ISSN 1816-6075 (Print), 1818-0523 (Online)
Journal of System and Management Sciences
Vol. 14 (2024) No. 3, pp. 370-385
DOI:10.33168/JSMS.2024.0321

Adoption of Technology within E-Libraries and Its Influence on University Ranking Levels

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Abstract. Current quantitative research aimed to investigate the influence of adopting technology in e-libraries in terms of (Research & Innovation, Teaching Quality, International Outlook, Online & Distance Learning, Facilities & Resources, Inclusiveness, Graduate Employment Rates), and how it can be of influence on university ranking level. The study hypothesized that technology in e-libraries has a statistically positive influence on university ranking level. Quantitative methodology was chosen through distributing a self-administered questionnaire on (43) librarian from Jordanian universities. SPSS was used, and results indicated the acceptance of the hypothesis "Technology in e-libraries has a statistically positive influence on university ranking level". In addition to that, results of study indicated that employing technology in university libraries play a significant role in determining the graduate employment rate. This was revealed by the fact that universities, which highly employ technology in their internal processes are most likely more able to prepare and develop a generation that is more employable, based on their graduation institution and source of knowledge and degree. This variable managed to score **76.1%** of the variability seen in the dependent variable. Study recommended focusing on exploiting technological resources in order to enhance opportunities for external partnerships at the academic level. Further recommendations were presented in the study.

Originality of current study lies in its interest on exploring the impact of embracing innovation in e-libraries and its affect on college ranking levels. This point combines two vital viewpoints: the integration of innovation in libraries and its potential impacts on the in general positioning of colleges. By investigating this relationship, the article contributes to the understanding of how innovative progressions in libraries can possibly upgrade the scholastic notoriety and execution of colleges.

Keywords: Technology Acceptance Model (TAM), Research & Innovation, Teaching Quality, International Outlook, Online & Distance Learning, Facilities & Resources, Inclusiveness, Graduate Employment Rates, Resource-based View Theory, University, Academic, Quality Education

1. Introduction

It is undeniable that the introduction of technology has brought about a major revolution in the world of libraries and their management. As a radical shift has emerged in the way libraries are managed and the nature of the services they provide to individuals regardless of their source, whether they are researchers, students, or even seekers of knowledge no more (Roper, 2023). In turn, Haruna et al. (2021) confirms that technology in the library management environment has had a positive impact in terms of organizing library administrative activities, improving the efficiency of libraries and enhancing their ability to meet the needs of beneficiaries. As for Li et al. (2019), it was argued that technology in the science of library management was an actual revolution by converting traditional sources into digital and electronic sources, this made knowledge more easily available to everyone, and enhanced the accessibility of individuals to scientific articles, books and various databases.

In a study by Khan et al. (2023), authors aimed at investigating the impact of technological modernization and management capabilities on user satisfaction and trust in library services. Authors collected primary data using questionnaires distributed to students at universities in the provincial capital. The questionnaire was drawn upon technology acceptance model (TAM) as a conceptual model with multiple associated hypotheses. The findings of study demonstrated that technological advancements significantly accelerate the utilization of library resources, enhance management capabilities, improve user performance, and ultimately enhance academic performance and services.

Rafique et al. (2020) carried out a research that aimed to empirically explore mobile library applications (MLA) acceptance using a proposed model derived from the technology acceptance model (TAM). By conducting a self-administered cross-sectional survey, data were collected from 340 MLA users. The collected quantitative data were analyzed using structural equation modeling (SEM) with the AMOS software. The results indicate that perceived usefulness and perceived ease of use directly influence the intention to use MLA, while system quality and habit are influential factors affecting MLA usage intention.

Connell et al. (2021) in their study argued that the higher education sector, including academic libraries, has been significantly affected by the COVID-19 pandemic. Authors aimed at examining the utilization of library resources, such as interlibrary loan, website and discovery tool page views, database usage, and patron interactions, at three university libraries before and after the onset of the pandemic. Specifically, the study focuses on the latter part of the 2019 and 2020 spring semesters, while also considering two control time frames from earlier in those semesters to compare the impact of the pandemic. The analysis reveals that the institutions exhibited comparable usage patterns across various metrics. Study also indicated that e-libraries presented a great source for students and researchers to continue their efforts through the pandemic and managed to decrease the negative influence on university academic performance due to accessibility, ease of use, and ongoing performance.

Perdana and Prasojo (2020) in their study, they aimed to demonstrate the importance of digital libraries in universities by examining the advantages of digital libraries in addition to the obstacles and challenges. By reviewing the previous literature, the study concluded that the impact of digital libraries on the performance of universities was positive, but they do not replace the traditional library. In addition, the study found that digital libraries have a significant positive impact on knowledge resources and sources in terms of copyright and other issues such as cost issues and so on.

