


**E-LEARNING AND ITS INFLUENCE ON ENHANCING THE UNIVERSITY PERFORMANCE DURING THE OUTBREAK OF THE CORONA PANDEMIC**

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b></p> <p><b>Received</b> 20 February 2023</p> <p><b>Accepted</b> 18 May 2023</p>	<p><b>Purpose:</b> This paper aims to determine the influence of e-learning and its dimensions on university performance, taking the University of Basra’s various faculties as a field study.</p> <p><b>Theoretical Framework:</b> The study’s hypotheses are divided into one central hypothesis and four sub-hypotheses constructed and grounded on the dimensions of e-learning. Infrastructure, technical support, management, organization, and content were taken as dimensions of the independent variable, and University Performance as the dependent variable.</p> <p><b>Design/Methodology/Approach:</b> This paper uses a quantitative method with a deductive approach. One hundred sixty participants responded to a structured questionnaire as part of the study’s descriptive analytical procedure. Data were analyzed using the SPSS program. Statistical analyses were applied to test the research hypotheses and meet the study’s goals.</p> <p><b>Findings:</b> Results revealed a positive association linking the application of e-learning dimensions. Universities are motivated to apply e-learning strategies due to their positive influence on leveraging university performance. Infrastructure, technical support, management and organization, and content positively influence university performance.</p> <p><b>Research, Practical and Social Implications:</b> This paper highlights the features and dimensions influencing university performance significantly in the Iraqi context. Hence, executives of public and private universities will be able to determine the actions to be adopted to advance and progress the implementation of e-learning and performance.</p> <p><b>Originality/Value:</b> The paper’s originality stems from the significance and recency of the addressed topic. This paper is the first empirical research presenting a diagnosis of e-learning dimensions and university performance at Basra University during the outbreak of the corona pandemic. It is an original paper conducted in the Iraqi context. Doi: <a href="https://doi.org/10.26668/businessreview/2023.v8i5.2057">https://doi.org/10.26668/businessreview/2023.v8i5.2057</a></p>
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## E-LEARNING E SUA INFLUÊNCIA NA MELHORIA DO DESEMPENHO DA UNIVERSIDADE DURANTE O SURTO DA PANDEMIA DE CORONA

### RESUMO

**Objetivo:** Este artigo tem como objetivo determinar a influência do e-learning e suas dimensões no desempenho universitário, tomando como campo de estudo as várias faculdades da Universidade de Basra.

**Referencial Teórico:** As hipóteses do estudo estão divididas em uma hipótese central e quatro sub-hipóteses construídas e fundamentadas nas dimensões do e-learning. Infraestrutura, suporte técnico, gestão, organização e conteúdo foram considerados como dimensões da variável independente e Desempenho Universitário como variável dependente.

**Desenho/Metodologia/Abordagem:** Este artigo utiliza um método quantitativo com abordagem dedutiva. Cento e sessenta participantes responderam a um questionário estruturado como parte do procedimento analítico descritivo do estudo. Os dados foram analisados por meio do programa SPSS. Análises estatísticas foram aplicadas para testar as hipóteses de pesquisa e atender aos objetivos do estudo.

**Resultados:** Os resultados revelaram uma associação positiva entre a aplicação das dimensões do e-learning. As universidades são motivadas a aplicar estratégias de e-learning devido à sua influência positiva na alavancagem do desempenho universitário. Infraestrutura, suporte técnico, gestão e organização e conteúdo influenciam positivamente o desempenho universitário.

**Implicações de pesquisa, práticas e sociais:** Este artigo destaca as características e dimensões que influenciam significativamente o desempenho universitário no contexto iraquiano. Assim, os executivos de universidades públicas e privadas poderão determinar as ações a serem adotadas para avançar e progredir na implementação do e-learning e performance.

**Originalidade/Valor:** A originalidade do artigo decorre da importância e atualidade do tema abordado. Este artigo é a primeira pesquisa empírica que apresenta um diagnóstico das dimensões do e-learning e do desempenho universitário na Universidade de Basra durante o surto da pandemia de corona. É um artigo original realizado no contexto iraquiano.

**Palavras-chave:** E-Learning, Corona Pandemic, University Performance, University of Basra.

## E-LEARNING Y SU INFLUENCIA EN LA MEJORA DEL RENDIMIENTO UNIVERSITARIO DURANTE EL BROTE DE LA PANDEMIA DEL CORONA

### RESUMEN

**Propósito:** Este artículo tiene como objetivo determinar la influencia del e-learning y sus dimensiones en el desempeño universitario, tomando como estudio de campo las diversas facultades de la Universidad de Basora.

**Marco teórico:** Las hipótesis del estudio se dividen en una hipótesis central y cuatro subhipótesis construidas y fundamentadas en las dimensiones del e-learning. Infraestructura, soporte técnico, gestión, organización y contenidos se tomaron como dimensiones de la variable independiente y Rendimiento Universitario como variable dependiente.

**Diseño/Metodología/Enfoque:** Este artículo utiliza un método cuantitativo con un enfoque deductivo. Ciento sesenta participantes respondieron a un cuestionario estructurado como parte del procedimiento analítico descriptivo del estudio. Los datos se analizaron utilizando el programa SPSS. Se aplicaron análisis estadísticos para probar las hipótesis de investigación y cumplir con los objetivos del estudio.

**Hallazgos:** Los resultados revelaron una asociación positiva que vincula la aplicación de las dimensiones del e-learning. Las universidades están motivadas para aplicar estrategias de e-learning debido a su influencia positiva en el aprovechamiento del rendimiento universitario. La infraestructura, el soporte técnico, la gestión y organización y los contenidos influyen positivamente en el desempeño universitario.

**Implicaciones de investigación, prácticas y sociales:** este documento destaca las características y dimensiones que influyen significativamente en el desempeño universitario en el contexto iraquí. Así, los ejecutivos de las universidades públicas y privadas podrán determinar las acciones a adoptar para avanzar y avanzar en la implementación del e-learning y el desempeño.

**Originalidad/Valor:** La originalidad del trabajo se deriva de la importancia y actualidad del tema abordado. Este artículo es la primera investigación empírica que presenta un diagnóstico de las dimensiones del aprendizaje electrónico y el desempeño universitario en la Universidad de Basora durante el estallido de la pandemia del coronavirus. Es un artículo original realizado en el contexto iraquí.

