Journal of University Teaching & Learning Practice

Volume 20
Issue 7 *Quarterly Issue 4*

Article 07

2023

University Student Perceptions of Online Learning in Jordan

Khleef A. Alkhawaldeh
PSUT, Jordan, khleef.k@gmail.com

Sarah Eldurini
PSUT, Jordan, sarah.eldurini@gmail.com

Dima Alrai
PSUT, Jordan, dimaalrai@gmail.com

Sara Yaghmourian
PSUT, Jordan, sarayaghmourian@gmail.com

Recommended Citation

Alkhawaldeh, K. A., Eldurini, S., Alrai, D., & Yaghmourian, S. (2023). University Student Perceptions of Online Learning in Jordan. *Journal of University Teaching & Learning Practice, 20*(7). https://doi.org/10.53761/1.20.7.07

University Student Perceptions of Online Learning in Jordan

Abstract

This research paper examined Jordanian university students' perceptions of online learning in terms of knowledge, attitude, and practice (variables of the KAP model). It also investigated the relationship between their perceptions of online learning and their academic performance. students' perceptions of variables of the KAP model toward online learning were measured through an online questionnaire distributed to Jordanian universities students. Academic performance was also measured by identifying students' perceptions of their academic performance after switching to online learning due to COVID-19. One-sample t-test results indicated that the means of responses fall within the area of agreement (agree and strongly agree) regarding students' perceptions of online learning in terms of knowledge, attitudes, and performance without any significant differences. Correlation and regression analysis showed statistically significant relationships between students' perceptions of their knowledge, attitudes and practices toward online learning and their academic performance. Such a positive perception of students towards online learning can be implied by educational institutions and educators to put the best use of online learning as a starting point to complement traditional face-to-face teaching by investing in technologies that support online learning, and by enhancing and improving online platforms to deliver course materials, provide additional resources, and facilitate discussions and collaboration among students in a more effective, efficient way.

Practitioner Notes

1. It is possible to fully adopt online learning for some courses, and blended learning for others depending on their nature.
2. Despite the feasibility, value and usefulness of online learning, it does not replace the university campus environment in which students learn a lot.
3. The tools, means, and methods of teaching and evaluating students in online learning differ from those in traditional education.
4. ICT infrastructure needs to be updated to enhance online learning environments. Lecture content and content presentation methods need to become more interactive.

Keywords

Online Learning, Perception, Knowledge, Attitude, Practice, Academic Performance, University Students, Jordan

Introduction

We have entered a new digital era, which has resulted in technology being woven into every aspect of our lives, including educational systems, resulting in a high reliance on digital learning techniques and methods.

As knowledge has become more effectively accessible thanks to the increasing internet usage by students and educators (Hameed et al., 2008), they have become able to interact with academic resources visually and phonetically through the internet. Online learning has been a growing trend in Jordan for several years prior to the emergence of COVID-19. According to Al-adwan and Al-Smedley (2012), the Jordanian government has been promoting online learning as a means of enhancing education and improving access to higher education by increasing the level of students' skills in technology to best benefit from the opportunities offered by online learning.

According to Patil (2014), online learning refers to the use of the internet and technology to provide students with beneficial learning alternatives. Online learning may also include the delivery of course material using digitalisation or other forms of (ICT; information and communication technology), which include online services, USB flash drives, smartphones, and other multimedia, both in and out of classrooms, and can occur both online and offline. However, it is not as simple as it appears. Online learning has given them the power to control the content, sequence, and pace of education and change how educational initiatives are carried out.

Whether online learning is called e-learning, distance education, digital learning, or web-based education, and there are many other definitions (Tsai, 2002), and regardless of how beneficial online learning may be, researchers can still find the resistance to digital learning methods (Motamedi, 2021). Some have a tendency to associate poor academic performance due to the changes in educational resources and in terms of students' and educators' mental health and financial status (Wallace et al., 2021). Contrary to that, other researchers found that online learning has improved students' learning (Zolochevskaya et al., 2021).

Despite these challenges, the adoption of online learning has continued to grow in Jordan in the years leading up to the COVID-19 pandemic. While there were challenges to the implementation of online learning, it was becoming more prevalent in Jordanian higher education and was seen as a means of improving access to education and enhancing the quality of teaching and learning.

Research Problem

The sudden change in human interactions after the COVID-19 outbreak due to governmental regulations of lockdowns, social distancing, and remote activities has led to adapting to the new reality of online learning. Although previous literature has addressed the educators' perspectives and educational institutions' readiness toward online teaching, there is still a lack of studies on how students' perspective on online learning effects their academic performance in Jordanian universities.

Academic Editors

Section: Educational Technology
Senior Editor: A/Prof Michael Cowling
Associate Editor: Ms Carmen Vallis

Publication

Received: 1 November 2022
Revision: 3 September 2023
Accepted: 6 October 2023
Published: 1 November 2023

In the research conducted by Alkhawaja and Abd Halim (2019), Ahmad et al. (2020) and Haider and Al-Salman (2020), they all focused on the Jordanian universities' adaptation to online learning without taking into account the students' perspective. The three studies reveal the importance of the academic institutions investing more on infrastructure and giving continuous coaching to their academic staff in order to get the best result of implementing online learning techniques.

The finding of this research helps to improve online learning strategic methods by answering the following research questions RQ about students' perceptions in terms of their knowledge, attitude and practice of online learning to improve their academic performance:

RQ1. What are the perceptions of the Jordanian university students toward online learning in terms of the following:

1.1 knowledge;
1.2 attitudes;
1.3 practice; and
1.4 academic performance?

RQ2. Is there a significant relationship between the Jordanian university students' perceptions toward online learning and their academic performance?

Research Objectives

As stated by Andrade et al. (2020), the Knowledge, Attitude, and Practice (KAP) model burgeons when novel situations arise, where the behavioural actions can be assessed by the knowledge, attitudes, and practice of the observed sample. Since many intrinsic and extrinsic factors are believed to influence complex human behaviour, it is critical to avoid unintended negative consequences when new policies and initiatives are implemented. Knowledge, attitude, and practice (KAP) surveys are common because they generate useful information and appear to be simple to create and administer.

