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Original Article

Exploring the Perceptions of ICT Use in Higher Education: An Empirical Study from Bangladesh

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Abstract

Information and communication technologies (ICTs) exert a substantial influence on enhancing students' academic competencies in Bangladesh. The primary aim of this inquiry is to ascertain undergraduate learners' viewpoints regarding the deployment of ICT in their studies. In addition, the investigation explores the hindrances that may obstruct the optimal integration of ICT within higher education from the students' perspective. A survey-based methodology was employed, adopting a quantitative orientation. The study utilized both primary and secondary sources of evidence. For the primary data, an online questionnaire was disseminated to undergraduate students of CCN University of Science and Technology across four designated departments. A total of 120 students enrolled in the Fall 2025 semester participated in the survey. Data collection was executed through a stratified random sampling procedure. The results indicated that students devoted considerable time to utilizing ICT for educational purposes and expressed favorable attitudes toward its application in learning. They acknowledged that ICT significantly contributes to the refinement of their academic abilities; however, they also encountered numerous impediments in classroom usage, such as insufficient training opportunities, technical malfunctions, inadequate user assistance, elevated cost of technological tools, unreliable internet connectivity or infrastructural deficits, concerns over privacy and data protection, and restricted campus internet access. Ultimately, the study proposes several recommendations for higher education administrators and policymakers to facilitate the effective adoption and expansion of ICT in the years ahead. Furthermore, Respondents expected the campus to be able to supply each classroom with suitable equipment and ICT connectivity to enhance the learning process.

Keywords: Bangladesh, Higher Education, Information and Communication Technology (ICT), Student Perception.

1. Introduction

Advancements in technology have markedly transformed the landscape of higher education by reshaping how knowledge is accessed and mastered. Additionally, the utilization of ICT can aid students in the enhancement of their learning abilities (Khaloufi & Laabidi, 2017). It may also serve to motivate and empower learners in their pursuit of the skill. ICT use can help students to take advantage by promoting interaction and team working (Murray, 2005). The use of ICT regarding teaching and learning has grown over day by day. ICT is the collective term which refers internet based and computer based technology where data is crated, stored, shared, and displayed using the technology. Besides, the production, display, transmission, and sharing of information, as well as communication between humans and machines, are all made possible by ICT. ICT tools such as email, social networking platforms like Facebook, and video-mediated communication systems provide students in Bangladesh

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with opportunities to interact with native speakers. ICT has been incorporated across educational settings ranging from primary schooling to tertiary institutions. Moreover, these technologies enable learners to practice their linguistic abilities and explore instructional content more independently (Anas & Musdariah, 2018). The deployment of ICT enables learners to apply their skills within authentic, real-world contexts, and it also allows them to interact with native speakers via platforms such as Skype (Dalton & Grisham, 2011).

Moreover, educators implement video resources in the classroom to visualize the concept which creates an environment in which students are engaged and derive pleasure from the activities. So, the incorporation of ICT also enhances students' motivation (Ilter, 2009). The projector was employed as a media in the teaching and learning process (Oktalia et al., 2018). In Bangladesh, challenges like inadequate infrastructure, lack of digital literacy, and uneven access persist across in the territory institutions. The skills gap in Bangladesh is greatly worsened by the misalignment between industry demands and higher education institutions. Many institutions maintain strict, theory-based courses that disregard integrating new technologies and cultivating practical skills (Bashir et al., 2025; Christy & Manda, 2024). This study aims to scrutinize the contribution of ICT to students' learning by measuring the frequency of ICT use for scholarly purposes, examining learners' perceptions of ICT-assisted instruction, and determining the difficulties they experience in applying ICT within academic settings. Finally, it suggests strategies to improve students' digital literacy and enhance ICT-based learning experiences.

In this study, researchers explore three questions:

1. How do undergraduate students feel about using ICT as part of their learning?
2. In what ways and how often do students use ICT tools to support their academic work?
3. What difficulties do students experience when trying to use ICT in the classroom?

