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"E-Learning Platforms and Their Role in University Professor Performance: A Field Study on Newly Employed Professors in the Department of Sociology and Demography at Djelfa University – The EDX Platform as a Model"

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Abstract:

This study aims to highlight the role of e-learning platforms (specifically the EDX platform) in the performance of university professors. The research adopted a descriptive approach, with the study population consisting of newly employed professors in the Department of Sociology and Demography at Djelfa University. A comprehensive questionnaire was filled out, and the findings revealed that despite the challenges faced by university professors, e-learning platforms (EDX) have facilitated the process of online teaching.

Keywords: E-learning platforms, EDX platform, performance, university professor.

Introduction:

In light of the rapid technological advancement and the digital transformations taking place globally, e-learning platforms have become one of the main tools in the educational process. These platforms play a crucial role in facilitating both teaching and learning, especially in higher education institutions. They represent a flexible and effective means of delivering knowledge. For university professors, these platforms provide an opportunity to enhance traditional teaching methods by utilizing modern techniques that foster interaction with students and ease the transfer of information.

E-learning platforms are distinguished by various capabilities, such as content management, real-time interaction between professors and students, and the provision of a virtual learning environment that caters to diverse learning needs. These platforms offer university professors the flexibility to organize their time and deliver lectures, whether synchronously or asynchronously, which contributes to improving their performance and extending their reach to students. However, several challenges emerge that may affect the performance of university professors when using these platforms. These include the need for advanced technical skills, ensuring effective interaction with students remotely, and challenges related to the technological infrastructure.

Theoretical Framework of the Study**1. Methodological Framework of the Study:****1.1. Study Objectives:**

- To study the digital transformation in education.
- To enrich the research literature.
- To verify educational competence.
- To analyze the user experience.
- To improve the quality of e-learning.

2.1. Problem Statement:

Distance education has become a fundamental choice adopted by educational institutions, especially universities. E-learning platforms represent one of the most important tools that have brought about a fundamental change in the way education is delivered and received. They have helped overcome the traditional constraints of time and space. However, the use of these platforms raises a series of questions regarding their impact on the performance of university professors, which is a key factor in the success of the educational process.

Although e-learning platforms offer numerous advantages, such as flexibility in delivering lectures, reaching a larger number of students, and enhancing interaction through modern technological tools, there are notable challenges faced by university professors. These challenges include technical difficulties, a lack of digital skills among some professors, the need to redesign educational materials to fit the digital environment, as well as issues related to the quality of interaction with students and measuring their comprehension.

Moreover, the use of these platforms presents issues related to the additional workload of university professors, as preparing for teaching via digital platforms requires more time and effort compared to traditional teaching. The lack of digital infrastructure in some institutions may also impact the efficiency of the educational process, adding extra pressure on professors. In this context, our study aims to provide an initial diagnosis of the issue concerning the role of the EDX platform in the performance of university professors. Based on this, the central research question is:

General Question:

- Does the use of e-learning platforms (EDX platform) play a role in the performance of university professors?

Sub-questions:

- Does the EDX e-learning platform facilitate the process of online education and training?

Do university professors face difficulties in using e-learning platforms (EDX platform)?

3.1. Hypotheses of the Study:

- E-learning platforms (EDX platform) facilitate the process of online education and training.
- University professors face difficulties in using e-learning platforms (EDX platform)

4.1. Definition of Terms:

1.1.5. E-Learning Platforms:

An e-learning platform is a web-based system designed for distance learning, consisting of a cohesive technical and commercial offering that provides access to a range of interactive or non-interactive services. These services can be streamed or made available online, and may be either paid or free, with access being either limited or unrestricted. This offering relies on the development of a user community with a platform operator who creates a direct official link.¹

Hollenberg defines it as: "A type of education that encompasses various forms of study and all educational levels where the process is not under continuous, direct supervision by teachers and instructors in different classrooms, but is organized systematically. It incorporates technology, such as printed materials and mechanical and electronic tools, to establish communication between the teacher and the learner without face-to-face interaction."²

The UNESCO defines it as: "The organized use of printed and non-printed media that are carefully prepared to bridge the gap between learners and teachers, providing support for learners in their studies."³

2.1.5. Performance:

Miller and Bromley define performance as: "A reflection of how an institution uses its financial and human resources efficiently and effectively to achieve its goals."