Anyim (2018) aimed at examining the role of the electronic library in supporting scientific research activities and innovation in university electronic libraries in Kogi State, Nigeria. The quantitative method was adopted by distributing a questionnaire to a sample of (400) lecturers and graduate students in federal and state universities in Kogi State. The study concluded that although the infrastructure of the universities under study was weak, there is a demand from students and lecturers for the electronic resources of universities in a way that positively affected their research activities, creativity and innovation. However, there are still gaps represented by poor access to resources, fragility of the

infrastructure, and the weak expertise of librarians in the field of technology.

Justina and Mngutyo (2023) aimed in their study to explore the effect of virtual libraries on the academic performance of undergraduate students attending the Faculty of Medicine at Benue State University, Makurdi. The study adopted the quantitative approach by distributing a questionnaire to a sample of (128) medical students. The study concluded that the students' reliance on electronic and virtual libraries was weak due to the fluctuation of the strength of the Internet connection, in addition to the weakness of the infrastructure and the impact of wireless services on changing weather conditions. This significantly reduced the students' dependence on the electronic or virtual library, and therefore the electronic library had no positive or negative impact on the students' academic performance because they did not depend on it.

From the previously presented literature, this current research study aimed to examine the influence of adopting technology within university libraries and its role in increasing the university ranking level in terms of (Research & Innovation, Teaching Quality, International Outlook, Online & Distance Learning, Facilities & Resources, Inclusiveness, Graduate Employment Rates). Reaching this aim will be done through answering the following questions:

A) What are the benefits of adopting technology in managing university libraries?
B) How can adopting technology be of influence on university ranking level?
C) How the relationship between technology in libraries and university ranking level is viewed in accordance with resource-based view theory?

It is worth mentioning here that the aim and objectives of current study are managed through the lens of resource-based view theory. RBV theory is an administrative theory, it stems from the idea that the internal resources of the organization have an active role in achieving various competitive advantages for it and ensuring superior performance. This theory assumes that the resources in the organization are unique and can be exploited in order to achieve various sustainable successes. This theory confirms that resources are intended to be material, financial, technological, human and knowledge, and that all of them are considered important assets that enhance the organization's chances of achieving excellence, but the organization must be able to exploit these resources in an appropriate way that guarantees effective results.

In order to better highlight the relationship between study variables, researcher built the following model from which hypotheses were extracted:

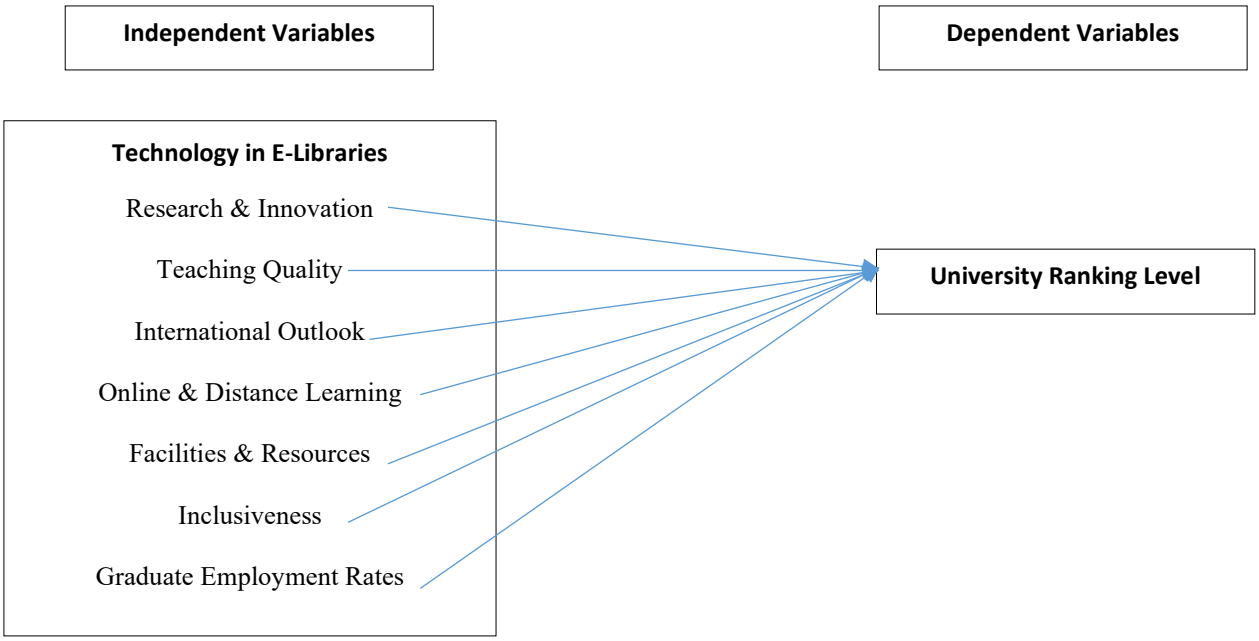

Fig.1:Study Model (**Bucea-Manea-Ţoniş et al. 2020; Crocco and Pitiyanuwat, 2022)**

