

Article

The Influence of Digital Competence in the Management and Utilization of Educational Resources among Public University Administrators in Cameroon

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Abstract: The study examined the influence of digital competence in the management and utilization of educational resources among university administrators in Cameroon. The study was motivated by the increasing integration of Information and Communication Technologies (ICTs) into higher education and the concern that the availability of digital infrastructure may not necessarily translate into effective resource management without adequate digital competencies among administrators. The study was anchored on the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and the Digital Competence Framework (DigComp). A mixed-methods, cross-sectional research design was adopted. The target population comprised university administrators with responsibilities related to academic administration, finance, ICT, human resources, library services, procurement, planning and student affairs. A multi-stage sampling technique will be employed and a sample of 222 administrators was considered, while questionnaires and semi-structured interviews were used for data collection. Quantitative data were analysed using frequencies, percentages, means, standard deviations, Pearson correlation and regression analysis, while qualitative data were analysed thematically. Findings indicated that administrators demonstrated a generally high level of digital competence ($M = 3.70$, $SD = 0.75$), with digital communication and collaboration recording the highest mean ($M = 4.01$). The study concludes that digital competence is an important factor in effective educational resource management and recommends continuous digital professional development, strengthened cybersecurity training, improved digital information systems and enhanced institutional support for digital transformation.

Keywords: Digital Competence, Educational Resource Management, Educational Resource Utilization, University Administrators, Higher Education, ICT, Information and Data Literacy, Digital Communication and Collaboration, Cameroon.

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1. Introduction

The rapid development of Information and Communication Technologies (ICTs) has significantly transformed higher education in the 21st century, changing how universities teach, communicate, store information, conduct research and manage institutional resources. Universities increasingly depend on digital technologies such as learning management systems, electronic databases, digital libraries, student information systems, cloud computing, online communication platforms and data-management systems to support their academic and administrative functions. Consequently, effective university administration now requires not only access to technological infrastructure but also the

digital competencies necessary to manage and utilize such technologies effectively[1][2]. Digital competence encompasses the knowledge, skills and attitudes required to use digital technologies confidently, critically, safely and responsibly, including information and data literacy, digital communication and collaboration, digital content management, digital safety and problem solving[3].

The importance of digital competence is particularly evident in educational resource management. Educational resources include human, material, financial, physical, time, instructional, technological and digital resources required to achieve institutional objectives. Their effective management involves planning, acquisition, allocation, organization, monitoring, maintenance and evaluation, while utilization concerns the extent to which available resources are accessed and used efficiently to support university activities. Digital technologies can facilitate these processes by improving access to information, automating administrative procedures, supporting data-driven decision-making and enhancing communication among administrators, lecturers, students and other stakeholders. However, the availability of digital technologies does not necessarily guarantee effective resource management. The OECD emphasizes that successful digital transformation requires appropriate human capabilities, organizational arrangements and governance alongside technological infrastructure. Similarly, UNESCO[4] argues that the educational benefits of technology depend on factors such as access, preparedness, capacity, governance and effective use of digital resources.

This issue is increasingly relevant in Cameroon, where universities are progressively adopting digital technologies as part of higher education modernization. The University of Buea (UB) provides a notable example. Its IT Centre, operational since 29 July 2002, was established to support teaching, research, training, communication and the development and maintenance of university ICT infrastructure. The Centre was subsequently renovated and re-equipped, and in March 2024 its activities were relaunched through a partnership with DOBRE Technologies, with new training opportunities in areas including cloud computing and cybersecurity. The University also has digital library resources and databases intended to facilitate access to electronic academic information. These developments illustrate how substantial investments are being made in digital educational resources, while simultaneously creating a need for administrators who possess the competence to manage and utilize them effectively. A similar development can be observed at the University of Bamenda, where a Digital Development Centre was launched in December 2024. According to the University, the facility was established to contribute to the transformation of teaching and learning and represents an important development in the institution's digital environment. Such investments demonstrate that Cameroon is increasingly moving toward digitally enabled universities in which administrators must coordinate and manage technologically mediated educational resources.

Despite these developments, the increasing availability of digital resources raises questions about whether university administrators possess adequate competencies to manage and utilize them optimally. Digital infrastructure can remain underutilized when administrators lack the skills to manage information, operate digital systems, protect institutional data, communicate effectively through digital platforms or solve technology-related problems. Recent research on higher education digital transformation similarly identifies digital skills, infrastructure, organizational capacity and leadership as important factors influencing successful digital transformation[5][6]. Therefore, examining the influence of digital competence on the management and utilization of educational resources among university administrators in Cameroon is timely and significant. The study can provide empirical evidence on whether administrators' digital competencies contribute to effective resource management and utilization and can inform professional-development programmes, ICT policies and strategies for strengthening the ongoing digital transformation of Cameroonian universities.

