

## **COMPETITIVE INTELLIGENCE AND EFFECTIVENESS OF LECTURERS: A STUDY OF LAGOS STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY, LAGOS, NIGERIA**

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**Abstract:** This study investigates the influence of training and development, instructional aids, and knowledge of online teaching methods on the effectiveness of lecturers at Lagos State University of Science and Technology. Data were collected from lecturers and analyzed using inferential statistics to test three hypotheses using quantitative approach. The results reveal a moderate positive correlation between training and development and lecturer effectiveness ( $R = 0.426$ ,  $R^2 = 0.181$ ), with a significant effect ( $t = 7.355$ ,  $p < 0.001$ ), indicating that training initiatives significantly enhance teaching performance. Similarly, instructional aids show a moderate positive correlation ( $R = 0.406$ ,  $R^2 = 0.165$ ) and a significant impact ( $t = 2.008$ ,  $p = 0.045$ ), suggesting that the use of teaching aids improves the effectiveness of lecturers. However, knowledge of online teaching methods, despite a moderate correlation ( $R = 0.447$ ,  $R^2 = 0.200$ ), demonstrates no significant effect ( $t = 0.017$ ,  $p = 0.987$ ), indicating that it does not contribute meaningfully to lecturer effectiveness in this context. In conclusion, these findings underscore the importance of targeted training and instructional resources in enhancing teaching outcomes while highlighting potential barriers to leveraging online teaching knowledge. Recommendations include sustained investment in professional development and instructional aid to optimize effectiveness of lecturers and improve educational quality, alongside further exploration of contextual factors limiting the impact of online teaching methods.

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**Keywords:** Competitive intelligence, Instructional aid, Lecturer effectiveness, Training and development

## **Introduction**

As the dependent variable, lecturer effectiveness broadly refers to the degree to which lecturers facilitate student learning, engagement, and academic success through their instructional practices and competencies. Lecturer effectiveness encompasses knowledge delivery, pedagogical skill, classroom management, and innovative use of technology, all of which contribute to enhanced educational outcomes (Schwarz, 2022; Alton-Lee, 2023; Gurney, 2024; Castro Sánchez & Alemán, 2023; Davidson, 2022). Recent global studies highlight the growing importance of digital competencies in lecturers to meet evolving student needs and positively influence learning achievements (Gurney, 2024; Castro Sánchez & Alemán, 2023). Additionally, the interplay of competitive intelligence systematic gathering and analysis of information to gain strategic advantage has been linked to improving lecturer capability and institutional performance worldwide (Salim & Bloch, 2023).

Lecturer effectiveness has been closely associated with faculty development programs in the United States, emphasizing evidence-based teaching and the integration of digital learning tools to enhance student outcomes (Davidson, 2022; Schwarz, 2022; Castro Sánchez & Alemán, 2023; Gurney, 2024; Alton-Lee, 2023). Competitive intelligence practices in higher education in the United States include data-driven evaluations of teaching effectiveness and continuous improvements in instructional strategies, which have been demonstrated to improve student satisfaction and learning performance (Alton-Lee, 2023; Abu Asfar et al., 2023). These developments position CI as a vital strategic element for faculty effectiveness and institutional competitiveness in a dynamic education environment.

European contexts echo similar findings, identifying lecturer effectiveness as central to quality assurance and institutional competitiveness in education (Salim & Bloch, 2023; Gurney, 2024; Schwarz, 2022; Davidson, 2022; Abu Asfar et al., 2023). European HEI incorporate competitive intelligence into strategic planning by monitoring educational trends, fostering innovation in teaching, and equipping lecturers with competencies to thrive in competitive educational markets (Salim & Bloch, 2023; Castro Sánchez & Alemán, 2023; Gurney, 2024; Schwarz, 2022; Davidson, 2022). This strategic approach aligns lecturer effectiveness with broader organizational goals to sustain global competitiveness and uphold high academic standards.

