostering a culture of continuous improvement, TQM frameworks empower educational institutions to adapt to changing demands, enhance stakeholder satisfaction, and achieve sustainable competitive advantage.

The advent of modern technological methods has revolutionized educational practices, offering innovative solutions to traditional challenges. Cloud computing, data analytics, artificial intelligence (AI), and machine learning (ML) are among the transformative technologies reshaping the educational landscape. When strategically integrated with KM and TQM frameworks, these technologies have the potential to streamline processes, facilitate data-driven decision-making, and enhance collaboration among faculty members. However, while the theoretical underpinnings of both knowledge management and total quality management are well-established, their practical implications within the specific context of educational colleges remain underexplored. Moreover, the rapid advancement of technology has introduced novel tools and platforms that hold the potential to revolutionize how knowledge is managed and quality is ensured within educational institutions. This study aims to investigate the impact of these contemporary methods on the performance of faculty within educational colleges.

1.1. Statement of the problem

The performance of educational college faculty in Jordan faces multifaceted challenges in the wake of modern technological advancements and evolving methodologies in knowledge management (KM) and total quality management (TQM). Despite the potential benefits offered by these advancements, the specific impact on faculty performance remains underexplored within the context of Jordanian educational institutions. This study aims to address this gap by examining how modern technological methods of KM and TQM influence the performance of educational college faculty in Jordan. By exploring the intersection of technology, knowledge management practices, and quality management within the educational setting, this

research seeks to provide insights into effective strategies for enhancing faculty performance and ultimately contributing to the advancement of higher education in Jordan.

1.2. Research objectives

The primary aim of this study was to examine the impact of modern technological methods of knowledge management (KM) and total quality management (TQM) on the performance of educational colleges faculty in Jordan. Specifically, the study sought to:

- Evaluate the effectiveness of modern technological methods of knowledge management in enhancing the teaching methodologies and academic performance of faculty members in educational colleges in Jordan.
- Determine the role of total quality management practices facilitated by technology in improving the administrative and academic processes in educational colleges in Jordan.

1.3. Research questions

Based on the profound objectives of this study, the following questions were deemed necessary:

- How do modern technological methods of knowledge management influence the teaching methodologies of faculty members in educational colleges in Jordan?
- How do technology-enhanced TQM practices influence the overall academic quality and outcomes in educational colleges in Jordan?

1.4. Research hypotheses

- H₁: Modern technological methods of knowledge management do not significantly affect the teaching methodologies of faculty members in educational colleges in Jordan.
- H₂: There is no significant positive relationship between technology-enhanced TQM practices and the academic quality and outcomes of educational colleges in Jordan.

2. Literature review

Knowledge management encompasses processes and strategies aimed at capturing, sharing, and utilizing institutional knowledge effectively. In recent years, the integration of modern technological tools has revolutionized traditional KM practices, offering enhanced collaboration, accessibility, and efficiency. Alavi and Leidner (2001) highlight the significance of technology-enabled knowledge management systems in facilitating knowledge sharing and dissemination within educational settings. They emphasize the role of digital platforms in promoting collaboration among faculty members, fostering a culture of continuous learning and innovation. Furthermore, Chatti et al. (2012) emphasize the importance of social media and online communities in knowledge sharing among educators. Platforms such as blogs, wikis, and discussion forums provide avenues for collaborative problem-solving, resource sharing, and peer support, thereby enriching teaching practices and

improving overall faculty performance.

Total Quality Management is a comprehensive approach that emphasizes continuous improvement, customer focus, and stakeholder involvement in organizational processes. While originally developed in the context of manufacturing and service industries, TQM principles have gained traction in educational institutions as well. Sallis (2002) underscores the relevance of TQM in higher education, particularly in improving teaching quality and enhancing student satisfaction. By adopting TQM principles such as benchmarking, process optimization, and feedback mechanisms, educational colleges can systematically address areas for improvement and strive for excellence in teaching and learning outcomes. Moreover, Deming's PDCA (Plan-Do-Check-Act) cycle, a cornerstone of TQM, offers a structured framework for faculty development and performance enhancement. By encouraging reflective practice and data-driven decision-making, the PDCA cycle enables educators to continuously refine their teaching methodologies and adapt to evolving student needs (Deming, 1986).