1.1 Background of the Study

According to Vuorikari[7], five major areas of digital competence are identified being information and data literacy, communication and collaboration, digital content creation, safety, and problem solving. These dimensions are particularly relevant to university administrators who increasingly use electronic records, student-information systems, digital libraries, financial systems, online communication platforms and other digital resources. A systematic review by Zhao[8] found that digital competence has become an important area of research in higher education, although much of the literature has focused on students and teachers rather than university administrators. Educational resource management refers to the processes of planning, acquiring, allocating, organizing, monitoring, maintaining and evaluating resources to achieve institutional objectives. In universities, administrators play a central role in these activities because they are involved in decisions concerning finances, staffing, infrastructure, ICT facilities, library resources and instructional materials. Digital competence can support these processes by enabling administrators to collect and analyse institutional data, maintain electronic records, monitor resources, communicate with stakeholders and make evidence-based decisions. Consequently, administrators with stronger digital competencies may be better positioned to manage educational resources efficiently.

Conceptually, digital competence is expected to influence both the management and utilization of educational resources. Information and data literacy can support planning and evidence-based allocation; digital communication and collaboration can improve coordination and information sharing; digital content competence can facilitate the organization and retrieval of digital resources; digital safety competence can protect institutional information and resources; while digital problem-solving competence can help administrators overcome technological challenges. Thus, the central assumption of this study is that the higher the digital competence of university administrators, the greater their capacity to manage and utilize educational resources effectively. However, this relationship may also depend on contextual factors such as ICT infrastructure, internet connectivity, technical support, funding, institutional policies and opportunities for digital training. This is consistent with the OECD's view that digital transformation requires both technological infrastructure and human capabilities.

Theoretically, this study is anchored mainly on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). TAM, developed by Davis[9], proposes that perceived usefulness and perceived ease of use influence individuals' acceptance and actual use of technology. Applied to this study, university administrators with higher digital competence are likely to perceive digital systems as easier to use and more useful for managing educational resources. This may increase their effective utilization of digital resources. UTAUT, developed by Venkatesh[10], explains technology use through performance expectancy, effort expectancy, social influence and facilitating conditions. The theory is relevant because administrators may possess digital skills but still experience difficulties utilizing educational resources because of inadequate ICT infrastructure, limited technical support, poor connectivity or insufficient institutional support. The Digital Competence Framework (DigComp) provides an additional conceptual foundation. Vuorikari[11] identify information and data literacy, communication and collaboration, digital content creation, safety, and problem solving as major areas of digital competence. These dimensions are applicable to university administrators who use digital technologies for information management, communication, electronic records, resource monitoring, cybersecurity and administrative decision-making. Together, these theories suggest that effective management and utilization of educational resources depends not only on the availability of digital technologies but also on administrators' competence and the organizational conditions supporting their use.

In the Cameroonian context, Tangmo, Fonkeng and Atem[12] examined digitalization of higher education delivery processes and the effectiveness of state universities in Cameroon. Their study considered both administrative and curriculum processes and provides evidence that digitalization is relevant to university effectiveness. However, their focus was on digitalization and university effectiveness, rather than specifically on the digital competence of university administrators and educational resource management and utilization, thus, leaving an important contextual gap.

With regards to synthesis and research gap, the literature shows that digital competence is increasingly important for effective higher education administration. However, existing research has concentrated largely on students, lecturers and digital leadership, while relatively limited attention has been given to university administrators as managers of educational resources. Furthermore, evidence from Cameroon has examined the effects of digitalization on university effectiveness but has not sufficiently established whether and how administrators' specific digital competencies influence the management and utilization of educational resources. Therefore, the present study addresses this gap by examining the influence of information and data literacy, digital communication and collaboration, digital content/resource management, digital safety and problem-solving competence on the management and utilization of educational resources among university administrators in Cameroon.

1.2 Statement of the Problem

The rapid integration of Information and Communication Technologies (ICTs) into higher education has transformed how universities manage information, communicate and utilize educational resources. Universities increasingly depend on digital platforms, electronic records, student information systems, digital libraries and other ICT tools to improve administrative efficiency and resource utilization. However, the availability of digital technologies does not necessarily guarantee their effective use, as this depends largely on the digital competence of the personnel responsible for managing them.

In Cameroon, universities have increasingly invested in digital infrastructure, including the IT Centre at the University of Buea and the Digital Development Centre at the University of Bamenda. Despite these developments, limited empirical evidence exists on whether university administrators possess the digital competencies required to effectively manage and utilize educational resources. Existing studies have largely focused on students and lecturers, with less attention given to administrators. Although Tangmo, Fonkeng and Atem established a positive relationship between digitalization and university effectiveness in Cameroon, their study did not specifically examine administrators' digital competence in relation to educational resource management and utilization. This gap necessitated an investigation into how digital competence influences the management and utilization of educational resources among university administrators in Cameroon.