Peter Drucker defines it as: "The institution's ability to sustain itself and maintain a balance between the satisfaction of stakeholders and employees."⁴

Performance is also defined as: "The outputs or objectives that a system seeks to achieve, and thus, it is a concept that reflects both the objectives and the means necessary to achieve them. It is a concept that connects the activities with the goals that we seek to attain through these activities within the organization."⁵

3.1.5. University Professor:

Abdel-Fattah Ahmed Jalal defines a university professor as: "A group of individuals responsible for transferring knowledge and ensuring the smooth functioning of the educational process at the university. They perform various tasks such as teaching, providing scientific guidance to students, conducting research, and supervising it."⁶

Mohamed Hassanin defines a university professor as: "The central figure in the university education system—both in teaching and research, serving the community, and contributing to overall development. The success of the university depends on their competency and productivity. They are the backbone of university reform and development."⁷

4.1.5. EDX Platform:

The EDX platform is a leading global educational website, created by the Massachusetts Institute of Technology (MIT) in collaboration with Harvard University, to offer university-level courses in various fields of science, including engineering, physics, chemistry, and more. These courses are made available worldwide in English.⁸

2. Theoretical Framework of the Study

1.2. The Importance of E-Learning Platforms in University Education:

The importance of e-learning platforms can be summarized as follows:

- The ability to publish lessons online and assign tasks and educational activities for learners.
- Providing learners with the opportunity to directly contact professors through various techniques (platforms).
- Ensuring teamwork through dividing learners into workgroups.

- Facilitating the exchange of ideas and opinions and sharing academic content between teachers and students, which helps in achieving high-quality educational outcomes.
- Encouraging effective communication among all learners anytime and anywhere in the world.
- Supporting self-learning skills and enhancing the learner's linguistic proficiency.
- Allowing learners to engage in participatory and interactive learning among themselves, directly and in real-time, and helping them choose their tasks and activities without time or location constraints.
- Improving and enriching the educational level of learners, developing critical thinking, and training them in research skills and information retrieval.
- Providing information and explanations in abundance and from multiple sources.
- Enabling learning in multiple languages.⁹

2.1. The Roles Played by Distance Education in University Education:

The major roles played by distance education include:

- **Teaching and delivering lectures:** This occurs through satellite transmission, the internet, and conferences, allowing university lectures to be delivered between universities both domestically and internationally.
- **Expanding access to university education:** This role aims to leverage the technologies used to offer university education to a large number of individuals who are unable to attend universities due to financial, time, or geographical constraints.
- **Reducing financial costs:** This is achieved by minimizing the expenses of traditional universities, including costs for constructing buildings, providing equipment, and other essential resources needed for the success of the educational process.
- **Advancing scientific research:** Given the high costs of research in universities, the results of such research can be disseminated to other universities through the establishment of distance education institutions, which can broadcast research findings via their usual methods. Furthermore, these institutions can foster collaboration between universities to conduct research and avoid duplicating scientific experiments.
- **Standardizing curricula and teaching methods across universities:** Through satellite television broadcasts, university curricula can be standardized and shared across multiple institutions.
- **Collaboration and exchange of educational experiences:** Satellite and internet technologies enable the overcoming of geographical distance and facilitate the exchange of scientific expertise among different universities.¹⁰

3.2. Challenges and Difficulties Facing Distance Education:

The main challenges are as follows:

- **Financial Challenges:** These are related to the lack of resources and infrastructure necessary for distance education. This includes the high costs of information and communication technologies, especially for developing countries.

- **Challenges Related to Content and Communication Language:** This refers to the weaknesses in the content or methods of designing and implementing educational materials due to a lack of expertise, particularly in developing countries and Arab nations. As a result, many educational institutions resort to importing high-level curricula and textbooks from other sources.
- **Challenges Related to Human Resources:** Many developing countries face shortages in qualified personnel in the field of distance education technology. Moreover, there is a shortage of qualified administrative staff. The management of distance education systems is fundamentally different from that of traditional universities, requiring administrative competencies that align with the demands of this mode of learning.
- **Challenges Related to the Knowledge Requirements for Students:** Distance education still faces a lack of clarity in its systems, methodologies, and practical application for many students, as well as some professors. Additionally, both faculty and students may be unprepared to use this type of education effectively.¹¹

Fieldwork of the Study

1. Methodology and Tools:

1.1 Adopted Methodology: The descriptive-analytical method was employed, as it is suitable for such studies.

2.1 Data Collection Tools: To ensure the validity of the hypotheses proposed for the study and in response to its nature, a questionnaire was designed as the research tool to gather the respondents' views on the role of teaching platforms, particularly the EDX platform, in the performance of university professors. The questionnaire consists of 12 questions, with each respondent required to select one answer for each question. These responses serve as measures to assess the impact of these platforms on the professors' performance.

3.1 Study Scope:

1.3.1 Temporal and Spatial Scope: The study covered newly hired faculty members from the Department of Sociology and Demography at the University of Djelfa.

4.1 Study Population and Sample:

1.4.1 Study Population: The study population in this research consists of all newly hired professors in the Department of Sociology and Demography.

2.4.1 Study Sample: To test the validity of the proposed hypotheses for the research, a purposive sample of 30 professors from the Department of Sociology and Demography at the University of Djelfa was selected.