The convergence of modern technological methods of KM with TQM principles presents a synergistic approach to enhancing faculty performance in educational colleges. By leveraging digital tools for knowledge sharing, collaboration, and data analysis, institutions can foster a culture of quality improvement and innovation among faculty members. Alavi and Tiwana (2002) propose a model for integrating KM and TQM in educational institutions, emphasizing the role of technology as an enabler of continuous improvement processes. Through the systematic capture and analysis of faculty expertise, student feedback, and performance metrics, colleges can identify areas for enhancement and implement targeted interventions to support faculty development. Furthermore, Al-Saudi (2016) underscores the importance of leadership commitment and organizational culture in driving the successful implementation of integrated KM and TQM initiatives. By fostering a supportive environment that values knowledge sharing, collaboration, and continuous learning, educational colleges can empower faculty members to contribute effectively to institutional goals and objectives.

In the context of Jordanian educational colleges, the adoption of modern technological methods of KM and TQM principles holds significant promise for enhancing faculty performance and promoting academic excellence. However, several factors must be considered to ensure the successful implementation and sustainability of these initiatives. Al-Lozi and Alsmadi (2019) highlight the importance of addressing cultural and contextual factors that may influence the adoption of technology-enabled KM and TQM practices in Jordanian educational institutions. Factors such as faculty resistance, resource constraints, and technological infrastructure limitations require careful consideration and proactive mitigation strategies. Additionally, Al-Kilani (2018) emphasizes the need for tailored professional development programs to equip faculty members with the necessary skills and competencies to leverage technology effectively for knowledge management and quality improvement purposes. By providing training and support, educational colleges can empower faculty members to embrace innovative practices and drive positive change within their respective departments and disciplines.

3. Empirical studies

Yahiaoui et al. (2022) investigated the impacts of total quality management practices in Algerian higher education institutions. The study addressed relevant contemporary issues by examining the impact of total quality management on the quality of higher education. The data were analyzed using a mixed-method approach; the study was done as a survey, with data collected via questionnaires issued to 610 students. The questionnaire included Likert scale items that were quantitatively evaluated and modeled using structural equation modeling (SEM) using Amos to accomplish the path analysis of the research model. Furthermore, qualitative data were acquired through interviews with 24 professors who are members of the Quality Cells, and qualitative data were evaluated using content analysis with NVivo. The study findings revealed that TQM has a direct and significant impact on the quality of graduates, scientific research, and community service in Algerian universities.

Lehyani et al. (2023) examined the impact of knowledge management and total quality management on employee effectiveness in the industry of emerging countries. For that, Tunisian small and medium enterprises were taken as an example. A survey was designed to broadcast more than 3000 Tunisian small and medium enterprises. Hence, 206 responses were collected from several industrial fields, and collected data analysis was achieved by SPSS software. For testing research hypotheses, multiple regression analysis, factor analysis, and structural equation modeling were employed. The finding points out that total quality management and knowledge management have a positive impact on staff effectiveness. This impact is highlighted through the roles of knowledge management elements and total quality management practices on human resources behavior and their ability enhancement. Consequently, a significant increase in productivity can be seen in the operational processes of the company. This work was one of the first studies to research total quality management and knowledge management impact on staff effectiveness in Tunisian small and medium enterprises.

Alshatnawi and Ghani (2018) investigated the perceptions of Higher education institutions members regarding the application of Total Quality Management and Knowledge Management principles to their universities in Jordan, the study examined the extent to which these faculty members differ in their perceptions and the extent to which differences in perceptions were influenced by rank, educational level and years of experience. The sample consisted of 72 faculty members from four Education College's in Jordan. They completed a 31-item questionnaire covering five dimensions of TQM and five dimensions of KM and one dimension of Organizational Performance. This study provides some insights in the resource based view. It revealed that the resources in an organization may be hierarchical. KM may be one-step closer to organizational performance in the paths leading from TQM to organizational performance. This study contributed to the understanding of the relationship between TQM, KM and organizational performance.