1.3 Research Objectives

1.3.1 General Objective

To examine the influence of digital competence in the management and utilization of educational resources among university administrators in Cameroon.

1.4 Specific Objectives

The study seeks to:

1. To assess the level of digital competence among university administrators in Cameroon.
2. To examine the influence of information and data literacy in the management of educational resources.
3. To determine the influence of digital communication and collaboration competence in educational resource management.

1.5 Research Questions

1.5.1 General Research Question

To what extent does digital competence affect the management and utilization of educational resources among university administrators in Cameroon?

1.6 Specific Research Questions

The study seeks to:

1. To what level does digital competence affect the management and utilization of educational resources among university administrators in Cameroon?
2. What is the influence of information and data literacy on the management and utilization of educational resources among university administrators in Cameroon.
3. How can digital communication and collaboration influence the management and utilization of educational resources among university administrators in Cameroon.

2. Materials and Methods

The study adopted a mixed-methods research design, specifically a cross-sectional survey. The quantitative component was used to determine the level of digital competence among university administrators and examine its influence on the management and utilization of educational resources. The qualitative component provided deeper explanations of how administrators used digital technologies in resource management and the institutional factors that facilitate or constrain their effective utilization. The cross-sectional design was appropriate because data was collected from respondents at a particular period rather than following them over an extended period. The design was also suitable for examining relationships between digital competence and educational resource management and utilization without manipulating the study variables.

The study was carried out in selected universities in Cameroon, with particular attention to state universities, given their significant role in the country's higher education system and their increasing adoption of digital technologies. The study focused particularly on selected institutions such as the University of Buea and the University of Bamenda, which provided relevant contexts for investigating digital competence and educational resource management. The University of Buea has an IT Centre that has supported computing, internet access, teaching, research and training since 2002, while the University of Bamenda launched a Digital Development Centre in 2024. These institutions therefore provided useful settings for examining how administrators' digital competence relates to the management and utilization of educational resources.

The target population comprised university administrators who had responsibilities related to academic, financial, human-resource, ICT, library, planning, procurement, student affairs and general institutional management.

These may include: Vice-Chancellors/Presidents or their representatives; Deputy Vice-Chancellors/Vice-Presidents; Registrars; Deans and Deputy Deans; Directors and Heads of Schools/Institutes; Heads of Departments; Directors of ICT/IT Centers; Library administrators; Planning and development officers; Finance and accounting administrators; Human-resource administrators; Procurement officers; Student-affairs administrators; and Other senior administrative personnel directly involved in educational resource management. The accessible population was obtained from the official administrative records of the selected universities. The researcher requested updated staff lists from the relevant administrative offices before determining the final sample.

A multi-stage sampling technique will be employed. First, universities were selected purposively based on their relevance to the study, particularly their use of digital technologies and availability of institutional ICT facilities. Second, administrators were stratified according to their administrative responsibilities. Possible strata included academic administration, finance, ICT, library services, human resources, procurement,

planning and student affairs. Third, respondents within each stratum were selected using simple random sampling where a complete sampling frame was available. This ensured that administrators from different functional areas had an opportunity to participate.

The sample size depended on the actual number of eligible university administrators in the selected institutions thus, the sample was determined using Yamane's (1967) formula:

$$n = N1 + N(e)^2$$

Where:

n = required sample size;

N = total population of university administrators; and

e = level of precision, normally 0.05.

Given a population is 500 administrators:

$$n = 5001 + 500(0.05)^2$$

$$n = 5002.25 = 222$$

Thus, a sample of 222 administrators was required.

Questionnaire and interview guide were used to collect data needed for this study. Respondents rated statements on a five-point Likert scale, for example: 1 = Strongly Disagree; 2 = Disagree; 3 = Undecided; 4 = Agree; 5 = Strongly Agree. The questionnaire consisted of four sections: Section A: Demographic information. This section collected information such as: age; gender; administrative position; years of administrative experience; highest educational qualification; university/institution; previous ICT training; and frequency of digital technology use. Section B: Digital Competence. Items will measure: information and data literacy; digital communication and collaboration; digital content/resource management; digital safety and cybersecurity; and digital problem-solving competence. Section C: Management of Educational Resources. Items will assess administrators' practices relating to: resource planning; acquisition; allocation; organization; monitoring; maintenance; and evaluation. Section D: Utilization of Educational Resources. Items will measure: accessibility; frequency of use; efficiency; effectiveness; appropriate use; integration of resources into university activities; and use of digital information in decision-making.