In Africa, the effectiveness of lecturers is influenced by contextual challenges, including resource limitations and limited access to educational technology (Akiri & Ugborugbo, 2021; Agbeche, Eze & Olusegun, 2023; Omowunmi, 2024; Abu Asfar et al., 2023; Akiri & Ugborugbo, 2021). CI is progressively seen as a strategic tool to enhance lecturer competencies by optimizing resource use, curriculum relevance, and teaching innovation among these constraints (Omowunmi, 2024). Empirical studies demonstrate that competitive intelligence facilitates informed decision-making and improved educational quality in African universities despite systemic challenges (Akiri & Ugborugbo, 2021; Abu Asfar et al., 2023; Schwarz, 2022).

Within Nigeria, the importance of lecturer effectiveness in contributing to educational quality and university reputation is broadly recognized, especially in institutions such as Lagos State University of Science and Technology (Davidson, 2022). Although competitive intelligence strategies have been introduced to support academic program enhancement and pedagogical advancement, their systematic deployment remains limited (Abu Asfar et al., 2023). This trend points to the need for empirical research that focuses on leveraging competitive intelligence to boost the effectiveness of lecturers and enhance institutional competitiveness and academic excellence.

Despite various efforts, Lagos State University of Science and Technology faces challenges in effectively integrating competitive intelligence frameworks within faculty development and teaching evaluation processes

(Agbeche et al, 2023; Abu Asfar et al, 2023; Akiri & Ugborogbo, 2021; Omowunmi, 2024). Barriers such as limited technological adoption, insufficient systematic application of competitive intelligence, and underdeveloped evaluation systems can hinder optimal lecturer performance, adversely affecting student outcomes and institutional competitiveness (Agbeche et al., 2023; Abu Asfar et al., 2023).

### **Statement of the problem**

Although competitive intelligence is globally acknowledged as a key strategic factor influencing lecturer effectiveness and educational quality, empirical studies exploring this relationship within the context of Lagos State University of Science and Technology remain scarce (Agbeche et al, 2023; Abu Asfar et al, 2023; Akiri & Ugborogbo, 2021; Davidson, 2022. Omowunmi, 2024). The limited application of competitive intelligence frameworks and insufficient integration into faculty development may hinder the ability of lecturers to adapt and excel in a competitive academic environment. This potentially leads to suboptimal academic delivery and negatively impacts student learning outcomes and overall university competitiveness. Research is therefore needed to investigate how competitive intelligence influences the effectiveness of lecturers within this university setting to inform strategies for improvement.

### **Research Hypotheses**

1. Training and development will not positively influence the effectiveness of lecturers in Lagos State University of Science and Technology.
2. Instructional aids will not positively influence the effectiveness of lecturers in Lagos State University of Science and Technology.
3. Knowledge of online teaching methods or usage will not positively influence the effectiveness of lecturers in Lagos State University of Science and Technology.

### **Literature Review**

#### **Competitive Intelligence**

Competitive intelligence (CI) is the systematic process of collecting, analyzing, and using information about markets, competitors, customers, and the broader environment to enable organizations make better strategic and operational decisions (Hassani & Mosconi, 2022). Ranjan and Foroapon (2021) opined that CI is not simply spying or ad-hoc data gathering; it combines ethical information collection, structured analysis, and clear communication of insights so decision-makers can anticipate competitor moves, spot market shifts, and prioritize opportunities and threats. In practice, effective CI blends multiple inputs, such as public filings, news and social media signals, customer feedback, supplier conversations, patent and regulatory tracking, and internal performance data, and then synthesizes those sources into actionable products, such as competitor profiles, scenario forecasts, and strategic early-warning indicators (De las Heras-Rosas & Herrera, 2021). The value of CI appears when firms reduce uncertainty in investment choices, more advantageously time product launches, or protect market share by spotting disruptive entrants early. However, Kazemi and Soltani (2024) stated that competitive intelligence faces practical challenges: data overload (lots of noise and low-quality signals), confirmation bias (analysts seeing what they expect), legal/ethical boundaries (what's permissible to collect), and organizational uptake (insights that are produced but not used). Best practice therefore emphasizes disciplined processes that clearly define intelligence questions tied to business objectives, triage of information for relevance, multiple analytical viewpoints to reduce bias, transparent sourcing and legal compliance, and strong communication formats that translate analysis into concrete decision options (Cavallo et al, 2021). Organizations that succeed with CI make it an ongoing capability

(not a one-off project), integrate it with strategy and product teams, and invest in both technical tools for sensing and human skills for interpretation and storytelling (Wu, Yan, & Umair, 2023).