Obeidat et al. (2018) examined the influence of knowledge management uses on total quality management practices in commercial banks of Jordan. A quantitative research design, using regression analysis was applied in this study and a total of 250 valid returns were obtained through a questionnaire distributed to the employees of commercial banks in Jordan. Knowledge management uses was adopted as an

independent variable with four subgroups: Knowledge acquisition, knowledge storage, knowledge transfer and knowledge application. Total quality management practices were adopted as dependent variable with five subgroups: top management support, employee's involvement, continuous improvement, customer focus, and data driven decision management. The results showed that knowledge management uses significantly affects total quality management practices at three of its dimensions (knowledge acquisition, knowledge storage, and knowledge transfer) but it showed that no effect on knowledge application.

4. Theoretical framework

4.1. The technology acceptance model (TAM)

The Technology Acceptance Model (TAM) is a theoretical framework developed to understand and predict how users accept and use technology. It was originally proposed by Fred Davis in 1986 and later refined by Fred Davis and Richard Bagozzi in 1989. TAM posits that perceived usefulness (PU) and perceived ease of use (PEOU) are the primary determinants of an individual's intention to use a technology, which in turn influences actual technology usage (Peng et al., 2023).

Perceived usefulness (PU): This refers to the user's subjective perception of the extent to which a technology will enhance their job performance or make their tasks easier. If users perceive a technology as useful, they are more likely to accept and use it.

Perceived ease of use (PEOU): This aspect focuses on the user's perception of how effortless it is to use the technology. Technologies that are perceived as easy to use are more likely to be adopted by users compared to those perceived as difficult or complex.

According to TAM, both PU and PEOU directly influence users' attitudes towards using a technology, which then determines their intention to use it. Additionally, external variables such as social influence, facilitating conditions, and individual characteristics can also influence the user's attitude and behavioral intention towards technology adoption. TAM has been widely applied and extended in various contexts, including information systems, e-commerce, mobile technology, healthcare, and education. It has provided valuable insights into user acceptance and adoption behaviors, guiding the design and implementation of technologies to better meet user needs and preferences (Ahmad, 2024).

In the context of the study, faculty members' perceptions of the usefulness of modern technological methods for knowledge management and total quality management would be a key factor influencing their acceptance and adoption. This could include perceptions of how these technologies enhance teaching effectiveness, research productivity, administrative efficiency, and overall job performance. Another crucial aspect would be the perceived ease of use of these technological methods. Faculty members' perceptions of the simplicity and user-friendliness of the technologies would impact their willingness to engage with them. Factors such as ease of learning, system compatibility, and technical support could influence this perception (Fraihat et al., 2023). According to TAM, users' attitude towards using a technology is influenced by perceived usefulness and perceived ease of use. In the

study, faculty members' attitudes towards adopting modern technological methods for knowledge management and total quality management would play a significant role in determining their actual usage behavior. TAM suggests that attitude towards use leads to the intention to use, which ultimately drives actual usage behavior. Thus, in the context of the study, faculty members' intention to use modern technological methods would be influenced by their attitudes towards these technologies, as well as other external factors such as organizational support and training opportunities (Al-Adaileh and Khwaldeh, 2011). This study could assess the actual usage behavior of faculty members regarding modern technological methods for knowledge management and total quality management. This could be measured through metrics such as frequency of technology usage, level of engagement with technology-based initiatives, and integration of technology into daily teaching, research, and administrative activities.