**Palabras clave:** E-Learning, Corona Pandemic, Rendimiento Universitario, Universidad de Basora.

## INTRODUCTION

The pandemic has impacted all facets of society, but the educational domain has been the most significantly impacted (Evan Asfoura, 2021). Due to this outbreak, most governments, if not all, suspended enrollment in classes, schools, colleges, and institutions (Dhawan, 2020, p.6-7). The British Open University pioneered the concept of distant learning. Then, this notion spread from London to other nations. As a result of the global health crisis and students staying in their homes, e-learning has appeared and developed as a term for a new and different type of education. Therefore, e-learning has become a necessity and a vital tool for enabling hundreds of millions of students to learn and acquire various knowledge (Mohamed Abdel Ahmed, 2020, p. 102).

To meet their educational and learning objectives, universities have shifted toward adopting e-learning and its usage, specifically since the beginning of the Coronavirus. The epidemic's main consequences and limitations are the deprivation of physical and face-to-face interactions and the absence of an authentic school setting. In addition, infrastructure and technological equipment are fundamental challenges facing e-learning. These challenges embrace Information and Communication Technology ICT gaps, overcrowded online classrooms, and a large proportion of online learners without the expertise that adapts to e-learning requirements (Ibnatul Jalilah Yusof et al., 2022, p.4-6).

Deprived of direct communication due to the long-term lockdown preventing them from leaving their homes, instructors must familiarize themselves and adjust their practices as providers of home education services (Das, 2021 [14]; Coman et al., 2020). The epidemic's main consequences and limitations are the deprivation of physical and face-to-face interactions and the absence of an authentic school environment. University instructors are encouraged to implement the effective use of existing resources and become home learning planners and facilitators. In e-learning, providing knowledge is the education-centered strategy; hence, university instructors must supervise distant learners, maintain social relationships, and organize diverse teaching and learning activities (Ayyoub and Jabali, 2021, p.1437). When university instructors are well supported, they can play different roles in the distance learning process during the pandemic crisis. These instructors became quality leaders and resource integrators.

University instructors must find new formulas for enriching learners' involvement in online sessions experience, provide high heed to online learners' emotional states, and support

parents. These practices dedicated to online must ensure a standardized quality of electronic learning and teaching (AbdulWahab Mahmoud, 2021, p.130).

Home Lessons are offered during the pandemic, but many instructors do not have adequate preparation. Education authorities should help them create the necessary infrastructure to support distance learning.

The success of an individual and society depends on education (Roy, 2016) . Therefore, it is a top priority for all races, classes, and cultural groups. In this context, the higher education sector, which keeps up with changes and advances, is one of the most significant areas that the government and other organizations based on the education sector, in general, and in particular, pay attention to in Iraq. Additionally, there are international challenges, given current global patterns and education development plans, which tend to modernize the industry (Radif and Mohammed, 2019, p.55). It can take many different forms, such as e-learning and distance learning.

Three categories constitute the main challenges facing the academic staff in Iraqi universities. The first is the reconciliation of household chores with work duties and their welfare during detention. Private requests of families restrict and hinder distance learning. Second, infrastructure and technological equipment are serious challenges facing e-learning (Mjhool et al., 2021, p.1410). Most university instructors in Iraq do not necessarily have adequate electronic apparatuses and gears to supervise and maintain e-learning. In remote areas, E-learning, ICT, and digital transformation face obstacles, such as Information and Communication Technology ICT gaps and overcrowded online classrooms (Nabukeera et al., 2020, p.5-8). In addition, a quantifiable proportion of online learners cannot adapt to e-learning requirements.

Third, the preparation of teaching materials in appropriate formats for distance learning. The situation can be difficult for instructors who do not have solid digital, Information, and Communication Technology skills. Often, no professional training available could be helpful to them (N. Fayadhm, Salih, and Mohammed, 2021). Consequently, Powerful digital services for e-learning are essential when face-to-face communication is not possible and affect the university's performance.

This paper aims to evaluate the influence of e-learning and four selected dimensions on enhancing university performance. E-learning aspects are represented in the infrastructure dimension, the technical support dimension, the management and organization dimension, and the content dimension. Hence, this study embraces three objectives.

- To disclose the critical conditions and dimensions to activate e-learning at the University of Basra.
- To assess the influence of e-learning dimensions (infrastructure, technical support, management and organization, and the content) on the university performance.
- To recognize the significance and test the value of the relationship between e-learning dimensions and university performance.

This study emphasizes ICT and its essential functions in developing e-learning. It aims to diagnose, detect, and clarify the dimensions of e-learning and university performance during the outbreak of the corona pandemic. The paper's significance stems from the prominence and recency of the addressed topic.

Theoretically, the primary significance relies on presenting previous research and studies to enrich the literature review. Secondly, this study highlights major obstacles facing e-learning and emphasizes the theoretical relationship between e-learning and its dimensions on enhancing university performance.

Relating to experience, assessing the empirical influence and the direction of the relationship between e-learning and university performance is vital for three reasons. First, it helps to understand the university's point of view toward digital management in general and e-learning in particular. Secondly, it empirically assesses major factors influencing university performance, particularly in light of the global crisis. Finally, empirical findings support the modern educational process.

This research paper contains five sections. The introduction specified the research questions and objectives and clarified the research problem and its significance. The literature review, and existing theoretical framework, present the main works, models, and theoretical advances made in the field. The methodology describes the research strategy and justifies the approach chosen to study and answer the research questions. It describes the details of the data collection techniques and instruments. The empirical phase, section four, presents the quantitative results of the research (descriptive statistics, appropriate graphs, tables, and tests). The results are interpreted and discussed in light of the hypotheses and research questions. Finally, the conclusion embraced a concise summary of the main implications (theoretical and empirical) and provided insight into future research perspectives.