As propounded by Stadler et al. (2021), the KAP measurements follow the formative assumption rather than the reflective assumption; the questionnaire elements assess complementary content, and if an element is eliminated it effects the results. The KAP measurements are validated using the four criteria proposed by Collier and Bienstock (2014); important considerations include content specification, indication description, indication collinearity, and external validity. The KAP questionnaire's preparation includes creating questions, providing multiple options for answers, scores and answers validation. The questions can take the form of statements or questions.

This research paper aimed to investigate the perceptions of university students in Jordan in terms of their knowledge, attitudes and practice regarding online learning. Moreover, it aimed to investigate the relationship between university students' perceptions of online learning in Jordan and their academic performance. More specifically, this research aimed at investigating:

1. The perceptions of Jordanian university students toward online learning as to the following:
    1.1. knowledge;
    1.2. attitudes;
    1.3. practice; and
    1.4. academic performance.

2. The significant relationship between Jordanian university students' perceptions toward online learning and their academic performance.

Literature

The KAP (Knowledge, Attitudes, and Practices) model has been widely used as a framework to understand behaviour change among individuals or populations, particularly in the field of health. It has been utilised to assess the effectiveness of interventions aimed at promoting healthy behaviours (Owojori, Mulaudzi & Edokpayi, 2022). The KAP model proposes that KAP analysis are fundamental, and they reveal the motivators of and barriers to circularity in any institution by enabling a methodical exploration.

The KAP model has been applied to other areas, such as education and environmental conservation. in a study conducted by Shekinah et al. (2022), the challenges that students were exposed to during their experience in online learning in India, were explored using the KAP model, and it was found that students had an acceptable level of knowledge, attitude, and practices towards online learning, hence, the usability of online learning during the pandemic is proven to be efficient. Sarwar and Akram (2021) investigated the knowledge, attitude, and practice (KAP) of university students in Lahore toward online learning during the COVID-19 pandemic. It revealed that the majority of students were positive about online learning and saw it as an effective alternative to traditional classroom learning. However, the students reported a variety of difficulties, such as poor internet connectivity, a lack of motivation, and difficulty maintaining a study routine. The study concluded that the KAP model can be useful for understanding students' attitudes toward e-learning during the pandemic and for developing effective online learning strategies.

Yunos et al. (2022) studied the knowledge, attitude and practice between online learning and traditional learning among third year nursing students during Covid-19 pandemic in Malaysia. The study was done on each variable separately, and it was found that all participants responded positively from the knowledge perspectives towards both online learning and traditional learning.

Online learning has been proven as an important method in processing and accessing base knowledge due to its convenience and productivity, taking into consideration the challenge of the use of new tools and technologies for educators and learners. According to (Zolochevskaya et al., 2021), in their study of the influence of online learning on students' academic achievement, the outcomes of the data obtained suggested that the usage of knowledge and techniques enhances online learning and increases students' academic achievement. Similar results are found in a study conducted by Marlina et al. (2021) where the online learning social environment, facility settings, and effort expectations influence various variables such as student performance and achievement. Rajabalee et al. (2020) conducted a study on the association between student interactions and their achievement in an online learning environment, finding that interaction is a significant factor that leads to student success, considering the learning and teaching context as well as the learning design preferred by students. Learning activities were proven to have a direct effect on students’ performance and engagement.

The study conducted by Kara (2021) investigates the enablers and barriers of online learning during the COVID-19 pandemic by conducting a case study of an online university course. The study found that enablers of online learning included having the flexibility to study at their own pace and the availability of online resources. Barriers to online learning included technological difficulties, lack of social interaction, and feelings of isolation. Overall, the study emphasises the importance of providing adequate support to students and instructors during the transition to online learning. A study conducted by Schrenk et al. (2021) sought to reflect on the best practices for online learning in a post-COVID-19 world. The study discovered that having clear course

objectives, effective communication, and engaging activities were the best practices for online learning.

Chua et al. (2021) conducted a study on the students' knowledge and practice of remote learning. They found no clear differences among the students but the attitude showed significant differences between the students. For example, medical students have specifically shown higher knowledge and practice levels but with an unfavourable attitude and perception of online learning. Such findings create controversial opinions given the influence of online learning on university students. Hazari and Lakshmi (2017) used the KAP model in the direction of the effect of developing nutrition educational materials for rural women on their knowledge, attitude and practice that was found very significant. These studies showed that attitude can cause a significant effect on online learning, if students' skills were properly developed, the attitude would not have had such an impact, unlike the knowledge that has a direct impact on both attitude and practice. A study conducted by Alqurashi (2020) found that while students had a positive attitude towards online learning, they faced challenges such as lack of interaction with instructors and difficulty in managing time.

Al-Okaily et al. (2020) found that factors such as social effect, peer influence, achieved usefulness, and ease of use are all variables that affect a student's willingness to adopt and accept the online learning system. Obidat et al. (2020) stated that in order to modify the teaching methods and various educational values, it is essential to get the best use of platforms for better efficient education deliverables as well as to ensure universality in all academic institutes, especially when developing new tools for each platform. Therefore, the best use of the platforms will enhance the educational deliverables and such use of platforms must be strengthened by training programs for both educators and students.

In general, previous studies support the use of the KAP model as a framework to understand behaviour change among individuals or populations (Andrade et al., 2020; Chua et al., 2021; Hazari & Lakshmi, 2017; Khan & Setiawan, 2019; Owojori et al., 2022; Padmanaban et al., 2022; Sarwar & Akram, 2021; Shekinah et al., 2022; Yunos et al., 2022).

Conceptual Framework

Online learning may be defined as a multi-dimensional learning system with organised teaching but with the aid of technological resources. In our context, online learning is used as an educational method that takes place over the Internet. It is accessible through electronic devices, as well as a computer, laptop, tablet, or phone, making it an excellent and convenient tool for learners to study wherever they are. Online learning tools can take many forms, ranging from software programs and virtual courses to online interactive platforms and applications. Students in this research are defined as university students who enrolled in university before the COVID-19 outbreak (before 2019) and still experienced distant online learning afterwards (after 2019).

Academic performance is the academic achievement at which a student has met their short-term or long-term educational goals. Perception in this research is an incorporation of a personal knowledge, idea, memories and experiences in relation to a topic or a phenomenon. Knowledge is defined as the student's true belief of awareness of online learning. This belief is based on the students' observations of the latest learning technologies used worldwide. Attitude is defined herein as the way a student feels and thinks, expressed by actions toward online learning. Practice is the act of students applying new learning methods repeatedly in order to learn, improve, and be more involved in online learning.