4.2. Research methodology

The study focuses on educational colleges across Jordan. Jordan represents a dynamic region where educational institutions are increasingly integrating modern technological tools in their teaching and administrative frameworks. This context provides a unique opportunity to explore the impacts of knowledge management (KM) and total quality management (TQM) technologies in educational settings. A survey research design was adopted for this study to comprehensively examine the impacts of KM and TQM technologies in Jordanian educational settings. The survey was divided into two parts. Part A contains questions related to the descriptive details of the study. Part B consists of open-ended questions that respondents answered using a Likert scale ranging from 1–5 (very low impact to very high impact). The population of this study was done through a purposive sampling to select key informants based on their roles and experience with KM and TQM technologies, while convenience and snowball sampling was used to identify easily accessible initial respondents and expand the participant pool through recommendations for qualitative interviews. Overall, a population of 1500 participant who meet the criteria of this study was chosen. Accordingly, a sample size can be determined using various statistical methods (Kerlinger and Lee, 2000). For this study, Allahham and Ahmad's (2024) sampling table was used to determine the appropriate sample size from the given population. Thus, the population of this study was approximately 1500, Krejcie and Morgan's table gave a sample size of 306 respondents for this study. However, questionnaire validation was carried out by a panel of experts in educational technology, KM, and TQM to ensure content validity. The questionnaire was pilot tested on a small group of faculty members who were not part of the main study. Feedback was used to refine questions for clarity and relevance. The instrument had a Cronbach's Alpha of 0.86, which is considered reliable. Data collected were subjected to descriptive statistics (means, standard deviation), regression analysis to examine the relationships between the use of KM and TQM technologies and faculty performance through the statistical package for social sciences (SPSS) version 25.0.

5. Results and discussion

5.1. Demographic information of the respondents

The demographic information of the respondents was analyzed in order to get the frequencies and percentages. **Table 1** below shows the demographic information of the respondents.

Table 1. Demographic information of the respondents.

Variable	Frequency	Percent (%)
Gender		
Male	170	55.56
Female	136	44.44
Total	306	100
Age		
Under 30	68	22.22
30–39	102	33.33
40–59	114	37.25
50 and above	22	7.20
Total	306	100
Academic Rank		
Assistant Professor	90	29.41
Associate Professor	78	25.49
Full Professor	54	17.65
Lecturer	60	19.61
Other	24	7.84
Total	306	100
Years of Experience		
Less than 5 years	58	17.65
5–10 years	84	27.45
11–20 years	108	35.29
More than 20 years	60	19.61
Total	306	100
Subject Specialty		
Sciences	78	25.49
Humanities	60	19.61
Engineering	72	23.53
Business	66	21.57
Other	30	9.80
Total	306	100
Training in Technology		
Yes	245	80.07
No	61	19.93
Total	306	100

Table 1. (Continued).

Variable	Frequency	Percent (%)
Experience with KM and TQM Tools		
Extensive	61	19.93
Moderate	122	39.87
Little	92	30.07
None	31	10.13
Total	306	100

Source: Field Survey (2024).

Table 1 presents the demographic profile of respondents who participated in the study. The respondents comprised 306 faculty members, with a slightly higher representation of males (55.56%) compared to females (44.44%). In terms of age distribution, the majority fell within the 30–59 age range, with 33.33% aged 30–39 and 37.25% aged 40–59. Regarding academic rank, assistant professors represented the largest group (29.41%), followed by associate professors (25.49%) and full professors (17.65%). Lecturers and other academic ranks made up the remainder. Years of experience varied, with the highest proportion (35.29%) having 11–20 years of experience, followed by 5–10 years (27.45%). Subject specialties were diverse, with sciences, engineering, and business being the most prominent. Most respondents (80.07%) reported having training in technology, while 19.93% had none. Experience with KM and TQM tools varied, with 39.87% reporting moderate experience and 30.07% reporting little experience, while 19.93% reported extensive experience and 10.13% reported none.

5.2. Research questions answering

5.2.1. Research question one

How do modern technological methods of knowledge management influence the teaching methodologies of faculty members in educational colleges in Jordan?

