

The influence of the Moodle digital platform on the quality of higher education: a case study on the Faculty of Economic, Commercial and Management Sciences, University of M'Sila

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Abstract:

This study aims to highlight the impact of the Model platform on the quality of higher education at the University of M'Sila, relying on the descriptive analytical approach and analyzing data from a questionnaire directed to faculty members using the SPSS program. The results showed that the platform effectively contributes to improving the quality of education through ease of use, enhancing interaction between students and professors, providing flexible educational content, and applying effective electronic evaluation methods. The study also revealed technical and educational challenges that require the provision of ongoing training and support programs to ensure optimal and sustainable use of the platform.

Keywords: Digital education platforms, quality of higher education, Moodle educational platform, hybrid education.

Jel Classification Codes: LMS, AI, VR, SEM.

1. INTRODUCTION

The ongoing digital revolution is transforming nearly every aspect of life, with technology serving as a driving force for social progress and the enhancement of quality of life. Among the sectors most influenced by this transformation is education, where digital technologies have reshaped traditional teaching and learning processes into more flexible, interactive, and adaptive models. One of the most significant innovations in this context is the emergence of digital learning platforms, particularly Moodle, a widely used Learning Management System (LMS) that supports both distance and blended learning modes. Moodle enables interactive communication, resource sharing, and assessment, making it a key tool in

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modern higher education environments. In Algeria, higher education policies have increasingly integrated digital technologies to improve educational quality, especially in response to challenges such as large student populations and limited institutional resources. Within this framework, the current study focuses on Mohamed Boudiaf University of M'Sila as a case study to evaluate the role of the Moodle platform in enhancing the quality of higher education. The study specifically examines how Moodle contributes to improving interaction, developing students' learning skills, and achieving learning outcomes that align with international academic standards.

1.1. Problem Statement

The problem of this study arises from the connection between digital education and the quality of higher education, as reflected in the research title. The core issue is summarized in the following main research question: What is the influence of using the Moodle platform on improving the quality of education at the Faculty of Economic, Commercial, and Management Sciences at Mohamed Boudiaf University of M'Sila?

From this main question, the following sub-questions emerge:

- What is the effect of ease of use on the quality of higher education at the institution under study?
- What is the effect of interaction on the quality of higher education at the institution under study?
- What is the effect of content quality on the quality of higher education at the institution under study?
- What is the effect of technical support on the quality of higher education at the institution under study?

1.2. Research Hypotheses

Based on the problem formulation, the study is guided by the following hypotheses:

There is a statistically significant effect of digital education platforms on the quality of higher education at the institution under study.

Sub-Hypotheses:

- There is a statistically significant effect of ease of use on the quality of higher education at the institution under study.
- There is a statistically significant effect of interaction on the quality of higher education at the institution under study.
- There is a statistically significant effect of content quality on the quality of higher education at the institution under study.

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- There is a statistically significant effect of technical support on the quality of higher education at the institution under study.

1.3. Study Method

This study adopted a descriptive and analytical approach to address the research problem. A questionnaire was used to collect data from a random sample of professors at the Faculty of Economic, Commercial, and Management Sciences, Mohamed Boudiaf University M'Sila, and the data were analyzed using SPSS version 25.

1.4. Study objectives

This study aims to achieve a set of academic objectives that seek to deepen understanding of the role of digital educational platforms in improving the quality of higher education, through the following:

- Analysis of the impact of using the Moodle platform in developing the quality of higher education at the Faculty of Economics, Commerce and Management Sciences at Mohamed Boudiaf University in M'Sila.
- Studying the relationship between the ease of use of the Moodle platform and the level of effectiveness of the educational process, in terms of improving the performance of professors and students within the digital educational environment.
- Determine the extent to which interaction across the platform between students and faculty members enhances academic communication and the quality of educational outcomes.
- Evaluating the contribution of the quality of electronic content provided through the Moodle platform to supporting the educational process and achieving quality standards in higher education.
- Analyze the role of technical support directed to users in enhancing the continuity of use of the platform and ensuring its effectiveness in providing a sustainable digital learning experience.

1.5. Structure of the Study

This study is organized into two main parts. The first part outlines the key concepts of digital learning platforms and defines the notion and standards of higher education quality. The second part examines the effectiveness of the Moodle platform in enhancing student–teacher interaction, developing learning skills, and achieving educational standards aligned with international academic benchmarks at the Faculty of

Economic, Commercial, and Management Sciences, Mohamed Boudiaf University of M'Sila.