Knowledge, attitude, and practice (KAP) studies are the most commonly used study technique in wellbeing behaviour research. Knowledge is usually evaluated in order to see how far society's knowledge corresponds to topics and events. As stated by Bolisani and Bratianu (2018), most theories have been divided into two main categories: rational and empirical. To put it in other words, these two theories recognize that knowledge is a justified genuine belief, but they differ in aspects of how the truth may be discovered and justified. Attitude is defined as an individual's beliefs and sentiments toward an object (Darmaji et al., 2019). In other words, it is an acquired proclivity to think, feel, and act in a particular way toward a set of objects and the result of a complex combination of beliefs, emotions, and values.

In many research studies, the KAP model has been used to study the association between knowledge, attitude and practice and student's perceptions. It provides a structured approach to explore the various factors that influence individuals' behaviour. It also ensures a holistic understanding of how individuals perceive and interact with a particular subject of interest.

The KAP model was first originated from the family planning field and population studies in the 1950s, since then this model has become popular and well recognized as a developed survey instrument made specifically for social research; it can be used to evaluate and analyse the relationship among knowledge, attitudes, and practices. (Vandamme, 2009). A cross-sectional study conducted by Padmanaban et al. (2022) supports the use of the KAP model as the best fit model that can analyse the association of socio-demographic variables with KAP apart from finding the relationship between KAP variables among higher education students in India.

The purpose of this study was to capture the students' perceptions in terms of knowledge, attitude and practice towards online learning, and the extent to which their perceptions affected their academic performance. This research consisted of two types of variables: independent variable (student's perception) while the dependent variable is the student's academic performance. A schematic diagram for the conceptual research model is shown in Figure 1.

One such theory that has been widely used to understand this relationship is the expectancy-value theory (Eccles & Wigfield, 2002). According to this theory, students' academic achievement is not only influenced by their ability but also by their perceptions of the value and expectations associated with the academic task. In other words, students are more likely to engage in academic tasks and achieve better performance when they perceive the task to be meaningful, relevant, and important, and they have a high expectation of success. This theory has been used to examine the relationship between students' perceptions of various academic domains, such as maths and science, and their academic performance (Wigfield & Eccles, 2000).

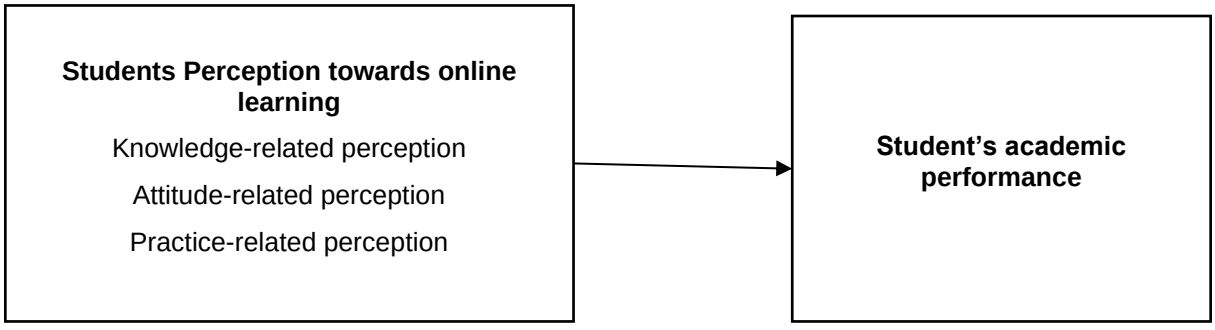

Figure 1.
Conceptual Framework (Research Model)

Based on the literature and theoretical framework, the following hypotheses were developed and tested:

1.1 Jordanian university students' perceived knowledge of online learning is positively related to their academic performance.

1.2 Jordanian university students' perceived attitudes toward online learning are positively related to their academic performance.

1.3 Jordanian university students' perceived practices in online learning are positively related to their academic performance.

2 The perceptions of Jordanian university students toward online learning are positively related to their academic performance.

Method

In this study, quantitative research with a cross-sectional random sampling design was employed to examine the perceptions of university students in Jordan towards online learning. The study was conducted in 2022 for students of (11) universities in Jordan where only students who have experienced conventional learning methods before the COVID-19 outbreak and after education was switched to online learning, of both bachelor's degree and master's degree of all disciplines, ending up with 165 valid responses.

Data was collected using a self-administered online questionnaire that consists of five sections; the first section captured the respondents' demographics. The second section measured the perceptions of students' on their knowledge of online learning, the third section measured the perceptions of students' on their attitudes towards online learning. The fourth section measured the perceptions of students' on their practices of online learning. Lastly, the fifth section measured the students' academic performance. As there was no access to the records of university registrants, academic performance was measured through students' perceptions of their performance in online learning.

A four-point Likert-scale was used where the scale points start from 1 for "strongly disagree" and 4 for "strongly agree". Each of these points has a length of (0.75 units by dividing the intervals of the original scale used in the questionnaire (in this research is 3) by the number of needed points (in this research is 4) denoted by (3/4 = 0.75). Then with respect to knowledge, attitude, and practice variables, "strongly disagree" falls between (1.00 to 1.75), "disagree" falls between (1.76 to 2.50), "agree" falls between (2.51 to 3.25), and finally "strongly agree" falls between (3.26 to 4.0). This means that the range of disagreement is between (1 to less than 2.50), while the range of agreement is between (more than 2.5 to 4). Therefore, differences between means were tested using 2.5 as a test value.

Descriptive statistics (mean, standard deviation, frequency, and percentage) were used to summarise the characteristics of the participants and their responses to the questionnaire. Inferential statistical analyses (t-test, correlation, regression analysis) to test the research hypotheses and examine the relationship between variables.

Reliability of a questionnaire measures its repeatability, meaning that the questionnaire is reliable if it is used to measure another sample under the same conditions it will give same results (Moser & Kalton, 1989). With respect to cut-off points, Hinton, Brownlow & McMurray (2004) suggested four cut-off points for reliability as follows, excellent reliability (0.90 and above), high reliability (0.70-0.90), moderate reliability (0.50-0.70) and low reliability (0.50 and below). The reliability was tested and the output showed Cronbach's Alpha = 0.796, indicating that the responses to the questionnaire are reliable.

