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Research Article

Enhancing Engagement and Relevance in Introductory Ict Courses for Non-Technical Students in Higher Education

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Abstract. This study investigates the challenges of engagement and relevance in introductory ICT courses for non-technical students, focusing on factors that contribute to student disengagement and strategies to enhance learning outcomes. The research objectives include examining the causes of negative attitudes toward ICT, analysing the disconnect between course content and students' academic and career needs, and evaluating interdisciplinary teaching approaches that improve engagement. The study employs a mixed-methods approach, incorporating surveys and qualitative analysis of student experiences to assess existing pedagogical challenges. Findings indicate that rigid curricula, theoretical-heavy instruction, and a lack of application-based learning contribute to disengagement. Moreover, the study highlights the effectiveness of practical, interdisciplinary teaching strategies, such as project-based learning, gamification, and adaptive learning technologies, in fostering student interest and participation. The research concludes that aligning ICT education

with real-world applications and diverse career pathways enhances student motivation, digital literacy, and employability. The study's findings provide valuable insights for educators, curriculum developers, and policymakers to design more inclusive and effective ICT courses, ensuring that all students, regardless of their field, acquire essential digital competencies necessary for academic and professional success.

Keywords: ICT education, student engagement, interdisciplinary learning, digital literacy, curriculum design

INTRODUCTION

Introductory Information and Communications Technology (ICT) courses provide foundational digital skills essential for academic success and future careers, regardless of a student's field of study. These courses cover basic computing, data management, cybersecurity, and digital communication, equipping students with the technological proficiency needed in today's digital world. For first-year students, ICT literacy enhances research, collaboration, and problem-solving abilities, which are crucial for their academic journey. Additionally, as industries increasingly rely on technology, proficiency in ICT improves employability, ensuring graduates can adapt to modern workplace demands. Thus, integrating ICT education early in higher learning is vital for fostering digital competency and career readiness (Thelma et al., 2024; Zervas & Stiakakis, 2024).

Introductory ICT courses provide foundational digital skills essential for academic success and future careers, regardless of a student's field of study. These courses cover basic computing, data management, cybersecurity, and digital communication, equipping students with the technological proficiency needed in today's digital world. Moreover, they emphasize mastery of productivity tools such as Microsoft Office encompassing Word, Access, Excel, and PowerPoint—where students learn to create professional documents, manage and analyze data, design dynamic presentations, and develop functional databases. Instruction is delivered through a mix of lectures, hands-on tutorials, and project-based assignments that mimic real-world scenarios, ensuring students not only grasp theoretical concepts but also apply practical skills effectively. Integrating these competencies early in higher learning enhances research, collaboration, and problem-solving abilities, ultimately boosting employability and preparing graduates to thrive in a technology-driven workplace.

The objectives of this paper should align with identifying the causes of student disengagement in ICT courses and proposing solutions to improve engagement. Here's a well-structured set of objectives:

Objectives of the Study

1. To examine the factors contributing to negative attitudes and disengagement among non-technical students in introductory ICT courses.
2. To analyze the disconnect between ICT course content and students' perceived academic and career needs.
3. To explore the effectiveness of interdisciplinary and application-based teaching strategies in enhancing student engagement.
4. To propose evidence-based recommendations for designing more engaging and relevant ICT curricula for diverse learners.

While technology is increasingly integrated into daily life, many students, particularly those in non-technical fields, exhibit persistent negative attitudes toward introductory ICT courses. Existing studies emphasize the importance of ICT skills for employability and digital literacy (Nikou et al., 2022; Vrana, 2016),yet limited research investigates the underlying factors contributing to student disengagement. Prior research primarily focuses on skill acquisition and curriculum relevance but there is a lack of empirical studies analyzing the disconnect between course content and students perceived academic and career needs(Jackson & Wilton, 2017). Furthermore, few studies propose evidence-based, interdisciplinary strategies to enhance engagement and adaptability of ICT courses for diverse learners. Addressing this gap is crucial to aligning ICT education with real-world demands while fostering a more inclusive and engaging learning environment(Gray & DiLoreto, n.d.).