H: Technology in e-libraries has a statistically positive influence on university ranking level

H1: research and innovation have a statistically positive influence on university ranking level

H2: Teaching quality has a statistically positive influence on university ranking level

H3: International outlook has a statistically positive influence on university ranking level

H4: online and distance learning has a statistically positive influence on university ranking level

H5: facilities and resources have a statistically positive influence on university ranking level

H6: inclusiveness has a statistically positive influence on university ranking level

H7: Graduate employment rate has a statistically positive influence on university ranking level

2. Literature Review

2.1. Technology in Library Management Environment

According to Hendrawan (2019), library management is defined as the process of organizing resources, efforts, material, human and technological resources in libraries and investing them to the maximum extent possible through planning, organizing, leadership, supervision and control, in order to obtain the best results and achieve the required goals with the least possible effort and time. The concept of university library management has changed due to recent developments in the field of information services, retrieval and dissemination (Martzoukou, 2021; Niqresh et al.,2021). Accordingly, new services and functions have appeared, and the data of modern technology have become necessary alternatives to detail the work of libraries (Hamilton, 2019). The emergence of information networks in our time came as a result for the developments that took place in the field of electronic communication between computers, which facilitated the process of exchanging and transferring information of all kinds and forms across countries (AlAwadhi and Al-Daihani, 2019).

According to Rahmat et al. (2022), libraries in colleges and universities were the ones concerned with obtaining information, managing it and managing its sources, but with the advent of the Internet and other information technology, the library ceased to be the only source or specialist for information in the college or university. Abdullah (2022) noted that with this advent of electronic computers, all matters related to information have become more complicated. Technological change is not just a technological addition; it is a psychological and self-change (Okyere-Kwakye and MdNor, 2020). The introduction of the Internet in colleges and universities does not lead to the creation of an information environment consisting entirely of a library, resources, computer capabilities, and a service organization. Rather, it may be more than that that we create a fundamentally different and changing information environment (Moses, 2023).

2.2. IT Influence on University Performance

According to Hamzah et al. (2022) technology in libraries can have a transformative impact on college execution. By giving improved get to data; it prepares understudies and workforce individuals with an endless cluster of advanced assets, databases, and online files. This openness quickens investigate capabilities, empowering more effective information gathering, investigation, and blend. Additionally, innovation cultivates collaborative learning and communication through virtual stages, breaking down geological boundaries and advancing intrigue collaboration (Mashaba and Pretorius, 2023). The streamlined administration of library assets through mechanization progresses effectiveness, permitting library staff to center on personalized back. Moreover, innovation in libraries adjusts to changing learning styles, obliging different inclinations and empowering adaptable, self-paced learning. Eventually, the integration of innovation enables colleges to form an energetic scholarly environment, cultivate investigate brilliance, and improve in general execution (Udoudoh et al., 2021).

E-libraries in university, and the existence of technology within university libraries can be a source of excellence and uniqueness to many aspects of university performance including what along with Pramana et al. (2021); Bucea-Manea-Ţoniş et al. (2020); Bozkurt et al. (2020); Rana et al. (2022) and Alenezi (2023) in the following:

2.2.1. Research & Innovation

The focus of universities and educational institutions on research and innovation is very important and affects the level of the educational institution and the degree of its impact on societies. By employing modern technology in libraries, universities can ensure a higher ranking through the possibility of participating in high-quality international research, securing grants, and practical publishing in all its forms. In addition to technology in library management, the university helps to reach stronger research outputs as well as enhance the reputation of faculty members and researchers.

2.2.2. Teaching Quality

The quality of education is one of the things through which the university is classified and the level of its academic output is determined. In addition, the quality of education stands side by side with the reputation of the university and the possibility of its name reaching high ratings. The inclusion of technology in libraries enhances teaching methods as it opens horizons for lecturers and teachers on new and innovative teaching methods. Technology in libraries provides supportive learning environments, and ensures modern and creative educational practices. Accordingly, the universities that aspire to obtain higher rankings should focus on the high employment of technology in libraries.