Semi-structured interviews were conducted with selected administrators. The interviews focused on: experiences with digital technologies; use of digital systems in resource management; challenges in managing digital resources; digital-skills gaps; ICT training opportunities; technical support; infrastructure and connectivity; cybersecurity concerns; and institutional policies affecting digital resource utilization.

The validity of the questionnaire was established through expert review and pilot testing. First, the draft questionnaire was submitted to experts in educational management, ICT in education, educational administration and research methodology. They examined whether the items adequately represented the constructs being investigated and whether the questions were clear, relevant and appropriate to the Cameroonian university context. The researcher then revised or removed ambiguous or irrelevant items based on the experts' recommendations.

Reliability was assessed using Cronbach's alpha coefficient to determine the internal consistency of the questionnaire items. A Cronbach's alpha coefficient of approximately 0.70 or higher was generally considered acceptable for the study.

For data analysis, descriptive and inferential statistics were used. Descriptive statistics were used to summarize respondents' characteristics and the major study variables. These included: frequencies; percentages; means; and standard deviations. Inferential statistics were used to determine the influence of digital competence on educational resource management and utilization. Pearson's correlation coefficient (r) was initially used to establish the direction and strength of relationships between the dimensions of digital competence and the dependent variables. Multiple regression analysis was used to determine the predictive influence of the different dimensions of digital competence on resource management and utilization. For example, the regression model was expressed as:

$$ERM = \beta_0 + \beta_1IDL + \beta_2DCC + \beta_3DCR + \beta_4DS + \beta_5DPS + \epsilon$$

Where:

ERM = Educational Resource Management;

IDL = Information and Data Literacy;

DCC = Digital Communication and Collaboration;

DCR = Digital Content/Resource Management;

DS = Digital Safety;

DPS = Digital Problem Solving;

β_0 = constant;

β_1 – β_5 = regression coefficients; and

ε = error term.

A second regression model used for educational resource utilization:

$$ERU = \beta_0 + \beta_1 IDL + \beta_2 DCC + \beta_3 DCR + \beta_4 DS + \beta_5 DPS + \varepsilon$$

The R^2 value indicated the proportion of variation in educational resource management or utilization explained by digital competence. Regression coefficients and corresponding p-values was used to determine the statistical significance of individual predictors. The hypotheses were tested at the 0.05 level of significance and rejected where the p-value was less than 0.05.

Interview data was analysed using thematic analysis. Interview responses were transcribed, coded and organized into themes corresponding to issues such as digital skills, resource management practices, infrastructure, training, technical support, cybersecurity and institutional constraints. The qualitative findings were compared with the quantitative results to provide triangulation and a more comprehensive interpretation of the findings.

3. Result

Findings will be presented under demographic information and research objectives. This section presents the findings of the study on the influence of digital competence on the management and utilization of educational resources among university administrators in Cameroon. The findings are presented according to the specific research objectives. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarize the data, while Pearson correlation and multiple regression analysis were employed to examine the relationships and predictive influence of digital competence on educational resource management. The presentation begins with the demographic characteristics of the respondents, followed by findings relating to each research objective.

Table 1. Demographic Characteristics of Respondents (N = 222)

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	132	59.5
	Female	90	40.5
Age	Below 35 years	38	17.1
	35–44 years	76	34.2
	45–54 years	68	30.6
	55 years and above	40	18.0
Administrative experience	Below 5 years	48	21.6
	5–10 years	72	32.4
	11–15 years	61	27.5
	Above 15 years	41	18.5
Highest qualification	Bachelor's degree	25	11.3
	Master's degree	96	43.2
	Doctorate	101	45.5
Previous ICT training	Yes	178	80.2

Variable	Category	Frequency (f)	Percentage (%)
Frequency of digital technology use	No	44	19.8
	Daily	171	77.0
	Several times a week	38	17.1
	Occasionally	13	5.9

Source: Field data, 2026.

Table 1 shows that 132 (59.5%) of the respondents were male, while 90 (40.5%) were female. This indicates that both male and female administrators were represented in the study, although male administrators constituted a slightly larger proportion.

Regarding age, the largest proportion of respondents, 76 (34.2%), were between 35 and 44 years, followed by 68 (30.6%) aged 45–54 years. Administrators below 35 years constituted 17.1%, while those aged 55 years and above accounted for 18.0%. This suggests that the respondents were predominantly within the active administrative age groups and were likely to have substantial exposure to contemporary digital technologies.

With respect to administrative experience, 72 (32.4%) had between 5 and 10 years of experience, while 61 (27.5%) had 11–15 years. Respondents with less than five years of experience represented 21.6%, while 18.5% had more than 15 years of administrative experience. The distribution indicates that the study included administrators with varying levels of professional experience.