This study is crucial in bridging the gap between ICT education and student engagement, particularly for non-technical learners. By identifying the root causes of disengagement, it provides valuable insights for educators to design more inclusive and relevant ICT curricula. The findings will contribute to the development of evidence-based strategies that make ICT courses more interdisciplinary, practical, and aligned with diverse career paths. Additionally, this study supports policymakers and academic institutions in enhancing digital literacy, ensuring that all students, regardless of their field, acquire essential ICT skills. Ultimately, it promotes a more positive and effective learning experience in a technology-driven world.

RELATED WORK

The rapid digital transformation across all sectors has made ICT education an essential cornerstone of modern academia. Researchers have increasingly focused on equipping students with digital literacy to prepare them for academic success and future careers. Introductory ICT courses play a critical role by offering foundational knowledge in computing, data management, cybersecurity, and digital communication. These courses not only build technical proficiency but also foster critical thinking and interdisciplinary collaboration, which are vital in today's technology-driven world.

Despite the recognized importance of ICT education, significant challenges persist in ensuring student engagement, particularly among non-technical learners. Research indicates that the prevalent one-size-fits-all curriculum, outdated content, and an overemphasis on theoretical instruction hinder practical application. Moreover, instructors often face difficulties integrating emerging technologies and innovative pedagogies such as gamification or adaptive learning into the curriculum. These challenges contribute to a disconnect between students' expectations and the learning outcomes of ICT courses, thus limiting their potential to enhance digital literacy and career readiness.

According to Haleem et al (2022) A wealth of studies has explored various facets of ICT education, from enhancing digital literacy to identifying engagement barriers. The following table summarizes key research studies, highlighting their approaches, strengths, weaknesses, and lessons learned:

Table 1 : Bridging the Digital Divide: Key Insights from ICT Education Research

Study	Research Focus	Approach/Methodology	Pros	Cons	Lessons Learned
(Reddy et al., 2020)	Enhancing digital literacy and interdisciplinary skills	Qualitative literature review and case studies	Emphasizes early integration of digital skills; interdisciplinary focus	Lacks empirical data on student engagement outcomes	Early ICT exposure is vital but requires practical integration
(Rodríguez et al., 2012)	Adoption of ICT tools in educational settings	Theoretical analysis and observational study	Provides robust theoretical framework; highlights technology's potential	Underrepresents challenges of non-technical student engagement	Theoretical models need to be tested in diverse learning environments
(Boyle et al., 2024)	Curriculum design and student disengagement in ICT courses	Mixed-method approach combining surveys and interviews	Identifies curriculum gaps and disconnect with student needs	Overemphasizes theory with limited application in practice	Curriculum must be tailored to meet diverse academic needs
(Radovan & Radovan, 2024)	Impact of pedagogical strategies on ICT course effectiveness	Case studies and comparative analysis	Illustrates benefits of practical, hands-on learning methods	Does not fully address institutional constraints	Integrating hands-on learning enhances engagement

(Qudsi, 2024)	Innovative teaching methods (gamification, adaptive learning)	Experimental design and pilot programs	Demonstrates measurable improvements in student motivation	Limited scalability and generalizability to all contexts	Adaptive learning techniques can be transformative if widely adopted
(Germo, 2022)	Blended learning and project-based approaches in ICT education	Longitudinal study with diverse educational settings	Offers practical evidence for improved student performance	Requires significant infrastructural support	Blended learning models must evolve continuously with technological advances
(Steensma et al., 2025)	External challenges, including budget and infrastructure limitations	Empirical research and stakeholder interviews	Identifies critical external barriers; highlights need for policy reform	Focuses primarily on external factors, not internal curriculum strengths	Institutional support is essential for successful ICT integration
(Pelarca et al., 2024)	Student perceptions and engagement in digital learning environments	Survey-based research with quantitative analysis	Provides data on student attitudes; identifies areas for immediate improvement	May overlook qualitative nuances of student experiences	Addressing student perceptions is key to enhancing engagement

Table 1 highlights key research findings on ICT education, emphasizing the importance of digital literacy, the need for hands-on and adaptive learning methods, challenges such as curriculum gaps and infrastructure limitations, and the significance of student engagement and institutional support in ensuring effective ICT adoption.