## LITERATURE REVIEW

The epidemic is disrupting the lives of students. The disorganization of societies and economies in an unprecedented way is affecting education and exacerbating the crisis that already erupted in this sector before the pandemic (Aljarrah, Ababneh, and Cavus, 2020, p.148). After closing educational institutions due to COVID-19, the administration of universities and higher teaching institutes did not have any effective alternative but to adapt to the current situation and implement e-learning techniques as a substitute for in-class teaching. This step guarantees the continuity of knowledge provision and maintains minimum quality in teaching and education. In addition to instructors, the teaching staff is placed at the forefront, giving them the responsibility of safeguarding continuous education. Instructors should clarify or improve pre-determined functions to pledge, guarantee and adhere to effective e-learning outcomes. During the nationwide lockdown, instructors often have to play multiple social roles as homeschooling 'providers' (Sivankalai, 2021, p.2-4). These factors include roles related to the design and implementation of instruction, facilitating roles in learning activities, and supporting students (Pandey et al., 2022, p.326; Makki and Bali, 2021, p396).

### E-learning Overview

E-learning is an independent education procedure that adopts and uses media and an innovative tool to sustain education (Singh, Kumar, and Lakhanpal, 2021) . Electronic learning, abbreviated as E-learning, is grounded on innovative high-tech and computer-technology devices, which allow access to online, interactive education disseminated through the Internet to develop students' knowledge and skills (Serafim-Silva et al., 2022, p3-4). Two elements played a critical role in the success of e-learning. First, the availability of courses and accessibility of online classes, and flexibility of online schedules increased the popularity of e-learning and attracted online learners to register. Secondly, changing students' lifestyles from the traditional campus to attending classes in the comfort of their homes encouraged them to attend more online sessions. Consequently, students favored e-learning due to its advantages and facilitation to their lives (.Nortvig, Petersen, and Balle, 2018, p.46-48).

Online education facilitates the interaction among the instructor as facilitator and students as end beneficiaries concluded throughout the customization of multiple computer gears and online materials.

E-learning places increased demands on students in terms of discipline and organization, and purely academic skills need to be supported by new teaching, learning, and training

strategies (Kocot et al., 2021, p.188). Adopting pre-determined dimensions to the online process enables online communication and social exchange. These dimensions include, first, the segregation of temporal and spatial facets of online interference and, second, the adoption of ICT, innovative technologies, social media, and online teaching platforms.

Due to governmental required procedures in social distancing throughout the epidemic, instructors teach online (Chatziralli et al., 2021). Online distance learning is used anytime and anywhere if the learners have an internet connection. As a result, the reliability of used computers and the quality of communication are assured through the Internet. E-learning platforms constitute three key categories: learning based on dedicated platforms such as Zoom, instructor-led live broadcasting, and recorded learning in videos and clips (Garad, Al-Ansi, and Qamari, 2021, p.83). Platform-based e-learning and education are delivered through cohesive web-based platforms directed by the high education institution, most probably requiring login authorization through students' IDs. These platforms provide technical aspects featuring tools facilitating the organization and management of online sessions and classrooms. These tools classically classify content by theme, topic, and subjects. It helps instructors to exchange ideas and communicate easily with the student. Finally, these learning platforms encourage online learners to participate, share their ideas, and improve student teamwork (Ouadoud, Rida, and Chafiq, 2021; Alotaibi and Alghamdi, 2021, p.1557). Hence, the e-learning process incorporates four dimensions:

Table 1: E-Learning Dimensions (Younis et al., 2021)

Dimensions	Description
<b>Infrastructure</b>	Live lessons conducted online via live conferences on online platforms, where instructors and students interact simultaneously, require a high connection speed. Therefore, online sessions depend on efficient infrastructure basics that embrace electricity, a steady internet connection, and computers with proper applications that allow access to teaching materials (Singh et al., 2021, p.7570). The government should focus on building new infrastructure to support this adaptability in the future. Currently, the facilities and tools for an easy transition to distance learning are lacking (Chow and Croxton, 2017, p.22).
<b>Technical Support</b>	Technology is changing education. Technology empowers students by enabling them to participate (Gismalla et al., 2021, p.21). Technical supports ensure the adaptation of perceived education to students' digital lives. The proper integration of technology into online sessions safeguards the development of online learners and sustains a continuing yet motivational passion. Besides, the personalization of learning is an ultimate goal of instructors; however, it requires appropriate technical support. Technical support breaks boundaries with real-time access to student information and comprehensive data (Kurdi et al., 2020, p.20-26).
<b>Management and Organization</b>	During online training, instructors ensure a conducive, suitable, secure, and practical environment to conduct online courses in good conditions. For efficient administration and organization of e-learning, instructors should be aware of the available technologies, plan daily schedules, and ensure good communication with students (Giannakos, Mikalef, and Pappas, 2021). Several solutions for organizing distance learning courses include using an e-learning platform that creates and shares online courses. Another solution is to utilize online collaboration tools like Google. These tools develop workgroups and share documents in real-time (Roszak et al., 2021).

<b>Content</b>	Content management embraces creating, storing, accessing, and using learning resources on learning platforms. E-learning content should be diverse (Kumar, Saxena, and Baber, 2021, p.8). It can include textual content founded on well-structured information. Students should be able to find information quickly and easily. Content can be in the form of bulleted lists, mini summaries, and important concepts highlighted. Videos and podcasts are part of the online content taking the form of attractive audio explaining the courses or the intervention of specialists (Widiartini, Hadeli, and Darmini, 2021; Knudsen, Lomborg, and de Thurah, 2022).
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The improved technical conditions for digital learning, such as efficient mobile data, infrastructure, technological support, administration and organization of e-learning, and online content, contribute to e-learning prosperity.

### Types of E-learning

Table 2: Types of e-learning (Al-Fraihat et al., 2020, p.68-69; El Firdoussi et al., 2020 )

<b>Static E-Learning</b>	Static e-learning sustains that learners obtain identical knowledge that teachers specify. It denotes a learning procedure based on the traditional structure to convey teaching material and targeted syllabus to online learners. Since the teaching materials are instructor-based, static online learning is rigorous and does not adapt to students' preferences (Wu, Tzeng, and Huang, 2020, p.2216).
<b>Adaptive E-Learning</b>	Adaptive e-learning emphasizes students' flexibility. The learning materials are tailored to the learning preferences. Adaptive e-learning ensures effectiveness for online learners who wish to continue their learning path without the pressure of the traditional campus (El-Sabagh, 2021, p18 ).
<b>Interactive E-Learning</b>	Works well in a small, cohesive group environment that allows flexibility. Eased communication and idea exchange alleviated difficulties for instructors and scholars to communicate freely. Besides, the interactivity in this type of learning will enable them to personalize learning and teaching pace, procedures, and materials as they wish. Finally, interactivity is ensured through direct communication and interface (Geranmayeh et al., 2021, P.566)
<b>Collaborative-E-Learning</b>	Emphasizes and concentrates on a cooperative corporation, tolerating students' teamwork. Educational resources and learning objectives are based on the combined effort of all students to complete the course (Alzain, 2019, p47-48).