2.2.3. International Outlook

The university's attainment of a high ranking means that the university aspires to internationality and competition from foreign universities. Therefore, obtaining a high rating for the university means that it has supportive factors such as embracing international students, the presence of faculty members of different nationalities, the existence of exchange programs and the adoption of international curricula. All this can be reached through the knowledge resources of the library being global and available to all through knowledge exchange networks for students, lecturers and teachers, and ensuring that they are fully able to access knowledge, no matter how far it is, and this is done through the existence of libraries at a high level of cognitive technology.

2.2.4. Online & Distance Learning

Learning through the Internet, including distance education, positively affects the university's classification, as educational institutions that provide services remotely through the Internet are usually able to provide flexible and high-quality educational options. In addition, the ability of the educational institution to reach its students and teachers remotely is a valuable additional feature that enhances the outputs of distance education and emphasizes the importance of e-learning, which leads to a higher ranking of the university.

2.2.5. Facilities & Resources

The introduction of technology to collective libraries ensures a higher quality of facilities in the library such as laboratories, research centers, and research and development tools. In addition, improving the quality of these facilities would encourage beneficiaries to benefit more from libraries, resort to them, and deal with the knowledge in them. From here, it can be said that investing in technology in electronic libraries provides modern technologies and comprehensive and supportive resources for research practices, which increases the university's chances of developing an enhanced academic environment that attracts students and faculty members, and thus obtains a higher rating.

2.2.6. Inclusiveness

Today, inclusiveness is a benefit to educational and non-educational organizations and institutions, and many institutions aspire to reach inclusiveness because of its acceptance and positive impact on its

internal and external environment. Inclusivity and diversity is evidence of the group's intellectual openness and acceptance of the other. The university's enjoyment of inclusiveness means that it is a healthy, welcoming, and inclusive environment for students and faculty, and it means that the university is desired by others of different perspectives, cultures, and intellectual backgrounds. Thus, achieving inclusiveness in the university environment has a significant impact on the organization obtaining a higher and stronger classification.

2.2.7. Graduate Employment Rates

Many international organizations with a strong reputation look at the university from which applicants graduated for employment. This means that the university's name and reputation contribute significantly to improving employment opportunities for individuals who graduated from it, given that these universities - and due to their high rating - have worked to effectively prepare students for the labor market. Therefore, many universities that have a relationship with certain industries tend to adopt training, development and employment programs, or the so-called training programs for employment purposes, through which the university prepares its students in order to enter the labor market. This is very important and greatly affects the university's ranking in terms of the percentage of its graduates entering the labor market.

2.3. University Ranking Level

Ebzeeva (2023) indicates that the concept of university classification refers to the process in which higher educational institutions (universities) are evaluated and classified in order to determine their status, distinction and level in the global educational environment. As for Shin and Shin (2020) authors stressed that the classification of universities is an important process for various individuals such as students, researchers, and decision-makers interested in the educational field in order to determine the quality and academic excellence of universities.

The classification of universities is not an easy matter, but is based on many different academic and performance criteria and indicators, including research and development, creativity and innovation, educational quality, reputation, international trends, and infrastructure. While it was found by Kochetkov (2023) that the classification of universities is associated with the percentage of employment of graduate students from these universities, the way they are classified, and looking at the level of education they have, with reference to the extent of the university's ability to prepare its students to enter the labor market. In general, it can be said that the classification of universities would enhance academic competition and improve the quality of educational outcomes.

According to Mfengu and Raju (2023), the source of university classification is usually several international organizations and institutions, including (Times Higher Education), which works to issue the so-called (Times Higher Education World University Rankings) as one of the most powerful university rankings. There is also (Quacquarelli Symonds), which is a major classification of universities, in addition to the Shanghai classification, which is issued by the Center for Global Studies of Jiaotong University in China. There is also the British Institution for Classification, which issues various rankings for universities and is recognized on an international level. It accompanies the Guardian classification, which issues the “Guardian University Guide” classification based on students’ experience and the quality of teaching in British universities. It is not possible not to mention the German Ministry of Higher Education, which issues the CHE Ranking, which ranks universities and their performance (Börjesson and Lillo Cea, 2020).

3. Methods and Materials

3.1. Methodological Approach

In order to reach study aim, quantitative methodology was adopted as it can be a good source to collect primary data from a larger sample size. In addition to that, quantitative methodology can support reaching the aim of study through presenting numerical data that explains the phenomenon in a vivid

approach.

3.2. Data Collection Tool

A questionnaire as developed for the process of data collection. The questionnaire was built by researcher through the aid of previous studies including (Khan et al. (2023); Rafique et al. (2020); Connell et al. (2021); Perdana and Prasojo (2020); Anyim (2018); Justina and Mngutyo (2023). The questionnaire appeared in its last version in two sections, the first took into perspective demographics of study sample (Gender, qualification and experience), while the other section presented statements that are related to study variables as in the following table.