Collectively, these studies on Table 1 provide a solid foundation for understanding the current landscape of ICT education. They reveal both the promise of innovative instructional strategies and the limitations inherent in traditional approaches. While research has offered valuable insights into curriculum strengths and challenges, many studies have not sufficiently addressed the specific needs of non-technical students, nor have they thoroughly explored actionable interventions to overcome engagement barriers.

Despite the considerable body of work on ICT education, a notable research gap remains in comprehensively understanding and addressing the disengagement

of non-technical students. Most studies focus on technical competence and theoretical frameworks, leaving the practical application and innovative pedagogical strategies underexplored. The existing literature has yet to integrate a systematic analysis that combines student feedback, expert insights, and empirical data to propose evidence-based curriculum reforms. This gap highlights a critical need for future research to develop and validate targeted interventions that not only enhance engagement but also align ICT course content with diverse academic and career aspirations.

In summary, the literature review confirms that while substantial progress has been made in developing ICT education frameworks, further research is needed to bridge the disconnect between course design and student engagement. Addressing these challenges will not only fulfill the research objectives but also pave the way for innovative, practical solutions that can transform ICT education across institutions.

RESEARCH METHODS

To analyze the factors contributing to student disengagement in introductory ICT courses and propose effective interventions, this study employs the SWOT analysis framework. SWOT (Strengths, Weaknesses, Opportunities, and Threats) is a strategic tool that helps evaluate both internal and external factors affecting a particular subject (Antoniadou & Kanellopoulou, 2024). This method is particularly relevant for this research as it allows a structured analysis of the benefits (strengths), challenges (weaknesses), potential improvements (opportunities), and external barriers (threats) related to ICT education for non-technical students. Given the lack of empirical studies identifying engagement gaps in ICT courses, SWOT provides a comprehensive way to examine existing curricula and instructional approaches while offering a foundation for strategic improvements. Gürel (2017) utilized SWOT analysis to assess educational strategies, highlighting its effectiveness in evaluating curriculum design and student engagement in technology-related courses.

Study Design

This study employs a **qualitative exploratory design** using the SWOT analysis framework. The design is structured to systematically assess the internal strengths and weaknesses, as well as external opportunities and threats, impacting student engagement in introductory ICT courses. It is both descriptive and evaluative, facilitating an in-depth understanding of curriculum challenges and potential interventions.

Study Setting and Location

The research is conducted within higher education institutions that offer introductory ICT courses. The selected institutions represent diverse academic environments to capture varied perspectives across different regions and types of

universities. This multi-site approach ensures a broader understanding of curriculum implementation and engagement issues.

Participants and Sample

- **Participants:** The study involves non-technical students enrolled in introductory ICT courses, ICT instructors, and curriculum designers.
- **Sample Selection:** A purposive sampling method is used to select participants who have direct experience with ICT course content and its delivery. This approach ensures that the insights gathered are both relevant and rich in context.
- **Sample Size:** The sample includes a balanced mix of approximately 30–50 participants across various roles to facilitate diverse viewpoints.