**The following are the e-learning patterns:**

#### Simultaneous e-learning:

This type of e-learning enables interaction between the teacher and the learner, question, and answer exchange, and exchange of discussion, just like in the classroom. One of these conversations is when all learners meet simultaneously and directly interact with text, audio, video, or all of the media mentioned above, that is, through real-time audio, video, and virtual classroom (Sajedi et al., 2021, p.40).



### **Asynchronous e-learning:**

While the learner can obtain lessons and educational materials through a pre-planned educational program, and the student can choose the appropriate times and places to receive education, the opposite of the first method does not require the learners to be online. Examples of this type of method include databases, multimedia, media videos and CDs, and distance learning platforms (Hadullo, Oboko, and Omwenga, 2018, p.155).

### **University Performance**

Performance indicates success and the result of an action or procedure (Ghalem et al., 2016, p.3). In management, performance is demarcated as “the attainment of higher education institute mission and objectives organizational, while considering the diversity of implemented goals to reach these objectives (Shah and Aslam, 2009, p.1-2) . This attainment is directly and indirectly related to the consequence and result of the practical procedures and actions leading to the desired result. Hence, performance is translated into achievement (Dompnier, Darnon, and Butera, 2013, p.2). Furthermore, performance is the result of coordinated actions, consistent with one another, that activate and organize resources (employees, investment) and assume that the organization has the potential for achievement (employee skills, technologies, organization) (Osifo and Charles Osifo 2013, p.150-151).

Performance is understood as the successive appraisal of the attained outcomes. Therefore, university performance results from academic work (Mohammadi and Karupiah, 2020, p.1099). The university performance is correlated with three facets, and the first is the economy which includes acquiring desirable resources at the lowest cost. The second is efficiency, which encompasses achieving pre-set goals at low cost and effectiveness based on attaining pre-set goals. University performance is primarily demonstrated by academic success. Its components include the quantity of work put in, the caliber of the output, and the completion of responsibilities (Marlina and Tjahjadi, 2020, p.4).

### **Previous Studies**

The study by Guven Ozdemir and Sonmez (2021), Younis, Ahmed, and Hussein (2021) Zheng *et al.* (2021) determined that there are statistically significant variances. Those variances occurred on two levels; the first was noticed in the students’ attitudes toward e-learning, while the second was on the gender level. The estimated t value = 4.863 verified the results and concluded that sixty-five percent of the students had negative attitudes toward e-learning.

Therefore, offering an engaging learning environment enriched with teaching and learning tools is crucial to encourage positive attitudes among students toward e-learning.

The studies of Guven Ozdemir and Sonmez (2021); Younis, Ahmed, and Hussein (2021) concluded that online learning impacts lecturers' performance. Furthermore, those studies supported that webcasting, online homework, and interactivity as lecturers' activities strongly influence academic and university performance.

As per the study of Younis *et al.* (2021) assessing factors leading to students' satisfaction in Lebanese higher education institutions, public and private educational institutions in Lebanon have implemented e-learning using a variety of electronic platforms.

Lebanese institutions' inadequate facilities made it difficult for students to finish their studies. Statistical techniques were used and relational analysis was performed. The statistical methods focused on multiple linear regression and the principle of factor analysis. This study identified significant dimensions; the latter embraced five elementary facets. These facets are the infrastructure, computer skills, e-learning independency, support provided by colleagues, and students' satisfaction. The outcomes showed and supported that student satisfaction is highly correlated with and affected by the first four dimensions.

Draissi and Yong (2020) studied online learning in Morocco, taking distance education as the independent variable during the outbreak (of COVID-19). The study revealed that the epidemic is stimulating challenges and imposing obstacles on higher education institutes to vanquish the problems influencing distance learning. Findings showed that innovative online teaching methods encourage greater student independence. This study emphasized that providing free access to some e-learning platforms influences students' academic performance; positively.

Ebelogu et al. (2021) presented a descriptive study to clarify the learning strategies and methods and their Impact on reshaping education during the Corona epidemic. This paper concluded that the high spread of the Corona epidemic greatly influences the university's performance as a higher education institute. The study of Tawafak, Romli, and Alsinani (2019) demonstrated online teaching techniques' significance in facilitating and enhancing teaching effectiveness and academic performance.

This study by Minghat et al. (2020) aimed to study the influence and effect of the current pandemic on the academic performance of veterinary medical students during 2020. Participants were requested to provide their points of view in an online questionnaire. The sample consisted of 1392 academic students from 92 different countries. The study had a 94.1%

response rate. Deduced empirical results supported the hypothesis that the epidemic significantly influenced academic performance, according to the answers of the majority of respondents (96.7%). This significant study proved that online education offers an opportunity for self-intelligence. However, it has been verified that it is tough to explain practical lessons online. The students emphasized that obtaining veterinary capabilities and proficiencies exclusively through online education is challenging. E-learning and teaching are enhanced by leveraging online interactivity. This study recommended that demonstrating medical procedures in actual settings, providing brief and summarized information, and including virtual 3D tools to imitate and simulate real-world conditions can boost a natural progression in the academic performance of future veterinaries.

Priorly explained thesis and publications focused on the effects of e-learning on academic performance, instructors' performance, and university performance in different countries. However, in Iraq, the value of earlier research is limited to the theoretical side only; therefore, this study will contribute in its empirical section to improve the application of e-learning in Iraq. Nevertheless, this paper diverges from the studies above regarding the sample. This study examines the influence of e-learning during the outbreak of the pandemic and focuses only on top management perspectives. However, the empirical analysis of this study goes along with previously published work because it relies on the descriptive and analytical approach.