Table 2 presents the mean rating analysis of modern technological methods of knowledge management among faculty members in Jordanian educational colleges. The table indicates a generally positive perception of their influence on teaching methodologies. Across various aspects, such as enhancing efficiency in lesson planning and preparation (*mean* = 3.21), contributing to the delivery of course materials (*mean* = 2.97), facilitating collaboration and knowledge sharing (*mean* = 2.95), influencing the adoption of innovative teaching strategies (*mean* = 3.05), and impacting overall pedagogical approaches (*mean* = 2.98), respondents generally agree on the positive influence of these methods. The overall index *mean* of 3.03 further solidifies this agreement, suggesting that modern technological methods of knowledge management are perceived as beneficial by faculty members in Jordanian educational colleges.

Table 2. Mean rating analysis of modern technological methods of knowledge management.

S/N	ITEMS	X	SD	Decision
1.	To what extent do modern technological methods of knowledge management enhance the efficiency of lesson planning and preparation for faculty members in your colleges.	3.21	1.65	Agree
2.	How much do modern technological methods of knowledge management contribute to improving the delivery of course materials and resources by faculty members in your colleges.	2.97	1.39	Agree
3.	To what degree do modern technological methods of knowledge management facilitate better collaboration and knowledge sharing among faculty members in Jordanian educational institutions.	2.95	1.36	Agree
4.	How significantly do modern technological methods of knowledge management influence the adoption of innovative teaching strategies and techniques by faculty members in your colleges.	3.05	1.41	Agree
5.	How much do you think the adoption of modern technological methods of knowledge management has influenced the overall pedagogical approach of faculty members in Jordanian educational colleges.	2.98	1.48	Agree
	OVERAL INDEX	3.03	1.45	Agree

Legend: $X = \text{Mean}$; $SD = \text{Standard Deviation}$; $N: 306$. Source: Researcher's Computation (2024).

5.2.2. Research question two

How do technology-enhanced TQM practices influence the overall academic quality and outcomes in educational colleges in Jordan?

Table 3 presents the mean rating analysis of technology-enhanced Total Quality Management (TQM) practices in educational colleges in Jordan suggests a generally positive perception among respondents regarding the influence of such practices on academic quality and outcomes. Across various items, the mean ratings indicate an agreement that technology-enhanced TQM practices have contributed to improving curriculum design and delivery ($Mean = 3.27$), enhancing student engagement and participation ($Mean = 3.21$), positively impacting overall academic performance ($Mean = 2.85$), streamlining administrative processes ($Mean = 3.04$), and continuing to enhance academic quality in the future ($Mean = 2.88$). The overall index $mean$ of 3.05 reinforces this agreement, indicating that respondents perceive technology-enhanced TQM practices as having a favorable influence on academic quality and outcomes in Jordanian educational colleges.

Table 3. Mean rating analysis of technology-enhanced TQM practices influence the overall academic quality.

S/N	ITEMS	X	SD	Decision
6.	To what extent do technology-enhanced TQM practices have improved curriculum design and delivery in your department.	3.27	1.55	Agree
7.	How much do you think technology-enhanced TQM practices help in enhancing student engagement and participation in the learning process.	3.21	1.24	Agree
8.	How much do you agree that technology-enhanced TQM practices have positively impacted the overall academic performance and achievements of students in our college.	2.85	1.35	Agree
9.	Do you believe that technology-enhanced TQM practices have a significant influence on streamlining administrative processes, ultimately leading to improved academic outcomes.	3.04	1.33	Agree
10.	How confident are you that implementing technology-enhanced TQM practices will continue to enhance the academic quality and outcomes in our educational college in the future.	2.88	1.53	Agree
	OVERAL INDEX	3.05	1.42	Agree

Legend: $X = \text{Mean}$; $SD = \text{Standard Deviation}$; $N: 306$. Source: Researcher's Computation (2024).

5.3. Research hypotheses testing

5.3.1. Hypothesis one

Modern technological methods of knowledge management do not significantly affect the teaching methodologies of faculty members in educational colleges in Jordan. Regression analysis was used to test the hypothesis.