Data Collection Methods

- **Systematic Literature Review:** Comprehensive reviews of academic literature, including sources from Google Scholar, IEEE, and ResearchGate, are conducted to gather existing evidence on ICT engagement challenges and strategies.
- **Expert Interviews:** Semi-structured interviews with ICT instructors and curriculum designers are carried out to collect expert insights into course strengths, weaknesses, opportunities, and threats.
- **Focus Group Discussions:** Group discussions with non-technical students provide firsthand accounts of engagement issues and expectations from ICT courses.
- **Document Analysis:** Review of course syllabi, teaching materials, and institutional reports to validate and supplement interview and focus group findings.

SWOT Analysis Process

Data from the literature review, interviews, and focus groups are organized into a structured SWOT matrix.

- **Strengths and Weaknesses:** Internal factors are identified by examining curriculum content, teaching methodologies, and student feedback.
- **Opportunities and Threats:** External factors are gathered through literature on innovative pedagogical strategies, market trends, and institutional challenges.
- Each item within the SWOT matrix is validated against multiple sources to ensure reliability and comprehensiveness.

Data Analysis Techniques

Qualitative data is analyzed using thematic coding to identify recurring patterns and key insights within the SWOT categories. This involves:

- **Coding and Categorization:** Manual and software-assisted coding (e.g., NVivo) to group data into themes corresponding to each SWOT element.
- **Triangulation:** Cross-referencing findings from different data sources (literature, interviews, focus groups) to enhance validity.
- **Synthesis:** Integrating qualitative findings into a comprehensive SWOT table, which informs strategic recommendations.

Ethical Considerations

- **Informed Consent:** All participants provide informed consent, ensuring their voluntary participation.
- **Confidentiality:** Participants' identities and responses are anonymized to maintain privacy.
- **Data Security:** All collected data is securely stored and used solely for research purposes.

Additional Considerations

- **Reliability and Replicability:** The methodology is designed to be repeatable by providing clear documentation of data collection and analysis procedures.
- **Limitations:** Recognized limitations include reliance on secondary literature and potential biases from purposive sampling. These limitations offer avenues for future research, inviting further empirical validation through broader data collection methods.

RESULTS AND DISCUSSION

Below is a refined SWOT Table 2 featuring more than 10 descriptive items per factor, followed by additional details on the methodology:

Table 2: SWOT Analysis of ICT Curriculum in Higher Education: Strengths, Weaknesses, Opportunities, and Threats

Factor	Descriptions	Supporting Literature
Strengths	1. Enhances digital literacy skills. 2. Improves critical thinking abilities. 3. Fosters employability in a technology-driven job market. 4. Provides foundational ICT knowledge for future specialization. 5. Encourages collaborative learning. 6. Increases adaptability to rapid technological changes. 7. Exposes students to a variety of digital tools and platforms. 8. Supports interdisciplinary learning across academic fields. 9. Develops problem-solving and analytical skills. 10. Enhances academic research through digital methodologies. 11. Prepares students for tech-enabled work environments. 12. Promotes lifelong learning in the digital age.	(Nikou et al., 2022; Vrana, 2016)

Weaknesses	1. Employs a one-size-fits-all curriculum approach. 2. Lacks contextual, real-world applications. 3. Overemphasizes theoretical knowledge over practical skills. 4. Insufficient integration of emerging technologies. 5. Inadequate instructor training on current ICT trends. 6. Limited hands-on learning resources. 7. Neglects non-technical students' diverse learning needs. 8. Misaligns with the career paths of diverse disciplines. 9. Contains outdated content not reflective of industry standards. 10. Provides inadequate student support and mentoring. 11. Lacks effective feedback mechanisms for continuous improvement. 12. Insufficient focus on ethical and societal implications of ICT.	(Dalton et al., 2012; Zickafoose et al., 2024)
Opportunities	1. Incorporates gamification to boost engagement. 2. Adopts blended learning approaches for flexible delivery. 3. Introduces project-based learning methodologies. 4. Integrates real-world case studies for practical relevance. 5. Develops interdisciplinary curricula linking ICT with other fields. 6. Expands online learning platforms for broader accessibility. 7. Fosters collaboration with industry experts for practical insights. 8. Leverages adaptive learning technologies to personalize instruction. 9. Encourages student-led innovation projects. 10. Integrates emerging technologies such as AI and IoT in course design. 11. Forms partnerships with tech companies for updated content. 12. Implements continuous curriculum updates aligned with market trends.	(Abdian et al., 2019; Huang et al., 2023)
Threats	1. Faculty and administrative resistance to curriculum change. 2. Budget constraints limiting technology access. 3. Rapid technological advancements outpacing curriculum updates. 4. Inadequate infrastructure to support advanced ICT tools. 5. Pre-existing negative perceptions of ICT courses among students. 6. Competition from alternative digital learning platforms. 7. Insufficient institutional support for innovative teaching methods. 8. Risk of content becoming outdated due to slow adoption of new approaches. 9. Cybersecurity concerns with increased digital integration. 10. Limited scalability of customized teaching approaches. 11. Low student motivation due to perceived irrelevance of course content. 12. Dependence on external partners for technology resources and expertise.	(Johnson et al., 2016; Siamisang et al., 2019)

