

The Impact of Digitalization on the Perceived Quality of Services in Private Higher Education: The Case of Morocco

L'impact de la digitalisation sur la qualité perçue des services dans l'enseignement supérieur privé : cas du Maroc

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Disclosure Statement :	The authors declare that they have not received any financial support that could have influenced the objectivity of this study. They take full responsibility for any potential plagiarism, the use of artificial intelligence in the writing process, as well as for the results presented in this article.
Conflict of Interest :	The authors report no conflicts of interest.
Cite this article :	BELMOKHTAR, Y., BENRREZZOUQ, R., & CHRAIBI, A. (2025). The Impact of Digitalization on the Perceived Quality of Services in Private Higher Education: The Case of Morocco. <i>International Journal of Accounting, Finance, Auditing, Management and Economics</i> , 7(1), 696–712. https://doi.org/10.5281/zenodo.18363277
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Received: 25/11/2025

Accepted: 24/01/2026

International Journal of Accounting, Finance, Auditing, Management and Economics - IJAFAME

ISSN: 2658-8455

Volume 7, Issue 01 (2026)

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Abstract

In a context where digital transformation has become a major strategic challenge for education systems, this study examines the impact of digitalization on the perceived quality of services within private higher education institutions in Morocco. The research is grounded in an empirical observation: despite the growing adoption of digital tools, perceptions among internal users remain mixed, oscillating between expectations of improvement and technical, organizational, or cultural realities. The primary objective of this study is to assess the effect of digitalization on various dimensions of perceived quality, including service responsiveness, procedural reliability, information accessibility, and the personalization of interactions.

The study adopts a quantitative methodology based on the administration of a questionnaire to a sample of 99 professionals working in private higher education institutions. The findings reveal an overall positive impact of digitalization on perceived service quality, particularly in terms of process simplification and time savings. However, significant disparities emerge depending on the level of digital skills, the degree of staff digital autonomy, and the quality of institutional support. In addition, structural constraints and resistance to change remain recurrent barriers.

The results highlight the key factors that can significantly influence the effectiveness of digitalization initiatives and their impact on the perceived quality of services in private higher education.

Keywords: Digitalization; Perceived quality; Educational services; Private higher education; Managerial innovation

JEL classification: I23; M15; L86.

Paper type: Quantitative empirical research.

Résumé

Dans un contexte où la transformation numérique constitue un enjeu stratégique majeur pour les systèmes éducatifs, la présente recherche s'attache à étudier l'impact de la digitalisation sur la qualité perçue des services au sein des établissements d'enseignement supérieur privé au Maroc. L'étude se fonde sur un constat empirique : malgré une adoption croissante des outils numériques, la perception qu'en ont les usagers internes reste contrastée, oscillant entre espoirs d'amélioration et réalités techniques, organisationnelles ou culturelles. L'objectif principal de cette contribution est de mesurer l'effet de la digitalisation sur différents paramètres de la qualité perçue, tels que la réactivité des services, la fiabilité des procédures, l'accessibilité des informations ou encore la personnalisation des interactions.

L'étude repose sur une méthodologie quantitative dont la caractéristique essentielle est qu'elle repose sur l'administration d'un questionnaire destiné à un échantillon composé de 99 professionnels relevant d'établissements d'enseignement supérieur privé. Les résultats obtenus révèlent un impact globalement positif de la digitalisation sur la qualité perçue, en particulier en matière de simplification des démarches et de gain de temps. Toutefois, des écarts notables apparaissent selon le niveau de maîtrise des outils, le degré d'autonomie numérique des personnels et la qualité de l'accompagnement institutionnel. Par ailleurs, les contraintes structurelles et les résistances au changement demeurent des freins récurrents.

Les résultats mettent en exergue les différents facteurs pouvant significativement influencer l'efficacité des démarches de digitalisation et leurs effets sur la qualité perçue des services dans l'enseignement supérieur privé.

Mots clés : Digitalisation - Qualité perçue - Services éducatifs - Enseignement supérieur privé - Innovation managériale

Classification JEL: I23; M15; L86.

Type de papier : Recherche empirique quantitative.

Introduction

Digital transformation has emerged as one of the most profound drivers of organizational change, affecting management methods as well as the forms of production and service delivery. In higher education, this dynamic has intensified due to the combined effect of technological advances, evolving user expectations, and the need for institutions to improve their organizational performance and attractiveness. Digitalization is no longer limited to the occasional adoption of IT tools, but is part of a comprehensive reconfiguration of administrative, pedagogical, and relational processes, permanently transforming interactions between different stakeholders and the quality standards of the services offered. In this context, the issue of service quality occupies a strategic position, particularly in private higher education where competition between institutions is increasingly fierce. Perceived quality, understood as the subjective evaluation that users make of the services they receive, depends not only on the technical performance of digital systems, but also on dimensions such as the reliability of procedures, the responsiveness of services, the accessibility of information, and the quality of human interaction. Digitalization is often presented as a lever likely to improve these components by facilitating processes, reducing processing times, and strengthening organizational transparency. However, its impact on perceived quality remains ambivalent, insofar as digital systems can also generate malfunctions, exacerbate certain inequalities in access, or foster a sense of dehumanization in services.