## Study Hypotheses

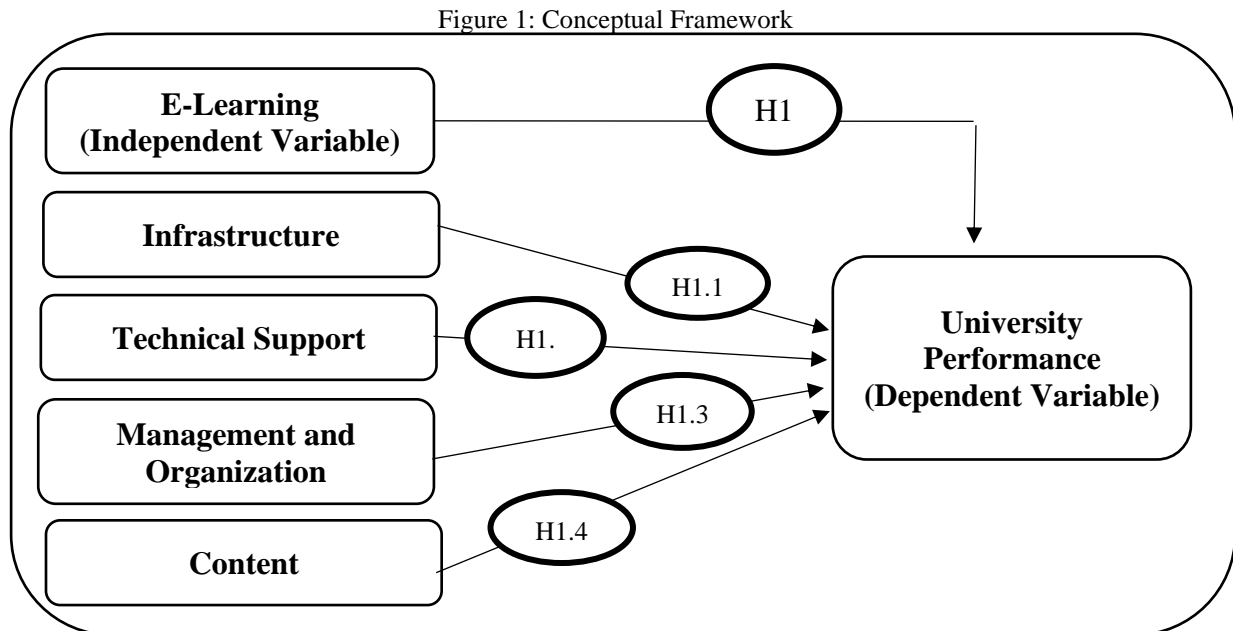
**Hypotheses of the current research constitute a main hypothesis and four sub-hypotheses constructed and grounded on the dimensions of e-learning.**

**The main hypothesis (H1):** E-learning has a statistically significant effect on university performance during the Corona pandemic (0.05 threshold of significance).

- **First sub-hypothesis (H1.1):** Infrastructure has a statistically significant effect on university performance during the Corona pandemic (0.05 threshold of significance).
- **Second sub-hypothesis (H1.2):** Technical support has a statistically significant effect on university performance during the Corona pandemic (0.05 threshold of significance).
- **Third sub-hypothesis (H1.3):** Management and Organization have a statistically significant effect on the university performance during the Corona pandemic (0.05 threshold of significance).

- **Fourth sub-hypothesis (H1.4):** Content has a statistically significant effect on university performance during the Corona pandemic (0.05 threshold of significance).

*The above research hypotheses formed the below conceptual framework.*



(Source: Younis et al. 2021; Draissi and Yong 2020; Minghat et al. 2020)

## MATERIAL AND METHODOLOGY

The leading objective addressed in this paper is to identify e-learning dimensions and detect their influence on university performance. The University of Basra was the field of empirical study. The theoretical part is enriched by previous studies forming the secondary data, while the collected primary data support the quantitative approach for deductive reasoning. The descriptive-analytical method is the analysis outline followed in this paper, addressing e-learning on the one hand and university performance on the other. This study is carried out amid the Corona pandemic. The relationship between university performance and the e-learning dimensions is the ground of this paper. It embraces learning infrastructure, technical support, management, organization, content, and university performance.

The sample for the study follows a convenience sampling technique, meaning that it is non-random (non-probability) sampling. The latter is suitable for achieving the purposes of the study. The sample consisted of (116) persons at the level of the University of Basra's faculties, with a total of (182) university employees. It consisted of (21) college deans, (42)

administrative, scientific assistants, heads of branches, the university president, assistants, and the heads of divisions.

The data are analyzed using the IBM SPSS software utilizing several statistical analysis techniques.

- **Descriptive statistical analysis tools:** mainly represented by the arithmetic mean and standard deviation.
- **Correlation analysis:** assess the resultant correlation coefficients between the dependent and the independent variables.
- **Multiple regression method:** construct a regression model that helps explain the amount of variation caused by the independent variables on the dependent variable

## RESULTS AND DISCUSSION

The practical aspect deals with the empirical findings of the research. It incorporates the results of Cronbach's Alpha (reliability test), followed by the Normal distribution test, and the descriptive statistics of the variables. Also, it highlights the hypotheses using the regression analysis as an inferential statistic. The sample consisted of (n=160) valid questionnaires evaluated on the five points of the Likert scale.

### Reliability Test

Cronbach's Alpha verifies the reliability of the instrument and scale. This coefficient should have a value greater than (0.70).

Table 3: Cronbach's Alpha Test

	<b>E-learning</b>	<b>University performance</b>
Cronbach's Alpha for each variable	0.936	0.830
Cronbach's Alpha for the questionnaire	0.943	

(Source: SPSS)

The value of Cronbach's Alpha varied between (0.830-0.943), meaning that all the current research's main variables and sub-variables are stable.

### Normal Distribution Test

This test determines if the research sample is from a normally distributed population. It studies e-learning and its dimensions that represent the independent variable on the one hand. The dependent variable, on the other hand, is university performance. The following tables

demonstrate that all of the sample's replies fall within (1) strongly disagree and (5) strongly agree, indicating no responses exist outside the ranges.

### Normal Distribution Test (E-Learning Dimensions)

The lowest and upper bounds of every response in the research sample are contained between the scale limitations, indicating no answers outside the range. The distribution of the complete e-learning variable and its dimensions, distributed normally and prepared for further statistical analysis, as accurately stated in the Table, is confirmed by the fact that (Skewness) fits within (1.96). Table (4) shows the e-learning variable's dimensions in a normal distribution.