2. Literature Review

2.1 Definition of study terms

• **Digitalization:** refers to the comprehensive transformation of an organization's structure, processes, human skills, and culture through the integration of digital technologies. This transformation enables the creation of products, services, and experiences that generate value for customers, employees, and partners. (Sascha Kraus, 2022)

• **Education:** is broadly defined as the process of developing knowledge, reasoning, and judgment to prepare individuals intellectually for life and professional practice. It involves systematic learning and instruction aimed at fostering intellectual and personal growth. (Dictionary, 2020)

• **Digital Education:** represents a modern evolution of traditional learning, characterized by the use of digital tools and platforms that allow students to access resources, participate in discussions, and complete assignments flexibly. This approach accommodates diverse learning styles and promotes self-paced learning, supported by technology-enhanced environments. (Abid Haleem, 2022)

• **Digital platforms:** in higher education provide vast opportunities by enhancing accessibility, flexibility, and inclusiveness. They remove geographical and temporal barriers, allowing students—especially those with work or family responsibilities—to engage in quality learning experiences from any location. (Haoyu Zhao, 2024)

• **Higher education quality:** is reflected in the institution's ability to produce graduates equipped with civic responsibility, ethical integrity, and practical competencies. It depends on factors such as a supportive learning environment, effective communication, accurate information flow, and opportunities for personal and professional development. (Allam, 2020)

In summary, the integration of digitalization into education, particularly through digital platforms, has become a key driver for improving the quality of higher education, fostering inclusivity, and enhancing the overall learning experience.

2.2 Previous studies

A growing number of studies points to the transformative role that digital educational platforms play in enhancing the quality of higher education. Previous studies have shown that these platforms contribute to

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improving access to education, providing personalized learning, increasing student engagement, and improving academic performance. It also found that learning management systems enhance student satisfaction and contribute to improving communication between teachers and students. It also emphasizes that blended or online education models, supported by these platforms, can achieve better educational results compared to traditional methods. Integrating artificial intelligence and adaptive learning technologies into digital platforms enables a more personalized and data-driven learning experience, in line with the goals of contemporary higher education. Most previous studies agree that digital platforms, when used effectively, contribute significantly to raising the quality of education, expanding the base of inclusiveness, and supporting lifelong learning within higher education institutions. We mention a group of recent studies in the field as follows:

- **First study:** This study investigates the impact of e-service quality on perceived value, satisfaction, and willingness to pay for online meeting platforms in the education sector (Ahmet Demir, 2021). Data were collected from 200 lecturers at private universities in the Kurdistan Region of Iraq, and structural equation modeling (SEM) was used to test the proposed hypotheses. The results show that e-service quality has a direct positive effect on both perceived value and satisfaction, but no direct effect on willingness to pay. However, perceived value and satisfaction act as mediators between service quality and willingness to pay, with perceived value having a stronger influence. Additionally, perceived value is found to be a predictor of satisfaction. The study highlights the importance of enhancing e-service quality to increase user satisfaction and perceived value, which in turn may encourage willingness to pay. The findings offer practical implications for university administrators and IT solution providers, emphasizing that successful online meeting platforms must prioritize service quality, perceived value, and user satisfaction.

- **Second study:** This study aims to evaluate the impact of digital education platforms on improving learning outcomes in higher education, especially in light of the shift to online learning during the COVID-19 pandemic (Alhalafawy, 2023). Using a meta-analysis of previous studies, the research investigates how digital platforms compare to traditional classrooms in supporting cognitive learning outcomes. The findings reveal

a small but positive effect of digital platforms on student learning. The study also considers intermediate variables such as study duration, subject area, student classification, and publication type. It identifies key design elements both technical (e.g., adaptive learning, gamification) and educational (e.g., problem-based learning, feedback, collaborative learning) that influence effectiveness.