The Moroccan context lends particular relevance to this issue. The private higher education sector there is experiencing sustained growth, accompanied by significant efforts in modernization and the integration of digital technologies. Institutions have progressively invested in academic management platforms, integrated information systems, and digital communication tools aimed at improving internal coordination and relationships with their users. However, these initiatives take place within an environment characterized by a heterogeneity of digital skills, specific organizational constraints, and disparities in support and training methods. Consequently, the perceived quality of digital services can vary considerably depending on the context of use and the conditions of implementation.

From a scientific perspective, numerous studies have analyzed the effects of digitalization on organizational performance and service quality. Information systems research, in particular, has highlighted the crucial role of the quality of digital systems, information, and services in user satisfaction and the creation of organizational value. In higher education, several studies emphasize that digital tools can improve service accessibility and process efficiency, provided they are integrated into a coherent institutional strategy and supported by human and organizational resources. However, the literature also reveals significant limitations, particularly those related to the level of digital maturity of organizations, the quality of infrastructure, and user skills.

Furthermore, several authors draw attention to the risks of unequal access, resistance to change, and information overload, which can negatively impact user experience and, consequently, the perceived quality of services. This research converges on the idea that digitalization should be understood as a complex socio-technical process, integrating technological, organizational, and human dimensions, rather than simply as a technical solution.

Despite these contributions, the existing literature has certain limitations. Firstly, a significant portion of the research focuses on different national contexts or on public institutions, thus reducing the transferability of findings to the Moroccan private sector. Secondly, studies often prioritize pedagogical uses or student perceptions, to the detriment of a comprehensive analysis of service quality as perceived by internal users involved in the daily operations of the institution.

This research is situated within this framework. It aims to analyze the impact of digitalization on the perceived quality of services within private higher education institutions in Morocco, employing a quantitative approach based on the perceptions of internal users. The objective is to identify the dimensions of quality most influenced by digital technologies and to highlight the organizational and human factors that can modulate this impact. The central question guiding this work can thus be formulated as follows: to what extent does the digitalization of services contribute to improving the perceived quality of services in Moroccan private higher education, and under what conditions does this effect manifest itself?

1. theoretical and conceptual framework

1.1. Digitalization in higher education: definitions and challenges

Digitalization cannot be reduced to a simple technological transplant: it embodies a profound restructuring of institutional mechanisms through the integration of digital technologies into the very fabric of the organization, from its daily operations to its modes of interaction. When it enters higher education, this dynamic extends far beyond office automation or teaching tools to become a lever for systemic transformation. It reconfigures both internal management methods and forms of interaction with stakeholders, while also redefining the quality of services provided.

In this regard, Gartner (2022) defines digitalization as the ability of a system to transform its manual routines into fluid, connected, and optimized digital sequences geared towards value creation. The challenge, therefore, lies not only in the substitution of media, but also in a complete overhaul of the logics of action and communication.

In the Moroccan context, this digital transition is driven, broadly speaking, by the policies of public authorities who, through various strategic plans, are working to strengthen the digital infrastructure, expand access to services, and enhance the professionalization of university governance.

However, when we examine the private sector of higher education, the picture becomes considerably more nuanced. While some institutions have adopted sophisticated digital architectures—paperless academic management, virtual classrooms, document platforms—others are still struggling to ensure even basic continuity of teaching and administrative functions.

This varying landscape raises a central question: what, ultimately, is the real impact of these systems on quality as perceived by those who experience them daily?

1.2. Perceived quality of services: conceptual foundations

Perceived quality unfolds as a subjective judgment that users make about a service, reflecting their initial expectations, perceptions, and personal experience. It cannot be captured by normative frameworks or reduced to fixed measurements; it resides in the realm of lived experience, where evaluation is shaped by experience. In the context of higher education, this perception spans several dimensions—the quality of teaching, the efficiency of administrative services, and the relevance of the digital ecosystem offered by the institution. Among the most emblematic models for understanding this evolving reality, SERVQUAL, developed by Parasuraman, Zeithaml, and Berry (1988), remains a leading authority.

This analytical framework rests on five pillars: tangibility, which refers to the aesthetics and materiality of infrastructure; reliability, understood as the ability to deliver seamless service; responsiveness, meaning the promptness of staff intervention; assurance, which refers to perceived competence and the trust it inspires; and finally, empathy, the quality of attentive care given to each individual. However, at a time when practices are becoming hybrid and digital technology is permeating interactions, these dimensions must be re-examined in light of

dematerialized tools, intelligent interfaces, and new forms of mediation that are often profoundly reshaping the fabric of lived experiences.

1.3. The interaction between digitalization and perceived quality: theoretical contributions

A substantial body of research, both theoretical and empirical, highlights the potentially structuring role of digitalization in improving the perceived quality of services, provided, however, that this technological integration is neither marginal nor disjointed. For Zeithaml and Bitner (2013), it is precisely the strategic and controlled use of technologies that enhances reliability, accelerates response times, and strengthens service personalization. Other academic voices draw attention to less technical but equally crucial parameters: the depth of organizational culture, the level of digital maturity of stakeholders, and the ergonomics and clarity of interfaces appear as essential drivers of a truly rewarding experience.