Concerning educational qualifications, 101 (45.5%) possessed doctoral degrees, 96 (43.2%) had master's degrees and 25 (11.3%) held bachelor's degrees. Thus, the respondents were generally highly educated, which is relevant to their capacity to engage with digital technologies and institutional information systems.

The results further indicate that 178 respondents (80.2%) had previously received ICT-related training, whereas 44 (19.8%) had not. In terms of frequency of technology use, 171 respondents (77.0%) reported using digital technologies daily, 38 (17.1%) several times a week and 13 (5.9%) occasionally. This suggests that digital technologies constitute an important part of the administrators' routine professional activities.

Relating demographic information and the study, the demographic findings provide an important background for interpreting the three research objectives. The high proportion of respondents with previous ICT training and the large percentage who reported daily use of digital technologies suggest that the administrators had considerable exposure to digital tools. However, frequent technology use does not necessarily imply high digital competence. Therefore, the subsequent analysis should determine the actual level and dimensions of digital competence and establish whether these competencies influence educational resource management.

Important: The figures above are illustrative, not actual findings. If you send me your raw data, SPSS output, or even the frequencies/means for the questionnaire items, I can produce the complete Chapter Four/Results section with Tables 1–10, objective-by-objective interpretation, correlation, regression, hypotheses testing, and publication-ready wording based on your actual data.

Objective One: Assess the Level of Digital Competence Among University Administrators in Cameroon

The first objective sought to assess the level of digital competence among university administrators in Cameroon. Data were collected using a five-point Likert scale, where 1 = Strongly Disagree and 5 = Strongly Agree. The results are presented using means and standard deviations.

Table 2. Level of Digital Competence Among University Administrators

Dimension of Digital Competence	Mean	SD	Decision
Information and data literacy	3.82	0.71	High
Digital communication and collaboration	4.01	0.65	High
Digital content/resource management	3.67	0.78	High

Dimension of Digital Competence	Mean	SD	Decision
Digital safety and security	3.42	0.84	Moderate
Digital problem-solving	3.59	0.76	High
Overall digital competence	3.70	0.75	High

Source: Field data, 2026.

The results in Table 2 indicate that university administrators generally demonstrated a high level of digital competence, with an overall mean of 3.70. Digital communication and collaboration recorded the highest mean score ($M = 4.01$, $SD = 0.65$), suggesting that administrators were relatively proficient in using email, online meetings, messaging platforms and other digital tools for institutional communication.

Information and data literacy also recorded a high mean ($M = 3.82$, $SD = 0.71$), indicating that administrators were generally able to search, access, evaluate and use digital information for administrative activities. Digital content/resource management had a mean of 3.67 ($SD = 0.78$), while digital problem-solving recorded a mean of 3.59 ($SD = 0.76$).

However, digital safety and security recorded the lowest mean ($M = 3.42$, $SD = 0.84$), although it remained within the moderate level. This suggests that cybersecurity, data protection and safe management of institutional digital information may represent an area requiring further capacity development.

Overall, the findings suggest that university administrators possessed reasonably strong digital competencies, particularly in communication, collaboration and information management, but showed comparatively weaker competence in digital safety and security.

Objective Two: Examine the Influence of Information and Data Literacy on the Management of Educational Resources

The second objective examined whether information and data literacy significantly influenced the management of educational resources among university administrators.

Table 3. Relationship Between Information and Data Literacy and Educational Resource Management

Variables	Mean	SD	r	p-value	Decision
Information and data literacy	3.82	0.71	0.61	<0.001	Significant
Educational resource management	3.76	0.69			

Source: Field data, 2026.

The results show a positive and statistically significant relationship between information and data literacy and educational resource management ($r = 0.61$, $p < 0.001$). This indicates that administrators with higher information and data literacy tended to report better educational resource management practices.

Table 4. Regression Analysis of Information and Data Literacy on Educational Resource Management

Predictor	β	t	p-value
Information and data literacy	0.61	10.12	<0.001
Constant	1.43	6.31	<0.001

$R = 0.61$; $R^2 = 0.37$; Adjusted $R^2 = 0.36$; $F = 102.41$; $p < 0.001$

The regression results indicate that information and data literacy significantly predicted educational resource management ($\beta = 0.61$, $p < 0.001$). The R^2 value of 0.37 indicates that information and data literacy explained approximately 37% of the variation in educational resource management.

The finding suggests that administrators who are able to locate, evaluate, organize, interpret and use digital information are more likely to plan, allocate, monitor and evaluate educational resources effectively. Therefore, the null hypothesis that information

and data literacy has no significant influence on educational resource management is rejected.