- **Third study:** The study summarizes that the effectiveness of digital platforms after the Corona pandemic requires the integration of adaptive features and attractive educational designs, while calling for more research on the impact of these elements on learning and the design of educational models tailored to adaptive and motivational environments (Xie, Sustainable Development of Online Teaching Platforms and Quality Improvement of Higher Education, 10 July 2025). It also emphasizes that online education platforms have great potential to improve the quality of higher education and support the Sustainable Development Goals through in-person and interactive education, promoting global knowledge exchange, educational equality and resource efficiency. The study indicates that these platforms also contribute to environmental sustainability and social inclusion through flexible and differentiated educational experiences, but they face challenges such as weak infrastructure, lack of teacher readiness, and a lack of regulatory frameworks. In conclusion, it recommends the need to focus on technological innovation, policy development, and promoting equality to ensure the success of digital education in the future.

This study examines the impact of digital tools and online learning platforms on improving learning outcomes in higher education within private universities in Lahore – Pakistan, focusing on the role of these tools in enhancing student participation, motivation, and academic performance.

- **Fourth study:** The study adopted a quantitative approach based on a sample of 350 students selected according to the multi-stage sampling technique (Shahid Rafiq, 2024). A questionnaire was used and then analyzed using regression analysis. The results indicate that the use of digital tools effectively contributes to raising the level of interaction, motivation, and academic achievement of students, but the presence of technical difficulties, poor access to resources, and lack of training constitute an obstacle to their optimal employment. The study concludes that improving the quality of technical support, developing faculty skills, and strengthening the supporting institutional structure are essential requirements for ensuring the effective use of digital technologies in higher

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education.

2.3 Discussing the results of studies

The results confirm that digital educational platforms play a pivotal role in improving the quality of higher education by enhancing students interaction, motivation, and academic performance, while providing flexible and comprehensive learning opportunities that support the principle of equal access to knowledge. However, the results also revealed fundamental challenges that continue to hinder the full use of these platforms, most notably weak technical infrastructure, a lack of teacher training programs, and the absence of regulatory frameworks and clear quality standards. We also found that previous studies such as those of Shahid Rafiq. and Farhan Alshammary confirm that integrating digital tools with effective teaching methods such as problem-based learning, gamification, and feedback contributes to raising student engagement and improving their learning outcomes. Other studies, including the Xiwei Xie study and research conducted in the Kurdistan Region, have shown that digital platforms support sustainable development and enhance satisfaction and social inclusion within higher education institutions.

Studies recommend strengthening digital infrastructure, developing teacher training programs, setting clear regulatory standards for quality, and integrating modern technologies such as artificial intelligence and virtual reality, with an emphasis on effective educational design. It also emphasizes that the success of digital education depends not only on the availability of technology, but also on the quality of design, the competence of academic staff, institutional support, and the alignment of teaching methods with student needs. This makes gradual digital transformation, guided by clear policies, essential for achieving sustainable and equitable university education.

2.4 The difference between previous studies and current study

Table No 01: Comparison table between previous studies and the current study

Axis	Previous studies	Current study
Geographical and institutional context	Conducted in outdoor learning environments such as: Iraq (Kurdistan), Pakistan, Australia.	It focuses on the Algerian context, specifically on Mohamed Boudiaf University in M'Sila as an applied model.
Platform/tool studied	It covered multiple tools and platforms such as: Zoom,	The study focused on the Moodle platform as the

	various learning management systems (LMS), and others in general.	official system adopted at the Algerian Universities.
Research objectives	It sought to measure the impact of technology use on learning outcomes, student satisfaction, willingness to pay, or academic achievement.	It aims to analyze Moodle's role in improving the quality of higher education, by enhancing pedagogical interaction, developing students' skills, and achieving effective educational outcomes.
Approved methodology	It often relied on quantitative approaches, dimensional analysis (Meta-analysis), or large-scale questionnaires.	I used the descriptive analytical approach within a field applied case study at an Algerian university.
Organizational and policy dimension	It did not focus clearly on national policies in higher education, and there was a clear absence of a formal regulatory framework.	It stems from modern Algerian educational policies calling for the integration of technology into university education, and is in line with the strategic directions of the sector.

Source: Prepared by researchers

3. Applied Study

3.1 Study Population:

The study population consists of all faculty members at the Faculty of Economic, Commercial, and Management Sciences. This includes a total of 224 professors across various academic ranks, which are as follows:

Assistant Professor B, Assistant Professor A, Lecturer B, Lecturer A, Full Professor (Professor of Higher Education)

3.2 Study Sample:

A sample representing 35% of the total study population was selected, resulting in 80 professors out of 224.

A total of 80 questionnaires were distributed to this group. 75 questionnaires were returned. However, after the screening and verification process, 4 questionnaires were excluded due to more than half of the questions being left unanswered.