The introduction of interactive platforms, traceability systems, and online feedback modules helps streamline communication channels, improve request tracking, and establish welcome transparency in interactions. However, this promising outlook comes with a downside: when deployed without support or an inclusive vision, digitalization risks creating divisions—whether technological, generational, or socioeconomic. Inadequate training, the absence of human mediation, or unsuitable tools can, on their own, reverse the expected gains by weakening the service relationship.

It is precisely this dialectic between transformative power and the risks of misalignment that this study intends to explore. To understand its concrete effects in private higher education, it is necessary to establish a robust theoretical foundation, capable of illuminating the concepts used and fostering dialogue between the different levels of analysis. The following section first situates the challenges of digitalization within the educational sphere, before examining in detail the concept of perceived quality and its various components. It concludes by comparing these two fields, in order to better anchor the issue in its scientific basis.

2. literature review

2.1. Digitalization and restructuring of educational systems

Digitalization is not a passing fad, but a civilizational dynamic that profoundly reconfigures the logics of transmission, the structures of interaction, and the regimes of authority in educational settings. It is not limited to the addition of technological artifacts or the computerization of procedures: it reflects a paradigmatic shift, a change of episteme, to use Foucault's terms (1966), where the school is no longer just a place of instruction, but a crossroads of information, data, flows, and interfaces.

From this perspective, the work of Westerman, Bonnet & McAfee (2014) emphasizes that digitalization cannot be considered a simple shift to digital: it constitutes an organic recomposition of institutional structures. It transforms organizational scripts, reshapes the cards of governance, and imposes new codes of agility and adaptability.

In the case of Moroccan higher education, and more specifically its private sector, this restructuring takes on a unique character. Far from being a linear development, it occurs in fits and starts, with contrasting paces depending on the institution, the resources available, and the strategic vision of the administration. El Kharraz & Berrada (2021) point to a structural imbalance between digital ambitions and the material and human resources made available, creating a latent tension between proclaimed modernization and operational reality.

2.2. Perceived quality: an unstable and multidimensional construction

Discussing perceived quality means entering a fluid, subjective, and intensely situated world.

Contrary to positivist approaches that tend to establish normative quality criteria, the perspective adopted here embraces the idea that quality is a lived experience, a cognitive and affective construct resulting from the interaction between prior expectations and an actual service experience (Zeithaml, Berry & Parasuraman, 1993).

Within this framework, the SERVQUAL model (Parasuraman et al., 1988) remains one of the most effective. It breaks down quality into five key dimensions: the tangibility of facilities (design, equipment, digital environment), reliability (consistency of services, accuracy of data), responsiveness (response and processing time), assurance (perceived competence, professionalism), and empathy (listening, personalization, understanding of specific needs).

However, these dimensions, developed in a pre-digital context, must now be re-examined in light of digital transformations. Tangibility, for example, no longer refers solely to physical infrastructure but also encompasses interface ergonomics and platform readability. Similarly, empathy cannot be separated from the ability of systems to simulate or mediate human interaction through chatbots, virtual agents, or assisted communication channels.

Several contemporary studies are working to update these categories. Almarashdeh & Alsmadi (2022) demonstrate that in digital learning environments, perceived quality is being redefined around new criteria: navigation fluidity, algorithmic personalization, connection stability, and interaction traceability. Likewise, Choudhury & Pattnaik (2020) emphasize the role of emotional design in student satisfaction, a variable long overlooked by traditional models.

2.3. Digitalization and perceived quality: interactions with variable geometry

While digitalization is often presented as a panacea capable of optimizing service quality, the specialized literature warns against oversimplified technocratic approaches. The link between digitalization and perceived quality is neither linear nor universal. It depends on a set of mediating factors: users' digital literacy (Ghasemi & Nezhad, 2022), the strategic coherence of the digitalization (DeLone & McLean, 2003), and above all, the human dimension of the service, often neglected in technological projects.

In private higher education, where mentoring plays a central role, digital tools must be conceived as extensions of human interaction, not as impersonal substitutes. When these tools are introduced without pedagogy, support, or an inclusive strategy, they generate counterproductive effects: digital divides, disengagement, and even symbolic disaffiliation (Romdhani, 2021).

Conversely, the most conclusive studies (Al-Fraihat et al., 2020; Sahid & Benchekroun, 2020) show that when digitalization is linked to shared governance, continuous professional development, and user feedback, it becomes a powerful lever for improving perceived quality: time savings, transparent procedures, increased accessibility, and personalized learning paths.

This is the area of tension that the present research aims to illuminate: between technological promise and relational requirement, between automation of functions and humanization of interactions, where does the real experience of perceived quality lie in Moroccan private establishments?

2.4. A still incomplete state of the art in the Moroccan context

Despite a recent surge in research on the digitalization of educational services, the Moroccan context—and more specifically private higher education—remains underexplored. Most studies focus on public universities or on macro-structural dimensions (UNESCO, 2023). Few investigations examine the concrete interplay between digital technologies and user perceptions within private institutions, which are subject to competitive dynamics and unique organizational constraints.

This study therefore fills a gap in the literature by laying the groundwork for a situated sociology of educational digitalization, attentive to the voices of stakeholders, the materiality of the technologies, and the tangible effects on the user experience.