### **Training and development**

According to Trihapsari et al. (2021), training and development (T&D) refers to the deliberate efforts an organization makes to improve the knowledge, skills, attitudes, and behaviors of its people so that both individual careers and organizational goals advance. T&D spans short tactical training (e.g., software skills and; safety procedures), long developmental initiatives (leadership pipelines and; rotational programs), and learning-for-performance (on-the-job coaching and; action learning) (Khan et al., 2021). The strongest T&D systems start by diagnosing skill gaps that matter to strategy, then design job-relevant, practice-rich, and manager-supported learning. The transfer of learning is critical hurdle, and it is influenced by workplace support, opportunities to practice, feedback loops, and how training content maps onto real work processes (Bharadwaj, 2023). Modern T&D also leverages blended approaches: microlearning for quick skills, simulations for complex decision practice, mentoring for tacit knowledge, and analytics to measure participation and outcomes. From an organizational perspective, T&D contributes to retention, motivation, innovation capability and organizational agility but it requires investment and systemic alignment: HR policies, reward structures, leadership endorsement and measurement frameworks that track behavior change rather than attendance or satisfaction alone (Kumar et al., 2022). Common pitfalls include one-off courses with no reinforcement, poor linkage to business outcomes, generic rather than contextualized training content, and lack of managerial involvement in reinforcing new practices. T&D works best when its iterative: needs are reassessed, outcomes are measured, content is refined, and learning is integrated into the flow of work so that development becomes part of the job rather than an isolated event (Bao et al., 2022).

### **Instructional Aids**

Instructional aids are the tools, materials, and media that instructors use to support learning, from low-tech items such as charts, case packets, and handouts to high-tech resources such as interactive simulations, videos, learning management systems, and adaptive tutors (Ordu, 2021). Their primary purpose is to make content more accessible, reduce unnecessary cognitive load, and scaffold learner activity so that understanding deepens and skills are transferred. Effective instructional aids are designed with the learner and the learning goals in mind: they foreground essential information, use signaling to draw attention to key features, provide worked examples and feedback where learners struggle, and allow active practice rather than passive consumption (Al Ali & Al-Barakat, 2023). For example, a well-designed simulation allows learners to safely experiment with consequences, safely while a good visual diagram simplifies complex relationships into a digestible pattern (Jiang et al., 2023). However, poorly chosen or poorly integrated aids can distract, create extraneous cognitive load, or promote surface learning. A flashy animation that does not clarify the point is worse than a simple, well-labeled diagram. Implementation challenges include resource constraints (time and money to produce quality aids), digital literacy (both instructors and learners may struggle with new tools), and pedagogical fit (tools used because they are available rather than because they help meet learning objectives) (Amos et al., 2022). High-impact practice combines principled instructional design (aligning objectives, activities, and assessments), iterative testing with learners, and attention to accessibility so that all students can engage; it also treats aids as part of a learning ecosystem, not as standalone props, ensuring they connect to practice, feedback, and assessment (Umuhoza & Uworwabayeho, 2021).

### **Knowledge of online teaching methods**

According to Darius et al. (2021), knowledge of online teaching methods refers to the combined pedagogical, technological, and facilitation skills that instructors need to design, deliver, and sustain meaningful learning in online or hybrid environments. This knowledge includes understanding how to structure asynchronous modules, design synchronous interactions that promote engagement, craft assessment and feedback mechanisms suited to remote formats, and use platform features (discussion boards, quizzes, breakout rooms, and analytics) purposefully (Totlis et al, 2021). Beyond tool mastery, effective online teaching demands awareness of adult learning principles in digital spaces, clear signaling of expectations, frequent and timely presence of instructors, scaffolding for learner autonomy, inclusive facilitation practices that manage participation, and contingency plans for connectivity issues. Instructors must also design for social presence (helping learners feel connected), cognitive challenge (tasks that require generative thinking, not just recall), and ongoing formative feedback; unless balanced with interactive tasks, relying solely on recorded lectures tends to lower engagement (Sofi-Karim et al., 2022). Challenges include workload (creating online courses is front-loaded in effort), assessment integrity (designing assessments that test learning rather than memorization), equity (learners with poor internet or limited devices face barriers), and continuous evolution of platforms and tools (Na & Jung, 2021). Therefore, best practice pairs pedagogical frameworks (backward design, active learning, and assessment for learning) with platform literacy and learner support structures: clear navigation, starter activities that teach how to learn online, and analytics-informed interventions for at-risk students. Continuous reflection and iteration of materials based on learner data and feedback is essential to keep online teaching effective as technologies and learner expectations change (Tsegay et al., 2022).