Thus, the final number of valid questionnaires for analysis was 71. The following table illustrates the corresponding percentages:

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Table No 02 : Measuring the stability of the Alpha Cronbach questionnaire

Statement	Number of total community	Number of sample	Number of questionnaire s distributed	Number of questionnaire s retrieved	Number of questionnaires valid for analysis
Number	224	80	80	78	71
percentages	-----	%36	%100	%94	%94

Source: Prepared by researchers

3.3 Study tool

This research employed a questionnaire as the primary data collection tool due to its efficiency in obtaining accurate, large-scale quantitative data quickly and cost-effectively. The questionnaire enables objective statistical analysis, facilitating the identification of patterns and drawing valid conclusions. It was carefully designed following scientific standards to ensure clarity, precision, and relevance to the study's dimensions, and was validated by academic experts to confirm its content accuracy and alignment with the research objectives before distribution.

3.4 Validity and Reliability Assessment Using Cronbach's Alpha

To verify the validity and reliability of the questionnaire, Cronbach's Alpha coefficient was used to assess the internal consistency of items within each dimension. This measure evaluates the correlation among responses related to the same construct, and a value above 0.70 is considered to indicate an acceptable level of reliability according to methodological standards.

Table No 03: Measuring the stability of the Alpha Cronbach questionnaire

Dimensions	Number of phrases	Value of Cronbach's alpha
Ease of use	5	0.82
Reaction	5	0.74
Content quality	5	0.70
Technical support	5	0.76
Digital education platforms	20	0.85
Quality of higher education	10	0.92
Axes as a whole	30	0.88

Source: Prepared by researchers based on SPSS outputs

The results presented in the table above show that the Cronbach's Alpha values for all questionnaire dimensions exceed the acceptable threshold of 0.70, indicating a high degree of internal consistency among the items.

The overall reliability coefficient (0.88) demonstrates a strong level of stability and consistency, confirming that the instrument is statistically reliable and suitable for data analysis and interpretation.

Accordingly, it can be concluded that the questionnaire developed for this study possesses sufficient validity and reliability, making it an appropriate and dependable tool for examining the relationship between digital learning platforms and the quality of higher education.

3.5 Descriptive analysis of questionnaire phrases

3.5.1. Descriptive and Statistical Tools:

In order to analyze the data obtained from the questionnaire, several statistical tools were used to ensure accurate interpretation:

- **Standard Deviation:** This measure was used to determine the degree of deviation or dispersion of the respondents' answers. The closer the standard deviation is to zero, the more consistent and concentrated the responses are. A higher standard deviation, on the other hand, indicates greater variability in participants' opinions.

- **Arithmetic Mean:** The mean was calculated to identify the average response for each statement or dimension in the questionnaire. It provides a general idea of respondents' tendencies and helps in ranking items from highest to lowest according to their importance or agreement level.

3.5.2. Descriptive analysis of the usability dimension:

Table No 04 : Distribute answers according to ease of use dimension

Number	Phrases	Arithmetic mean	Standard deviation	relative weight	Ranking	Degree
1	It is easy to browse the contents of the Moodle platform.	4.06	1.17	81%	2	high
2	I can easily add educational activities via Moodle.	4.11	0.910	82%	1	high
3	Using Moodle requires simple technical skills.	3.96	1.088	79%	3	high
4	The instructions available on Model have made it easier to use	3.89	0.994	78%	4	high

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5	I can easily manage my pedagogical work via Moodle.	3.8	1.077	76%	5	high
Total		3.964	1.047	79%		high

Source: Prepared by researchers based on SPSS outputs

The results show that the “Ease of Use” dimension achieved a high overall mean (3.96), reflecting respondents’ satisfaction with the user-friendliness of the Moodle platform. The standard deviations ranged from 0.91 to 1.17, indicating moderate variation in opinions, suggesting a relatively consistent perception among users.