In light of previous work examining the effects of digitalization on service performance and perceived quality, the literature suggests that the integration of digital tools is likely to influence the constituent dimensions of service quality in higher education in different ways. Existing studies highlight contrasting effects, depending both on the methods of implementing digital systems and on the characteristics of the users. Within this framework, the present research adopts a hypothetico-deductive approach and proposes to test the following hypotheses:

H1: The digitalization of services has a positive effect on the overall perceived quality of services within private higher education institutions.

H2: The digitalization of services has a positive impact on the perceived responsiveness of administrative services.

H3: The digitalization of services improves the perceived reliability of procedures within private higher education institutions.

H4: The digitalization of services positively influences the perceived accessibility of information and services.

H5: Users' level of proficiency with digital tools is associated with differences in the perceived quality of services.

3. Research methodology

This research adopts a quantitative approach to analyze the impact of digitalization on the perceived quality of services within private higher education institutions. Data were collected using a structured questionnaire administered to internal users of these institutions.

The data collection instrument consisted of a questionnaire with several items measuring the main dimensions of perceived service quality, including responsiveness, reliability of procedures, accessibility of information, and overall service quality. The items were developed based on previous work using service quality assessment models and then adapted to the context of private higher education. Responses were collected using a five-point Likert scale, ranging from "strongly disagree" to "strongly agree."

The questionnaire was administered in French, the predominant working language within the institutions concerned. Data collection was carried out directly in the field with professionals working in private higher education institutions in Morocco.

A total of 120 questionnaires were distributed. Of these, 99 usable questionnaires were selected for analysis, representing a response rate of 82.5%. Incomplete questionnaires or those containing clearly inconsistent responses were discarded to ensure the reliability of the analyzed data.

The internal consistency of the measurement scales was assessed using Cronbach's alpha coefficient. The values obtained indicate a satisfactory level of reliability for all the dimensions considered. This step confirmed the relevance of the items used to measure the constructs under study.

The data were processed using SPSS software. Statistical analyses initially consisted of descriptive statistics (frequencies, means, standard deviations) to characterize the respondents' profiles and general perceptions regarding the digitalization of services. Correlation analyses and comparisons of means were then used to examine the relationships between the digitalization of services and the different dimensions of perceived quality, in accordance with the formulated hypotheses.

4- results and analysis

The empirical investigation conducted for this research aims to explore how users of Moroccan private higher education—students, teachers, and administrative staff—perceive the gradual

integration of digital technology into educational services, with a keen focus on quality as it is felt and interpreted. The study employs a hybrid methodology, combining a quantitative framework based on standardized questionnaires with a qualitative exploration grounded in semi-structured interviews, designed as windows into the perceptions, practices, challenges, and expectations of the stakeholders involved. This section presents and interprets the empirical data collected, structuring the analysis around several key themes. The first step will be to outline the socio-demographic profile of the sample, before examining digital practices, quality perceptions established through the lens of the SERVQUAL model, and the declared effects of digitalization on three key variables: the effectiveness of services, satisfaction felt, and institutional trust.

The entire study will be supported by a diverse range of presentations: analytical tables, summary graphs, and also verbatim excerpts chosen for their evocative power and their ability to convey the users' perspectives beyond the statistics. By articulating the technical, human, and structural dimensions, this analysis aims to bring to light both the underlying dynamics and the overt tensions that permeate the digitalization processes at work in private institutions. Ultimately, it aspires to formulate operational guidelines that can help these institutions achieve a smoother, more equitable, and more strategic adoption of digital educational tools.

4.1. Characteristics of respondents

Analysis of the respondents' profiles reveals a diversity of professional situations within the sample studied. The surveyed population consists mainly of professionals working in private higher education institutions, with a differentiated distribution according to gender, age, professional seniority, and level of education.

Table 1 — Sociodemographic and professional characteristics of respondents (N = 99)

A. Distribution by sex		
Sex	Effective	%
women	47	47,5
Man	52	52,5
Total	99	100,0
B. Distribution by age		
Age group	Effective	Percentage (%)
Under 30 years old	18	18,2
30 – 39 years old	34	34,3
40 – 49 years old	29	29,3
50 years old and older	18	18,2
Total	99	100,0
C. distribution according to professional seniority		
Professional seniority	Effective	Percentage (%)
Under 5 years	21	21,2
5 – 10 years	31	31,3
11 – 20 years	27	27,3
More than 20 years	20	20,2
Total	99	100,0
D. Breakdown by professional category		
Professional category	Effective	Percentage (%)
Administrative staff	36	36,4
teachers / trainers	41	41,4
executive and academic manager	22	22,2
Total	99	100,0

Source : Authors

Table 2 — Distribution of respondents according to their level of proficiency with digital tools (N = 99)

level of digital proficiency	Effective	Percentage (%)
weak	17	17,2
average	39	39,4
high	43	43,4
Total	99	100,0

Source : Authors

Table 3 — Overall perceived quality of services according to certain characteristics of respondents (N = 99)

Variable	Modality	Average	Standard deviation
Sex	Women	3,62	0,58
	Man	3,65	0,55
Seniority	≤ 10 years	3,71	0,52
	> 10 years	3,54	0,61
Digital mastery	weak	3,38	0,64
	average	3,61	0,56
	high	3,78	0,49

Source : Authors

The sample structure, presented in Table 1, highlights a relatively balanced distribution by gender, a predominance of middle-aged individuals, and a diversity of seniority levels and professional categories. This configuration provides a suitable framework for analyzing the perceived quality of digital services within private higher education institutions.