Researchers obtained informed consent from participants before collecting any data, and there were no records of participants' identities, and their data is kept anonymous. Participants were informed at the introduction of the questionnaire that all responses were kept confidential from unauthorised access, and that they would be analysed in aggregate form, and that the results would be used in their general form for research purposes only.

Results

One-hundred sixty-five students from (11) universities in Jordan, from both bachelor's degree and master's degree of all disciplines, participated in this study to assess their perceptions toward knowledge, attitudes, practice on online learning platforms and its impact on their academic performance. As shown in Table 1, the majority of students had a Bachelor's degree level with 95.8% compared to postgraduate students, the highest percent of participating students reported that they are in the 4th academic year with 43.0% followed by 32.1% of students who are in 3rd academic year level.

Table 1.
Distribution of the responses according to demographic questions (n=165)

Variable	Frequency	Percent (%)
Educational level		
Bachelor's degree student	158	95.8
Postgraduate student	7	4.2
Academic year		
1st year	4	2.5
2nd year	14	8.5
3rd year	53	32.1
4th year	71	43.0
≥ 5th year	23	13.9
University type		
Public	28	17.0
Private	137	83.0
Current GPA		

2.00 – 2.49	(60% - 69%)	15	9.1
2.50 – 2.99	(70% - 79%)	53	32.1
3.00 – 3.49	(80% - 89%)	68	41.2
3.50 – 4.00	(90% - 100%)	29	17.6

Moreover, more than three-fourth of students are registered at private universities with 83.0% compared to public universities, and highest percent of participated student have a current GPA ranged between (80.0% to 89.0%) out of 100% scale with 41.2% followed by those who have a current GPA ranged between (70.0% to 79.0%) out of 100% scale with 32.1%. Furthermore, it is remarkable that over 50% of the respondents had the option of online learning platforms before education was switched to online learning.

As shown in Figure 2, a higher percent of students had knowledge of at least one online platform before education was switched to online learning with 10.9% of them said “strongly agree” and 48.5% said “agree”.

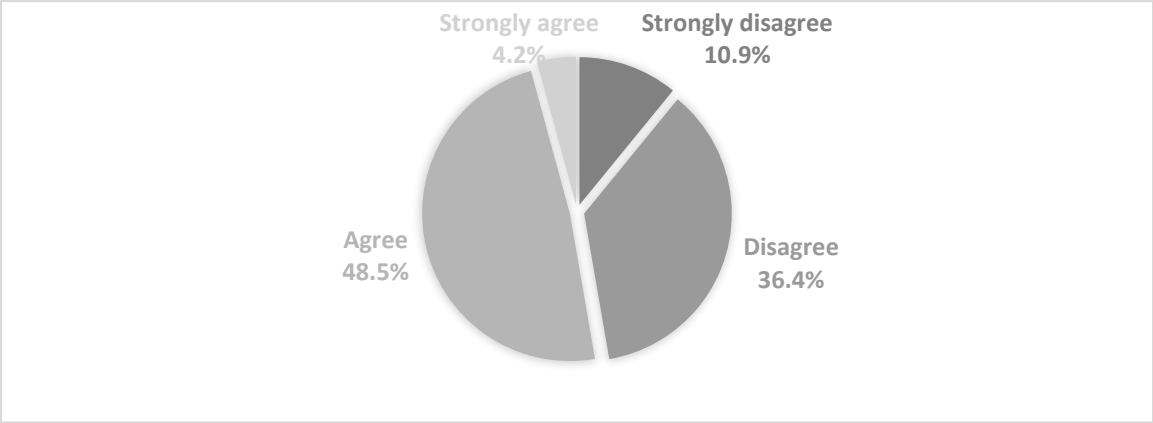

Figure 2.
Responses to if they had knowledge of one or more of the online learning platforms before education was switched to online learning (n=165)

Responses to whether they liked studying remotely rather than studying in a classroom in the early days of online learning are shown in Figure 3, a higher percent of students preferred studying in classical physical classrooms compared to virtual classrooms with 30.9% of them said “strongly disagree” and 33.3% said “disagree”.

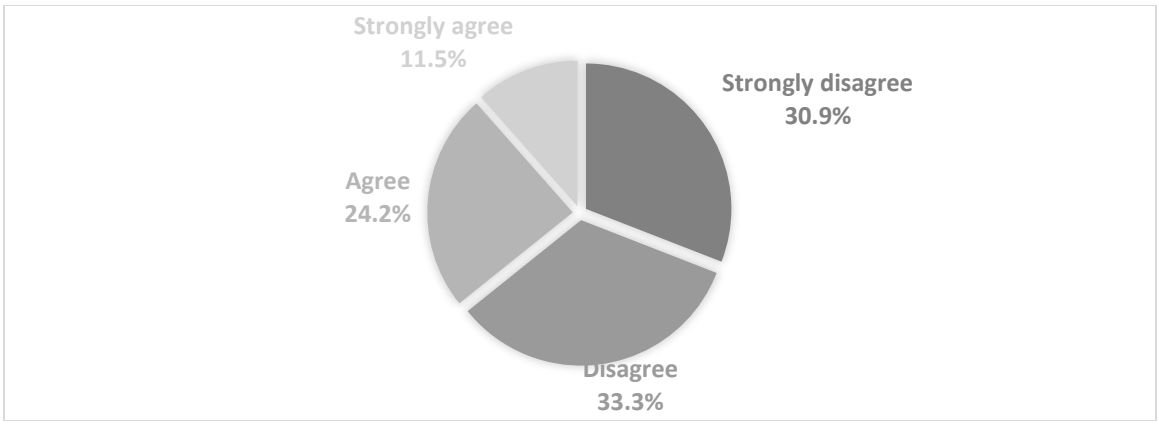

Figure 3.
Responses to if they like studying remotely rather than studying in a classroom (n=165)

Responses to whether the time spent for studying when education was switched to online learning is less than that of conventional learning are shown in Figure 4. A higher percent of students (57.0%) said that the time spent for studying became less when education had become online with 17.6% of the sample said “strongly agree” and 39.4% said “agree”.