Table 1. Statements distribution on the sample

Variable	# of Statements
Technology in E-Libraries	
Research & Innovation	5
Teaching Quality	5
International Outlook	5
Online & Distance Learning	5
Facilities & Resources	5
Inclusiveness	5
Graduate Employment Rates	5
University Ranking Level	5

The questionnaire was built on liker 5-point scale and was uploaded online through Google Forms in order to distribute the link on participants.

3.3. Population and Sampling

Population of study consisted of employees of university libraries within private/governmental universities in Jordan. A convenient sample of (54) was chosen to represent the population. After application process researcher was able to retrieve (43) properly filled questionnaires which indicated a response rate of (79.6%) as statistically accepted. The questionnaire was applied online as the link was sent to the respondents and they self-administered the questionnaire themselves. After submitting their answers, researcher had access to the data treasury in order to reach the filled questionnaire and classify them according to their analyzability.

3.4. Data Screening and Analysis

Primary data was withdrawn from Google Forms on an excel sheet, raw data were entered and processed depending on statistical package for social sciences SPSS in order to mitigate the collected data and reach results. Cronbach's Alpha was used to test the reliability and consistency of study tool as in the following table which indicated that the tool was reliable and consistence as alpha values scored higher than 0.70.

Table 2. Reliability Test

variable	Alpha
Research & Innovation	0.882
Teaching Quality	0.845
International Outlook	0.780
Online & Distance Learning	0.864
Facilities & Resources	0.892
Inclusiveness	0.887
Graduate Employment Rates	0.934
University Ranking Level	0.887

Other statistical tests used in current study included mean and standard deviation, frequency and percentage, multiple regression, and linear regression.

4. Results and Discussion

4.1. Demographics

Table below presented frequency and percentage of sample demographics. It was seen through analysis that majority of sample responded to the questionnaire was females forming (51.2%). In terms of education, it was seen that majority of respondents held BA degree (67.4%). In addition, majority of respondents had an experience more than 13 years forming (48.8%) of the sample.

Table 3. Demographics

		f	%
Gender			
	Male	21	48.8
	Female	22	51.2
Education			
	BA	29	67.4
	MA	14	32.6
Experience			
	Less than 3 years	2	4.7
	4-7	8	18.6
	8-12	12	27.9
	+13	21	48.8
	Total	43	100.0

4.2. Questionnaire Statistics

Mean and standard deviation were used in order to test respondents' attitudes towards statements of questionnaire. In the table below, it was seen that all statements and variables were well-received by sample individuals as they all scored higher than mean of scale 3.00. The highest variable was (University Ranking Level) 3.74/5.00 compared to the lowest but still positive variable (Inclusiveness) 3.25/5.00 as it was higher than mean of scale.

Table 4. Descriptive Statistics

	Mean	**Std. Deviation**
Technology in research and innovation enhance interdisciplinary research	3.791	.940
IT boost research visibility and citation	3.698	1.013
Technology increases data visualization	3.721	.854
The collaborative nature of technology in research increase external partnership	3.535	1.008
Reference management tools streamline research process	3.535	1.120
Research and Innovation	**3.656**	**.817**
Technology guides and supports augmented in-person instruction.	3.116	1.199
It gives an interactive e-texts and multimedia enrich course materials.	3.628	.952
Academic integrity in promoted by citation and plagiarism checkers	3.767	1.020
Course content is all organized by learning management systems	4.140	.774
Technology gives instructional videos for remote learners.	3.605	.979
Teaching Quality	**3.651**	**.781**
The possibility of international open access platforms spotting university work is higher	3.488	.827
Through technology, audience is widened through translation apps.	3.419	.957
Taking part in global seminars and web conferences is much higher through technology	3.558	.881
The university can reach international and Institutional repositories archives	3.791	.888
Diversity is higher through multilingual discovery interfaces	3.814	1.052
International Outlook	**3.614**	**.674**