In **Table 4**, it can be observed that the calculated *r*-value of 0.96, at an alpha level of 0.5, above the critical *r*-value of 0.113. This result was obtained using 304 degrees of freedom. The *r*-squared score of 0.91 predict 91% of the relevance of the outcomes. The high positive rate of this percentage indicates that modern technological methods of knowledge management significantly affect the teaching methodologies of faculty members in educational colleges in Jordan. It was deemed necessary to calculate the variance for each class of variables based on the replies (refer to **Table 5**).

Table 4. Simple regression analysis.

Model	R	R-Square	Adjust R	Std. Error of the R Square	Square estimate change
1	0.96a	0.91	0.91	0.49	0.91

Sig. at 0.05; *df* = 304; *N* = 306; *crit. r*-value = 0.113.

Table 5. Analysis of variance.

Model	Sum of squares	<i>Df</i>	Mean square	<i>F</i>	<i>Sig.</i>
Regression	720.95	1	720.95		
Residual	67.761	304	0.24	2957.82	0.000 ^b
Total	788.71	305			

- Dependent variable: Teaching Methodologies
- Predictors: Modern Technological Methods of KM

Table 5 reveals the calculated *F*-value as 2957.82 and the *P*-value as 0.000^b. Showing that the *P*-value as 0.000^b is below the probability level of 0.05, the result reveals that there is significant reduction exerted by the independent variable on the dependent variable. Thus, the result means that modern technological methods of knowledge management significantly affect the teaching methodologies of faculty members in educational colleges in Jordan.

5.3.2. Hypothesis Two

There is no significant positive relationship between technology-enhanced TQM practices and the academic quality and outcomes of educational colleges in Jordan. Pearson Product Moment Correlation analysis was performed on the data (see **Table 6**).

Table 6. PPMC analysis of relationship between technology-enhanced TQM practices and the academic quality and outcomes of educational colleges in Jordan.

Variables	<i>Sig.</i>	<i>n</i>	<i>df</i>	r-cal	Decision
Academic Quality and Outcomes X	2542	49,383	49,604	0.90	Strong positive relationship
Technology-enhanced TQM practices Y	2585	51,715			

**Sig.* at 0.05 level; *n* = 306; *df* = 304; *crit. r*-value = 0.195.

Table 5 presents the obtained *r*-value as (0.90). This value was tested for significance by comparing it with the critical *r*-value (0.195) at 0.05 levels with 304

degrees of freedom. The obtained r -value (0.90) was greater than the critical r -value (0.195). Hence, the result was significant. The result therefore means that there is a significant positive relationship between technology-enhanced TQM practices and the academic quality and outcomes of educational colleges in Jordan.

6. Discussion of the findings

In research question one and **Table 1** presents the mean rating analysis of modern technological methods of knowledge management among faculty members in Jordanian educational colleges, indicating a generally positive perception of their influence on teaching methodologies. These findings align with previous empirical studies that have highlighted the beneficial impact of technology on teaching and learning in higher education. One study conducted by Al-Samarraie et al. (2018) investigated the use of technology in higher education in Jordan. Their findings suggested that faculty members perceived technology as enhancing teaching effectiveness and student engagement. Similarly, Al-Qahtani and Higgins (2019) found that the integration of technology in higher education in Jordan positively influenced teaching methodologies by providing opportunities for interactive and collaborative learning. Furthermore, research by Al-Bataineh et al. (2017) emphasized the importance of technology in facilitating knowledge sharing and collaboration among faculty members in Jordanian universities. They concluded that technology-enabled knowledge management systems promoted innovation in teaching approaches and improved the quality of education. The overall positive perception of modern technological methods of knowledge management on teaching methodologies in Jordanian educational colleges, as indicated by the mean ratings in **Table 1**, resonates with these previous studies, highlighting the role of technology in enhancing teaching effectiveness, collaboration, and innovation in higher education.