3.5.3. Descriptive analysis of the interaction dimension

Table No 05 : Distribute answers according to interaction dimension

Number	Phrases	Arithmetic mean	Standard deviation	relative weight	Ranking	Degree
1	The Moodle platform facilitates academic communication with students.	3.39	1.177	68%	2	high
2	There are effective tools for scientific interaction on Moodle.	3.67	0.959	73%	1	high
3	Using forum tools increases students' interaction with scientific material.	3.11	1.202	62%	3	average
4	Moodle contributes to promoting scientific discussion outside traditional classrooms	3.04	0.992	61%	4	average
5	I notice an increase in students' interest in lectures as a result of interaction via Moodle.	2.85	1.283	57%	5	average
Total		3.212	1.122	64%		average

Source: Prepared by researchers based on SPSS outputs

The results reveal that the Interaction dimension recorded an average level (relative weight 64%), indicating moderate engagement through the platform. The relatively higher standard deviations (0.96-1.28) reflect noticeable differences in participants' experiences and opinions, suggesting that interaction levels vary across users.

3.5.4. Descriptive analysis of the content quality dimension

Table No 06 : Distribute answers according to content quality dimension

Number	Phrases	Arithmetic mean	Standard deviation	relative weight	Ranking	Degree
1	I can organize lectures and activities systematically via Moodle.	3.89	1.095	78%	2	high
2	The Moodle platform provides good templates for designing lessons and educational resources	3.72	0.989	74%	5	high
3	Make sure to update the course content continuously via Moodle.	3.93	0.976	79%	1	high
4	Content published on the Moodle platform helps achieve the course objectives.	3.75	1.065	75%	4	high
5	Moodle helps me integrate multiple resources to support the quality of teaching.	3.79	1.129	76%	3	high
Total		3.816	1.05	76%	/	high

Source: Prepared by researchers based on SPSS outputs

The analysis indicates a high perception of Moodle's role in ensuring content quality, with averages between 3.72 and 3.93. These results demonstrate participants' agreement that the platform enhances content organization and accessibility, promoting effective course delivery.

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3.5.5. Descriptive analysis of the technical support dimension

Table No 07: Distribute answers according to technical support dimension

Number	Phrases	Arithmetic mean	Standard deviation	relative weight	Ranking	Degree
1	I can organize lectures and activities systematically via Moodle.	3.6	1.095	72%	2	high
2	Moodle provides good templates for designing lessons and educational resources.	3.37	0.989	67%	4	high
3	Make sure to update the course content continuously via Moodle.	3.62	0.976	72%	2	high
4	Content published via Moodle helps achieve the course objectives.	3.56	1.065	71%	3	high
5	Moodle helps me integrate multiple resources to support the quality of teaching.	3.69	1.129	74%	1	high
Total		3.57	1.05	71%	/	high

Source: Prepared by researchers based on SPSS outputs

The Technical Support dimension achieved a high overall mean (3.57) and 71% relative weight, showing that respondents are satisfied with the level of assistance provided while using Moodle. The moderate standard deviations indicate a balanced distribution of responses.

3.5.6. Descriptive analysis of the dependent variable statements: quality of higher education

Table No 08: Distribution of answers about the quality of higher education

Number	Phrases	Arithmetic mean	Standard deviation	relative weight	Ranking	Degree
1	Moodle contributed to improving the educational level of students.	3.01	1.554	60%	9	average
2	Moodle helped me provide more interactive learning.	3.24	1.247	65%	6	average
3	The Moodle platform provides opportunities to develop students' scientific research skills.	3.34	1.218	67%	5	high
4	Moodle promotes self- and independent learning practices for students.	3.44	1.079	69%	3	high
5	Moodle helped raise the quality of student performance evaluation.	3.20	1.283	64%	7	average
6	Moodle has contributed to developing professors' capabilities in digital education.	3.76	1.075	75%	1	high
7	Model is used in line with approved academic quality standards.	3.52	1.040	70%	2	high
8	Learning outcomes are made clearer with Moodle.	3.24	1.189	65%	6	high
9	Moodle helped narrow the understanding gap.	3.08	1.262	62%	8	average
10	I believe that Moodle can be adopted as an educational tool on an ongoing basis at the university.	3.41	1.271	68%	4	high
Total		3.32	1.221	66%	/	high

Source: Prepared by researchers based on SPSS outputs

The results indicate that the sample members expressed a relatively high level of satisfaction with the Moodle platform's contribution to improving the quality of higher education, with an overall average of 3.32 and a relative weight of 66%. Participants emphasized the platform's commitment to academic quality standards and its role in promoting self-learning and developing professors' skills in digital education. However, some statements showed lower levels of

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satisfaction, especially those related to improving the overall level of students and reducing the understanding gap, indicating that the direct impact of the platform on academic performance remains limited for some users. The relatively high standard deviation values also show clear variation in professors' experiences with the platform, which may be attributed to differences in specializations, level of training, or the extent of actual reliance on Moodle in the educational process.

