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Technology-Mediated Motivation in English Language Learning: Teachers' and Students' Perceptions in Two Central Algerian Universities

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Abstract

This study investigates the perceptions and motivation of both teachers and students regarding the use of technology in English language instruction at two central Algerian universities, Ziane Achour University of Djelfa and Ammar Theliji University of Laghouat. Technology has become an increasingly influential force in higher education, yet its motivational role in under resourced English language learning contexts remains insufficiently understood. In this study, technology refers to educational digital tools used in English language learning, including multimedia resources, mobile applications, online platforms, presentation tools, and communication technologies. Employing a qualitative research design, data were collected through semi structured interviews with fifteen university teachers and focus group discussions with twenty five students from the English Language departments in the selected universities. Analysed using Braun and Clarke's (2006) reflexive thematic analysis. The findings reveal that both teachers and students generally perceive technology as a powerful motivational and pedagogical resource that supports engagement, autonomy, and collaboration. At the same time, the results highlight persistent challenges, including limited resources, inadequate training, and unsupportive institutional environments. The study concludes that although there is strong support for integrating technology into English language education, its motivational effectiveness depends substantially on institutional support, digital literacy, and balanced pedagogical implementation rather than on access to technology alone.

Keywords: motivation, technology integration, English language learning, higher education, Algeria.

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Introduction

Over the last few decades, the rise of digitalization has introduced new pedagogical possibilities that extend beyond the traditional classroom, enabling teachers and students to interact, communicate, and construct knowledge in increasingly innovative ways (Selwyn, 2016). Within the field of English language education, digital technologies ranging from mobile learning applications and virtual classrooms to online communication platforms have opened new opportunities for English as a Foreign Language (EFL) learners by providing authentic exposure to language use and supporting learner centred experiences (Kukulska, Hulme & Shield, 2008; Warschauer & Kern, 2000).

Observing the visible advancement of innovation in the field, motivation seems to be measured to determine the success of implementation. Motivation is a complex construct shaped not only by individual factors but also by broader contextual, institutional, and cultural influences. Crucially, the same digital tool may support or undermine engagement depending on the infrastructure, training, and support surrounding its use. Teachers' motivation to use technology is particularly important in this respect, as it directly affects the quality and depth of its implementation in educational settings (Ertmer & Ottenbreit, Leftwich, 2010). This study therefore treats institutional, pedagogical, and technical conditions as integral to, rather than separate from, the motivational process.

Although a substantial body of research has examined the relationship between technology and motivation in language learning, most studies have been conducted in Western and Asian contexts, where stable technological infrastructure is often assumed (Lai, 2015; Lin et al., 2016). In contrast, less attention has been given to developing and under resourced educational systems, where access to technology, teacher training, and institutional support may be uneven. In Algeria, existing research has primarily focused on technology integration and teachers' attitudes (Bouziane, 2013; Kadi & Khouni, 2022), with limited exploration of how both teachers and students perceive the motivational role of digital tools.

This study therefore aims to examine the motivation and perceptions of English language teachers and students regarding technology use in two central Algerian universities: Ziane Achour University of Djelfa and Ammar Theliji University of Laghouat. Adopting a qualitative research approach, the study seeks to capture participants' lived experiences and the contextual factors shaping their attitudes toward technology in language teaching and learning. Semi structured interviews with teachers and focus group discussions with students were conducted to generate in depth insights into their motivations, challenges, and expectations.

The significance of this study lies in its contribution to the growing international body of research examining the relationship between technology and motivation in education, particularly within underrepresented contexts such as Algerian higher education. Accordingly, this study addresses the following research questions:

1. How do teachers and students at the selected central Algerian universities perceive the role of educational digital tools in English language teaching and learning?
2. How do these digital tools influence students' motivation in terms of autonomy, competence, and relatedness?
3. What institutional, pedagogical, and technical factors support or limit the motivational value of technology in English language education?

Through these questions, the study aims to shed light on the intersection of motivation and technology use in central Algerian higher education

Literature Review

Technology in Education

Technology enhanced learning encompasses a wide range of digital tools, including learning management systems (LMS), mobile applications, and multimedia resources, which aim to improve accessibility, engagement, and instructional effectiveness (Kirkwood & Price, 2014). Research suggests that technology can reshape classroom dynamics by enabling more interactive and participatory forms of learning. Digital environments allow learners to engage with content through multiple modes, visual, auditory, and textual, hereby supporting diverse learning preferences and increasing engagement (Means et al., 2014). In addition, technology expands access to authentic materials and real world language use, particularly in language education, where exposure to meaningful input is essential (Chapelle, 2003). This expanded access allows learners to move beyond textbook based instruction and engage with language in more contextualized and relevant ways.