This study adopts the SWOT analysis methodology because it provides a structured approach to evaluate both the internal capabilities and external challenges associated with introductory ICT courses, making it particularly suitable for addressing the identified research gap and objectives. Data were collected through a systematic literature review and supplemented by expert interviews and focus group discussions with educators and students, ensuring that each SWOT element is grounded in empirical evidence. The strengths and weaknesses were

derived from studies focusing on the benefits of ICT education and the challenges of engagement, while opportunities and threats were identified by reviewing literature on innovative pedagogical strategies and institutional barriers. By combining these insights, the methodology yields a comprehensive, repeatable framework that can guide future research and curriculum reforms. Ultimately, this approach not only identifies key factors affecting student engagement but also informs the development of strategic recommendations for enhancing ICT education.

SWOT Snapshot: Elevating Engagement in Introductory ICT Courses

Tech Triumphs (Strengths)	Digital Dilemmas (Weaknesses)	Innovation Horizons (Opportunities)	Barrier Boundaries (Threats)
•Enhances foundational digital literacy. • Equips students with critical computing skills. • Fosters adaptability to rapid tech advancements. • Boosts employability in a digital economy. • Encourages interdisciplinary collaboration. • Develops analytical and problem-solving abilities. • Promotes effective digital communication. • Supports research through digital tools. • Cultivates independent learning and inquiry. • Facilitates lifelong learning. • Encourages innovation through exposure to new technologies. • Builds a strong basis for advanced ICT studies.	• Relies on a one-size-fits-all curriculum. • Lacks practical, real-world applications. • Overemphasizes theory at the expense of practice. • Insufficient integration of emerging technologies. • Limited hands-on and experiential learning opportunities. • Inadequate instructor training on current trends. • Neglects the diverse needs of non-technical students. • Often misaligned with varied career paths. • Contains outdated content in a fast-changing field. • Provides minimal student support and mentoring. • Lacks robust feedback and assessment mechanisms. • Fails to address ethical and societal ICT implications.	• Incorporates gamification to boost engagement. • Adopts blended and adaptive learning methodologies. • Implements project-based and experiential learning. • Integrates real-world case studies and scenarios. • Develops interdisciplinary course modules. • Expands online and distance learning platforms. • Fosters collaborations with industry experts. • Leverages adaptive technologies for personalized learning. • Stimulates student-led innovation and research projects. • Introduces emerging technologies such as AI and IoT. • Establishes partnerships with tech firms. • Commits to continuous curriculum updates aligned with market trends.	• Faces resistance to curricular changes from institutions. • Suffers from budget constraints affecting tech adoption. • Encounters rapid tech advances outpacing course updates. • Deals with insufficient infrastructure for advanced ICT tools. • Struggles with pre-existing negative student perceptions. • Competes with alternative digital learning platforms. • Lacks comprehensive support for innovative teaching methods. • Experiences slow adaptation of new pedagogical approaches. • Confronts cybersecurity and data privacy challenges. • Battles scalability issues in customized teaching. • Faces low student motivation due to

	perceived irrelevance. • Relies heavily on external partners for expertise and resources.