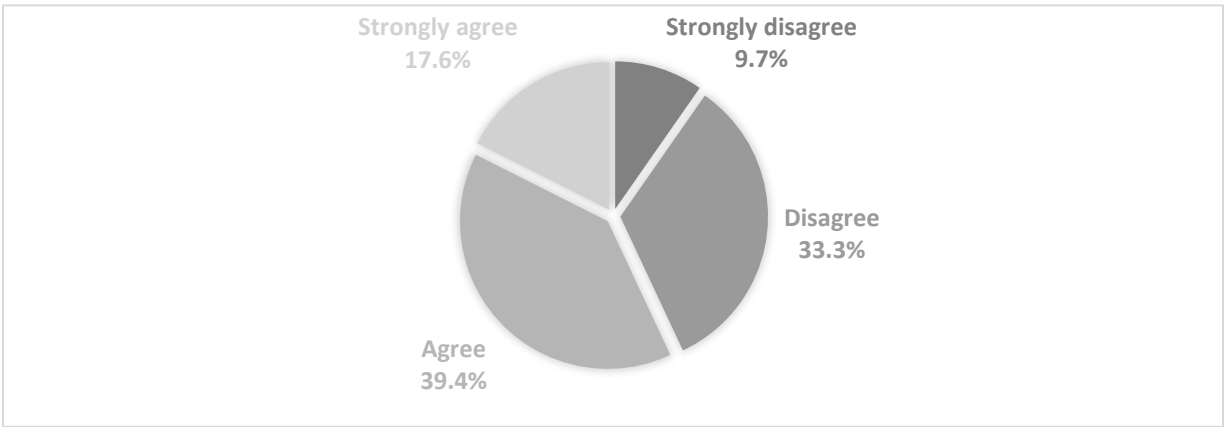

Figure 4.
Time spent on studying when education was switched to online learning is less than that of conventional learning (n = 165)

Responses to knowledge (*K*), attitudes (*A*), practice (*P*), and academic performance questions are summarised in Table 2. Questions were given names to indicate the study’s factor and order of the questions in the questionnaire, for example, the item (KQ1) indicated the first question under the knowledge factor and so on.

The majority of students participating in this study agreed with the question “*I have the knowledge to submit homework through my university online learning platforms” With* 58.8% said they agree, and 35.2% strongly agree. Two-thirds of students either agree (54.5%) or strongly agree (12.1%) towards the item “*I like the interface of my university's online learning platform”.*

Furthermore, results showed that over 80% of students in this study were agreed with the question “*I am able to communicate with my lecturers and colleagues during my online lectures effectively*

using different means of communication (e.g. emails, private messages, etc." with 69.1% said "agree" and 11.5% said "strongly agree" to this item. With respect to the performance question, more than 72% of students mentioned *"my academic performance improved when teaching was shifted to online learning after the Covid-19 outbreak"* with 57.6% responded with "agree" to this question and 14.5% said "strongly agree" to the same question.

Table 2.
Responses to K.A.P Performance Questionnaire (n=165)

Question	Strongly disagree		Disagree		Agree		Strongly agree	
	f	*%*	*f*	*%*	*f*	*%*	*f*	*%*
KQ1	3	1.8	12	7.3	101	61.2	49	29.7
KQ2	1	.6	9	5.5	97	58.8	58	35.2
KQ3	5	3.0	13	7.9	95	57.6	52	31.5
KQ4	23	13.9	56	33.9	70	42.4	16	9.7
AQ1	14	8.5	41	24.8	90	54.5	20	12.1
AQ2	24	14.5	63	38.2	59	35.8	19	11.5
AQ3	12	7.3	51	30.9	84	50.9	18	10.9
PQ1	8	4.8	24	14.5	114	69.1	19	11.5
PQ2	3	1.8	13	7.9	112	67.9	37	22.4
PQ3	1	.6	12	7.3	100	60.6	52	31.5
PERQ	17	10.3	29	17.6	95	57.6	24	14.5

The mean scores and standard deviations for these variables are shown in Table 3. It is evident that the mean scores for all research variables (knowledge, attitudes, practice, and academic performance) ranged between 2.6000 and 3.0318 with standard deviations ranging from .45977 to .82559. This indicates that the average responses were higher than the middle of the scale.

Table 3.
Descriptive statistics for responses to K.A.P and performance questionnaire items

Descriptive Statistics			
	N	Mean	Std. Deviation
Knowledge	165	3.0318	.45796
Attitude	165	2.6000	.59264
Practice	165	3.0707	.49903
Performance	165	2.7636	.82559
Valid N (listwise)	165		

One sample t-test conducted to check if there is a statistically significant difference between variable mean scores and the middle of the scale (the test value = 2.5) which represents according

to the scale adopted in this study the point between the range of agreement and the range of disagreement. As shown in Table 4, results indicated that students' knowledge, attitudes, practices and performance mean scores are statically different from (higher than) the test value (M = 2.5) with p-values <.05 and mean differences of (0.53, 0.10, .57, 0.26) respectively.

Table 4.
One-sample t test results

One-Sample Test

	Test Value = 2.5					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Knowledge	14.917	164	.000	.53182	.4614	.6022
Attitude	2.167	164	.032	.10000	.0089	.1911
Practice	14.690	164	.000	.57071	.4940	.6474
Performance	4.102	164	.000	.26364	.1367	.3905

As shown in Table 5, there is a statistically significant correlation between academic performance and both knowledge, attitude and practice [correlation is significant at the 0.01 level (2-tailed)].

Table 5.
Correlation test results

Correlations

		Knowledge	Attitude	Practice	Performance
Knowledge	Pearson Correlation	1	.603**	.418**	.559**
	Sig. (2-tailed)		.000	.000	.000
	N	165	165	165	165
Attitude	Pearson Correlation	.603**	1	.376**	.491**
	Sig. (2-tailed)	.000		.000	.000
	N	165	165	165	165
Practice	Pearson Correlation	.418**	.376**	1	.431**
	Sig. (2-tailed)	.000	.000		.000
	N	165	165	165	165
Performance	Pearson Correlation	.559**	.491**	.431**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	165	165	165	165

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

As shown in Table 6, R = .62, R^2 = .39, significance of ANOVA = .000, significance of coefficients of knowledge, attitude and practise =.000, .011 and .003 respectively. The results of regression analysis showed statistical significant relationships between academic performance and both knowledge, attitude and practice.

