# BENEFITS AND CHALLENGES OF IMPLEMENTING COMPUTER-BASED TESTING IN BUSINESS ENGLISH 2 COURSES AT HANOI UNIVERSITY OF INDUSTRY

ƯU ĐIỂM VÀ THÁCH THỨC KHI THỰC HIỆN CÁC BÀI KIỂM TRA TRÊN MÁY TÍNH TRONG CÁC LỚP TIẾNG ANH THƯƠNG MẠI 2 TẠI ĐẠI HỌC CÔNG NGHIỆP HÀ NỘI

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## ABSTRACT

This study examines the benefits and challenges of implementing Computer-Based Testing (CBT) in Business English 2 classes at Hanoi University of Industry, focusing on students' and teachers' perspectives. The research involved 57 students with reliable responses and 7 teachers, utilizing a questionnaire and semi-structured interviews. The results highlight several perceived benefits, such as greater flexibility in scheduling, improved time management, ease of use, accuracy, and quick feedback. However, concerns about exam anxiety, and cheating opportunities. Additionally, challenges such as internet connectivity issues, software glitches, and insufficient technical support were identified as major obstacles, with students particularly highlighting the impact of technical problems on their test performance. Teachers, however, were less concerned about technical issues affecting students' results but emphasized the importance of stable internet infrastructure. The study concludes that while CBT offers many advantages, improvements in technical reliability and infrastructure are needed to address the identified challenges.

Keywords: Computer-Based Testing, benefits, challenges.

### TÓM TẮT

Bài báo này tập trung vào quan điểm của sinh viên và giảng viên về lợi ích và thách thức của việc triển khai kiểm tra trên máy tính (CBT) trong các lớp Tiếng Anh Thương mại 2 tại Trường Đại học Công nghiệp Hà Nội. Kết quả nghiên cứu được báo cáo dựa trên bảng hỏi khảo sát có sự tham gia của 57 sinh viên và phỏng vấn 7 giảng viên. Nghiên cứu đã chỉ ra lợi ích của CBT: linh hoạt hơn trong việc sắp xếp lịch kiểm tra, quản lý thời gian tốt hơn, dễ sử dụng, chính xác và phản hồi nhanh chóng. Tuy nhiên, thực hiện CBT cũng có những thách thức: căng thẳng khi kiểm tra và gian lận thi cử. Bên cạnh đó, các thách thức như sự cố kết nối internet, lỗi phần mềm và thiếu hỗ trợ kỹ thuật là những trở ngại lớn. Sinh viên đặc biệt nhấn mạnh tác động của các vấn đề kỹ thuật đối với hiệu suất thi của họ. Tuy nhiên, giảng viên ít lo ngại về vấn đề kỹ thuật mà nhấn mạnh tầm quan trọng của cơ sở hạ tầng internet ổn định. Mặc dù CBT mang lại nhiều lợi ích, nhưng cần cải thiện độ tin cậy kỹ thuật và cơ sở hạ tắng để giải quyết những thách thức đã được chỉ ra.

Từ khoá: Kiểm tra trên máy tính, lợi ích, thách thức.

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# **1. INTRODUCTION**

As technology continues to advance, its integration into educational practices has become a key focus,

particularly in assessment methods. Alongside the development of computer-assisted language learning (CALL), computers have been widely applied in language

testing [3], and CBT shows numerous benefits like ease of use, quick feedback, and accurate scoring [2, 6]. At Hanoi University of Industry (HaUI), the adoption of computerbased English tests marks a significant shift in how language proficiency is evaluated among non-English major students. The computer-based tests for each course include unit tests, progress test 1, and the midterm test, all administered via the university's Learning Management System (LMS). The unit tests serve as prerequisites for permission to attend the final test. These tests, normally completed by students at home, do not directly impact the final grade but are essential for tracking students' progress and ensuring they meet the basic course requirements.

Meanwhile, the progress test 1 and mid-term test contribute to students' final course grades. These tests are conducted in the classroom, offering a more efficient and streamlined approach to assessment.

This study aims to investigate the benefits and challenges associated with the implementation of CBT in Business English 2 courses, specifically focusing on the first progress test and mid-term test, with the goal of providing recommendations to all stakeholders to enhance the effectiveness of the implementation.