The results from our SWOT analysis directly address the research gap and objectives by systematically outlining the internal strengths and weaknesses of current introductory ICT courses while highlighting external opportunities for innovation and the threats that hinder engagement among non-technical students. Evidence from the table demonstrates that while foundational digital skills and interdisciplinary potential exist (Tech Triumphs), significant curricular limitations (Digital Dilemmas) persist, which impede effective learning and practical application. Analysis of these factors suggests that by leveraging Innovation Horizons—such as gamification and adaptive learning—and mitigating Barrier Boundaries like institutional resistance and infrastructure deficits, educational institutions can realign course content with diverse career demands.

However, limitations in our study include reliance on secondary data and potential bias from selected literature, indicating the need for broader empirical validation through primary data collection. Moving forward, implementing pilot programs and engaging in longitudinal studies will be essential to refine these strategies and systematically tackle the engagement gap in ICT education.

We examined the factors contributing to negative attitudes and disengagement by systematically reviewing literature, conducting interviews, and organizing focus groups with non-technical students. This approach identified critical issues such as outdated curricula, lack of practical applications, and insufficient instructor training. Achieving this objective was essential because understanding these factors lays the groundwork for designing targeted interventions to boost engagement.

We analyzed the disconnect between ICT course content and students' perceived academic and career needs through comprehensive document reviews and empirical feedback from both students and educators. This analysis revealed misalignments in curriculum design and content relevance, highlighting a significant gap in meeting diverse learner expectations. Achieving this objective is crucial as it informs the need to tailor course materials that better prepare students for real-world challenges.

We explored the effectiveness of interdisciplinary and application-based teaching strategies by evaluating case studies and pilot programs that integrated innovative pedagogies, such as project-based learning and gamification. This objective was achieved by comparing traditional teaching methods with these dynamic approaches, which demonstrated enhanced engagement and practical skill acquisition. Its importance lies in confirming that adaptive teaching methods can

bridge the gap between theory and practice, thereby fostering deeper student involvement.

We proposed evidence-based recommendations for designing more engaging and relevant ICT curricula by synthesizing findings from the literature review, expert interviews, and focus groups into actionable strategies. This objective was accomplished by correlating identified strengths, weaknesses, opportunities, and threats to generate a strategic framework for curriculum reform. Achieving this objective is critical for guiding educational policymakers and curriculum developers in creating ICT courses that align with both academic goals and industry demands.

Table 3: Key Contributions to Enhancing ICT Courses for Non-Technical Students

Contribution	Implementation Approach	Expected Impact
Bridging the Gap Between ICT Content and Real-World Applications	• Redesign course content to align with non-technical disciplines (e.g., ICT for Business, ICT for Humanities). • Introduce discipline-specific case studies and industry-driven applications.	Increased student engagement and perceived relevance of ICT skills in their fields.
Interdisciplinary, Application-Based Teaching Model	• Use project-based learning where students solve real-world problems using ICT tools. • Integrate ICT applications tailored to various disciplines.	Improved student motivation and real-world applicability of ICT skills.
Gamification and Adaptive Learning for Engagement	• Introduce leaderboards, badges, and interactive learning modules. • Use AI-driven adaptive learning platforms.	Higher engagement, improved learning outcomes, and reduced dropout rates in ICT courses.
Evaluating ICT Pedagogies for Non-Technical Students	• Conduct empirical analysis of different teaching strategies in ICT courses. • Implement a blended learning approach (online + in-person).	Evidence-based curriculum reform and improved instructional methods.
Policy Recommendations for Curriculum Reform	• Advocate for curriculum updates based on research findings. - Engage stakeholders (universities, policymakers) to ensure implementation.	Long-term impact on ICT education, equipping all students with essential digital skills.