2. Literature Review

2.1. Definition of ICT in Education

ICT refers to computer-based and network-based technologies that provide a framework for producing, delivering, and sharing information (Murray, 2005). In this study, ICT is defined as computer-based and internet-based technologies such as desktops, laptops, smartphones, gadgets, email, social networking platforms, websites, and software that are used for educational purposes (Davies & Hewer, 2009). Application of ICT in the classrooms has a tremendous potential towards leaning. It is able to provide active learning process and to stimulate the learners. The attitude of learners with regard to the process of learning will be influenced by the technological equipment like TV, Laptop, Projector and interactive video. With the help of the types of technological equipment, the learners will be able to train their language skills and create the impression of freedom and encouragement.

A United Nations report defines ICTs as encompassing Internet services, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network-based information services, and other related information and communication activities. When applied to education, the term ICT refers to technologies such as computers, the Internet, broadcasting technologies, and telephony, which can be used not only to deliver instruction but also to support the learning process itself. It has been found that these technologies is a key to achieving a new paradigm of learner-centered learning that more effectively accommodates the needs of learners with differentiated and personalized teaching (Watson & Watson, 2011). The provision of interactive content, direct feedback, diagnosis of

student needs, effective remediation, learning assessment, and the storage of student work samples (e.g., portfolios) are key features of digital technologies that can facilitate learner-centered instruction for diverse groups of learners (Bush & Mott, 2009; Reigeluth et al., 2008).

2.2. Benefits of Using ICT on Learning Process

In its recent publication Learning to Change: ICT in Schools, the OECD references the work of Odenthal and Voogt (2000), who propose a constellation of emerging practices accompanying the incorporation of ICT within educational settings, practices that signal and necessitate substantial pedagogical transformation. They argue that an emphasis on competencies and cross-disciplinary engagement aligns more authentically with real-world situations, and that such abilities can be cultivated and demonstrated through diverse evaluative mechanisms, including portfolio-based assessments. Students will also take greater responsibility in their own learning and its evaluation, and will become skilled in the process (Setiyadi et al., 2021). ICT may be employed in assisting teachers to assess their individual work or their shared work with other teachers in their school. Benveniste (2000) illustrates the implementation of external assessment in Uruguay, noting that teacher unions were actively engaged and that educators at the school level exhibited greater participation and acceptance than their counterparts in Argentina or Chile. If teacher resistance constituted the principal impediment to the adoption of ICT as an administrative mechanism, one would expect to observe a far higher prevalence of teacher-generated assessments utilizing ICT.

Brush et al. (2008) characterize ICT as an instrument through which learners investigate academic topics, identify resolutions to instructional challenges, and generate alternative solutions. ICT enhances the accessibility of knowledge acquisition, allowing learners to internalize concepts more readily as they actively engage with technological tools. Koç (2005) further contends that ICT enables students to communicate, collaborate, and share resources ubiquitously, anytime and anywhere. For instance, a teleconferencing-based classroom can convene learners from diverse geographical locations simultaneously to deliberate on a specific subject. Within such environments, students may analyze issues, scrutinize ideas, formulate new concepts, and even evaluate technology-driven learning solutions. Through these interactions, they not only engage in collective learning but also exchange varied academic experiences, thereby fostering self-expression and reflective thinking.

Serhan's (2009) findings reveal that ICT promotes autonomy, as educators can design their own instructional materials and consequently exert greater control over course content than in conventional classroom settings. Regarding learner capability, students develop the competence to apply and transfer knowledge more effectively when they gain confidence in their learning processes and utilize emerging technologies with proficiency. For example, in an ESL listening and speaking session, learners may be instructed to repeat certain words using an online audio dictionary. This requires them not only to listen to native pronunciations but also to internalize definitions and usage examples of the new vocabulary.