This diversity of professional profiles allows us to understand the perceived quality of digital services based on differentiated user experiences, reflecting varied professional situations and degrees of exposure to digital technology. According to Table 2, the descriptive results show that perceptions regarding the digitalization of services vary according to certain individual characteristics. Comparisons of means were therefore used to examine the existence of differences between the groups of respondents. The analyses highlight variations in the perceived quality of services based on the level of digital proficiency and professional experience. Respondents with a higher level of digital proficiency, on average, have a more favorable perception of the quality of digitalized services. In contrast, the differences observed according to age and level of education appear more limited.

And if we consider Table 3, it is easy to see that the statistical analyses do not reveal any significant differences in perceived quality based on the respondents' gender. These results suggest that, while certain individual characteristics may influence the perception of digital services, their effect remains differentiated depending on the variables considered. Analyzing the respondents' profiles thus helps to contextualize the overall results and to better understand the factors that can modulate the impact of digitalization on the perceived quality of services.

4.2. Frequency and methods of using digital tools

One of the first aspects examined in the survey concerns the frequency of use of digital tools made available to stakeholders in private higher education. This variable allows us to assess the degree to which digital tools are integrated into professional practices and to evaluate the level of adoption of digital services by internal users.

The results in Table 4 indicate that 49.5% of respondents report using digital tools related to academic services daily, such as institutional platforms, digital learning environments, or remote communication tools. Furthermore, 32.1% of respondents report using these tools weekly, while 13.8% use them occasionally. Finally, 4.6% of respondents indicate that they very rarely, or not at all, use the digital tools offered.

These results highlight a generally high frequency of use of digital tools within the institutions studied, while also underscoring the existence of differentiated practices among users. Analyzing these usage patterns is an essential descriptive element for understanding the context

in which the perceived quality of digital services is assessed.

Table 4 — Frequency of use of digital tools (N = 99)

Frequency of use	Effective	Percentage (%)
Daily	49	49,5
Weekly	32	32,1
Occasionnaly	14	13,8
Rarely	4	4,6
Total	99	100,0

Source : Authors

The distribution shown in Table 2 highlights an overall high frequency of use of digital tools within the institutions studied. Nearly half of the respondents report using them daily, while slightly more than a third use them weekly. Occasional and infrequent use remains in the minority within the sample.

These results reflect a relatively advanced level of integration of digital tools into professional practices. They nevertheless underscore the existence of differentiated usage patterns among respondents, a factor that will be taken into account in the subsequent analysis of the perceived quality of digital services.

4.3. Evaluation of the perceived quality of digital services

To understand the quality of digital services as perceived by users, the SERVQUAL model was used. This model is based on five fundamental dimensions of service quality: tangibility, reliability, responsiveness, assurance, and empathy. Each of these dimensions was measured using several questionnaire items and then aggregated into an average score expressed as a percentage.

The results highlight varying levels of satisfaction depending on the dimensions assessed. Responsiveness recorded the highest score, with a satisfaction rate of 70.1%, followed by reliability (66.3%) and tangibility (61.4%).

Conversely, lower levels of satisfaction are observed for assurance (55.8%) and, to a lesser extent, for empathy (48.6%), indicating areas for improvement perceived by users in these aspects of the quality of digital services.

Table 5 — Evaluation of the perceived quality of digital services according to the SERVQUAL model (N = 99)

Dimension	Satisfaction rate
Tangibility	61,4
Fiability	66,3
Réactivité	70,1
insurance	55,8
Empathy	48,6

Source : Authors

Figure 1 – Satisfaction level according to the dimensions of the SERVQUAL model



Source : Authors

The line graph highlights differences in perception between the various dimensions of the SERVQUAL model. The results indicate that the dimensions associated with the technical and functional aspects of digital services show higher levels of satisfaction than those related to relational dimensions. In particular, assurance and empathy score lower than the other dimensions assessed.

This graphical representation thus complements the results presented in Table 3 by offering a comparative view of satisfaction levels according to the dimensions of perceived quality of digital services. It highlights a heterogeneity of perceptions, without prejudging the explanatory factors, which will be the subject of a subsequent analysis.

4.4. Link between frequency of use of digital tools and perceived satisfaction

Statistical analysis examined the relationship between the frequency of use of digital tools and the level of satisfaction perceived by internal users of the institutions studied. This analysis aimed to assess the extent to which the ways in which digital services are used are associated with the overall perception of their quality.

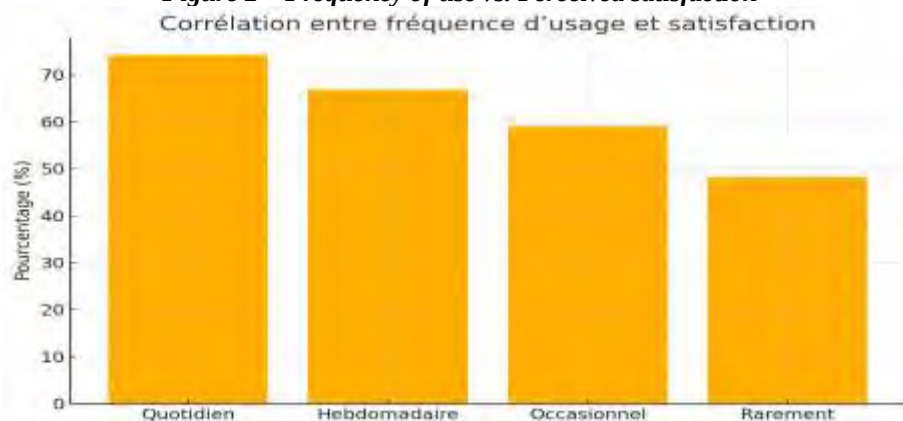
The results highlight a positive relationship between the frequency of use of digital tools and perceived satisfaction. Respondents reporting daily use reported a higher average level of satisfaction than those who used them weekly or occasionally or rare. Conversely, the lowest levels of satisfaction are observed among respondents who use digital tools infrequently.