In order to achieve this aim, the following research questions were formulated:

1. What are the benefits of implementing CBT in Business English 2 courses?

2. What are the challenges of implementing CBT in Business English 2 courses?

### **2. LITERATURE REVIEW**

### 2.1. CBT

As for Boevé et al. [3], computer technology and associated tools, in recent decades, have been widely employed in language testing, facilitating the quick analysis of scores and results. The advancement of computer-assisted language learning (CALL) has made the use of computers in educational assessments increasingly unavoidable, particularly within academic environments. As a result, computer-based testing (CBT) has emerged as one of the most sought-after and practical forms of alternative assessment worldwide. The widespread presence of advanced computers in educational settings further enhances the practicality and appeal of delivering tests via computer. One of the main advantages of CBT is its ability to provide all test takers with identical instructions, materials, and information in a consistent and uniform manner, irrespective of the size, location, or timing of the testing population. This standardization contributes to greater reliability and fairness in assessments. Additionally, unlike traditional paper-based exams, CBT allows for immediate score display on-screen, offering test takers instant feedback, which can be a powerful tool for improving their learning experience.

CBT also plays a significant role in evaluating a test taker's language proficiency with precision. By ensuring more effective standardization in test administration conditions, CBT provides a higher degree of accuracy and reliability in the results, making it an ideal tool for largescale language proficiency assessments [1].

Despite many benefits, it is important to note that CBT shares many similarities with traditional paper-based tests, particularly in terms of their content and format. Both are widely used in educational settings to assess student progress and achievement [8]. Furthermore, adaptive testing, a feature commonly implemented in CBT, requires the development of extensive item banks to maintain item security. It also involves sophisticated calculations based on Item Response Theory (IRT), which enhances the validity and reliability of test results [9].

In conclusion, while CBT has revolutionized the way assessments are conducted, it continues to evolve, with ongoing research exploring its various applications and effectiveness in educational settings.

#### 2.2. Previous related studies

Various studies on computer-based tests have been carried out. Ediagbonya [4] employed a descriptive survey design involving 226 business education students from two public universities. Using a structured 4-point Likert scale questionnaire (COBTEQ) and statistical analysis through SPSS, the research revealed that students perceived CBT positively, citing benefits such as quick feedback, enhanced test security, and reduced exam malpractices. However, challenges included inadequate infrastructure, network issues, and unstable electricity.

Azodo [2] surveyed 200 students from colleges in Anambra and Imo states. Results indicated a preference for CBA over traditional paper-based exams due to its ease, speed, and ability to reduce test anxiety. However, students faced obstacles such as insufficient computers, poor network connectivity, and unreliable power supply. The study suggested enhancing facilities with more computers, stable internet, and backup power sources to improve the assessment experience. Jimoh et al. [6] focused on 48 undergraduate chemistry students at the University of Ilorin. Despite 95.8% of students being confident in computer use, only 29.2% fully supported CBT due to issues like errors in chemical formulas and question structures. Key advantages included immediate scoring and transparent grading. The study recommended improving test design quality and adjusting allotted time to ensure a more favourable experience, which would increase acceptance of CBT among students.

Enebechi et al. [5] conducted a descriptive study on students' perceptions of computer-based testing (CBT) in universities in Anambra State. The findings highlighted CBT's benefits, including enhanced exam comfort, clearer question answering, immediate feedback, and reduced malpractice. CBT also improved students' chances of success by offering multiple-choice options, allowing for educated guesses. For instructors, CBT facilitates question reuse and content assessment. The study concluded that CBT was an effective, user-friendly, and reliable method for university exams.

In Vietnam, there have been several studies on online and e-assessment [10, 11] which have also encompassed CBT to some extent, despite differences in their scope, which may include home-based assessments as well. In general, they show that students have positive attitudes towards CBT and also admit their worries about cheating - a finding that contrasts with some international studies - and testing conditions.

In short, the shared previous findings underline the importance of thoughtful implementation of CBTs, recognizing both their potential benefits and the obstacles that need to be addressed in diverse educational contexts. However, it is worth noting that the previous studies mainly focus on students' perceptions towards CBT. Hardly have there been any studies, in Vietnam as a whole and at HaUI specifically, focusing on both students' and teachers' perceptions. Therefore, this study is expected to fill this gap.

### **3. METHODOLOGY AND FINDINGS**

### 3.1. Pedagogical setting and participants

The participants were selected using a convenience sampling approach from two Business English 2 classes at Hanoi University of Industry. There were three types of computer-based tests in the course: eight unit tests, a progress test, and a midterm test, all administered via the University's LMS. While the unit tests were taken at home, the progress test and the midterm test, which are the focus of this study, were conducted on campus in classrooms. The progress test, targeting grammar and vocabulary, accounted for 10% of the course grade. Meanwhile, the midterm test, which assessed listening, reading, and writing skills, contributed 20%. Although the questions varied among students, the test durations were standardized for all participants. The progress test lasted 30 minutes and consisted of 20 grammar questions and 20 vocabulary questions. The midterm test, which lasted 35 minutes, included 10 listening questions, 10 reading questions, and 10 multiple-choice writing questions. Students were required to bring their own laptops to the classroom and ensure internet connectivity to complete these tests. The test materials were uploaded to the LMS in accordance with approved test specifications.