However, the research consensus is not that access alone is sufficient. While Means et al. (2014) and Chapelle (2003) emphasize the affordances of digital tools, other scholars caution that these affordances are only realized under conditions. The successful integration of technology is not determined solely by the availability of digital tools but depends on pedagogical alignment, teacher competence, and institutional support (Ertmer & Ottenbreit Leftwich, 2010). Without clear instructional strategies and adequate training, technology may remain underutilized or serve only a supplementary function. Furthermore, disparities in infrastructure, access, and digital literacy continue to create uneven learning opportunities, particularly in under resourced educational contexts (Selwyn, 2016). Taken together, this body of work suggests that technology should be understood not as a standalone solution but as one component of a broader educational ecosystem a position that directly motivates the present study's attention to institutional and contextual conditions.

Motivation in Education

Motivation is widely recognized as a key determinant of students' engagement, persistence, and academic achievement. It refers to the internal and external processes that initiate, guide, and sustain learning behaviours over time (Ryan & Deci, 2000).

Educational research commonly distinguishes between intrinsic motivation, which arises from genuine interest or enjoyment in a task, and extrinsic motivation, which is driven by external rewards or pressures such as grades or recognition. While both forms contribute to learning, intrinsic motivation is generally associated with deeper engagement, creativity, and long term knowledge retention (Ryan & Deci, 2017).

Motivation is also shaped by contextual factors such as teaching practices, classroom climate, and institutional conditions. Teachers play a crucial role in fostering motivation by designing engaging activities, providing constructive feedback, and creating inclusive and supportive learning environments. Consequently, motivation should be understood as both an individual and contextual phenomenon, influenced by the interaction between learners and their educational environment (Schunk, Meece, & Pintrich, 2014). This dual character of motivation, simultaneously psychological and environmental, is precisely what makes context sensitive investigation necessary in settings where institutional conditions vary widely.

Technology and Motivation in Education

Building on these perspectives, the relationship between technology and motivation has been widely examined through empirical research in diverse educational contexts. Studies consistently show that digital tools can enhance learners' engagement by creating more interactive, flexible, and accessible learning environments. For example, Lin et al. (2016) found that mobile assisted language learning (MALL) significantly increased students' intrinsic motivation and engagement, particularly when learners were able to control the pace and location of their learning. Similarly, Al-Shehri (2017) reported that students using online learning platforms and discussion forums demonstrated higher levels of participation and sustained interest compared to those in traditional classroom settings.

In higher education contexts, Jeno et al. (2019) found that the use of digital learning environments positively influenced students' motivation by supporting autonomy and competence, two key dimensions of Self Determination Theory. Likewise, Dörnyei and Ushioda (2011) highlight that technology mediated learning environments can promote sustained motivation in language learning by making tasks more relevant and engaging. These findings converge on the claim that digital tools can create conditions that encourage active participation and persistence.

This largely optimistic literature is, however, contested. Kirschner and De Bruyckere (2017) argue that excessive or poorly structured use of technology can lead to cognitive overload and reduced attention, ultimately undermining motivation, and Selwyn (2016) cautions that technology may reinforce existing inequalities where access and digital competence are uneven. The tension between the optimistic findings of Lin et al. (2016) and Jeno et al. (2019) and the cautionary positions of Kirschner and De Bruyckere (2017) and Selwyn (2016) is instructive; it indicates that technology does not automatically enhance motivation, and that its effect is conditional on implementation and support.

This conditionality is the gap the present study addresses in a context where those supporting conditions cannot be taken for granted.

Technology Integration and Motivation in Algeria

Technology integration in Algerian higher education remains uneven, shaped by infrastructural limitations, institutional policies, and evolving pedagogical practices. While national reforms have emphasized the importance of digitalization, the actual implementation in universities is often constrained by limited access to reliable internet, insufficient technological equipment, and a lack of continuous professional development for teachers (Bouziane, 2020; Khelfaoui, 2009). Many instructors still rely on traditional, lecture based approaches, with technology primarily used for basic tasks such as presentations rather than interactive or student centred learning (Bensaid & Brahimi, 2013).