This trend emerges gradually across usage categories, suggesting that the frequency of interaction with digital devices is associated with differences in the perception of service quality. These results indicate a moderate positive relationship between the two variables, without implying a causal link.

Table 6 — Relationship between frequency of use of digital tools and perceived satisfaction (N = 99)

Frequency of use	Satisfaction rate (%)
daily	74,2
weakly	66,8
Occasionnaly	59,1
Rarely	48,3

Figure 2 – Frequency of use vs. Perceived satisfaction



Source: Authors

The graph highlights a progressive decrease in perceived satisfaction as the frequency of use of digital tools decreases. This visualization complements the results presented in Table 4 by illustrating the observed relationship between usage patterns and perceived satisfaction, while also confirming the existence of differentiated usage profiles within the sample.

4.5. Qualitative analysis based on respondents' verbatim comments

In addition to the quantitative results, a qualitative analysis was conducted using verbatim comments collected from some respondents to provide interpretive insight into their perceptions

of digital services. This analysis aims to deepen the understanding of the statistical results by identifying the main recurring themes associated with the user experience of digital tools.

The examination of the verbatim comments reveals several dominant themes. A first theme concerns the positive perception of digitalization, particularly in terms of time savings, simplified administrative procedures, and easier access to services. Several respondents thus emphasized the usefulness of digital platforms in managing academic and administrative procedures.

A second theme relates to the perceived limitations of digital tools. Respondents mention difficulties linked to the technical instability of certain platforms, the complexity of some interfaces, and insufficient support in case of malfunctions. These elements are frequently associated with a feeling of frustration, particularly when problems encountered do not receive a quick or appropriate response. A third theme concerns the challenges of support and mastery of digital tools. The verbatim comments reveal that not all users have the same level of digital skills, which can hinder the adoption of digital services. Several respondents emphasize the need for enhanced support, particularly through training or personalized assistance.

The following excerpts illustrate these themes: “The platform interface is clear, but sometimes malfunctions block certain procedures, without immediate assistance being available.”

“Online procedures are convenient, but some situations still require direct interaction with a representative.”

“Digital tools are available, but their use remains difficult for some users who lack training.”

The qualitative analysis thus highlights an ambivalent perception of the digitalization of services. While digital tools are generally seen as levers for improving service efficiency, their impact on perceived quality remains closely linked to the conditions of adoption, the stability of the systems, and the quality of the support offered. These qualitative results complement the quantitative analyses by emphasizing that the perceived quality of digital services depends not only on the tools themselves, but also on the organizational and human factors that govern their use.

4.6. Digital skills as perceived by users

One factor likely to influence the perceived quality of digital services is the level of digital skills reported by users. In this regard, the survey measured respondents' comfort level in using the digital platforms available within their institution.

The results indicate that 42.6% of respondents consider themselves to have a good level of proficiency with digital tools, while 29.7% report a very good level. Conversely, 19.4% of users rate their level as average, and 8.3% report encountering significant difficulties in using digital devices. This data highlights the existence of heterogeneous levels of proficiency within the sample, which can influence the user experience of digital services.

This heterogeneity is also reflected in the evaluation of certain functional aspects of service digitization, presented in Table 7. Respondents expressed generally favorable opinions regarding access to academic information and reduced processing times, while more moderate evaluation levels were observed for the reliability of the platforms. Technical support, on the other hand, appears to be an aspect particularly valued by users.

Table 7 — Evaluation of certain functional aspects of digital services (N = 99)

Aspect evaluated	Favorable responses (%)
Acces to academic information	72,7
Réduction of precessing times	68,9
Reliability of platforms	62,4
Technical support	77,0

Source : Authors

4.7. Satisfaction through digital functionality

Evaluating the digitization of services is not limited to a general assessment of digital tools, but also involves analyzing the various functionalities offered to users. This approach makes it possible to identify the levels of satisfaction associated with each functional component of digitized services and to highlight any potential disparities in perception.

The results show that some commonly used administrative and academic functionalities, such as online registration services and access to grades, register relatively high levels of satisfaction, with respective rates of 75.9% and 73.1%. Conversely, more recent or interactive functionalities, such as discussion forums and educational chatbots, show more moderate levels of satisfaction, at 52.8% and 48.6%, respectively.

These differences in perception are further illustrated by the analysis of satisfaction levels according to respondents' professional categories, presented in Table 8.