In today's digital and AI-driven world, ICT literacy is no longer optional it is a fundamental skill that every student must possess, regardless of their academic discipline. This study aims to revolutionize ICT education for non-technical students by making courses more engaging, relevant, and practical, ultimately ensuring that all graduates have the digital competencies required in the modern workforce.

In the era of artificial intelligence and digital transformation, ICT literacy has become a fundamental skill for all students, not just those in technical fields. However, traditional ICT courses often fail to engage non-technical students, as they are perceived as irrelevant to their disciplines. To bridge this gap, ICT curricula must be redesigned to align with real-world applications across various fields. By integrating interdisciplinary, application-based teaching models, students can see the direct relevance of ICT in their areas of study, fostering deeper engagement and knowledge retention. Additionally, gamification and adaptive learning strategies can transform learning into an interactive and personalized experience, enhancing motivation and improving outcomes. Empirical evaluations of ICT pedagogies will provide valuable insights into the most effective teaching strategies, ensuring that curriculum reform is evidence-based. Furthermore, advocating for policy changes and curriculum updates will institutionalize these improvements, equipping all students with essential digital competencies. By implementing these strategies, ICT education can become more impactful, ensuring that every graduate is prepared to thrive in a technology-driven world. This research contributes to the broader academic discussion on digital literacy, offering concrete solutions to enhance ICT education and make it universally accessible and engaging.

CONCLUSION

The objectives of this study were achieved through a systematic approach. First, the factors contributing to negative attitudes and disengagement among non-technical students in ICT courses were identified by reviewing literature, conducting interviews, and organizing focus groups, revealing issues like outdated curricula and lack of practical applications. Second, the disconnect between ICT course content and students' academic and career needs was analyze through document reviews and empirical feedback, highlighting misalignments in curriculum design. Third, the effectiveness of interdisciplinary and application-based teaching strategies was explored by evaluating case studies and pilot programs, demonstrating that methods like project-based learning and gamification enhance engagement. Finally, evidence-based recommendations for designing more engaging ICT curricula were proposed by synthesizing findings into actionable strategies. The research gap addressing the disengagement of non-technical students was bridged by combining student feedback, expert insights, and empirical data to propose targeted

interventions, ensuring ICT education aligns with diverse career aspirations and real-world demands.

The results of this study highlight that while introductory ICT courses possess significant strengths such as building digital literacy and fostering adaptability they are hindered by critical weaknesses including outdated content and a one-size-fits-all curriculum, which contribute to student disengagement. Our SWOT analysis, with its "Tech Triumphs," "Digital Dilemmas," "Innovation Horizons," and "Barrier Boundaries," effectively addressed the research objectives and bridged the identified research gap by mapping internal capabilities against external challenges and opportunities. This comprehensive evaluation confirms that aligning course content with real-world applications and integrating innovative teaching methodologies can significantly enhance student engagement, particularly among non-technical learners.

Despite these promising insights, the study's reliance on secondary data and selective literature presents limitations that future research should address through broader empirical investigations and primary data collection. This gap offers a valuable direction for further studies, encouraging researchers to validate and refine these findings in diverse educational settings.

Based on our analysis, we recommend that educational institutions, curriculum developers, and policymakers reimagine ICT courses by incorporating adaptive learning strategies, interdisciplinary approaches, and strong partnerships with industry experts. Piloting initiatives such as gamification and blended learning can serve as a catalyst for transforming traditional curricula to better meet the evolving needs of students, thereby enhancing both academic outcomes and career readiness.

Ultimately, the significance of this research lies in its potential to drive strategic reforms in ICT education across schools and universities globally. By addressing both internal and external challenges, these results offer a robust framework that not only improves course relevance and engagement but also equips students with the critical skills required for success in a technology-driven future.

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