2.3. Barriers to the Implementation of ICT in Education

Although the Government of Bangladesh has committed to integrating ICT into the education system, its implementation continues to be constrained by numerous impediments. These obstacles are generally categorized into external (first-order) barriers and internal (second-order) barriers (Keengwe et al., 2008). Snoeyink and Ertmer (2001) claim that First-order barriers encompass deficits in equipment, unreliability of existing devices, inadequate technical assistance, and various other resource-dependent constraints. Second-order barriers, on the other hand, include not only institutional-level factors, such as organizational

norms and culture, but also teacher-level determinants, including pedagogical beliefs, attitudes toward technology, and willingness to embrace change. In Bangladesh, many rural areas remain without access to electricity, making it impossible to operate even basic computer systems. In urban regions, inconsistent power supply often results in fewer than eight hours of electricity per day. A dependable electrical infrastructure is indispensable for advancing national ICT capabilities. Furthermore, effective ICT integration requires an array of supporting resources, computers, printers, multimedia projectors, and scanners, yet a considerable number of educational institutions lack these essential tools. ICT adoption also relies on access to contemporary hardware and software, as technological diffusion plays a critical role in ensuring that institutions remain equipped with up-to-date digital resources (Gülbahar, 2007).

According to Afshari et al. (2009), the effective and efficient utilization of technology presupposes the availability of appropriate hardware and software, as well as equitable access to these resources for teachers, students, and administrative personnel. These expenses are most of the times exaggerated and most developing countries including Bangladesh are unable to offer them. In Bangladesh the majority of the learning institutions are too distant in adopting ICT in the learning contexts. Secondly, the big cities do not have many institutions of higher learning that have ICT facilities but are unable to put it into practice because there are no appropriate vision and plan. Therefore, the integration of ICT is inherently linked to school-level initiatives, such as the formulation of ICT plans, the provision of ICT support, and the implementation of ICT training programs (Tondeur et al., 2008) all of which remain insufficient or absent in the majority of schools in Bangladesh.

However, at present language appears to be among the biggest social obstacles to the application of ICT in Bangladesh, where English is not that broadly spoken by Leu et al. (1998). The developing country of Bangladesh lacks teachers, and those available have heavy workloads. The two shifts have already been implemented in some of the institutions, but there is no increase in the number of teachers. Conducting classes in both shifts has increased the teaching load of teachers, and most teachers also have administrative responsibilities. Under such conditions, teachers lack time to plan, create, and integrate technology with the teaching learning context (Afshari et al., 2009; Beggs, 2000; Newhouse, 1999; Ihmeideh, 2009). Moreover, Berner (2003) found that faculty members' perceptions of their own computer competence served as the strongest predictor of actual classroom technology use. Consequently, limited knowledge of ICT and insufficient proficiency with digital tools and software have significantly hindered the integration of ICT in teaching-learning contexts in Bangladesh.

3. Methods

In this study, qualitative and quantitative both methods are used to examine how students use ICT for learning. Its main objectives were to determine the functions of ICT in learning process, to find out the obstacles which students encounters and how students utilize/ apply ICT for their educational purposes. The Primary data of the study was generated through virtual questionnaire collected from random 120 undergraduate students from four departments at CCN University, Undergraduate level students from LAW, Civil, English and CSE, department were the primary subjects of study for the students, who also pursued the response in this study.

Descriptive Analysis method was applied in data analysis. In this, descriptive quantitative analysis of students' perceptions and activities regarding the use of ICT for

educational purposes were conducted. Quantitative data were analyzed by using statistical tools (Excel). Qualitative responses analyzed through thematic analysis. The study is dependent on Primary and secondary data. However, all data were used ethically and responsibly, ensuring proper citations, acknowledgement of original authors, and avoidance of plagiarism.

4. Results and Discussion

The researcher utilized descriptive statistical techniques to identify the frequency and percentage of each variable during data analysis. This procedure was carried out using a dedicated tabulation program. Subsequently, the results were displayed through tables and figures to enhance clarity and support statistical interpretation. The percentages and frequencies of the test results are displayed in the graphics and tables in the subsequent section. The following is a sample Likert scale table that is intended to assess attitudes or perceptions regarding the integration of ICT into education.

4.1. Demographics Profile of the Respondents

The section begins with a presentation of the participants' demographics, including age, gender, discipline, and level of ICT knowledge, which includes discussion of the frequency of use, its purpose, and previous engagement with the ICT.