Table 4: Normal Distribution (E-Learning Dimensions)

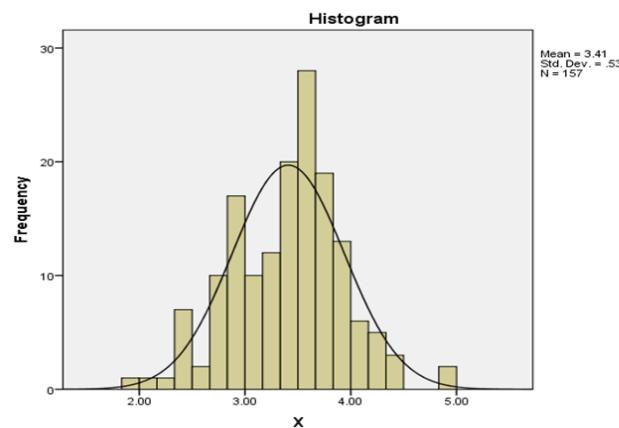
P	Missing	Min	Max	Kurtosis	Skewness
<b>1- Infrastructure (x1)</b>					
I1	0	2	5	-0.552	-0.230
I2	0	2	5	-0.724	.0236
I3	0	2	5	-0.812	0.342
I4	0	2	5	-0.893	0.059
I5	0	2	5	-0.713	0.188
I6	0	2	5	-0.873	0.226
I7	0	2	5	-0.437	0.518
I8	0	2	5	-1.508	0.198
P	Missing	Min	Max	Kurtosis	Skewness
<b>2- Technical support (x2)</b>					
TS1	0	1	5	-0.606	-0.086
TS2	0	1	5	-0.495	-0.491
TS3	0	1	5	-0.594	-0.254
TS4	0	1	5	-0.184	-0.512
TS5	0	1	5	-0.017	-0.425
TS6	0	1	5	0.505	-0.654
TS7	0	1	5	0.012	-0.617
TS8	0	1	5	0.383	-0.600
TS9	0	1	5	0.522	-0.210
TS10	0	1	5	-0.478	-0.055
TS11	0	1	5	-0.142	-0.295
TS12	0	1	5	-0.487	-0.058
TS13	0	1	5	-0.299	-0.371
P	Missing	Min	Max	Kurtosis	Skewness
<b>3- Management and Organization (X3)</b>					
MO1	0	1	5	-0.575	-0.256
MO2	0	1	5	0.197	-0.426
MO3	0	1	5	-0.783	-0.083
MO4	0	1	5	-0.088	-0.261
MO5	0	1	5	0.055	-0.359
MO6	0	1	5	-0.187	-0.453
P	Missing	Min	Max	Kurtosis	Skewness
<b>4- Content (X4)</b>					
C1	0	1	5	0.001	-0.425
C2	0	1	5	0.280	-0.389
C3	0	1	5	0.431	-0.278

C4	0	1	5	0.010	-0.045
C5	0	1	5	0.319	-0.515
C6	0	1	5	0.063	-0.266
C7	0	1	5	-0.039	-0.332
C8	0	1	5	-0.522	-0.187
C9	0	1	5	-0.256	-0.373

(Source: SPSS)

Figure (2) depicts the Normal distribution curve for the e-learning dimensions. The figure shows that the participants' responses are closely represented by the Normal distribution curve of the e-learning variable X.

Figure 2: The Normal Distribution Curve (E-Learning Dimensions)



(Source: SPSS)

### Normal Distribution Test (University Performance)

The lowest and upper bounds of every response in the research sample are between the normal distribution of the Likert scale, as shown in Table (5), indicating that there are no responses outside of these ranges. The distribution of the full-university performance variable and its dimensions, distributed normally and prepared for further statistical analysis, as indicated precisely in Table (5), is confirmed to us by the fact that (Skewness) fits inside (1.96). Table (5) represents the normal distribution of university performance.

Table 5: The Normal Distribution (University Performance Dependent Variable)

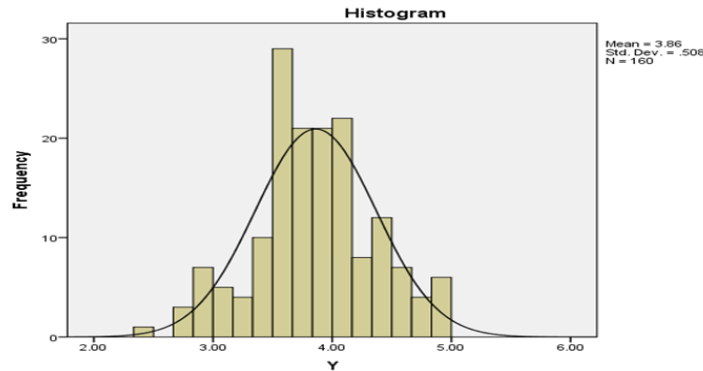
P	Missing	Min	Max	Kurtosis	Skewness
P1	0	1	5	0.229	-.482
P2	0	2	5	-0.419	-.123
P3	0	1	5	0.061	-.619
P4	0	1	5	1.229	-.627
P5	0	2	5	-0.905	-0.278
P6	0	1	5	1.062	-0.706
P7	0	2	5	-0.671	-0.479
P8	0	1	5	0.402	-0.579

P9	0	2	5	-0.314	-0.290
P10	0	2	5	-0.674	-0.036
P11	0	2	5	-0.763	-0.142

(Source: SPSS)

Figure 3 shows that the participants' responses are closely- represented by the Normal distribution curve of the university performance variable or Y.

Figure 3: The Normal Distribution Curve (University Performance)



(Source: SPSS)

### Descriptive Statistics

Descriptive statistics measures are calculated for the research variables and their statements to assert the respondents' opinions. The descriptive statistics are the mean, standard deviation, and relative importance using the indicators in Table (6):

Table 6: Descriptive Statistics Measures

Likert scale	Strongly Disagree	Disagree	Neutral Opinion	Agree	Strongly agree
Points	1	2	3	4	5
Measurements	(1 to 1.79)	(1.8 to 2.59)	(2.6 to 3.39)	(3.4 to 4.19)	(4.2 to 5)
Evaluation	Very weak	weak	Moderate	High	very high

(Source: SPSS)

### Descriptive Statistics Explanation (E-Learning and Its Dimensions, Independent Variable)

Table (7) elucidates the data of the descriptive statistics of the e-learning variable and its dimensions. It displays that the mean of the variable reached (3.41). This calculated measure is greater than the Normal threshold of the scale mean (3). Besides, this variable touched a standard deviation of (0.530) and relative importance of (68%). These results denote that the majority of responses agree to a significant extent with pre-determined statements studying e-learning and its dimensions. Detailed results are in Table (7).