Table 6.
Outputs of regression test

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.620[a]	.385	.373	.65364

a. Predictors: (Constant), Practice, Attitude, Knowledge

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.995	3	14.332	33.544	.000[b]
	Residual	68.787	161	.427		
	Total	111.782	164			

a. Dependent Variable: Performance

b. Predictors: (Constant), Practice, Attitude, Knowledge

Coefficients[a]

Model		Unstandardized Coefficients		Standardised Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.671	.364		-1.844	.067
	Knowledge	.578	.132	.351	4.371	.000
	Attitude	.281	.110	.201	2.561	.011
	Practice	.345	.114	.208	3.018	.003

a. Dependent Variable: Performance

In summary, the results of the statistical analysis of data collected from (n = 165) students to investigate their perceptions towards online learning, and whether their knowledge, attitudes, and practice in online knowledge before switching education to online learning in Jordan affected their performance. There are positive perceptions among the participating students regarding their knowledge, attitudes and practice of online learning although in the early days of online learning. They preferred physical classes rather than virtual classes, and there are some difficulties in communicating with their lecturers and colleagues according to students' responses. These overall positive perceptions of K.A.P could be the main reason for the positive impact on participating students' current GPA and thus on their academic performance. Comparing this study with a similar study conducted in Lahore during the pandemic using the KAP, students had positive perceptions of the effectiveness and flexibility of online learning and were able to develop practical skills, but faced challenges such as poor internet connectivity and lack of interaction with peers and instructors. Both studies indicate that students have largely positive perceptions of

online learning but may encounter obstacles that affect their learning experience (Sarwar & Akram, 2021). The results of this study are consistent with the results of previous studies such as Alias et al. (2012), Al-Gahtani (2014), Rajabalee et al. (2020), Alqurashi (2020), Abdel Jawad and Shalash (2020), Zolochevskaya et al. (2021), Marlina et al. (2021), Schrenk et al. (2021) Sarwar and Akram (2021), Etom et al. (2021), Shekinah et al. (2022), and Yunos et al. (2022).

Discussion

Online learning has become an increasingly popular mode of education, with universities around the world rapidly transitioning to online learning platforms in response to the COVID-19 pandemic. This study aimed to explore the perceptions of university students in Jordan towards online learning, using the KAP model to assess their knowledge, attitudes, and practices. More specifically, this study targeted Jordanian university students, capturing their perceptions in terms of knowledge, attitude and practice towards online learning methods, and the extent to which the perception of these methods has affected their academic performance since the beginning of the COVID-19. It also tried to better understand the limitations it faced after the outbreak of COVID-19 in order to improve existing online learning methods and develop new strategies accordingly.

The KAP model was used to analyse these issues related to online learning. The findings of the KAP survey are crucial to planning, implementing, analysing and evaluating the construct of this research. It also highlighted the gaps in knowledge, personal point of view, or acquired behaviour that may simplify acts and perceptions, besides clearing out certain problems related to academic performance in terms of the given circumstances.

The findings of this study demonstrate an overall positive perception among the participating students regarding their knowledge, attitudes, and practice of online learning and how it affected their academic performance. Students had a good understanding of the benefits of online learning and recognized its convenience and flexibility. The positive attitudes towards online learning were reflected in the fact that the majority of the students expressed their preference of using online learning over face-to-face classes. Furthermore, the study found that students were actively engaging in online learning practices. This is particularly encouraging since active participation is an essential component of successful online learning.

The positive perception of online learning among students in Jordan is significant for educators and policymakers since it affects their academic performance, indicating the potential for the expansion of online learning in the country. However, the findings also highlight the need for continuous efforts to address the challenges that students may face while transitioning to online learning, such as lack of access to technology, internet connectivity and even the ease of use of online learning platforms. Therefore, policymakers, and universities need to ensure that students have equitable access to technology and resources to ensure that online learning is accessible to all. Overall, this study highlights the importance of promoting and developing online learning as a viable and effective mode of education in Jordan.

This study aims to provide new light on the readiness of academic institutions and decision-makers to adopt alternate learning techniques in reaction to future events. As a proactive move to prepare for any prospective changes in the future, this research wants to urge these institutions to promote the use of technology, especially online learning.

The association between students' academic success and online learning is shown by the study's findings, offering useful information to stakeholders such as the Ministry of Higher Education and Scientific Research, academic institutions, and online learning platforms. This information may be

used to improve the readiness of Jordanian educational systems and institutions to adopt future blended or online learning initiatives.

With an overall positive perception of online learning, students are likely to engage more actively in online learning activities and take advantage of the flexibility and convenience that online learning offers. This increased engagement and participation can have a positive impact on academic performance, as students can interact more with their peers and instructors, receive timely feedback, and access additional resources

Furthermore, the positive attitudes of students towards online learning can help overcome the challenges associated with traditional face-to-face learning, such as geographical barriers, time constraints, and limited access to resources. Online learning provides students with the opportunity to access a wider range of courses and programs, learn at their own pace, and customise their learning experience to suit their individual needs and preferences.

Another implication of the research findings is that online learning can promote lifelong learning and enhance employability. With the increasing demand for digital skills in the job market, online learning can equip students with the skills and knowledge required for the digital age. By developing positive perceptions of online learning, students are more likely to continue learning beyond their formal education and embrace the opportunities that technology offers.

Online learning systems benefit students, particularly during COVID-19 outbreaks. The results of the research revealed that students' perceptions regarding their knowledge, attitudes, and practices of the impact of online learning were significant on their academic performance. The lesson from the findings of this research is that challenges and crises are opportunities that can be capitalised on. The lack of other options may have led to moving on and adapting to the reality of the situation. It also increased the pace of achievement and worked to achieve the requirements for success. Reluctance and fear of the consequences of switching to online learning have previously hampered this process under normal circumstances

It is possible to adopt a blended system that includes mostly online learning activities with face-to-face sessions for research and discussion, which enhances interaction and builds on ideas, in addition to the need to provide a mechanism for interaction, discussion and dialogue in the online learning platform. It is possible to fully adopt online learning for some courses, and blended learning for others depending on their nature.