However, recent years have witnessed a gradual shift, particularly accelerated by global digital trends and the COVID-19 pandemic, which pushed universities toward online and blended learning environments (UNESCO, 2021). Despite these advancements, disparities persist between institutions and regions, reflecting broader socio economic inequalities. Students are often more digitally engaged outside the classroom, yet this familiarity is not fully capitalized pedagogically (Bouziane, 2020). This gap between students' everyday digital fluency and its limited academic uptake is one of the specific tensions the present study examines empirically.

Theoretical Framework and Research Gap

This study draws primarily on Self Determination Theory (Deci & Ryan, 2000) as a framework for understanding how technology influences motivation among central Algerian teachers and students. SDT holds that intrinsic motivation is fostered when three psychological needs are satisfied: autonomy, competence, and relatedness. The framework adopted here specifies how each need maps onto technological affordance. Autonomy is supported when digital tools allow learners to control the pace, place, and direction of their study; for example, through self paced multimedia, mobile applications, and on demand access to materials. Competence is supported when tools provide structured practice, immediate feedback, and visible progress, allowing learners and teachers to experience knowledge themselves. Relatedness is supported when communication and collaboration tools enable meaningful interaction among learners and between learners and teachers (Reeve, 2012; Jeno et al., 2019; Ryan & Deci, 2020).

Crucially, this study extends the standard SDT account by foregrounding the contextual mediation of these needs. In low resource settings, need satisfaction cannot be treated as a purely psychological matter, because a learner cannot exercise technology supported autonomy without reliable access; a teacher cannot build a sense of competence with digital tools without adequate training and recognition. The framework therefore treats institutional, pedagogical, and technical conditions not as background

variables but as the enabling (or constraining) infrastructure of need satisfaction itself. This theoretical move integrates the institutional dimension directly into the motivational account and provides the conceptual basis for the study's third research question.

Methodology

Research Design

This study adopts a qualitative research design grounded in an interpretive paradigm. The purpose of qualitative inquiry is to explore individuals' subjective experiences, perceptions, and motivations within their natural settings (Creswell & Poth, 2018). Given the exploratory nature of this research, qualitative methods were deemed most appropriate to capture the complexity of teachers' and students' attitudes toward technology use in English language teaching and learning (Denzin & Lincoln, 2018).

Participants and Sampling

The study was conducted at two public Algerian universities located in the central region of the country: Ziane Achour University of Djelfa and Ammar Theliji University of Laghouat. Both institutions offer undergraduate and postgraduate English language programs and share broadly comparable characteristics, similar regional location, public funding structures, student profiles, and infrastructural conditions, which makes them informative cases for examining technology mediated motivation in central Algerian higher education. Rather than serving as statistically representative samples, they were selected as information rich sites that reflect the typical resourcing and institutional conditions of universities in this region. Their selection was also guided by feasibility and the researcher's access to both institutions, which enabled sustained, in depth engagement with participants; the implications of this access based selection are addressed explicitly in the Limitations section.

The participants consisted of 15 English language teachers and 25 English major students. Recruitment followed a purposive sampling strategy, which is widely used in qualitative research to identify participants who possess relevant experience and can provide meaningful data (Palinkas et al., 2015). Teachers were recruited based on their active involvement in teaching English at the university level and were approached directly by the researcher through departmental contacts; participation was voluntary. Students were recruited from third year undergraduate and master's programs, as these levels had sufficient academic exposure to evaluate the role of technology in their learning; they were invited to participate through course coordinators and self selected into the focus groups on a voluntary basis.

The sample size was guided by the principle of data saturation, understood within reflexive thematic analysis as the point at which additional data cease to generate new codes or substantively new themes (Braun & Clarke, 2006). Data collection and preliminary analysis proceeded iteratively, and recruitment continued until the

interviews and focus group discussions were no longer yielding new analytical insights relevant to the research questions. By the final interviews and the third focus group, recurring patterns were clearly established and no new themes emerged, indicating that the corpus generated by 15 teachers and 25 students was sufficient to support a rich and credible thematic account for the two sites under study. The demographic characteristics of participants are summarized in Tables 1 and 2.