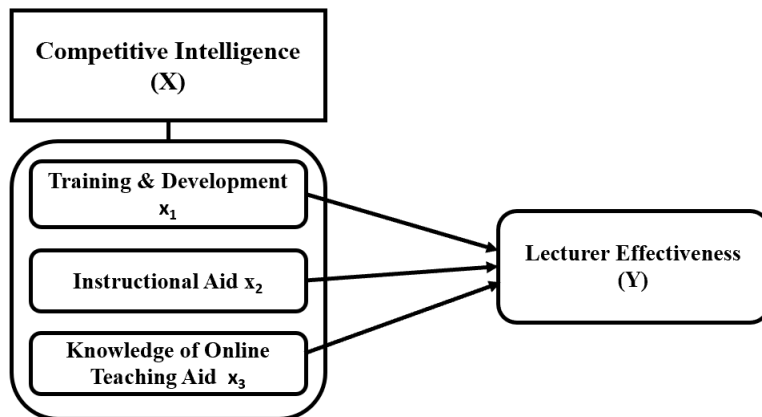
### **Lecturer effectiveness**

Lecturer effectiveness is the composite of behaviors, design choices, and interactions through which an instructor produces learning and positive outcomes for students. It includes clarity of explanations, alignment between learning objectives and assessments, quality of feedback, classroom management (including online facilitation), and capacity to motivate and engage diverse learners (Hisham et al., 2025). According to Rosdiana and Husaen (2022), measuring effectiveness typically requires multiple evidence streams of student performance (assessments), observable teaching practices, student feedback, and peer review because each source alone can be biased or incomplete. Effective lecturers adopt a student-centered stance: they set clear learning goals, chunk material into digestible units, use examples and analogies that connect with students' prior knowledge, prompt active processing through discussion and problem solving, and provide timely, actionable feedback that helps students close performance gaps (Retnowati et al, 2021). They also cultivate an inclusive climate where errors are treated as learning opportunities, and they differentiate when necessary to enable a range of learners to progress. Constraints on lecturer effectiveness include large class sizes, limited resources (time, teaching assistants, technology), and institutional incentives that prioritize research over teaching. Improving effectiveness is therefore both an individual and systemic endeavor: instructors benefit from professional development, mentoring and formative peer observation, while institutions must reward good teaching, provide resources for course design and ensure manageable workloads so that lecturers can plan and reflect on their practice (Prasetya, 2021). When these elements align with skilled instructors, supportive institutional structures, relevant resources, and evidence-based feedback ops, the effectiveness of lecturer increases and student learning outcomes follow suit.

### Theoretical Underpinning

The resource-based view (RBV) and the knowledge-based theory (KBT) provide strong theoretical underpinnings for examining the relationship between competitive intelligence and the effectiveness of lecturers at Lagos State University of Science and Technology. RBV posits that organizations achieve sustainable advantage when they develop and deploy valuable, rare, inimitable, and non-substitutable resources. In this context, CI can serve as a strategic resource that lecturers use to improve their teaching practices, classroom management, and responsiveness to students' needs (Ferreira & Ferreira, 2025; Lubis, 2022). On the other hand, KBT builds on RBV by stressing that knowledge is the most critical resource, and its effective integration and application determine performance (Hughes et al., 2022). This is particularly relevant in higher education, where lecturers who harness competitive intelligence as knowledge, such as insights into new pedagogical trends, student learning behaviors, and institutional benchmarks, are more likely to deliver quality instruction and foster positive learning outcomes. Together, RBV and KBT explain how the systematic acquisition and application of intelligence can enhance lecturer effectiveness, thereby strengthening institutional competitiveness in an increasingly knowledge-driven academic environment (Afshan et al., 2022).