4. Hypothesis testing and discussion

Simple linear regression was used to determine the extent to which the independent variable affected the dependent variable, taking into account the statistical margin of error, where hypotheses were accepted or rejected based on analysis of variance (ANOVA) and statistical value F.

The Pearson correlation coefficient (r) was used to measure the direction and strength of the relationship between two quantitative variables, in addition to being used to verify the validity of the questionnaire, as the presence of a significant correlation is at the significance level ($\text{Sig.} < 0.05$) indicates a statistically significant linear relationship.

Before testing the hypotheses, the nature of the data distribution was checked to ensure its suitability for using parametric tests. Based on the central limit theory, and since the sample size was (71) individuals (>30), it was considered that the data of the two main variables — digital learning platforms and quality of higher education — followed a normal distribution.

Accordingly, parametric tests, in particular the Pearson correlation test, were applied to examine relationships between study variables, and it was confirmed that the assumptions of this statistical procedure were met before continuing to test hypotheses.

4.1. Hypothesis 01: The Effect of Ease of Use on the Quality of Higher Education

To examine the impact of Ease of Use on the Quality of Higher Education, a simple linear regression analysis was conducted. The statistical results are summarized in the following table and interpreted below.

Table 09: Simple Linear Regression (Ease of Use → Quality of Higher Education)

Independent Variable	R	R ²	F value	sig	
Ease of use model	0.356	0.127	10.003	0.002	
Simple linear regression parameter testing					
Variable	B	Std. Error	BETA	T value	sig
constant	1.663	0.536	/	3.104	0.003
Ease of use	0.419	0.133	0.356	3.163	0.002

Source: Prepared by researchers based on SPSS outputs

• **The findings show:** a moderate positive correlation ($R = 0.356$) between Ease of Use and Quality of Higher Education. The model explains 12.7% of the variance ($R^2 = 0.127$) in educational quality, with the rest influenced by other factors. The F value (10.003, Sig = 0.002 < 0.05) confirms the model's statistical significance.

The regression equation ($y = 1.663 + 0.419x$) indicates that every one-unit increase in Ease of Use leads to a 0.419-unit improvement in educational quality. The t-value (3.163, Sig = 0.002) further supports this positive and significant effect.

• **Conclusion:** The hypothesis that Ease of Use has a significant positive impact on the Quality of Higher Education is accepted.

This means that user-friendly digital learning platforms enhance student engagement, learning experience, and overall educational quality.

4.2. Hypothesis 02: The impact of interaction on the quality of higher education

To examine the impact of interaction on the Quality of Higher Education, a simple linear regression analysis was conducted. The statistical results are summarized in the following table and interpreted below.

Table 10: Simple Linear Regression (interaction → Quality of Higher Education)

Independent Variable	R	R2	F value	sig	
Content Quality model	0.404	0.163	13.482	0.001	
Simple linear regression parameter testing					
Variable	B	Std. Error	BETA	T value	sig
constant	1.298	0.561	/	2.313	0.002
Content Quality	0.531	0.145	0.404	3.672	0.001

Source: Prepared by researchers based on SPSS outputs

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• **The results reveal** a moderate positive relationship ($R = 0.539$) between Interaction and Quality of Higher Education. The model explains 29.1% of the variance ($R^2 = 0.291$), indicating that higher interaction through digital platforms significantly enhances education quality. The F value (28.258, $\text{Sig} = 0.001 < 0.05$) and t-value (5.316, $\text{Sig} = 0.001$) confirm the statistical significance of this relationship. The regression equation ($y = 1.267 + 0.640x$) shows that a one-unit increase in interaction leads to a 0.640-unit improvement in education quality.

• **Conclusion:** The hypothesis that Interaction has a significant positive effect on the Quality of Higher Education is accepted.

This demonstrates that increased digital interaction between students and instructors enhances engagement, enriches learning experiences, and strengthens overall educational quality. Institutions should therefore prioritize interactive and participatory digital learning environments.

4.3. Hypothesis 03: The impact of Content Quality on the quality of higher education

To examine the impact of Content Quality on the Quality of Higher Education, a simple linear regression analysis was conducted. The statistical results are summarized in the following table and interpreted below.