5.1 Study Tools:

1.5.1 Questionnaire: The data could only be collected through the questionnaire, which is a tool for gathering information. It is defined as "a tool used to collect information related to the research topic through a specific form containing a number of logically organized questions, distributed to specific individuals for completion."¹²

1.1.5.1 Psychometric Properties of the Tool:

a. **Validity of the Scale:** To ensure the correctness of the questionnaire's construction, we employed the method of content validity, which is one of the

most common approaches. The initial version of the study tool was presented to a group of experienced, knowledgeable experts in the field, who are scientifically qualified to evaluate it.

b. Reliability Calculation (Cronbach's Alpha Coefficient):

- The reliability was estimated at 0.84.
- **Self-Validity:** The scale's validity coefficient was derived from the reliability coefficient using the following formula:

$$\text{Validity Coefficient} = \sqrt{\text{Reliability Coefficient}}$$
Thus, the validity coefficient equals 0.91, which is statistically significant.

7.1 Statistical Methods: After data collection, the information was coded for statistical analysis and processed using SPSS software. A set of procedures was used for the analysis, including:

Chi-Square Test: This test was applied to determine the presence of statistically significant differences in the responses of the participants to the questionnaire items.

2. Results and Discussion

1.2 Presentation, Analysis, and Discussion of the First Hypothesis Tables:

Presentation, Analysis, and Discussion of the Second Hypothesis:

First Hypothesis Text: "The EDX platform maintains a high standard in course content."

Sample Size	Mean	Standard Deviation	Chi-Square Value	Degrees of Freedom (df)	Significance Level	p-value (sig)	Statistical Decision
30	1.5771	0.66302	97.737	29	0.05	0.00	Statistically Significant

Table 01: Represents the statistical methods used in analyzing the first hypothesis.

From Table 01, which shows the statistical methods used to process the first hypothesis, we observe that the mean value is 1.5771, the standard deviation is 0.66302, the Chi-square value is 97.737, and the degrees of freedom (df) are 29 at a significance level of 0.05. The p-value is 0.00. When comparing the p-value (0.00) with the significance level (0.05), we notice that the p-value is smaller than the significance level.

Analysis and Discussion of the Results for the First Hypothesis:

The results obtained from the responses related to the first hypothesis, which states "The EDX platform maintains a high standard in course content," indicate that online teaching platforms have become essential tools in enhancing communication between professors and students and in organizing the educational process. Among these platforms is EDX, which is considered one of the innovative solutions that facilitates the process of online education.

This platform offers a range of tools that support content management, such as uploading lectures, organizing assignments, creating quizzes, and enabling direct interaction between students and professors. It also features an easy-to-use

interface designed to make the distance learning experience more efficient and smoother.

However, the success of adopting EDX depends on the ability of users, especially university professors, to adapt to new technologies and overcome challenges they might face, such as initial usage difficulties or insufficient training. Therefore, studying user experiences and analyzing the challenges they encounter is an essential step in developing the platform and achieving its goals of improving the quality of e-learning.

2. Presentation, Analysis, and Discussion of the Second Hypothesis:

- **Second Hypothesis Text:** "The professor faces difficulties in using online teaching platforms (EDX platform)."

Hypothesis	Sample	Mean	Standard Deviation	Chi-square test	Degrees of Freedom (df)	Significance Level	P-value (sig)	Statistical Decision
2nd Hypothesis	30	1.4943	0.69276	141.469	29	0.05	0.00	Statistically significant

Table 2: Statistical methods used in processing the second hypothesis.

From **Table 2**, which presents the statistical methods applied to test the second hypothesis, we observe that the mean value is 1.4943, with a standard deviation of 0.69276. The chi-square value is 141.469, with 29 degrees of freedom, and the significance level is 0.05. The p-value (sig) is 0.00. When comparing the p-value (sig) of 0.00 to the significance level of 0.05, we notice that the p-value is less than the significance level, meaning that the result is statistically significant.

Analysis and Discussion of the Second Hypothesis Results:

The results derived from the questions related to the second hypothesis, which states, "The professor faces difficulties in using online teaching platforms (EDX platform)," reveal that the rapid digital transformation in educational institutions plays a significant role in this. The EDX platform is one of the tools designed to enhance educational content management and facilitate interaction between faculty members and students. Despite the significant benefits that the platform offers, professors still face challenges in adapting to its use, which affects its effectiveness.

Conclusion:

Online teaching platforms have become one of the foundational pillars in higher education today, contributing to a fundamental shift in teaching methods and learning styles. By examining the role of these platforms in enhancing the performance of university professors, it is clear that they provide significant opportunities to improve interaction between professors and students, expand the reach of education, and offer more interactive and flexible educational content. However, these platforms come with a set of technical and pedagogical challenges that require effective responses to overcome.

The study highlighted that the success of university professors in using online teaching platforms heavily relies on the pedagogical support they receive, as well as the availability of a conducive and suitable educational environment.

In this context, educational institutions should adopt supportive policies that enable professors to make the most of online teaching platforms. This requires sustainable investments in technology and training, as well as reconsidering assessment methods and teaching approaches to ensure the quality of education in the digital environment.

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