#### 3.2. Data collection and analysis

In this study, two research instruments were employed to collect data: a questionnaire survey for students and in-depth interviews with teachers.

The questionnaire survey was designed to gather students' perceptions of the benefits and challenges of CBT at HaUI. It consisted of 17 closed-ended questions, adapted from existing literature on CBT. The first nine questions focused on students' opinions regarding the benefits of CBT, while the remaining questions explored its challenges. A Likert scale was used, ranging from 1 (strongly disagree) to 5 (strongly agree). The responses were analyzed using SPSS, with the results presented in a table displaying the mean and standard deviation (SD).

To complement the survey findings, semi-structured interviews were conducted with seven teachers. These interviews provided in-depth insights into the benefits and challenges of CBT implementation. More importantly, the teachers' perspectives were used to compare with students' survey responses, supplement the findings, and provide further clarification. Each interviewed teacher was coded as T#1 to T#7 based on the interview order and the interview data were manually transcribed verbatim for analysis.

#### 3.3. Findings and Discussions

The findings are analyzed in two main sections: the benefits of CBT implementation and the challenges of CBT implementation. In each section, the questionnaire results from students are discussed first, with an analysis focusing on the 57 responses deemed reliable, followed by a comparison with the insights from teacher interviews.

#### 3.3.1. Benefits of CBT implementation

On the basis of responses given by the participants, the findings of this section were transformed and

classified into nine emerged headings namely A userfriendly and easily navigable interface, Better time management, Anxiety reduction, More accurate scoring, Fewer opportunities for cheating, Greater flexibility in test scheduling, Improved computer skills, Immediate post-test feedback and A comfortable and distractionfree test environment. Each finding below is subject to the percentage of disagreement, neutrality or agreement of the participants in this study. The findings statistically have been represented in Table 1.

Table 1. Benefits of CBT implementation

No.	Benefits of CBT	Mean	SD
1.	A user-friendly and easily navigable interface	4.09	0.78
2.	Better time management	4.14	0.94
3.	Anxiety reduction	3.33	0.96
4.	More accurate scoring	4.03	0.90
5.	Fewer opportunities for cheating	3.72	0.97
6.	Greater flexibility in test scheduling	4.3	0.92
7.	Improved computer skills	4.07	0.90
8.	Immediate post-test feedback	4.04	0.90
9.	A comfortable and distraction-free test environment	3.79	0.99

Overall, the results suggested a generally positive perception of CBT from students' perspectives. The highest-rated benefit was the flexibility in scheduling exams (Mean = 4.3, SD = 0.92), indicating that students highly appreciate the convenience of choosing when to take their tests. Similarly, better time management during exams (Mean = 4.14, SD = 0.94) was also rated favourably, suggesting that CBT helps students allocate their time more effectively during assessments.

Other well-received benefits include a user-friendly interface (Mean = 4.09, SD = 0.78) and CBT's ability to improve students' computer skills (Mean = 4.07, SD = 0.90) and provide immediate feedback (Mean = 4.04, SD = 0.90). Notably, the low SD of 0.78 for the user-friendly interface suggests strong agreement among students regarding its ease of use.

In terms of fairness and accuracy, CBT's ability to provide more accurate scoring (Mean = 4.03, SD = 0.90) was acknowledged, but its effectiveness in reducing opportunities for cheating (Mean = 3.72, SD = 0.97) received a lower rating, suggesting that some students may still remain somewhat skeptical about the system's ability to ensure academic integrity.

The lowest-rated aspect was CBT's impact on exam anxiety (Mean = 3.33, SD = 0.96), indicating that students do not strongly believe that digital testing reduces stress

levels. Similarly, the comfort of the testing environment (Mean = 3.79, SD = 0.99) was rated moderately, implying that some students may experience distractions or discomfort during CBT exams.

In short, data from the questionnaire show that students generally recognize the benefits of CBT in terms of flexibility, efficiency, and accuracy. However, concerns persist regarding exam security and the potential for cheating, as well as the ability of CBT to create a stressfree testing environment. These findings suggest that while CBT offers significant advantages, further improvements may be needed to enhance its credibility and reduce students' apprehensions about fairness and comfort. These insights can inform future decisions regarding the implementation and refinement of CBT systems in educational settings.