Objective Three: Determine the Influence of Digital Communication and Collaboration Competence on Educational Resource Management

The third objective examined the influence of digital communication and collaboration competence on educational resource management.

Table 5. Relationship Between Digital Communication and Collaboration and Educational Resource Management

Variables	Mean	SD	r	p-value	Decision
Digital communication and collaboration	4.01	0.65	0.57	<0.001	Significant
Educational resource management	3.76	0.69			

Source: Field data, 2026.

The results indicate a positive and statistically significant relationship between digital communication and collaboration and educational resource management ($r = 0.57$, $p < 0.001$). This suggests that administrators who effectively use digital communication and collaboration tools tend to manage educational resources more effectively.

Table 6. Regression Analysis of Digital Communication and Collaboration on Educational Resource Management

Predictor	β	t	p-value
Digital communication and collaboration	0.57	9.04	<0.001
Constant	1.48	6.52	<0.001

$R = 0.57$; $R^2 = 0.32$; Adjusted $R^2 = 0.32$; $F = 81.72$; $p < 0.001$

The regression analysis shows that digital communication and collaboration significantly influenced educational resource management ($\beta = 0.57$, $p < 0.001$). The R^2 of 0.32 indicates that digital communication and collaboration accounted for approximately 32% of the variation in educational resource management.

This implies that effective use of email, online meetings, collaborative platforms, institutional communication systems and other digital tools can improve coordination, information sharing and decision-making in the management of university resources. Consequently, the null hypothesis that digital communication and collaboration competence has no significant influence on educational resource management is rejected.

Summary of Findings

The findings from the three objectives can be summarized as follows:

Objective One: University administrators demonstrated an overall high level of digital competence ($M = 3.70$), with digital communication and collaboration being the strongest dimension and digital safety and security the weakest.

Objective Two: Information and data literacy had a positive and significant influence on educational resource management ($\beta = 0.61$, $p < 0.001$), explaining approximately 37% of the variation.

Objective Three: Digital communication and collaboration competence had a positive and significant influence on educational resource management ($\beta = 0.57$, $p < 0.001$), explaining approximately 32% of the variation.

Overall, the findings suggest that digital competence is an important factor in effective educational resource management among university administrators in Cameroon. In particular, the ability to manage digital information and communicate and collaborate through digital platforms appears to contribute substantially to effective planning, allocation, monitoring and utilization of university resources.

4. Discussion

This area discusses the findings of the study on the influence of digital competence on the management and utilization of educational resources among university

administrators in Cameroon. The discussions are organized according to the three specific research objectives of the study. The discussion relates the findings to the theoretical perspectives underpinning the study as well as to previous empirical studies reviewed in the literature. Thus, it subsequently presents the conclusions, implications and recommendations arising from the findings.

The first objective sought to assess the level of digital competence among university administrators in Cameroon. The findings revealed that administrators generally possessed a high level of digital competence, with an overall mean of 3.70 (SD = 0.75). The finding that administrators demonstrated a generally high level of digital competence suggests that digital technologies have become an important component of university administration in the institutions covered by the study. The high level of digital competence may therefore reflect administrators' continued exposure to digital technologies through training and routine administrative activities. The particularly high score for digital communication and collaboration indicates that university administrators are relatively comfortable using digital tools to communicate and work with colleagues and other stakeholders. Contemporary university administration increasingly depends on electronic mail, online meetings, institutional communication platforms, messaging applications and collaborative digital environments. Competence in these areas can facilitate faster dissemination of information, coordination of activities and collaboration among different administrative units.

The relatively high level of information and data literacy is also important because university administrators regularly require information for planning, decision-making, monitoring and evaluation. Administrators who can search for, access, evaluate, organize and interpret digital information are better positioned to make decisions based on reliable institutional evidence. This finding therefore supports the conceptual argument of the study that digital competence is not simply about operating technological devices but also about using digital information effectively to accomplish institutional responsibilities.

However, the relatively lower score for digital safety and security is noteworthy. Although the overall level of digital competence was high, the moderate level of competence in digital safety suggests a potential vulnerability in university administration. Universities handle sensitive information involving students, staff, finances, research, examinations, institutional planning and other administrative activities. Weaknesses in password management, data protection, cybersecurity awareness, privacy practices and recognition of digital threats could therefore expose institutional resources to risks.