The university provides cloud-based resources everywhere.	3.953	.844
There is a flexible authentication for online resources remotely.	4.047	.975
The existence of interactive multimedia enriches MOOCs and courses.	4.070	.828
The idea of mobile applications make knowledge portable.	3.767	.922
With technology, adaptive learning is personalized for better educational experience.	3.465	1.077
Online and Distance Learning	**3.860**	**.752**
Lab experiments are managed through laboratory informatics systems.	3.767	.868
Assets are secured through digital preservation platforms.	3.791	.888
Research outputs can be broadcasted globally.	3.744	.902
Media creation and dissemination are supported through Digital studios	3.512	.935
There is always a place for virtual/augmented reality	3.442	.983
Facilities and Resources	**3.651**	**.766**
Participation is enabled through accessible web design	3.395	1.137
Visually impaired users are assessed by adaptive technology	3.163	1.111
There is no place for linguistic barriers through foreign language interfaces	3.070	1.055
Closed captioning makes audio-visual content inclusive.	3.140	1.187
Content delivery is standardized through online instruction	3.488	1.099
Inclusiveness	**3.251**	**.929**
Students are all connected to employment databases through career portals	3.488	1.077
Talents and potential employers are shown through e-Portfolios	3.488	1.099
Students are assessed with simulations for practical job experiences.	3.558	1.221
Opportunities are attracted through video resumes and LinkedIn	3.698	.989
Digital badges recognize skills acquired outside classroom.	3.558	1.076
Graduate Employment Rate	**3.558**	**.974**
Sophisticated research technologies and systems strengthen research productivity and academic citations	3.651	1.131
Immersive virtual and augmented reality enables enhanced educational programs and richer student experiences on campus	3.581	1.139
Technology-enabled global networking platforms facilitate partnership building between diverse international institutions	3.814	1.200
Robust digital learning services powered by modern tools allow universities to provide flexible and inclusive online education to a broader worldwide student community,	3.884	.956
Digitization of archives and specialized facilities with cutting-edge technologies grants institutions advanced resources and amenities	3.791	1.081
University Ranking Level	**3.744**	**.917**

4.3. Hypotheses Testing

The main hypothesis in current study was that "Technology in e-libraries has a statistically positive influence on university ranking level". Through the use of a multiple regression analysis, it has been shown that the hypothesis was accepted, and that "Technology in e-libraries has a statistically positive influence on university ranking level". This finding was supported by a substantial F-value of 30.318, which was deemed significant at the 0.05 level. In addition, it is worth noting that the independent variables explained 85.8% of the variability seen in the dependent variable. Moreover, the correlation coefficient of r= 0.927 indicated a high degree of correlation between the variables.

Table 5. Main Hypothesis Testing

H: Technology in e-libraries has a statistically positive influence on university ranking level

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	R	R Square
1	(Constant)	-.718	.420		-1.708	.096	.927[a]	.858
	a	.299	.105	.266	2.840	.007		
	b	-.078	.111	-.066	-.705	.485		
	c	.349	.126	.257	2.778	.009		
	d	.024	.117	.020	.204	.839		
	e	-.055	.125	-.046	-.444	.660		

f	.172	.071	.174	2.417	.021		
g	.546	.105	.580	5.197	.000		

Sub-hypotheses of study were tested using linear regression. Following results were reached:

Testing H1 indicated that research and innovation have a statistically positive influence on university ranking level. This finding was supported by a significant t-value of 6.41, which above the critical threshold at a significance level of 0.05. In addition, it is worth noting that the independent variable explained 50% of the variability seen in the dependent variable. Furthermore, the correlation coefficient of r= 0.707 suggested a high degree of correlation between the two variables.

H2 was accepted and it appeared that teaching quality has a statistically positive influence on university ranking level. With a significant t-value of 5.203 above the critical threshold at a significance level of 0.05, the independent variable explained 39.8% of the variability seen in the dependent variable. Furthermore, the correlation coefficient of r= 0.631 suggested a high degree of correlation between the two variables.

H3 was accepted as international outlook has a statistically positive influence on university ranking level, with a significant t-value of 5.052 above the critical threshold at a significance level of 0.05. The independent variable explained 38.4% of the variability seen in the dependent variable. Furthermore, the correlation coefficient of r= 0.619 suggested a high degree of correlation between the two variables.

H4 testing indicated that online and distance learning has a statistically positive influence on university ranking level. With a significant t-value of 4.289 above the critical threshold at a significance level of 0.05, the independent variable explained 31% of the variability seen in the dependent variable. Furthermore, the correlation coefficient of r= 0.556 suggested a medium degree of correlation between the two variables.

As for H5, it was discovered that facilities and resources has a statistically positive influence on university ranking level. With a significant t-value of 5.821 above the critical threshold at a significance level of 0.05, the independent variable explained 45.2% of the variability seen in the dependent variable. Furthermore, the correlation coefficient of r= 0.673 suggested a high degree of correlation between the two variables.

H6 was also accepted as inclusiveness has a statistically positive influence on university ranking level. This finding was supported by a significant t-value of 2.678 above the critical threshold at a significance level of 0.05. In addition, the independent variable explained 14.9% of the variability seen in the dependent variable and suggested correlation coefficient of r= 0.386 with a high degree of correlation between the two variables.