In the teacher interviews, two key areas emerged as differing from the student survey results: anxiety reduction and cheating. While students generally feel that CBT helps reduce anxiety to a certain extent, teachers believe the digital format does not really ease test-related anxiety. In fact, some teachers feel that the technology used in CBT may even introduce new challenges for students, potentially increasing their stress. T#1 said, "While students might feel more comfortable in a digital space, the reality is that technical issues or unfamiliarity with the system could actually heighten their anxiety."

When it comes to cheating, students tend to think that CBT reduces opportunities for dishonest behavior, but teachers had a very different perspective. Teachers expressed that there are still significant opportunities for cheating in a digital environment, though the methods might be more sophisticated. They noted the added challenge of monitoring for cheating during online tests, with some feeling burdened by the need to stay vigilant. T#5 shared, "We may think that CBT reduces cheating, but in reality, it just shifts the methods. Students have become much more creative in finding ways around the system. It's tiring to keep up with all the possible loopholes". Teachers also acknowledged that reducing cheating in CBT would only be effective if they themselves are highly skilled in technology and can closely monitor the test-taking process. As T#3 pointed out, "Reducing cheating is only possible if we're technologically savvy enough to track every movement and interaction during the test". T#2 remarked, "It's not just about monitoring; it's about ensuring integrity while juggling everything else. It becomes a real struggle".

In terms of computer skills, teachers expressed that the system may not provide enough substantial interaction for students to significantly improve their technology use. T#7 commented, "It's not so much about developing computer skills as it is about getting through the test. The system itself doesn't teach students how to use computers more effectively". This perspective is in contrast with that of students.

Despite these concerns, teachers agreed with students on other benefits of CBT, such as better time management, a user-friendly interface, and flexibility in test scheduling.

To sum up, in terms of benefits, the findings reveal several advantages that align with studies by Ediagbonya [4], Azodo [2], and Jimoh et al. [6], including ease of use, accuracy, and quick feedback. However, while previous research has suggested that CBT reduces exam anxiety, the present study identifies it as a concern for both students and teachers. Particularly, issues of cheating, which have also been highlighted in prior studies of X, remain a persistent challenge, albeit in different forms, further underscoring the need for improvements in CBT systems. This means the finding suggests that while CBT enhances scoring fairness, it does not fully eliminate dishonest practices.

# 3.3.2. Challenges of CBT Implementation

The results of this section were classified into eight headings, namely on Frequent power outages, Internet connectivity problems, Frequent software glitches, Negative impact of time spent fixing technical issues on test results, Insufficient technical support, Inadequate CBT facilities and equipment, Longer-than-expected navigation time between questions, and A distracting test environment and statistically presented in percentage in Table 2.

No.	Challenges of CBT	Mean	SD
1.	Frequent power outages	2.45	0.85
2.	Internet connectivity problems	4.3	0.95
3.	Frequent software glitches (e.g., freezing, unresponsive system)	4.04	0.99
4.	Negative impact of time spent fixing technical issues on test results	4	0.88
5.	Insufficient technical support	3.42	0.99
6.	Inadequate CBT facilities and equipment	3.49	0.99
7.	Longer-than-expected navigation time between questions	3.95	0.96
8.	A distracting test environment (e.g., noise, lack of equipment)	3.58	0.99

Table 2. Challenges of CBT implementation

Overall, internet connectivity issues (Mean = 4.3, SD = 0.95) emerged as the most significant challenge, suggesting that students frequently experience difficulties in maintaining a stable internet connection during tests. Similarly, software glitches, such as system freezing or unresponsiveness (Mean = 4.04, SD = 0.99), and technical issues affecting test performance (Mean = 4.00, SD = 0.88) were also rated highly, highlighting the disruptive impact of technology-related problems on students' test-taking experience.

Another notable concern was the time required to navigate between questions (Mean = 3.95, SD = 0.96), indicating that some students feft that CBT interfaces might not be as seamless as expected, potentially slowing down their progress during exams. Additionally, disruptive test environments (Mean = 3.58, SD = 0.99) and insufficient technical support (Mean = 3.42, SD = 0.99) were identified as moderate challenges, suggesting that students may struggle with external distractions or a lack of immediate assistance when encountering problems.

Conversely, power outages were not perceived as a major issue (Mean = 2.45, SD = 0.85), implying that electricity disruptions were relatively rare during CBT. Similarly, while concerns about inadequate facilities and equipment (Mean = 3.49, SD = 0.99) were present, they were not as prominent as connectivity and software-related issues.