### Conceptual Model



Source: Researcher's conceptual model (2025)

### Methodology

This study adopted a cross-sectional survey design. This design was deemed suitable because it seeks to gain access or explain a phenomenon that provides basic information on the study's focus. The target population for this study consists of 142 academic staff members of Lagos State University of Science and Technology, including full-time and part-time staff. The study employed a validated research questionnaire to collect data from respondents. The data collected for the study were analyzed using SPSS version 23.0.

### Results and Discussion of the Findings

The researcher distributed 142 copies of the questionnaire to the participants, of which 84 were completed and returned correctly and used for the analysis. The inferential statistics shows the results of the research hypothesis.

The collected data were presented and analyzed; and the findings were interpreted using SPSS software version 23.0 based on the developed hypotheses to enable the researcher to reach rational conclusions and deductions.

**Restatement of the Research Objective and Hypothesis**

**Hypothesis One:** Training and development will not positively influence the effectiveness of lecturers in Lagos State University of Science and Technology.

**Table 1: Influence of training and development on the effectiveness of lecturers in Lagos State University of Science and Technology.**

Model Summary						
Model	R	R Square	Adjusted R_square	Std. Error in the Estimate		
1	.426 <sup>a</sup>	.181	.178	.24513		
a. Predictors: (Constant), training and development						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.377	.055		24.822	.000
	Training and development	.156	.021	.323	7.355	.000
a. Dependent variable: Effectiveness of lecturers						

**Interpretation**

The inferential analysis presented in the model summary and coefficients table indicates a significant relationship between training and development and the effectiveness of lecturers at Lagos State University of Science and Technology. The R value of 0.426 showed a moderate positive correlation, while the R Square value of 0.181 indicates that the training and development variables can explain approximately 18.1% of the variance in lecturer effectiveness. The adjusted R Square (0.178) confirms this finding, considering the number of predictors in the model. The unstandardized coefficient for training and development is 0.156, which means that for each unit increase in training and development, lecturer effectiveness increases by 0.156 units, holding other factors constant. The t-value of 7.355 and the significance level ( $p < 0.001$ ) indicates that training and development have a statistically significant positive effect on the effectiveness of lecturers. Therefore, the null hypothesis that training and development will not positively influence lecturers' effectiveness is rejected, supporting the alternative hypothesis that such initiatives do enhance lecturers' effectiveness.

**Hypothesis Two:** Instructional aids will not positively influence the effectiveness of lecturers in Lagos State University of Science and Technology.

**Table 2: Influence of instructional aids on the effectiveness of lecturers in Lagos State University of Science and Technology**

Model Summary				
Model	R	R Square	Adjusted R-square	Std. Error in the Estimate

1	.406 <sup>a</sup>	.165	.156	.24832		
a. Predictors: Constant - Instructional aid						
<b>Coefficients</b>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.317	.065		20.392	.000
	Instructional aid	.035	.019	.116	2.008	.045
<b>Dependent variable: Effectiveness of lecturers</b>						

**Interpretation**

The inferential analysis for the second hypothesis indicates a significant relationship between instructional aids and the effectiveness of lecturers at Lagos State University of Science and Technology. The R value of 0.406 revealed a moderate positive correlation, whereas the R Square value of 0.165 implies that approximately 16.5% of the variance in lecturer effectiveness can be attributed to the use of instructional aids. The adjusted R-square of 0.156 further supports this finding, accounting for the number of predictors in the model.

In the coefficients section, the unstandardized coefficient for instructional aid is 0.035, indicating that lecturer effectiveness increases by 0.035 units in the use of instructional aids, with other factors held constant. The t-value of 2.008 and the significance level (p = 0.045) indicate that the effect of instructional aids on lecturer effectiveness is statistically significant. Therefore, the null hypothesis, which states that instructional aids will not positively influence lecturer effectiveness, is rejected. This showed that the use of instructional aids has a positive impact on the effectiveness of lecturers.

**Hypothesis Three:** Knowledge of online teaching methods or usage will not positively influence the effectiveness of lecturers in the Lagos State University of Science and Technology.