Table 1: *Teachers' Profile (n = 15)*

Variable	Category	Frequency
Gender	Male	6
	Female	9
Teaching Experience	1–5 years	4
	6–10 years	6
	Over 10 years	5
University	Ziane Achour (Djelfa)	8
	Ammar Theliji (Laghouat)	7

Table 2: *Students' Profile (n = 25)*

Variable	Category	Frequency
Gender	Male	9
	Female	16
Study Level	3rd-year BA	15
	Master's	10
University	Ziane Achour (Djelfa)	12
	Ammar Theliji (Laghouat)	13

Ethical Considerations

The study followed well established ethical principles to guarantee the protection of human subjects. Ethical permissions were obtained from both universities, signed by the head of department. Prior to data collection, all participants were informed of the study's purpose, the voluntary nature of participation, and their right to withdraw at any point without consequence. Informed consent was obtained from every participant, and all interviews and focus group discussions were audio recorded only after consent had been granted. To protect confidentiality and anonymity, participants' identities were anonymized using pseudonyms and labels (e.g., Teacher 1, Student 1), and no personal identifying information is reported. Audio recordings, transcripts, and field notes were stored securely and accessed only by the researcher.

Data Collection Instruments

Two qualitative instruments were employed. Semi structured interviews with Fifteen teachers in individual interviews lasting approximately 30–40 minutes each. The interview protocol included open ended questions focusing on their perceptions of technology use, motivational factors, institutional support, and pedagogical challenges. This format allowed flexibility to probe emerging themes and clarify responses.

Moreover, three focus group sessions were organized, each involving 8–10 students. Discussions lasted approximately one hour and explored students' motivation, attitudes, and experiences with technology in their English studies. Focus groups were chosen because they encourage interaction and reflection among participants, revealing both shared and contrasting perspectives (Morgan, 1997).

All interviews and focus groups were conducted in English and recorded with participants' consent. Notes were taken to capture nonverbal cues and contextual details.

Data Analysis

Data were analysed using Braun and Clarke's (2006) reflexive thematic analysis, following its six phases: familiarization with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report.

In Phase 1, all interviews and focus group recordings were transcribed and read multiple times to ensure accuracy and familiarity, and initial impressions related to motivation, technology use, and institutional context were recorded in a reflective journal. In Phase 2, transcripts were systematically coded line by line, with relevant segments assigned descriptive codes such as "enhanced motivation," "technological barriers," "teacher enthusiasm," and "student autonomy" (Nowell et al., 2017). Phase 3 involved grouping these codes into broader categories, producing preliminary themes such as "technology as a motivator" and "institutional constraints," supported by thematic mapping.

During Phase 4, themes were reviewed and refined for coherence; overlapping themes were merged, while others were divided into sub themes to capture differences between teachers and students. In Phase 5, themes were clearly defined and supported with participant accounts, and in Phase 6 the findings were synthesized into a coherent narrative aligned with Self Determination Theory (Deci & Ryan, 2000). Cross case comparison between the two institutions, and between teachers and students, was conducted throughout to identify convergences and divergences in perspective.

Findings

This section presents the findings from the semi structured interviews and the focus group discussions. Four themes were constructed from the data: Technology as a Motivational Catalyst, Teacher Motivation and Pedagogical Adaptation, Institutional and Technical Challenges, Digital Literacy and Training Gaps. Within each theme, teachers'

and students' perspectives are reported separately to clarify where the two groups converged and differed.

Technology as a Motivational Catalyst

Students across all three focus groups consistently identified technology as a key source of engagement and enjoyment. They expressed enthusiasm for digital tools such as YouTube, Quizlet, and interactive presentations, noting that these resources made learning more dynamic and varied than textbook based instruction. Students particularly valued the flexibility that technology afforded, describing how it allowed them to access content independently and continue learning beyond the classroom. This sense of being able to direct their own study was a recurring source of motivation.

Teachers echoed and extended this view from a pedagogical standpoint. They emphasized that multimedia materials increased learners' exposure to authentic language and helped sustain attention during lessons. Teachers also observed that digital environments promoted interaction through collaborative tasks, online discussions, and group activities. One teacher noted that students "feel in control of their learning" when using digital materials, linking the tools directly to learner engagement.