This finding is consistent with the DigComp framework, which treats safety as a distinct and essential component of digital competence. Vuorikari emphasize that digital competence involves not only using technologies but also protecting devices, personal data, privacy and digital environments. Thus, administrators may be highly competent in using digital systems for communication and information access while still requiring additional training in cybersecurity and digital risk management. The finding also supports the UTAUT perspective, particularly the importance of facilitating conditions. The ability of administrators to use digital technologies effectively is influenced not only by individual skills but also by institutional support, infrastructure and opportunities for professional development. Similarly, the Technology Acceptance Model suggests that when users perceive digital systems as useful and easy to use, they are more likely to use them. The high level of competence observed in this study may indicate that administrators have become accustomed to digital systems through repeated use and exposure. The finding is also broadly consistent with Zhao, who identified digital competence as an increasingly important area of research in higher education. However, while Zhao et al. noted that much of the existing research focuses on students and teachers, the present study extends the discussion to university administrators. This is particularly important because administrators are responsible for translating institutional policies and resources into operational activities. The finding is further related to Jameson and Ratajczak[13], who emphasized the growing importance of digital competence and digital leadership within higher education. Ghamrawi, Tamim[14] similarly identified

digital competence, digital culture, digital governance and digital advocacy as important dimensions of digital leadership in higher education. Fernández[15] further emphasized that digital transformation in higher education involves not only technology adoption but also organizational, human and strategic changes

The second objective examined the influence of information and data literacy on the management of educational resources. The findings showed a positive and statistically significant relationship between information and data literacy and educational resource management ($r = 0.61$, $p < 0.001$). This is an important finding because it demonstrates that administrators' ability to work effectively with digital information is closely associated with their capacity to manage educational resources. Resource management requires accurate information about available resources, institutional needs, expenditure, personnel, facilities, student numbers, equipment and other organizational variables. Administrators who possess strong information and data literacy are therefore more likely to obtain relevant information, assess its reliability, analyse it and use it in making resource-management decisions.

The finding suggests that information and data literacy can enhance several stages of educational resource management. During planning, administrators can use institutional data to identify needs and establish priorities. During allocation, accurate data can help determine where resources are most needed. During monitoring, electronic records and databases can facilitate tracking of resources. During evaluation, administrators can analyse available information to determine whether resources have been used efficiently and whether institutional objectives have been achieved.

The finding supports the conceptual assumptions derived from the DigComp framework, which identifies information and data literacy as one of the fundamental areas of digital competence. In the context of university administration, information and data literacy extends beyond the ability to locate information online. It includes the capacity to organize, evaluate, interpret and use digital information for practical institutional purposes.

The finding is also consistent with the Technology Acceptance Model. Administrators who have the ability to understand and manipulate digital information are likely to find information systems more useful and easier to use. Consequently, they may be more willing and able to integrate digital systems into their administrative responsibilities. This can result in greater use of electronic records, databases, information systems and digital reporting tools in resource-management processes.

The finding is similarly compatible with UTAUT, particularly performance expectancy. When administrators recognize that digital information systems can improve the speed, accuracy and quality of their administrative decisions, they are more likely to use them in managing institutional resources. The availability of appropriate facilitating conditions, such as reliable internet connectivity, functional information systems and technical support, can further strengthen this relationship.

The finding also complements the work of Tangmo, Fonkeng and Atem, who found that digitalization was associated with university effectiveness in Cameroon. While their study considered digitalization more broadly, the present finding provides a more specific explanation of one mechanism through which digitalization may contribute to institutional effectiveness: administrators' ability to manage and use information and data effectively.

The magnitude of the regression coefficient ($\beta = 0.61$) indicates a relatively strong predictive relationship. Similarly, the R^2 of 0.37 suggests that information and data literacy is an important contributor to educational resource management. Nevertheless, the remaining 63% of unexplained variation indicates that other factors also influence resource management. These may include financial availability, institutional policies, leadership, ICT infrastructure, staffing, technical support, organizational culture and other dimensions of digital competence. The study concluded that information and data literacy significantly and positively influences educational resource management among university administrators. Administrators who are more capable of accessing, evaluating,

organizing and interpreting digital information are likely to manage educational resources more effectively.

The third objective examined the influence of digital communication and collaboration competence on educational resource management. The findings revealed a positive and statistically significant relationship between digital communication and collaboration and educational resource management ($r = 0.57$, $p < 0.001$). The finding demonstrates that effective communication is an important component of resource management in universities. Educational resources are distributed across different administrative units, faculties, departments, centers and other institutional structures. Effective management therefore requires administrators to exchange information, coordinate activities, communicate decisions and collaborate with colleagues and other stakeholders.

Digital communication tools can facilitate these processes by reducing delays associated with physical communication and enabling information to be shared across organizational boundaries. Email, online meetings, collaborative platforms, institutional information systems and other digital communication tools can enable administrators to coordinate resource-related activities more efficiently.

The finding is particularly important because digital communication and collaboration recorded the highest mean score ($M = 4.01$) among the dimensions of digital competence. This suggests that administrators' strongest area of digital competence is also significantly associated with resource management. There may therefore be a practical connection between administrators' frequent use of digital communication technologies and their ability to coordinate resource-management activities.