**Table 3: Influence of knowledge of online teaching methods on the effectiveness of lecturers in Lagos State University of Science and Technology.**

<b>Model Summary</b>						
Model	R	R Square	Adjusted R-square	Std. Error in the Estimate		
1	.447 <sup>a</sup>	.200	.190	.24326		
Predictors: (Constant), Knowledge of online teaching method or usage						
<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.403	.056		24.901	.000

Knowledge of the online teaching method or usage	.000	.022	.316	.017	.987
<b>Dependent variable: Effectiveness of the lecturers</b>					

**Interpretation**

The inferential analysis for the third hypothesis reveals insights into the relationship between the knowledge of online teaching methods and the effectiveness of lecturers at Lagos State University of Science and Technology. The R value of 0.447 indicates a moderate positive correlation, while the R square value of 0.200 showed that approximately 20% of the variance in lecturer effectiveness can be explained by knowledge of online teaching methods. Adjusting for the number of predictors in the model, the adjusted R square of 0.190 confirms this. However, the coefficients section presents a notable finding: the unstandardized coefficient for knowledge of online teaching methods is 0.000, indicating that changes in this variable do not lead to any increase in lecturer effectiveness. The t-value of 0.017 and the significance level ( $p = 0.987$ ) indicate that this relationship is not statistically significant. Consequently, the null hypothesis, which states that knowledge of online teaching methods will not positively influence lecturer effectiveness, cannot be rejected; rather, it is supported by the data. This confirms that knowledge of online teaching methods does not have a significant positive impact on lecturers effectiveness in this context.

**Discussion of the Findings**

The empirical findings from the inferential analysis conducted at Lagos State University of Science and Technology reveal significant insights into the factors influencing lecturer effectiveness, specifically through the lenses of training and development, instructional aids, and knowledge of online teaching methods. The results align with and extend existing literature, demonstrating the critical role of strategic resource allocation and capability enhancement in improving organizational performance, as framed by the RBV theory (Lubis, 2022; Ferreira & Ferreira, 2025). Below, I discuss how these independent variables - training and development and instructional aids positively and significantly affect the dependent variable, lecturer effectiveness, while addressing the non-significant effect of knowledge of online teaching methods.

**Training and development and effectiveness of lecturers**

The analysis indicates a moderate positive correlation ( $R = 0.426$ ) between training and development and lecturer effectiveness, with 18.1% of the variance in lecturer effectiveness explained by this variable ( $R^2 = 0.181$ ). The unstandardized coefficient of 0.156 suggests that lecturer effectiveness increases by 0.156 units for each unit increase in training and development; a finding supported by a highly significant t-value (7.355,  $p < 0.001$ ). This result aligns with the literature, which consistently highlights the role of training and development in enhancing employee performance and organizational competitiveness. For instance, Trihapsari et al. (2021) emphasized that training programs improve the quality of human resources in educational settings by equipping lecturers with updated skills and knowledge, directly impacting teaching effectiveness. Similarly, Bharadwaj (2023) noted that targeted training interventions foster skill development, which improves performance and retention. The RBV framework further supports this finding, as training and development represent strategic resources that enhance the capabilities of lecturers, enabling them to deliver high-quality instruction (Lubis, 2022). At Lagos State

University, investments in training programs are likely to provide lecturers with pedagogical advancements and professional skills, fostering their ability to engage students effectively and adapt to evolving educational demands. This statistically significant relationship underscores the importance of CPD as a driver of lecturer effectiveness, rejecting the null hypothesis and affirming the positive impact of training initiatives.