Table 8 — Satisfaction Level According to Respondents' Professional Category (N = 99)

Professional category	Satisfaction rate (%)
Administrative staff	67,5
Teachers / trainers	72,4
Managers	59,2
Educational manager	64,3

The analysis reveals differing levels of satisfaction across professional categories, suggesting that the experience of digital services varies according to roles and associated uses. These descriptive results highlight the existence of contrasting perceptions of digital functionalities within the studied institutions, without prejudging the underlying explanatory factors, which will be examined in the discussion.

4.8. Frequency of use of digital tools

User adoption of digital tools is a central element in evaluating the digitalization of services within private higher education institutions. As such, the survey focused on the frequency of actual use of the main digital platforms and tools used in teaching and administrative activities

The results indicate that 49.5% of respondents report using the digital tools available to them daily. Furthermore, 32.1% report weekly use, while 13.8% use them occasionally. Finally, 4.6% of respondents indicate that they rarely use the digital tools offered. These data highlight differentiated usage patterns within the sample.

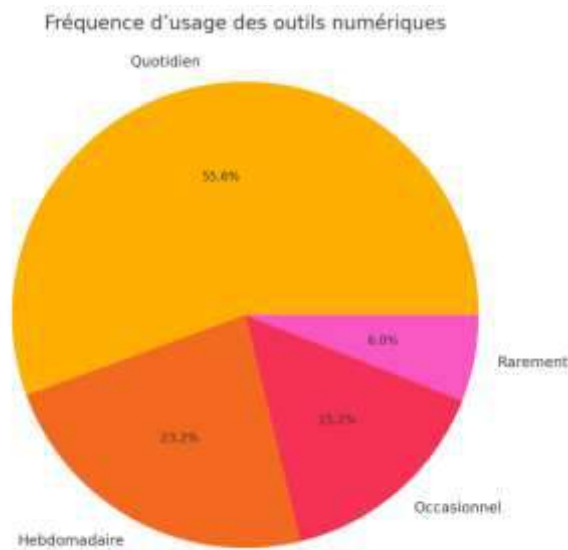
Table 9 — Frequency of use of digital tools (N = 99)

Frequency of use	Effective	Percentage (%)
Daily	49	49,5
Weakly	32	32,1
Occasionnaly	14	13,8
Rarely	4	4,6
Total	99	100,0

Source: Authors

The high frequency of use among the majority of participants reflects the gradual integration of digital practices into daily academic life. However, the third of users who are not very active highlight a crucial need for support, awareness-raising, and training to ensure full and equitable digital inclusion within institutions.

Chart 3 – Frequency of use of digital tools



Source : Authors

5- Discussion

Analysis of the results highlights a well-established digitalization process within the private higher education institutions studied, while also revealing significant disparities in the uses and perceptions associated with digital services. The data collected thus sheds light on the conditions under which digital transformation influences the perceived quality of services.

The results concerning the frequency of use of digital tools show that a significant proportion of respondents report regularly using digital tools, particularly for academic and administrative services. This relatively high frequency of use, observed in nearly half of the respondents, suggests a gradual integration of digital tools into daily professional practices.

These findings align with previous research highlighting the central role of actual use in the adoption of digital technologies and the perceived improvement in service quality.

However, the results also reveal a heterogeneity of practices and perceptions. A significant proportion of respondents report occasional or infrequent use of digital tools, indicating that the integration of digitalization remains uneven. This variability may be linked to differences in digital tool proficiency, professional experience, or access to these tools, as suggested by several studies on digital transformation in higher education.

The assessment of perceived quality using the SERVQUAL model also reveals significant discrepancies between the different dimensions of service quality. Dimensions associated with the technical and functional aspects of digital services, such as responsiveness and reliability, register higher levels of satisfaction than those related to relational dimensions, particularly assurance and empathy. These results confirm the existence of an imbalance between the technical performance of digital systems and the quality of human support perceived by users, a finding already highlighted in the literature on digital services.

Furthermore, it is important to emphasize that more regular use of digital tools is associated with higher perceived satisfaction. These results are consistent with research showing that the adoption of digital technologies is a key factor in the perceived quality of services.

Overall, the results indicate that, while the digitalization of services in private higher education is generally well accepted, its impact on perceived quality remains contingent on usage patterns, the level of proficiency with the tools, and the quality of support provided. The observed gap between technical performance and the relational dimensions of quality underscores the

importance of a comprehensive approach to digital transformation, integrating both technological and organizational dimensions.

The results obtained in this study largely align with previous work on the digitalization of services. Similar to the findings of DeLone and McLean (2003) and Venkatesh et al. (2012), the results highlight a positive relationship between the actual use of digital tools and users' perceived satisfaction, suggesting that frequency and familiarity of use are key factors in the perceived quality of digital services.

Similarly, the findings regarding the predominance of technical and functional dimensions of quality echo the observations made by Al-Hawari and Mouakket (2010), who emphasize that the reliability and responsiveness of electronic services are generally better rated than relational dimensions. The lower scores observed for assurance and empathy in the present study also confirm the findings of Selwyn (2016), according to which digitalisation in higher education tends to favour operational efficiency at the expense of the human dimension of service.

However, some results qualify the conclusions of previous studies. While Kirkwood and Price (2014) suggest that digital tools can help reduce disparities in access to services, the results of this research show that usage disparities persist among users, depending in particular on their level of digital literacy and professional experience. This finding, however, aligns with the analyses of Van Dijk (2005), who highlights the existence of digital divides linked not only to access to technologies, but also to skills and usage.