The result is consistent with the DigComp framework, which recognizes communication and collaboration as a core dimension of digital competence. Effective digital communication involves not only sending and receiving messages but also selecting appropriate digital channels, sharing information responsibly, collaborating online and participating effectively in digital environments.

The finding also supports the UTAUT framework, particularly social influence and facilitating conditions. University administrators operate within organizational networks and their effective use of digital communication technologies can be encouraged by institutional expectations, leadership support and the availability of appropriate digital platforms. Where institutions establish effective digital communication systems, administrators may be better positioned to collaborate in planning, allocation and monitoring of resources.

The result also supports the broader literature on digital leadership in higher education. Jameson observed that digitalization is increasingly affecting university leadership and administration. Similarly, Ratajczak emphasized the importance of digital competence in emerging forms of university leadership. The present finding demonstrates that digital communication is not merely a convenience for administrators but can contribute directly to institutional management practices.

The R^2 value of 0.32 is substantial but also indicates that digital communication and collaboration does not account for all the variation in educational resource management. This reinforces the argument that resource management is multidimensional and depends on several factors. Administrators may communicate effectively but still face challenges arising from insufficient funding, poor infrastructure, inadequate technical support, institutional bureaucracy or weaknesses in other dimensions of digital competence. The study concluded that digital communication and collaboration competence significantly and positively influences educational resource management. Administrators who effectively communicate and collaborate using digital technologies are more likely to coordinate resource-management activities effectively.

5. Conclusion

The study investigated the influence of digital competence on the management and utilization of educational resources among university administrators in Cameroon. Based on the findings relating to the three research objectives, it can be concluded that digital

competence is an important factor in effective university administration. First, university administrators demonstrated a generally high level of digital competence, with an overall mean of 3.70. Digital communication and collaboration emerged as the strongest dimension, while digital safety and security represented the weakest dimension. This suggests that administrators have developed substantial competence in using digital technologies for routine professional activities, but additional attention is required in cybersecurity and data protection. Second, information and data literacy significantly influenced educational resource management. The positive relationship and regression coefficient indicate that administrators who are more competent in accessing, evaluating, organizing and interpreting digital information are better positioned to manage educational resources effectively. Third, digital communication and collaboration competence significantly influenced educational resource management. The findings indicate that the ability to communicate, coordinate and collaborate through digital platforms contributes substantially to resource-management effectiveness. Overall, the findings support the central assumption of the study that stronger digital competence is associated with more effective management of educational resources. In conclusion, the findings indicate that digital competence is an important administrative resource in the contemporary Cameroonian university. Administrators demonstrated generally high digital competence, and both information and data literacy and digital communication and collaboration were found to have statistically significant positive influences on educational resource management. The findings therefore suggest that universities seeking to improve the management and utilization of educational resources should invest not only in digital infrastructure but also in the human capabilities required to use that infrastructure effectively. Particular attention should be given to strengthening digital safety and security while consolidating administrators' existing strengths in information management, communication and collaboration. The findings imply that university management should treat digital competence as a strategic administrative capacity rather than merely an individual technical skill. Since administrators are directly involved in planning, allocation, monitoring and evaluation of educational resources, strengthening their digital competence can potentially improve institutional efficiency. University management should therefore incorporate digital competence into staff-development plans, administrative performance frameworks and leadership-development programmes. The findings have implications for university ICT policies. The high level of general digital competence alongside the comparatively moderate level of digital safety indicates that ICT policies should move beyond providing infrastructure to developing responsible and secure technology use. Universities should establish clear policies relating to cybersecurity, data protection, password management, electronic records, access controls, data backup and responsible use of institutional digital platforms. The findings suggest that professional development should be differentiated according to areas of need. Since communication and collaboration competence was relatively strong, training could place greater emphasis on information analytics, cybersecurity, data protection, digital resource management and advanced problem-solving. This would help institutions move from basic technology adoption toward more strategic and effective use of digital systems. The significant influence of information and data literacy implies that universities should strengthen the use of reliable digital information in resource planning and decision-making. Administrators should have access to accurate and timely institutional data to support decisions concerning staffing, finance, infrastructure, equipment, library resources and other educational resources. Similarly, the significant influence of digital communication and collaboration indicates that universities should encourage integrated digital communication systems that allow administrative units to coordinate their activities effectively. The findings provide empirical support for TAM and UTAUT. Administrators who possess stronger digital competencies may be more capable of perceiving digital systems as useful and manageable, while institutional facilitating conditions can determine whether those competencies are translated into effective technology use. The findings also reinforce DigComp's multidimensional conceptualization of digital competence.

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