To ensure success, it must be understood that the tools, means, and methods of teaching and evaluating students in online learning differ from those in traditional education. This research came up with the following recommendations:

- Update ICT infrastructure by enhancing online learning environments
- Improving online learning local servers speed, performance and security
- Updating and improving lecture content by implementing new methods such as virtual labs, and change of content presentation methods to become more interactive
- To plan and design educational strategies that look to enhance university students in enjoying taking part in discussions during online-based lectures, and attitudes towards studying remotely rather than studying in a classroom, such efforts need to be comprehensive and can be transferred from developed countries and projected in Jordan under adequate terms.

This study will serve as a springboard for future research and debates on online education in Jordanian institutions. It is anticipated that the results of this study would stimulate other

researchers to perform future research. Moreover, parallel studies may conduct the same research but with different methods and tools, such as qualitative surveys where the variables under examination are more clear and their association is more understandable.

Conclusion

The research on the perceptions of university students in Jordan towards online learning has significant implications for academic performance, lifelong learning, and employability. The positive perception of online learning among students can lead to increased engagement and participation, overcome traditional barriers to learning, and equip students with digital skills for the future. These findings highlight the potential of online learning as an effective mode of education and encourage universities to consider integrating online learning as a regular part of their curriculum.

A limitation of this study may be that it relied on students' perceptions of their performance in online learning rather than obtaining their performance from their academic records at universities. Therefore, it is recommended that future studies attempt to obtain academic performance from student or school records. This requires controlling for the relationship between the transition to online learning and academic performance using a control variable or variables to ensure that the change in academic performance is due to this transition to online learning and not due to other factors. Moreover, there is a need to conduct parallel studies utilizing other methods, like qualitative; to provide a clearer view as to how online learning affects students' academic achievement.

Conflict of Interest

The authors have no conflicts of interest to disclose. The authors report no usage of artificial intelligence in the design or development of this manuscript.

References

Abdel Jawad, Y., & Shalash, B. (2020). The Impact of E-Learning Strategy on Students' Academic Achievement Case Study: Al-Quds Open University. *International Journal of Higher Education*, 9(6), 48. https://doi.org/10.5430/ijhe.v9n6p44

Ahmad, A., Al-Refai, A., AlMomani, N., & Abuhashesh, M. (2020). E-Learning Adoption among Academic Staff during COVID-19 Pandemic Outbreak: The KAP Model. *International Journal of Advanced Science and Technology*, 29(3), 12-13. http://sersc.org/journals/index.php/IJAST/article/view/30318

Al-adwan, A., & Smedley, J. (2012). Implementing e-learning in the Jordanian Higher Education System: Factors affecting impact. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 8(1), 132. https://files.eric.ed.gov/fulltext/EJ1084215.pdf

Al-Gahtani, S. (2014). Empirical investigation of e-learning acceptance and assimilation: A structural equation model. *Applied Computing and Informatics*, 12(1), 48. HTTPS://DOI.ORG/10.1016/j.aci.2014.09.001

Alias, N., Zakariah, Z., Ismail, N., & Abd Aziz, M. (2012). E-Learning Successful Elements for Higher Learning Institution in Malaysia. *Procedia - Social and Behavioral Sciences*, 67(1), 488. https://doi.org/10.1016/j.sbspro.2012.11.353

Alkhawaja, M., & Abd Halim, M. (2019). Challenges of E-Learning System Adoption in Jordan Higher Education. *International Journal of Academic Research in Business and Social Sciences*, 9(9), 492. https://doi.org/10.6007/IJARBSS/v9-i9/6317

Al-Okaily, M., Alqudah, H., Matar, A., & Lutfi, A. (2020). Impact of Covid-19 Pandemic on Acceptance of E-Learning System in Jordan: A Case Of Transforming The Traditional Education Systems. *Humanities & Social Sciences Reviews*, 8(4), 845-847. https://doi.org/10.18510/hssr.2020.8483

Alqurshi, A. (2020). Investigating the impact of COVID-19 lockdown on pharmaceutical education in Saudi Arabia – A call for a remote teaching contingency strategy. *Saudi Pharmaceutical Journal*, 28(9), 1083. https://doi.org/10.1016/j.jsps.2020.07.008

Andrade, C., Menon, V., Ameen, S., & raharaj, S. (2020). Designing and Conducting Knowledge, Attitude, and Practice Surveys in Psychiatry: Practical Guidance. *Indian Psychiatric Society - South Zonal Branch*, 42(5), 481. https://doi.org/10.1177/0253717620946111

Bolisani, E. & Bratianu, C. (2018). Emergent Knowledge Strategies: Strategic Thinking in Knowledge Management. Springer International Publishing. https://doi.org/10.1007/978-3-319-60657-6

Chua, R., Abejo, A., Adriano, H., Apostol, M., Boguiren, G., Elago, J., Ferriols, V., Santiago, C., & Flores, A. (2021). Knowledge, Attitudes, and Practices of Medical Technology Students on Remote Teaching in Two Universities in Manila. *International Journal of Arts, Sciences and Education (IJASE)*, 1(3). https://ijase.org/index.php/ijase/article/view/25/36

Collier, J., & Bienstock, C. (2009). Model *Misspecification: Contrasting Formative and Reflective Indicators for a Model of E-Service Quality. Journal of Marketing Theory and Practice*, 17(3), 291-292. https://doi.org/10.2753/MTP1069-6679170306

Darmaji, D., Astalini, A., Kurniawan, D., & Perdana, R. (2019). A study relationship attitude toward physics, motivation, and character discipline students senior high school, in Indonesia. *International Journal of Learning and Teaching*, 11(3), 1. https://doi.org/10.18844/ijlt.v11i3.4207

Eccles, J., & Wigfield, A. (2002). Motivational Beliefs, Values, and Goals. *Annual Review of Psychology*, 53(1), 109-132. https://doi.org/10.1146/annurev.psych.53.100901.135153

Etom, R., Pabatang Jr., O., Dapanas, K., Consolacion, R., Iniego, J., Jumao-as Pabua Tee, A., Pabua, A., & Tee, K. (2021). The use of e-learning tools in blended learning approach on students' engagement and performance. *Journal of Physics: Conference Series*, 1(1), 7. https://doi.org/10.1088/1742-6596/1835/1/012075

Haider, A., & Al-Salman, S. (2020). Covid-19'S Impact on the Higher Education System in Jordan: Advantages, Challenges, and Suggestions. *Humanities & Social Sciences Reviews*, 8(4), 1425. https://doi.org/10.18510/hssr.2020.84131