Table 1. Demographics Profile of the Respondents

Factor	Options	Frequency	Percentage
Gender	Male	46	38%
	Female	74	62%
Age	18–20	53	44%
	21-23	65	54%
	24-26	1	1%
	26-29	1	1%
Department	English	46	39%
	CSE	70	59%
	LAW	2	2%
	Civil	2	2%
ICT Knowledge	Excellent	10	8%
	Good	38	32%
	Moderate	58	48%
	Little	14	12%
Total		120	100%

Source: Author's Computation (2025)

Table 1 illustrates that the demographic profile of the respondents including department, age, gender and level of the ICT knowledge. Regarding the respondent gender, 38% are male and 62% are female. Again, regarding the respondent age category, most of the respondent's age is 18-20 age. As per the educational level, maximum respondents we observe are on undergraduate process. Moreover, the selected respondent of this study belongs from the department of English, CSE, LAW, BBA, and Civil Engineering. Finally, the respondents said they have moderate (48%) level ICT knowledge.

4.2. Utilization of ICT in Education

Employing ICT in higher education engenders a more student-centered learning environment. As the world swiftly shifts toward digital media and information, the significance of ICT in tertiary education continues to grow. The effective deployment of ICT in higher education, including its integration into the learning process, the promotion of educational equity and accessibility, and the provision of motivation for learners, supports academic success.

Table 2. Survey on the Use of ICT in Higher Education (Likert Scale)

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
ICT improves the quality of learning.	4%	2%	3%	55%	37%
ICT enrich students understand difficult concepts better	3%	1%	4%	69%	23%
Necessity of students training to use ICT tools	3%	1%	7%	51%	39%
Educator needs training to use ICT tools efficiently	3%	1%	7%	48%	41%
Using ICT improves students' academic excellence	3%	-	9%	65%	23%
ICT can help identify students' learning gaps more effectively	2%	1%	8%	70%	19%
Comfortable using ICT tools in an educational setting	1%	1%	10%	63%	25%

Source: Author's Computation (2025)

The survey results presented in Table 2 is explained as follows:

A. ICT Improves the Quality Learning

The table presents the responses of respondents regarding how ICT influences the quality of learning. Fifty-five percent of respondents agreed that ICT helped to improve educational quality. This high percentage indicates a strong positive trend in the usage of digital tools in education. 37% were strong responders who verified their conviction that ICT plays a transformative role in education. In comparison, just a small fraction expressed negative views.

B. ICT Enrich Students Understand

Regarding respondents' perceptions of ICT in supporting students' understanding of complex concepts, 69% expressed agreement, indicating a substantial majority who view ICT as an aid to conceptual comprehension. Digital technologies serve a pivotal function in enhancing the user-friendliness of academic tasks. They are widely considered effective instructional tools, especially for mastering challenging academic material. As a result, institutions must focus on integrating ICT tactics in order to increase student knowledge and involvement.

C. Students Need for Training to utilize ICT Tools

The majority of respondents chose Agree (51%), with 39% strongly agreeing on the importance of systematic ICT training for students. There would be a great need for some kind

of required ICT bootcamps, quick micro-credentials, or structured support labs. To enable both equitable and efficient use of ICT across the curriculum, the emphasis must be on investing in structured student training and ensuring confident and efficient ICT use.

D. Educators' Need for Training to Use ICT Tool

The respondents either Agreed (48%), or strongly agreed (41%) that teacher's need specific training in order to optimize their effectiveness with ICT tools. The teachers are not able to purely depend on knowledge in the subject area; however, the ability to use ICT in their teaching delivery, assessment, and communication with the students is considered as one of the core competences. The structural implication of the information within the research framework is that institutions tend to be concerned. Finally, this number represents a systematic need: without properly trained teachers, even the most advanced ICT infrastructures may be underutilized and less effective in pedagogy.

E. Enhancing Students' Academic Excellence

The information indicates a positive response for improving students' academic performance through the use of ICT. Overall, 88% of respondents agreed that ICT has a positive effect on educational attainment, with 65% agreeing and 23% strongly agreeing. There is a resemblance between answers given on the scale of agree and strongly agree that indicates that the stakeholders are conscious of the fact that ICT is not only a possibility, but a dynamic that possesses sufficient force to mediate a learning that triggers one specific ability, which is communication beyond the product of the learning process in general.