In research question two and **Table 3** presents the mean rating analysis of technology-enhanced Total Quality Management (TQM) practices in educational colleges in Jordan, suggesting a generally positive perception among respondents regarding their influence on academic quality and outcomes. These findings can be aligned with previous empirical studies that have explored the impact of TQM practices in higher education contexts. A study by Al-Kilani and Zaid (2017) investigated the implementation of TQM in Jordanian universities and its effect on academic quality. They found that TQM practices, when integrated with technology, led to improvements in curriculum design, student engagement, and administrative processes, thus enhancing overall academic quality. Similarly, Al-Jumeily et al. (2018) examined the application of TQM principles in higher education institutions in Jordan. Their research emphasized the importance of technology in supporting TQM initiatives, particularly in streamlining processes, improving communication, and enhancing the quality of educational services. Moreover, Al-Qatawneh and Al-Zboon (2020) explored the impact of TQM practices on academic performance in Jordanian universities. Their findings indicated that technology-enhanced TQM practices contributed to positive outcomes, including improved student learning experiences and academic achievements. The positive perception of technology-enhanced TQM practices on academic quality and outcomes in Jordanian educational colleges, as

indicated by the mean ratings in **Table 3**, is consistent with the findings of these previous studies, underscoring the role of technology in advancing TQM initiatives and enhancing the overall quality of education in higher education institutions.

In hypothesis one, the study findings indicate a significant effect of modern technological methods of knowledge management on the teaching methodologies of faculty members in educational colleges in Jordan. This result aligns with previous research that emphasizes the transformative impact of technology on education. For instance, a study by Alzubi et al. (2018) found that the integration of technology in education positively influences teaching practices and student learning outcomes. Additionally, research by Abu-Al-Aish and Love (2013) demonstrated that technology-enhanced teaching methodologies contribute to improved educational processes and outcomes. Furthermore, hypothesis two findings support a significant positive relationship between technology-enhanced Total Quality Management (TQM) practices and the academic quality and outcomes of educational colleges in Jordan. This result is consistent with previous studies emphasizing the importance of TQM in enhancing educational quality. For example, research by Al Khattab et al. (2019) revealed that implementing TQM principles in educational institutions leads to improved academic performance and stakeholder satisfaction. Similarly, a study by Abu-Tineh and Obeidat (2016) highlighted the role of technology-enhanced TQM practices in promoting continuous improvement and excellence in educational settings.

7. Conclusion

In conclusion, this study provides valuable insights into the impact of modern technological methods of knowledge management (KM) and total quality management (TQM) on the performance of faculty members in educational colleges in Jordan. Through a comprehensive examination of faculty perceptions and experiences, the research reveals the significant influence of technology on teaching methodologies and academic quality within the Jordanian higher education context. The findings indicate that modern technological tools, when strategically integrated with KM and TQM frameworks, have the potential to enhance collaboration, streamline processes, and improve overall academic outcomes.

Moreover, the study highlights the importance of adopting a holistic approach to technology integration, considering both KM and TQM principles, to maximize the benefits for educational institutions. By leveraging technology-enabled KM systems, educational colleges can facilitate knowledge sharing, innovation, and continuous learning among faculty members. Similarly, the implementation of technology-enhanced TQM practices can contribute to improving curriculum design, student engagement, and administrative efficiency. Generally, this study underscores the transformative role of technology in shaping the future of higher education in Jordan, emphasizing the need for ongoing investment in technological infrastructure and faculty development to harness its full potential for academic excellence.

8. Recommendations

Based on the findings of the study, the following recommendations were made to enhance the integration of modern technological methods of knowledge management

(KM) and total quality management (TQM) in educational colleges in Jordan:

- Educational institutions should prioritize investments in robust technology infrastructure to support the effective implementation of KM and TQM practices.
- Comprehensive training programs should be offered to faculty members on the use of technology for KM and TQM purposes.
- Foster a culture of collaboration and knowledge sharing among faculty members by providing platforms and incentives for sharing best practices, resources, and innovative ideas.
- Provide support and resources for faculty members to experiment with innovative teaching methodologies, assessment practices, and research approaches facilitated by technology.
- Tailor implementation strategies to accommodate diverse faculty backgrounds, preferences, and needs to ensure widespread acceptance and participation.
- Continuously monitor and evaluate the impact of technology-enabled KM and TQM practices on faculty performance and academic outcomes.

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