Teacher Motivation and Pedagogical Adaptation

This theme was constructed primarily from the teacher interviews. Most teachers reported strong motivation to integrate technology, viewing it as both a pedagogical enhancement and a professional necessity. Those who had successfully used digital tools described feelings of satisfaction and professional growth, framing technology as a source of innovation and continuous learning. At the same time, teachers reported varying levels of confidence and institutional support. One teacher observed that while technology helped diversify lessons and maintain engagement, reliance on personal devices and personal internet access was discouraging. Several teachers also described an adaptive tension between established teaching practices and emerging digital approaches, and some reported resistance from colleagues or administrators who perceived technology as distracting or incompatible with academic rigour.

Students contributed to this theme indirectly. They were attentive to differences in how their teachers used technology, observing that lessons were more engaging when teachers integrated digital tools confidently and purposefully, and less so when use was hesitant or purely supplementary.

Institutional and Technical Challenges

Students expressed clear frustration when technical issues disrupted lessons, describing how unreliable internet connectivity and equipment failures interrupted activities and diminished their engagement. For students, these disruptions were experienced as breaks in the flow and momentum of learning.

Teachers emphasized the structural roots of these problems, pointing to the absence of stable infrastructure, outdated equipment, limited access to projectors, and insufficient

administrative support. One teacher remarked that such disruptions “kill the rhythm of learning,” capturing how technical failure undermined the continuity of instruction. Teachers also linked these conditions to fatigue and diminished enthusiasm over time.

Digital Literacy and Training Gaps

Teachers reported that they had acquired most of their digital skills through self training or informal peer support rather than through structured institutional programs. Where training did exist, they noted that it tended to focus on technical operation rather than on the pedagogical integration of technology, leaving a gap between knowing how to operate a tool and knowing how to use it to support learning.

Students, by contrast, described themselves as confident in everyday digital use but markedly less confident in applying technology for academic purposes. As one student observed, frequent smartphone use did not necessarily translate into effective learning strategies. Students thus identified a gap between digital familiarity and academic digital competence.

Cross Case Comparison: Djelfa and Laghouat

Because the study spanned two institutions, the analysis attended throughout to possible divergence between Ziane Achour University of Djelfa and Ammar Theliji University of Laghouat. On the available evidence, the four themes emerged consistently across both sites, and no substantive divergence was identified in how teachers and students perceived the motivational role of technology or the constraints surrounding it. Participants at both universities described comparable enthusiasm for digital tools, similar variation in teacher confidence, and the same categories of institutional and infrastructural barriers.

This cross-site consistency suggests that the motivational dynamics and structural constraints reported here are not idiosyncratic to a single campus but reflect conditions shared across comparable central Algerian universities, strengthening the transferability of the findings to similar institutions in the region.

Discussion

The four themes, interpreted through Self Determination Theory (Deci & Ryan, 2000), indicate that technology functions as both a motivational enhancer and a contextual constraint in central Algerian English language education. This section interprets each theme against the theoretical framework and the wider literature before drawing the threads together.

The first theme, technology as a motivational catalyst, aligns closely with the autonomy and relatedness dimensions of SDT. Students' valuing of flexible, self paced, independent access reflects autonomy support, while teachers' emphasis on collaboration and interaction reflects relatedness support. This pattern is consistent with empirical research showing that technology can enhance intrinsic motivation by supporting these needs (Jeno et al., 2019; Lai, 2015). Crucially, however, participants'

insistence that motivation was not automatically generated by technology echoes the cautionary literature (Kirschner & De Bruyckere, 2017; Selwyn, 2016) and confirms that need satisfaction was conditional on pedagogical design and access.

The second theme, teacher motivation and pedagogical adaptation, maps onto competence. Teachers' intrinsic motivation was reinforced by successful use of digital tools and eroded by infrastructural and collegial obstacles (Ryan & Deci, 2020). The barriers they described correspond to Ertmer and Ottenbreit-Leftwich's (2010) distinction between first order (material) and second order (attitudinal) barriers, and the resistance they encountered echoes findings that institutional norms can constrain pedagogical change in developing contexts (Bouziane, 2013; Gudmundsdottir & Hatlevik, 2018).

The third theme, institutional and technical challenges, illustrates how external conditions hinder need satisfaction. Unreliable infrastructure undermined both teachers' competence and students' engagement, consistent with Tondeur et al.'s (2017) emphasis on infrastructure and leadership in sustaining technology based innovation.