Finally, the results concerning the coexistence of digital and non-digital practices corroborate the work of Janowski (2015), who describes digital transformation as a gradual and often hybrid process. This hybridization, already observed in other organizational contexts, also seems to characterize the private higher education institutions studied, where the complete digitalization of services remains incomplete.

Conclusion

This study aimed to analyze the impact of digitalization on the perceived quality of services within Moroccan private higher education institutions, using a quantitative research approach. The results confirm that digital transformation is now a dynamic largely integrated into the administrative and academic processes of the institutions studied.

The data collected shows that a majority of users surveyed expressed an overall positive perception of digital tools, particularly those related to academic management. Digital services are most often perceived as facilitating access to information, improving the speed of procedures, and contributing to greater service efficiency. However, this assessment remains closely linked to several factors, including the level of proficiency with digital tools, the clarity of interfaces, and the quality of support provided.

The analysis also highlights the heterogeneity of digital usage. A distinction emerges between users with a high level of familiarity with digital tools and those who encounter more difficulties in adopting them. This diversity of situations underscores that digitalization does not produce homogeneous effects and should be considered a conditional lever for improving service quality, dependent on the contexts of use and user profiles.

Conceptually, the SERVQUAL model was used to structure the analysis of perceived quality by incorporating complementary dimensions: technical, functional, and relational. The results show that, while the dimensions related to the technical performance of digital services are generally well assessed, the relational dimensions remain more varied, revealing areas for improvement perceived by users.

Ultimately, this research provides empirical insight into the effects of digitalization of services in Moroccan private higher education. It highlights the central role of usage patterns and support conditions in the perception of the quality of digitalized services, thus contributing to research on the digital transformation of educational organizations.

References

- (1). Al-Fraihat, D., Joy, M., Sinclair, J., & Masa'deh, R. (2020). Evaluating e-learning systems success: An empirical study. *Computers in Human Behavior*, 102, 67–86. <https://doi.org/10.1016/j.chb.2019.08.004>
- (2). Al-Hawari, M., & Mouakket, S. (2010). The influence of technology acceptance model (TAM) factors on students' e-learning acceptance. *International Journal of Technology Enhanced Learning*, 2(1–2), 44–57. <https://doi.org/10.1504/IJTEL.2010.035307>
- (3). Almarashdeh, I., & Alsmadi, M. K. (2022). The impact of perceived quality on students' satisfaction in digital learning systems. *International Journal of Emerging Technologies in Learning*, 17(16), 164–174. <https://doi.org/10.3991/ijet.v17i16.30939>
- (4). Bawden, D., & Robinson, L. (2009). The dark side of information: Overload, anxiety and other paradoxes and pathologies. *Journal of Information Science*, 35(2), 180–191. <https://doi.org/10.1177/0165551508095781>
- (5). Belanger, F., & Carter, L. (2012). Digitizing government interactions with constituents: An historical review of e-government research in information systems. *Journal of the Association for Information Systems*, 13(5), 363–394.
- (6). Choudhury, S., & Pattnaik, S. (2020). Measuring students' perceived service quality of online learning: A SERVQUAL approach. *Education and Information Technologies*, 25(6), 5037–5056. <https://doi.org/10.1007/s10639-020-10201-y>
- (7). DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9–30. <https://doi.org/10.1080/07421222.2003.11045748>
- (8). El Kharraz, H., & Berrada, S. (2021). Digital transformation of Moroccan higher education: Challenges and perspectives. *Moroccan Journal of Economics and Management*, 45(2), 123–142.
- (9). Gartner. (2022). *Digital transformation: A roadmap for higher education institutions*. Gartner Research.
- (10). Ghasemi, M., & Nezhad, M. Z. (2022). E-service quality and student loyalty in private universities: The mediating role of satisfaction. *Journal of Applied Research in Higher Education*, 14(2), 567–584. <https://doi.org/10.1108/JARHE-07-2021-0276>
- (11). Janowski, T. (2015). Digital government evolution: From transformation to contextualization. *Government Information Quarterly*, 32(3), 221–236. <https://doi.org/10.1016/j.giq.2015.07.001>
- (12). Kirkwood, A., & Price, L. (2014). Technology-enhanced learning and teaching in higher education: What is 'enhanced' and how do we know? *A critical literature review. Learning, Media and Technology*, 39(1), 6–36. <https://doi.org/10.1080/17439884.2013.770404>
- (13). Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.
- (14). Romdhani, M. (2021). Digital transformation of universities in North Africa: Between technological promise and organizational constraints. *International Journal of Educational Management*, 35(6), 1289–1304. <https://doi.org/10.1108/IJEM-11-2020-0543>
- (15). Selwyn, N. (2016). *Education and technology: Key issues and debates* (2nd ed.). Bloomsbury Academic.
- (16). UNESCO. (2023). *Reimagining higher education in a digital age: Global report on digital transformation of education*. UNESCO Publishing.

- (17). Van Dijk, J. (2005). *The deepening divide: Inequality in the information society*. Sage Publications.
- (18). Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178.
- (19). Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press.
- (20). Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2013). *Services marketing: Integrating customer focus across the firm* (6th ed.). McGraw-Hill Education.