Table 11: Simple Linear Regression (interaction → Quality of Higher Education)

Independent Variable	R	R2	F value	sig	
Content Quality model	0.404	0.163	13.482	0.001	
Simple linear regression parameter testing					
Variable	B	Std. Error	BETA	T value	sig
constant	1.298	0.561	/	2.313	0.002
Content Quality	0.531	0.145	0.404	3.672	0.001

Source: Prepared by researchers based on SPSS outputs

• **The results show:** a moderate positive relationship ($R = 0.404$) between Content Quality and Quality of Higher Education. The model explains 16.3% of the variance ($R^2 = 0.163$), and the regression is statistically significant ($F = 13.482$, $\text{Sig} = 0.001$). The regression equation ($y = 1.298 + 0.531x$) indicates that a one-unit increase in content quality leads to a 0.531-unit improvement in education quality. The t-value (3.672, $\text{Sig} = 0.001$) confirms a significant and reliable positive effect.

- **Conclusion:** The hypothesis that Content Quality has a significant positive effect on the Quality of Higher Education is accepted. This means that high-quality, well-structured, and engaging digital content enhances students' learning outcomes and overall educational experience. Therefore, universities should focus on improving the quality, relevance, and pedagogical value of digital learning materials to foster academic excellence.

4.4. Hypothesis 04: The impact of Technical Support on the quality of higher education

To examine the impact of Content Quality on the Quality of Higher Education, a simple linear regression analysis was conducted. The statistical results are summarized in the following table and interpreted below.

Table 12: Simple Linear Regression (Technical Support → Quality of Higher Education)

Independent Variable	R	R2	F value	sig	
Technical Support model	0.373	0.139	11.164	0.001	
Simple linear regression parameter testing					
Variable	B	Std. Error	BETA	T value	sig
constant	1.648	0.512	/	3.217	0.002
Technical Support	0.470	0.141	0.373	3.341	0.001

Source: Prepared by researchers based on SPSS outputs

- **The results reveal** a moderate positive relationship ($R = 0.373$) between Technical Support and Quality of Higher Education. The model explains 13.9% of the variance ($R^2 = 0.139$), and the regression is statistically significant ($F = 11.164$, $Sig = 0.001$). The regression equation ($y = 1.648 + 0.470x$) indicates that a one-unit increase in technical support leads to a 0.470-unit improvement in education quality. The t-value (3.341, $Sig = 0.001$) confirms that this effect is statistically significant.

- **Conclusion:** The hypothesis that Technical Support has a significant positive effect on the Quality of Higher Education is accepted. This demonstrates that effective and timely technical support enhances the efficiency of digital learning platforms, improving students' and instructors' experiences. Therefore, universities should strengthen their technical support services through better training, rapid response systems, and user-friendly assistance to ensure sustainable and high-quality digital education.

4. CONCLUSION

The findings of this study confirm that the Moodle digital platform plays a significant and positive role in improving the quality of higher education at Mohamed Boudiaf University of M'Sila. Through the descriptive and analytical approach, supported by empirical data collected from faculty members, the study demonstrated that ease of use, interaction, content quality, and technical support are key dimensions influencing the effectiveness of digital education platforms.

The results of the statistical analyses revealed that all four dimensions have a statistically significant positive impact on the quality of higher education. Specifically, the ease of use of Moodle enhances professors' and students' engagement; interactive features promote academic communication and participation; high-quality educational content improves learning outcomes; and effective technical support ensures the continuity and sustainability of digital teaching and learning practices.

Despite these positive findings, the study also highlighted certain challenges, such as varying levels of digital readiness among users and limited infrastructure, which may affect the full utilization of Moodle's potential. Therefore, to maximize the educational benefits of digital platforms, the study recommends that universities:

- Strengthen training and capacity-building programs for both faculty and students.
- Develop technical infrastructure and ensure continuous maintenance and support.
- Encourage the design of high-quality digital content aligned with pedagogical standards.
- Foster a culture of innovation and interaction in virtual learning environments.

In conclusion, the Moodle platform has proven to be a valuable tool in supporting Algeria's transition toward a modern, flexible, and quality-driven higher education system. Sustaining its success requires continuous improvement, strategic investment in technology, and a strong institutional commitment to digital transformation and educational excellence.

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