F. Identifying Students' Learning Gaps

The table substantiates that the value and the utilization of technology within the educational field. 70% of the respondents said agree, and affirmed that ICT positively contributes towards understanding the level of learner achievement. The high level of positive sentiments towards ICT suggests the degree of utility perceived by respondents. The availability of adaptive assessments, learning analytics, automated feedback, and progress data reporting all help educators ascertain the 'problem' and 'need' areas of learners and provide assistance and intervention for the specific areas.

G. Comfort Level in Using ICT Tools

Regarding the comfort level in using ICT tools, A substantial number of respondents, 63% selected Agree. Moreover, 25% of respondents selected strongly agree, toward ICT integration in education. This data indicates that the use of ICT is highly integrated and accepted within the context of students and teachers. The tendency to agree with the statement indicates that ICT is considered to be an obstacle less than most individuals. More importantly, the clear tendency toward comfort indicates that earlier fears of a lack of digital literacy and more hesitant early-stage responses to rapid adoption are being supplanted by a more settled sense of just how indispensable technology is to center-stage in teaching, learning, and collaboration. So, ICT infrastructure and training have had a tangible effect on user confidence.

4.3. Challenges Faced in the Use of ICT in Education

The adoption of ICT in classroom settings has given rise to various ethical and legal challenges. Both students and teachers must possess an adequate understanding of these issues and conduct themselves with integrity as learners, educators, or prospective educators. To ensure the meaningful application of ICT principles in education, students need to be cognizant of the core considerations, such as effectiveness, cost, equity, and sustainability, as well as the associated challenges, including infrastructure limitations, capacity-building needs, and the financial demands of ICT utilization.

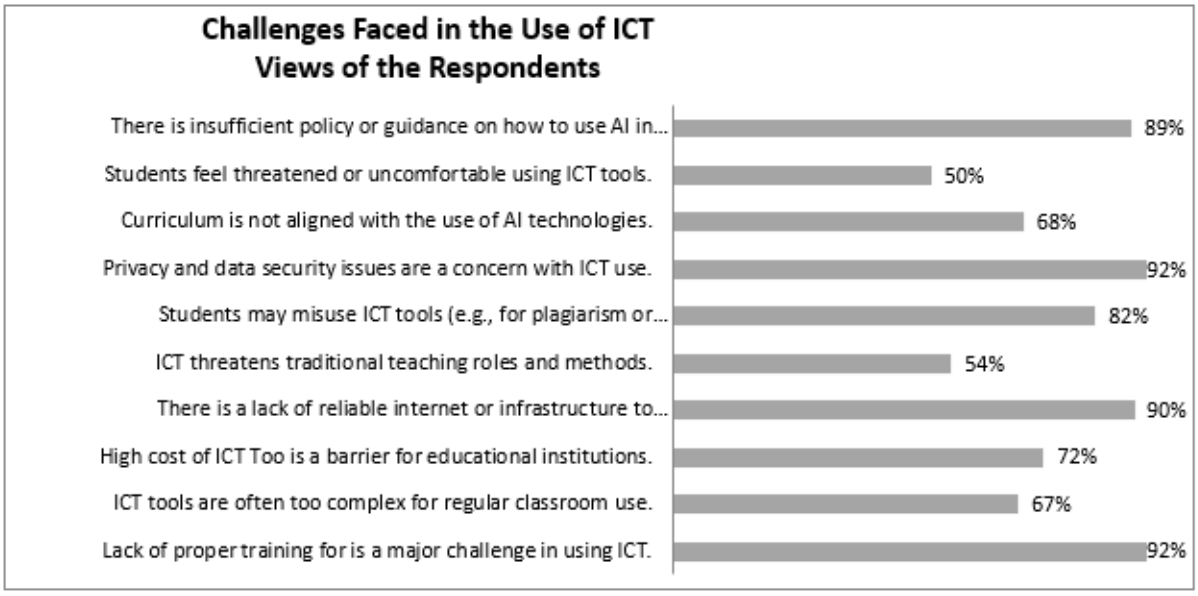

Figure 1. Challenges Faced in the Use of ICT in Education
Source: Author's Computation (2025)

As depicted in Figure 1, several challenges hinder the effective use of ICT in education. These are explained as follows:

A. Lack of Proper Training

The pie chart answering the statement about a proper training on ICT usage as a challenge shows a definite decision. An impressive 92 percent of those surveyed agreed, and this sharp contrast highlights that poor training is seen as one of the most essential obstacles to successful ICT adoption. The overwhelming body of evidence suggests a systemic weakness: even though organizations can provide hardware and connectivity, these resources are underutilized due to a lack of official training.