Table 7: Descriptive Statistics (E-Learning and Its Dimensions, Independent Variable)

Statements (coded)	Strongly Disagree	Disagree	Neutral Opinion	Agree	Strongly agree	Mean	Standard deviation	Relative importance
I1	-	9	46	71	34	3.81	0.833	76%
I2	-	14	72	47	27	3.54	0.875	71%
I3	-	40	62	39	19	3.23	0.960	65%
I4	-	23	59	50	28	3.52	0.945	70%
I5	-	33	64	49	14	3.28	0.890	66%
I6	-	43	57	48	12	3.18	0.917	64%
I7	-	43	71	32	14	3.11	0.901	62%
I8	-	69	26	59	6	3.01	0.968	60%
<b>1- Infrastructure (x1)</b>						<b>3.33</b>	<b>0.549</b>	<b>67%</b>
TS1	13	33	56	41	17	3.10	1.100	62%
TS2	6	23	37	60	34	3.58	1.090	72%
TS3	4	28	47	59	22	3.42	1.012	68%
TS4	6	17	45	61	31	3.59	1.036	72%
TS5	5	14	54	60	27	3.56	0.976	71%
TS6	2	7	37	75	39	3.89	0.869	78%
TS7	4	13	40	64	39	3.76	0.995	75%
TS8	6	11	51	67	25	3.58	0.957	72%
TS9	2	9	72	65	12	3.48	0.768	70%
TS10	12	33	61	39	15	3.08	1.061	62%
TS11	7	23	62	54	14	3.28	0.966	66%
TS12	4	25	62	46	23	3.37	0.994	67%
TS13	2	27	54	62	11	3.28	0.953	66%
<b>2- Technical support (x2)</b>						<b>3.46</b>	<b>0.630</b>	<b>69%</b>
MO1	4	31	48	62	15	3.33	0.976	67%
MO2	4	13	56	65	22	3.54	0.912	71%
MO3	24	28	55	36	17	2.96	1.197	59%
MO4	3	17	60	61	19	3.48	0.904	70%
MO5	2	3	52	63	40	3.85	0.863	77%
MO6	2	11	45	63	39	3.79	0.934	76%
<b>3- Management and Organization (X3)</b>						<b>3.49</b>	<b>0.673</b>	<b>70%</b>
C1	2	14	48	72	24	3.64	0.887	73%
C2	2	12	57	73	16	3.56	0.822	71%
C3	2	7	62	70	19	3.61	0.802	72%
C4	1	6	65	67	21	3.63	0.782	73%
C5	3	15	55	74	13	3.49	0.847	70%
C6	2	8	58	65	27	3.67	0.859	73%
C7	4	14	58	59	25	3.54	0.944	71%
C8	1	18	53	62	26	3.59	0.914	72%
C9	5	16	53	55	31	3.57	1.013	71%
<b>4- Content (X4)</b>						<b>3.59</b>	<b>0.574</b>	<b>72%</b>
<b>E-learning dimensions</b>						<b>3.41</b>	<b>0.530</b>	<b>68%</b>

This Table demonstrated that the ‘infrastructure’ dimension incorporating its statements had achieved a mean of (3.33), with a standard deviation of (0.549) and relative importance (67%). Afterward, the technical support integrating its statements achieved a mean of (3.46), with a standard deviation of (0.630) and relative importance (69%). While the measurement (management and organization) incorporating its statements attained a mean of (3.49) with a standard deviation of (0.673) and relative importance (70%). The ‘content’ dimension combining its statements achieved a mean of (3.59), with a standard deviation of (0.574) and

relative importance (72%). Accordingly, all means (arithmetic) are more significant than the Normal threshold of the scale mean (3).

### Descriptive Statistics Explanation (University Performance; Dependent Variable)

Table (8) clarifies the descriptive statistics of the university performance as the dependent variable. It presented that the mean (general arithmetic) grasped (3.86). The value of this mean is higher than the hypothetical mean of the scale of (3). This value also indicates a high agreement between the respondents' opinions on the university performance statements. Detailed results are in Table (8).

Table 8: Descriptive Statistics (University Performance; Dependent Variable)

Statements (coded)	Strongly Disagree	Disagree	Neutral Opinion	Agree	Strongly agree	mean	standard deviation	Relative importance
P1	3	12	50	71	24	3.63	0.895	73%
P2	-	9	53	74	24	3.71	0.790	74%
P3	3	7	43	57	50	3.90	0.960	78%
P4	3	2	47	79	29	3.81	0.813	76%
P5	-	1	34	71	54	4.11	0.752	82%
P6	2	3	35	80	40	3.96	0.811	79%
P7	-	2	30	66	62	4.18	0.773	84%
P8	2	9	41	77	31	3.79	0.864	76%
P9	-	6	40	82	34	3.89	0.777	78%
P10	-	7	55	67	31	3.76	0.813	75%
P11	-	9	51	63	37	3.80	0.860	76%
<b>University Performance</b>						<b>3.86</b>	<b>0.508</b>	<b>77%</b>

(Source: SPSS)

This Table demonstrated that the university's performance combining its statements achieved an arithmetic mean of (3.86) greater than the Normal threshold of the scale mean of (3 hypothesized mean). The calculated value has a standard deviation of (0.508) and relative importance (77%).

### Hypotheses Testing (Regression Analysis)

The purpose of this section is to test the hypotheses. The latter were grounded on the relationship between the major and sub-variables of the study to determine its accuracy:

**Presentation and analysis of the primary hypothesis's findings:** There is a statistically significant effect of e-learning with its combined dimensions on improving the university's performance under the circumstances of the Corona pandemic in the faculties of the University of Basra. The values of the effect coefficients between e-learning and university performance are in Table (9).