### **Instructional Aids and Effectiveness of Lecturers**

The analysis also demonstrates a moderate positive correlation ( $R = 0.406$ ) between the use of instructional aids and lecturer effectiveness, with 16.5% of the variance in effectiveness attributed to this variable ( $R^2 = 0.165$ ). The unstandardized coefficient of 0.035 indicates that a unit increase in instructional aid use results in a 0.035-unit increase in lecturer effectiveness, with a statistically significant t-value (2.008,  $p = 0.045$ ). This finding is consistent with that of prior research, which underscores the role of instructional aids in enhancing teaching and learning outcomes. Ordu (2021) highlighted that teaching aids, such as visual and technological tools, improve the clarity and engagement of instructional delivery, making students more accessible to complex concepts. Similarly, AlAli and Al-Barakat (2023) argued that instructional aids enrich the learning experience by catering to diverse learning styles, thereby improving the effectiveness of lecturers. From an RBV perspective, instructional aids represent tangible resources that lecturers leverage to enhance their teaching capabilities, aligning with the notion that strategic resource utilization drives competitive advantage (Ferreira & Ferreira, 2025). At Lagos State University, the significant effect of instructional aids suggests that access to and effective use of multimedia like presentations, laboratory equipment, or digital platforms enhance lecturers' ability to deliver impactful lessons. This finding rejects the null hypothesis and confirms that instructional aids positively influence lecturer effectiveness, likely by improving student comprehension and engagement.

### **Knowledge of Online Teaching Methods and Effectiveness of Lecturers**

In contrast, the analysis reveals that knowledge of online teaching methods does not significantly impact lecturer effectiveness, with an unstandardized coefficient of 0.000, a t-value of 0.017, and a non-significant p-value of 0.987. Despite a moderate correlation ( $R = 0.447$ ) and 20% of the variance explained ( $R^2 = 0.200$ ), the lack of statistical significance suggests that knowledge of online teaching methods alone does not translate into improved lecturer effectiveness in this context. This finding diverges from some literature, such as Sofi-Karim et al. (2023), which highlights the potential of innovative platforms to enhance educational delivery through online teaching methods.

However, other studies, such as Na and Jung (2021), note challenges in online teaching, including difficulties in adapting to instructors and technological barriers, which may explain the non-significant effect observed here. From an RBV perspective, knowledge of online teaching methods may not yet be fully integrated as a strategic resource at Lagos State University of Science and Technology, possibly due to limited infrastructure, training, or institutional support for online pedagogies (Tsegay et al., 2022). While the moderate correlation indicates some association, the lack of significance indicates that other factors, such as practical application or contextual readiness, may mediate the impact of this knowledge. Consequently, the null hypothesis is supported, confirming that the knowledge of online teaching methods does not currently enhance the effectiveness of lecturers in this setting.

The findings collectively highlight the critical role of training and development and instructional aids as strategic resources that significantly enhance lecturer effectiveness, aligning with the RBV's emphasis on leveraging unique resources for competitive advantage (Hughes et al., 2022). Training and development programs empower lecturers with advanced pedagogical skills, and instructional aids facilitate effective teaching practices. These

results reveal that Lagos State University should prioritize investments in these areas to sustain and enhance the performance of lecturers. However, the non-significant impact of online teaching knowledge points to the need for further investigation into barriers, such as technological infrastructure or training gaps that may hinder its effectiveness. Integrating insights from competitive intelligence, as discussed by Cavallo et al. (2021), the university could adopt data-driven strategies to optimize resource allocation, ensuring that training programs and instructional aids are tailored to the needs of lecturers. Additionally, as mentioned by Hassanu and Mosconi (2022), addressing the challenges of online teaching could involve targeted interventions to translate knowledge into practical, impactful teaching strategies. Overall, these findings underscore the importance of aligning institutional resources with pedagogical goals to maximize lecturer effectiveness and, by extension, student learning outcomes.

### **Conclusions and Recommendations**

The inferential analysis at Lagos State University of Science and Technology shows that training and development and the use of instructional aids significantly enhance the effectiveness of lecturers. However, despite a moderate correlation, knowledge of online teaching methods does not have a significant impact, indicating potential barriers such as limited technological infrastructure or challenges in applying online teaching strategies. These findings emphasize the importance of targeted resource allocation to improve teaching outcomes and highlight the need for further exploration to unlock the potential of online teaching methods.

To boost the effectiveness of lecturers, Lagos State University of Science and Technology should continue investing in training and development programs to equip lecturers with modern teaching skills. Furthermore, the university should ensure broad access to instructional aids, such as multimedia tools and digital platforms, to support engaging teaching practices. To address the lack of impact of online teaching knowledge, a needs assessment should be conducted to identify obstacles, such as technological limitations, and develop strategies to effectively integrate online teaching methods. A data-driven approach to resource allocation will help optimize these efforts and enhance overall educational outcomes.

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