B. Complexity of IT Usage in Classrooms

The response to the question about the complexity of IT usage in classrooms is extremely stressful. One of the more controversial questions in the dataset, approximately 67 percent of respondents said yes. The fact that the majority of respondents agree shows that they believe ICT requires skills or procedures that require more time and resources than the usual classroom. This perception may be based on software with steep learning curves, technical issues, and a lack of user assistance.

C. High Cost of ICT Tools

72% of respondents replied yes, demonstrating a high level of understanding of the cost as a barrier. According to the figures, funding remains a significant obstacle to ICT adoption. Many institutions, particularly in developing countries, may find it difficult to afford the costs of hardware acquisition, licensing, and maintenance. The dissenting minority may be stakeholders from more resource-rich environments or those who can afford ICT investments regardless of cost.

D. Lack of Reliable Internet or Infrastructure

The responses show that internet infrastructure reliability reflects another significant trend. An overwhelming 90% agreed, making this one of the clearest difficulties mentioned in the study. The overwhelming consensus implies that infrastructural flaws, such as unstable internet, limited bandwidth, and frequent connectivity disruptions, substantially hinder the usage of ICT. Even when devices and software are available, poor infrastructure prevents widespread use.

E. ICT Threatens Traditional Teaching Rules and Methods

The majority (53%) indicates that a significant proportion of them see ICT as a challenge to traditional pedagogical practices. These issues can include concerns about less instructor controls, reduced emphasis on rote procedures, and even the replacement of traditional tactics with digital platforms. On the other hand, the huge minority of those who opposed this demonstrates that many people believe that ICT is a supplement to traditional education rather than a threat to it.

F. Privacy and Data Security Issues

Majority of people feel that privacy and data security are important concerns when using ICTs. 92% of those polled agreed, indicating that stakeholders recognize cybersecurity and data security as important challenges associated with the deployment of ICT. Unauthorized data collection, hacking exposure, violation of student information, and a lack of institutional protection are all potential issues. Practically speaking, the material alludes to the urgent necessity of putting in place effective cybersecurity safeguards, clear privacy guidelines, and educational initiatives.

G. Lack of Alignment into Curriculum

The data reveals how the curriculum and technology are still not aligned. Additionally, it displays a robust majority response. 68% of respondents concur, indicating that many people think that present curricula and the demands of ICT-based pedagogy are different. This figure supports the need for curriculum reform that incorporates ICT-based learning objectives and digital skills. This value supports the need for curriculum reform, incorporating ICT-based approaches and digital skills into learning objectives.

H. Feel Threatened or Uncomfortable Using ICT Tools

Regarding the Feel Threatened or Uncomfortable Using ICT Tools 50% said strongly agrees. This ideal split displays that students feel uncomfortable, whether because they are unfamiliar with the task, or because they fear displacement, or because they are uneasy that they cannot do what they can. What it means, is vast: in contrast to other figures with such a well agreed opinion, this one indicates that experiences uses of ICT are extremely contextual. Weaker students don't gain confidence and they are aware of the use of google classroom, Canva, or various IT tools.

I. Insufficient Policy or Guidance to Use ICT

On the chart showing the lack of policy and guidance on ICT effects in education, reported strong support. 89% believed it to be so. The findings indicate that the lack of clear and organized policies is an acute obstacle. Teachers or learners might not have normative rules and the implementation of ICT in institutions may be disjointed. The less dominant who does not agree might be working in an environment where sound ICT policies are already in place.

J. Limiting Access the Internet on Campus

The data shows internet accessibility in institute campus a strong opinion by the research. The outcome demonstrates strong consensus with a majority of 76% agreeing. The use of agreement is predominant which underscores infrastructural constraints limiting access of students to good connectivity. It can be restricted WIFI zones, lack of bandwidth or limited log in systems.