Table 9: The Effect Coefficients (E-Learning and University Performance)

Sample	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R-square	F	Sig.
	B	Std. Error	Beta					
Constant	1.952	0.215	0.586	9.06	0.00	0.343	80.856	0.00
E-Learning	0.561	0.06		8.99	0.00			

(Source: SPSS)

When observing the findings presented in Table (9), the value of B demonstrates the association of the variables reached (0.586) and (T = 8.99) besides a significant P value higher than the predicted threshold of (0.00). Subsequently, the expected (p-value) of (0.05) with a (T value > 1.96) supports the first research hypothesis. Consequently, this hypothesis is verified. Whereas the value of (F = 80.856) demonstrated a highly significant level of (0.000), which denotes that the e-learning (independent variable) affects the dependent variable/university performance. The regression equation is

$$Y = 1.952 + (0.586)X$$

The sub-hypotheses test results are in the following Table.

Table 10: Coefficients (E-Learning Dimensions and University Performance)

Sample	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R-square	F	Sig.
	B	Std. Error	Beta					
Constant	1.678	0.199		8.44	0.000		36.62	0.000
E-Learning	0.692	0.017	0.583	17.075	0.000	0.491		
Infrastructure	0.385	0.067	0.416	5.75	0.000	0.173		
Technical Support	0.307	0.079	0.382	3.906	0.000	0.309		
Management and Organization	0.210	0.072	0.278	2.901	0.004	0.157		
Content	0.536	0.076	0.610	7.063	0.000	0.414		

(Source: SPSS)

The below five points summarize the empirical outcomes as shown in Table (10).

- **E-learning has a positive influence on university performance.** After scrutiny of the data, a moderate association exists between variables. This association is supported by the inferential indices (std. beta coefficient = 0.583), a (T value = 17.075), and a (P-value = 0.000) greater than the predicted threshold. Table 10 recorded these values as static. **Accordingly, the hypothesis is accepted.**

- **Infrastructure has a positive influence on university performance.** The scrutiny and statistical examination of the data support an exceptional association among variables. The existence of the relationship is supported by the obtained indices (standard beta coefficient = 0.416), along with a (T value = 5.75), and a p-value (0.00) noted since the level of the p-value of 0.000 is greater than the predicted threshold. **Accordingly, this hypothesis is verified.**
- **Technical support has a positive influence on university performance.** The examination of inferential indices, namely (beta coefficient =0.382) with a (T value= 3.906) and a p-value (0.00) above the accepted threshold, led to the verification of the hypothesis. After a statistical examination of the results, a statistically significant relationship among the variables is valid. **Accordingly, this hypothesis is verified.**
- **Management and organization have a positive influence on university performance. A relationship among variables is supported.** The statistical indices embracing (beta coefficient = 0. 0.278) with a (T value = 2.901) and a considerably accepted p-value greater than the predicted threshold of significance (0.000) help to verify the hypothesis. **Accordingly, this hypothesis is not rejected.**
- **Content has a positive influence on university performance.** After scrutiny of the data, a moderate association exists between variables. This association is supported by the inferential indices (std. beta coefficient = 0. 0.610), a (T value = 7.063), and a (P-value of 0.000) greater than the predicted threshold. Table 10 shows the values as static to verify the hypothesis. **Accordingly, the hypothesis is confirmed.**

Table 11: Hypotheses Results

Hypotheses		Results
<b>H1</b>	E-learning has a statistically significant effect on university performance during the Corona pandemic.	<b>Accepted</b>
<b>H1.1</b>	The infrastructure dimension has a statistically significant effect on the university's performance during the Corona pandemic.	<b>Accepted</b>
<b>H1.2</b>	Technical support has a statistically significant effect on university performance during the Corona pandemic.	<b>Accepted</b>
<b>H1.3</b>	Management and organization have a statistically significant effect on the university's performance during the Corona pandemic.	<b>Accepted</b>
<b>H1.4</b>	Content has a statistically significant effect on university performance during the Corona pandemic.	<b>Accepted</b>

(Source: Younis et.al, 2022)

## CONCLUSION

Since the COVID-19 pandemic broke out, higher education institutions in Iraq have suffered significantly. The study discovered that the four components of the e-learning variable,

infrastructure, technical support, management and organization, and content, had a significant yet positive relationship with university performance. These results are supported by arithmetic averages ranging from 3.33 to 3.59 and standard deviations ranging from 0.54 to 0.67, respectively. This study is considered an extension of the studies by Younis *et al.* (2021) [60] and Barrot, Llenares, and del Rosario (2021) [9], both with a high degree of similarities in empirical findings.

The analysis revealed a positive association linking the application of e-learning dimensions and university performance. The study concludes that there is an impact of applying e-learning dimensions on increasing university performance. Capitalizing on the results obtained, the below points are recommended :

- To establish the principles of e-learning at the University of Basra, which ensures that all equipment, buildings, internet networks, computers, and other fundamental frameworks have been improved to increase the university performance level. Managerial efforts should be made to increase interest in infrastructure, given that it has had the lowest percentage of applications.
- To promote the development of cooperative relationships amongst universities that provide comparable programs to create electronic educational resources.
- Improving financial resources for technical support enables a practical and successful application, especially given that contemporary technologies offer a more straightforward and faster solution.

The shift to online learning has allowed students to continue with their education. Nevertheless, the rapid transition to online education posed difficulties for students, instructors, and universities. First, students inability to adapt to e-learning because they had better learn by attending classes in person. Other students faced technical problems related to a lack of necessary tools and infrastructure. Still, students who profited from e-learning faced constraints related to the Internet connection, access to IT tools, and training on electronic platforms usage. Secondly, instructors faced similar obstacles mainly related to infrastructure, technical problems, and online content.

Secondly, regarding the managerial contributions of this research, one may note that the managers will have a better perception of e-learning dimensions and university performance. Also, managers gain additional insight into the relationship between those variables. Thirdly, this research highlights the features and dimensions influencing university performance significantly in the Iraqi context. Hence, executives of public and private universities will be

able to determine the actions to be adopted to advance and progress the implementation of e-learning and performance.

The first limitation is the sample size which confines the generalizations of results. The second limitation is the time limit; data collection was performed only for three months.

Future studies should focus on recruiting talented instructors in online learning and studying the factors that facilitate the supervision of online research. Finally, exploring the factors affecting online assessment management leading to fair and equitable graduation; while maintaining academic standards as an essential determinant to maintaining effective university performance.

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