Hameed, S., Atta, B., & Cullen, A. (2008). Effective E-Learning Integration with Traditional Learning in a Blended Learning Environment. In: *European and Mediterranean conference on information systems 2008 (EMCIS 2008)*, Al Bostan Rotana, Dubai, UAE. https://www.researchgate.net/publication/228422212_Effective_E-Learning_Integration_with_Traditional_Learning_in_a_Blended_Learning_Environment

Hazari, N. & Lakshmi, V. V. (2017). E-Learning and Computer-Based Multimedia Education Intervention and Its Effect on the Relationship between Knowledge, Attitude and Practices of Rural Women. *International Journal of Computer Networking, Wireless and Mobile Communications (IJCNWMC)*, 7(3). https://www.academia.edu/35534143

Hinton, P. R., Brownlow, C., & McMurray, I. (2004). SPSS Explained. Routledge. ISBN: 0-415-27410-9

Kara, N. (2021). Enablers and barriers of online learning during the COVID-19 pandemic: A case study of an online university course. *Journal of University Teaching & Learning Practice*, 18(4), 13. https://doi.org/10.53761/1.18.4.11

Khan, M. L. H., & Setiawan, A. (2019). The impact of E-learning on higher education perception, skills, critical thinking and satisfaction. *Journal of Physics: Conference Series*, 1(1), 4. https://doi.org/10.1088/1742-6596/1375/1/012084

Marlina, E., Tjahjad, B., & Ningsih, S. (2021). Factors Affecting Student Performance in E-Learning: A Case Study of Higher Educational Institutions in Indonesia. *The Journal of Asian Finance, Economics and Business*, 8(4), 999. https://doi.org/10.13106/jafeb.2021.vol8.no4.0993

Moser, C. A., & Kalton, G. (2017). Survey Methods in Social Investigation. Taylor & Francis Group. https://doi.org/10.4324/9781315241999

Motamedi, S. (2021). Understanding E-Learning Acceptance of Gen Z Students: An Extension of the Technology Acceptance Model (TAM). *American Society for Engineering Education*, 1(1), 10. https://peer.asee.org/37956

Obidat, A., Alquraan, M., & Obeidat, M. (2020). Data on factors characterizing the eLearning experience of secondary school teachers and university undergraduate students in Jordan. *Elsevier Ltd*., 33(1), 2-7. https://doi.org/10.1016/j.dib.2020.106402

Owojori, O., Mulaudzi, R., & Edokpayi, J. (2022). Student's Knowledge, Attitude, and Perception (KAP) to Solid Waste Management: A Survey towards a More Circular Economy from a Rural-Based Tertiary Institution in South Africa. *Sustainability*, 14(3), 18. https://doi.org/10.3390/su14031310

Padmanaban, S., Rajendran, P., Davis. P. & Velayutham, P. (2022). Knowledge, attitude and practices towards COVID-19 among higher education students in India: a cross sectional study. *Z Gesundh Wiss*., 30(7): 1661–1673. https://doiorg/10.1007/s10389-021-01561-7

Patil, V. (2014). Technologies used in E - learning. *Scholarly research journal for humanity science & English Language*, 1(2), 280-285. https://www.academia.edu/download/36449074/13.Dr.Vidyadevi_Patil1.pdf

Rajabalee, B., Santally, M., & Frank, F. (2020). A study of the relationship between students' engagement and their academic performances in an eLearning environment. *E-Learning and Digital Media*, 17(1), 16-17. https://doi.org/10.1177/2042753019882567

Sarwar, S., & Akram, M. (2021). KAP Analysis of Students Regarding E-Learning during Covid-19 in Universities of Lahore. *Journal of Professional Research in Social Sciences*, 8(2), 33. https://ojs.mul.edu.pk/index.php/JPRSS/article/view/122

Schrenk, N., Alves, K., Van Dam, D., & Schrenk, B. (2021). Reflecting on Best Practices for Online Learning in a Post-COVID-19 World. ERIC - *Education Resources Information Center*, 18(4), 486-504. https://doi.org/10.24059/olj.v25i4.2460

Shekinah, S., Chinnasamy, P., Deepsheka, K., & Singaram, V. (2022). Impact of online education due to the pandemic among college students: Knowledge, Attitude and Practices analysis with structural equation modelling. *National Library of Medicine*, 11(1), 5-6. https://doi.org/10.4103/jehp.jehp_995_21

Stadler, M., Sailer, M., & Fischer, F. (2021). Knowledge as a formative construct: A good alpha is not always better. *Elsevier Ltd*., 60(1), 3. https://doi.org/10.1016/j.newideapsych.2020.100832

Tsai, S., & Machado, P. (2002). E-learning, Online Learning, Web-based Learning, or Distance Learning: Unveiling the Ambiguity in Current Terminology. *Association for Computer Machinery eLearn Magazine*, 7(1), 3-5. https://doi.org/10.1145/566778.568597

Vandamme, E. (2009). Concepts and Challenges in the Use of Knowledge-Attitude-Practice Surveys: Literature Review. Department of Animal Health Institute, Institute of Tropical medicine, Antwerp.

Wallace, S., Schuler, M. S., Kaulback, M., Hunt, K., & Baker, M. (2021). Nursing student experiences of remote learning during the COVID-19 pandemic. *Nurs Forum*, 56(3):612-618. https://doi.org/10.1111/nuf.12568.

Wigfield, A., & Eccles, J. (2000). Expectancy–Value Theory of Achievement Motivation. *Contemporary Educational Psychology*, 25(1), 68-81. https://doi.org/10.1006/ceps.1999.1015

Yunos, N., Mohamed, R., Kalil, K., Yunan, A., & Shaari, A. (2022). Knowledge, Attitude and Practice Between E-Learning and Traditional Learning Among Third Year Nursing Students During Covid-19 Pandemic. *International Journal of Advanced Research in Education and Society*, 4(4), 138. https://doi.org/10.55057/ijares.2022.4.4.12

Zolochevskaya, E., Zubanova, S., Fedorova, N., & Sivakova, Y. (2021). Education policy: the impact of e-learning on academic performance. *E3S Web of Conferences*, 244(1), 6-7. https://doi.org/10.1051/e3sconf/202124411024