4.4. Recommendation

There are several limiting factors that hinder the successful deployment of ICT in education in Bangladesh. The following recommendations are also proposed by the paper to address the prevailing situation:

a. To increase ICT Knowledge, the pressing necessity of full-scale development courses, ongoing refresher training, and custom-made digital literacy training. ICT integration will be institutionalized, with technology in the classroom, with technology being meaningfully integrated into pedagogy. Besides, Students should be motivated to develop particular technical skills to enable learning in ICT settings (Castro Sanchez and Aleman, 2011).
b. Formulate a unified and well-defined vision for ICT integration within the University, one that is shared by all members of the academic community, to foster the effective and sustained use of ICT in classroom practices.
c. Institution needs to focus on user friendly platforms, simplified digital interfaces, and instant technical support.
d. To reduce the barrier to the adoption of ICT, it requires sustainable funding models, public-private collaborations, and affordable options like open-source platforms. Otherwise, financial constraints will continue to increase the digital divide between resource-rich and resource-poor institutions and deepen disparities in the quality of education.
e. The authorities and the stakeholders must be equipped with proper facilities and resources to ensure successful implementation of ICT. The hardware and software and other ICT-supported tools are both available in the classroom.
f. To provide Reliable Internet or Infrastructure, there is a need for nationwide infrastructure upgrades, institutional Wi-Fi expansion and contingency systems to supports the widely documented infrastructural gap as an important determinant of ICT's limited integration in education.
g. To strengthen the Privacy & Data Security Issues, the pressing need to implement strong cybersecurity measures, explicit privacy policies, and education programs. Institutions stand ICT platforms and built a sustainable digital integration in education.
h. There is need to reform the curriculum, integrating digital skills and ICT-based approaches into learning outcomes. Lack of alignment means ICT may be treated as an adjunct and not an organic part of the learning process.
i. To reduce Uncomfortable Using ICT Tools of the educators, Institutions then have to embrace differentiated approaches to development, including practical ICT assignment, provide tutorials, local language guide, provide ICT lab, and arrange ICT skill workshops.
j. Institutions need to unified policies on the use of ICT and that includes the digital pedagogical norms, cybersecurity, standards of assessment and fair use. In the absence of these frameworks, ICT will not be consistently implemented and may, therefore, not live up to its promise of change. According to Sharma (2003), the policy-makers should be more concerned to ensure that all sectors to adopt ICT.

5. Conclusion

This study demonstrates that undergraduate students hold overwhelmingly positive views toward the use of ICT in their learning. They actively engage with digital tools such as online resources, dictionaries, and translation applications, and they believe that ICT enhances the effectiveness, efficiency, and enjoyment of their learning experiences. However, despite these positive attitudes, the study also reveals significant barriers that limit the full integration of ICT in higher education.

Students face multiple challenges, including insufficient training, technical difficulties, ethical and privacy concerns, and a lack of institutional support. These challenges are intensified by infrastructure weaknesses such as unreliable internet connectivity, limited

bandwidth, and inconsistent access to ICT facilities. As a result, even when ICT tools are available, students are often unable to use them effectively. The findings also highlight a disconnect between existing curricula and the demands of ICT based learning, which prevents technology from becoming an integral part of the academic process. Students with lower digital confidence are particularly disadvantaged, raising concerns about equity and accessibility in technology-enhanced education. The study underscores that improving ICT integration requires more than just providing hardware and software. Institutions must invest in student training, teacher preparedness, and strong administrative strategies. Equally important are updated policies, clear privacy and security guidelines, curriculum redesign, and a long-term institutional vision for ICT-supported education. Government support is essential in strengthening infrastructure, expanding connectivity, and ensuring that all students regardless of background have fair and equal access to ICT resources.

Overall, this research highlights the urgent need for coordinated action from universities, educators, and policymakers. By addressing training gaps, infrastructure limitations, and policy deficiencies, higher education institutions in Bangladesh can create a more inclusive and effective digital learning environment. Strengthening these areas will not only enhance students' academic success but also support the broader national goal of building a technologically empowered

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