The final and 7th sub-hypothesis testing indicated that Graduate employment rate has a statistically positive influence on university ranking level. This finding was supported by a significant t-value of 11.421 above the critical threshold at a significance level of 0.05. In addition, the independent variable explained 76.1% of the variability seen in the dependent variable, the correlation coefficient of r= 0.872 suggested a high degree of correlation between the two variables.

Table 6. Sub-Hypotheses Testing

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients				
		B	Std. Error	Beta	t	Sig.	R	R Square
1	(Constant)	.841	.464		1.814	.077	.707[a]	.500
	a	.794	.124	.707	6.410	.000		

H1: research and innovation have a statistically positive influence on university ranking level

Coefficients

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	R	R Square
1	(Constant)	1.040	.531		1.959	.057	.631[a]	.398
	b	.741	.142	.631	5.203	.000		
H2: Teaching quality has a statistically positive influence on university ranking level								

Coefficients

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	R	R Square
1	(Constant)	.698	.613		1.139	.261	.619[a]	.384
	c	.843	.167	.619	5.052	.000		
H3: International outlook has a statistically positive influence on university ranking level								

Coefficients

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	R	R Square
1	(Constant)	1.123	.622		1.805	.078	.556[a]	.310
	d	.679	.158	.556	4.289	.000		
H4: online and distance learning has a statistically positive influence on university ranking level								

Coefficients

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	R	R Square
1	(Constant)	.805	.516		1.560	.126	.673[a]	.452
	e	.805	.138	.673	5.821	.000		
H5: facilities and resources has a statistically positive influence on university ranking level								

Coefficients

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	R	R Square
1	(Constant)	2.506	.480		5.217	.000		
	f	.381	.142	.386	2.678	.011		
H6: inclusiveness has a statistically positive influence on university ranking level								

Coefficients

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	R	R Square
1	(Constant)	.821	.265		3.097	.004	.872[a]	.761
	g	.822	.072	.872	11.421	.000		
H7: Graduate employment rate has a statistically positive influence on university ranking level								

4.4. Discussion

The current study aimed at exploring how employing technology in university e-libraries may have the ability to influence university ranking levels in terms of (Research & Innovation, Teaching Quality, International Outlook, Online & Distance Learning, Facilities & Resources, Inclusiveness, and Graduate Employment Rates). Quantitative methodology was adopted, and a questionnaire was distributed on a sample of (43) university librarians in Jordan through the academic year 2022-2023. SPSS was used to mitigate primary data and results indicated the following:

- Librarians within Jordanian universities seemed to have a good level of knowledge regarding technological stream of thinking that involved library management.
- Adopting technology within libraries seemed to be of a good level within the Jordanian universities
- The main hypothesis was accepted and it appeared that adopting technology in libraries could be a source for increasing ranking level of the university.

- The chosen variables of technology in e-libraries included (Research & Innovation, Teaching Quality, International Outlook, Online & Distance Learning, Facilities & Resources, Inclusiveness, and Graduate Employment Rates). They all appeared to have influence on university ranking levels that ranged between high, medium and low correlation. The highest was "**Graduate employment rate**" which explained **76.1%** of the variability seen in the dependent variable.
- As for the lowest variable in influence, analysis indicated that "**inclusiveness**" was the least influential which explained **14.9%** of the variability seen in the dependent variable.

Technology in modern library management systems offers many benefits in the field of organizing, classifying and managing library resources. These systems allow libraries to track available resources, manage circulations and returns, analyze resource usage, and contribute to improving searches and material recalls. This idea was accepted in current study based on the numerical data which were reached through the questionnaire and the statistical processing.

Results if study indicated that the benefits of technology in library management play a role in increasing potentials of the university getting high-ranking level. This influence mainly appeared high in the level of employment rate. When students are supported with the most recent technologies in their university libraries, they most likely having multiple sources from which they can get all the benefits. In addition to that, involving technologies in research and development means that the university is working well in preparing students to the labor market, and their chances of employment will increase. Results of the study confirmed that libraries supported by a high level of technology are able to provide beneficiaries with many different skills in the fields of science, research and digital reading. In addition, it keeps the university informed of the latest trends and teaching and educational methods, which supports it in finding a generation that is empowered in research and science and is ready for the labor market. This increases the employment rate due to the skills of the graduates, which benefits the university in terms of reputation and local and international classification.

In the second rank, there appeared the variable of research and innovation which explained 50% of the variability seen in the dependent variable. Results indicated that libraries supported with a high level of technological services, contributes to connecting students and researchers to digital resources and powerful databases through the Internet. This agreed with Khan et al. (2023) who argued that technology in libraries enhances the university research environment and strengthens the university's academic outputs, in addition to being a means of attracting research funding through partnership relations with well-known international institutions, and this matter is taken into account when ranking the university.