The fourth theme, digital literacy and training gaps, again implicates competence, inadequate pedagogical training limited teacher innovation, while the absence of academic digital strategies limited student autonomy and capability an instance of the "digital divide within the classroom" (Levy & Stockwell, 2006) that also surfaces in other developing contexts (Howard et al., 2021; Hew & Brush, 2007).

Taken together, these four themes demonstrate that technology functions as both a motivational enhancer and a contextual challenge. The interplay of individual motivation, institutional context, and technological infrastructure forms a complex ecosystem shaping teaching and learning (Tondeur et al., 2017). At the micro level, both teachers and students derived intrinsic satisfaction from the autonomy and engagement technology provided (Jeno et al., 2019; Lai, 2015). At the macro level, institutional factors, access to resources, recognition of effort, and leadership support, shaped how motivation translated into action, while national policies and socio economic conditions influenced the pace and equity of digital integration (Gudmundsdottir & Hatlevik, 2018).

This multi layered structure aligns with Self Determination Theory and extends it by emphasizing the contextual mediation of motivation (Deci & Ryan, 2000; Ryan & Deci, 2020). Autonomy and competence are not solely psychological states but are constructed through the environment: a teacher's autonomy to innovate depends on administrative support, and a student's competence depends on reliable technological access (Howard et al., 2021). In this sense, the study contributes to understanding how motivation operates contextually in developing higher education systems. Unlike Western contexts where infrastructure is often taken for granted, central Algerian teachers and students must navigate technological uncertainty, which makes motivation simultaneously resilient and fragile. Practically, this points toward a policy shift from short term technological interventions to long term motivational ecosystems, in which infrastructure, training, and recognition operate together.

Limitations

The limitations listed below should be taken into consideration when interpreting the findings. While the sample is relatively small, it was sufficient to reach thematic saturation for the sites studied and to generate rich, context specific insight, the findings are not intended to be statistically generalizable to all Algerian universities. The two universities were selected partly based on feasibility and the researcher's access. This access based selection means that other institutions particularly those with markedly different infrastructure or in other regions may present different dynamics.

Focus group settings, while productive for eliciting shared and contrasting views, can be influenced by group dynamics in which more confident participants shape the discussion.

As a characteristic of reflexive thematic analysis, the researcher served as the primary analytic instrument; while trustworthiness procedures were used to mitigate bias, interpretation is inevitably shaped by the researcher's perspective.

Future Research Recommendations

Building on the limitations, and according to the researcher's experience during the enquiry, several directions for future research are suggested. Larger scale and mixed methods studies could complement the present qualitative findings, for example by combining interviews with validated motivational questionnaires to examine how widely the identified patterns hold across different Algerian universities.

Also, longitudinal designs could track how motivation evolves as digital infrastructure and training provision develop over time, distinguishing durable motivational change from short lived effects.

Moreover, Intervention studies evaluating targeted professional development that integrates technical and pedagogical training would help determine which forms of institutional support most effectively convert technological access into sustained motivation.

Conclusion

This study set out to examine how technology mediates motivation in English language education at two central Algerian universities, addressing three research questions. In response to the first research question, concerning how teachers and students perceive the role of educational digital tools, the findings show that both groups regard technology as a valuable pedagogical resource that enhances interaction, supports autonomous learning, and facilitates collaboration, while also recognizing that its value is conditional on the surrounding context.

In response to the second research question, concerning the influence of digital tools on autonomy, competence, and relatedness, the study found that technology strengthened intrinsic motivation when it supported self paced access (autonomy), effective and well supported use (competence), and collaboration and interaction

(relatedness), but that it could undermine motivation when these needs were influenced by poor conditions.

In response to the third research question, concerning the institutional, pedagogical, and technical factors that support or limit technology's motivational value, the findings identify unreliable infrastructure, inadequate and overly technical training, limited resources, and weak institutional recognition of digital innovation as the principal constraints, and supportive leadership, professional development, and reliable access as the principal enablers.

The study advocates a holistic approach that aligns digital infrastructure with motivational psychology and pedagogical innovation, treating motivation not merely as an outcome of technology use but as a driving force that shapes how technology is integrated, sustained, and valued. By cultivating such an ecosystem, central Algerian universities can begin to bridge the gap between aspiration and practice, transforming technology from a symbol of modernization into a genuine instrument of empowerment and educational excellence.

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