Facilities and resource came in the 3rd rank and explained 45.2% of the variability seen in the dependent variable. University libraries supported by technology work to enhance resources and the mechanism of access to them by the beneficiaries. It also provides databases based on modern and appropriate content, which makes it easier for beneficiaries to use the library's facilities from anywhere in the world, according to the validity of access to its databases. Access to libraries is of high importance, and contributes greatly to enhancing the university's accessibility to higher rankings based on the accessibility of its databases which agreed with Khan et al. (2023) and Rafique et al. (2020).

Explaining 39.8% of the variability seen in the dependent variable. Teaching quality came in the fourth rank as results indicated that the presence of modern technology in university libraries contributes to providing the university with innovative teaching practices by providing modern resources for the teaching staff, in addition to interactive and virtual platforms. Such results agreed with Anyim (2018) and Mngutyo (2023) who noted that this could lead to the formation of positive and proactive perceptions of students' attitudes towards the academic level of the lecturers, and thus direct the university's classification to higher and more positive levels.

In the fifth rank appeared international outlook which explained 38.4% of the variability seen in the

dependent variable. The presence of technology as an essential part of the university office environment facilitates international cooperation and partnerships, and gives the university international directions through the access of its research and digital resources to international universities and educational institutions, thus increasing the positive classification for the benefit of the university. This is consistent with Anyim (2018) when it was pointed out that the arrival of research and university resources to the world contributes to attracting international students and faculty members, and provides an environment at a high level of diversity, which affects the international standards of universities.

Explaining 31% of the variability seen in the dependent variable, it appeared that online and distance learning came in the sixth rank of influence. It can't be denied that online and distance learning abilities are standards that increases the positive look to the university. Having such programs indicate that the university seeks its students no matter where they were. It has the ability to deliver education without being hindered by time and space. This mainly appeared during the spread of COVID 19 pandemic and how universities that had the suitable equipment for online and distance learning were the strongest, compared to those universities that were wallowing on how to deliver education to students during the lockdown with a weak distance learning infrastructure agreeing with Justina and Mngutyo (2023).

Inclusiveness came in the final rank explaining 14.9% of the variability seen in the dependent variable. Results indicated that inclusivity is one of the modern things that has become a great focus. Inclusiveness means the library's ability to satisfy the beneficiaries of its services from all cultural backgrounds, languages, and abilities. Therefore, comprehensiveness and its existence as one of the specifications of the library is very important, as it gives the impression that the library is capable of meeting all the requirements of scientific research. This matter reflects on the university and presents it as a scientific institution that accepts difference and distinction, which enhances its classification level. Such results came in accordance with Perdana and Prasojo (2020).

5. Conclusion

It is undeniable that the digital library and the introduction of technology to the science of library management had a significant contribution to improving library management systems in the areas of classification, management, tracking, loans and returns. It also had a significant impact on improving the academic outputs of universities in view of the various solutions provided by these libraries in the areas of analysis, use of resources, and various research and development processes. This has led to strengthening the university's ability to provide a high level of academic services and facilitating its access and partnership opportunities with various foreign universities for academic and research cooperation in all its forms.

The current study was carried out based on its ability to achieve practical and theoretical implications. From a practical perspective, current study is expected to increase awareness of librarians regarding the influence of library management technologies on university ranking and its role in orienting the decision making process. In addition to that, among the practical implications of current study focused on increasing the quality of library services through adopting technology through choosing the most suitable techniques that may end up in more satisfied users. From a theoretical perspective, the current study suggested that resource-based view theory is an important aspect that facilitates a better performance for university on many levels including technology, academy and managerially. In addition to that, researcher can focus more on providing deeper insights into the accreditation process and its impact on organizational outcomes

5.1. Recommendations

From discussion and conclusion of study, researcher recommended:

- Focusing on exploiting technological resources in order to enhance opportunities for external partnerships at the academic level

- Trying to direct challenges to become opportunities to develop sustainable success
- Encouraging the strategic development and management of internal resources for libraries to enhance competition.

5.2. Future Studies

Realizing that the question of study was answered and the aim was achieved, researcher suggested the following future studies:

a. Examine the usability of artificial intelligence (AI) in e-libraries through the current wave of AI revolution.
b. Carry out a research study that examine the usage of natural language processing (NLP) as a part of AI revolution
c. Examine the influence of using augmented reality in e-libraries through VR console and other devices.

5.3. Limitations of Study

Current study was limited to librarians within Jordanian private and governmental universities in addition to university colleges accredited and operating in Jordan through the academic year 2021-2022. In addition to that, the study was limited to analyzing questionnaires which were properly filled in a way that supported statistical interference.

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