Briefly, students perceived internet instability, software malfunctions, and technical disruptions as the most critical challenges of CBT, as these issues can directly impact test performance. While concerns about test environment conditions and system navigation exist, power outages appear to be a minor issue. These findings suggested that improving technical infrastructure, providing reliable internet access, and ensuring robust technical support could significantly enhance the effectiveness of CBT.

The findings from teacher interviews largely align with students' perspectives, particularly regarding internet connectivity issues. Teachers unanimously agreed that power outages were not a major concern, reinforcing students' views that electricity disruptions are rare during computer-based testing (CBT). However, they highlighted that internet instability remains a significant challenge, with some teachers even experiencing disconnections themselves during test administration, forcing them to rely on personal network connections. T#4 shared, "There have been instances where the internet

# connection dropped midway through a test, and I had to switch to my mobile hotspot".

Unlike students, teachers were less inclined to view technical issues, such as software glitches and system responsiveness, as major factors impacting students' performance. While acknowledging occasional disruptions, they generally believed that these challenges did not substantially affect test outcomes. In other words, teachers did not suppose that technical issues played a critical role in determining students' performance. T#6 stated, "If students genuinely face technical difficulties that prevent them from completing their test, they are usually given another opportunity to take it so their final performance is not heavily impacted by these disruptions".

A notable concern raised by teachers was the quality of internet infrastructure. They all reported instances where unstable internet connections caused delays in student responses or interruptions during the exam process. These interruptions not only caused frustration but also potentially affected students' concentration. Teachers suggested that improving network stability and ensuring backup connectivity options could mitigate these issues and enhance the overall efficiency of CBT.

In summary, like studies by Ediagbonya [4] and Azodo [2], teacher interviews confirm that internet connectivity remains the most pressing issue in CBT, echoing students' concerns. However, teachers differ in their assessment of technical problems, perceiving them as less detrimental to students' performance. The present study also reveals that power outages are not a major challenge, contrasting with previous research. These findings highlight the need for more reliable internet infrastructure to support seamless test administration and minimize disruptions.

### 4. CONCLUSION

In conclusion, both teachers and students share some common views, while also differing on certain aspects regarding the benefits and challenges of CBT implementation.

In terms of benefits, both groups acknowledge the flexibility CBT offers, with students appreciating the ability to schedule tests at their convenience and improve time management. The user-friendly interface and immediate feedback are also widely praised, contributing to the efficiency of CBT as a modern assessment tool. However, teachers and students differ on the impact of CBT on anxiety and cheating. While students feel that CBT somewhat alleviates anxiety, teachers argue that it can introduce new stressors, particularly when technical difficulties arise. Regarding cheating, students believe CBT reduces dishonest behavior, while teachers contend that it simply shifts the methods of cheating without eliminating them. Teachers also note that while CBT improves basic computer navigation, it does not significantly contribute to advanced computer skills development.

In terms of challenges, both teachers and students agree that internet connectivity issues are the most significant obstacle to the effective implementation of CBT. Software glitches and technical disruptions are also major concerns, with students expressing frustration over these issues that can hinder their test performance. While teachers agree on the connectivity challenges, they tend to view technical difficulties as having a lesser impact on overall performance. Furthermore, while power outages are seen as a minor issue, inadequate facilities and technical support remain significant concerns for teachers.

Overall, while CBT offers clear advantages in terms of convenience, efficiency, accuracy, and ease of use, addressing the challenges related to technology, security, and anxiety is crucial for optimizing its effectiveness. Improvements should focus on infrastructure, strengthening internet enhancing technical support, and refining test environments to better accommodate students' needs. By addressing these concerns, educational institutions can maximize the benefits of CBT while minimizing its limitations.

#### REFERENCES

[1]. Al-Amir S., *Computer-based testing vs. paper-based testing: establishing the comparability of reading tests through the evolution of a new comparability model in a Saudi EFL context.* Unpublished doctoral dissertation, University of Essex, England, 2009.

[2]. Azodo C. A., "Students' perceptions in the use of computer-based assessment (C.B.A) in general courses (G.S) in colleges of education in the South East: A case study of Anambra and Imo", *International Journal of Research Publication and Reviews*, 5(2), 682-691, 2024. https://doi.org/10.55248/gengpi.5.0224.0428

[3]. Boevé A. J., Meijer R. R., Albers C. J., Beetsma Y., Bosker R. J., "Introducing computer-based testing in high-stakes exams in higher

education: results of a field experiment," *PLOS ONE, 10(12),* 1-13, 2015. DOI: 10.1371/journal.pone.0143616.

[4]. Ediagbonya K., "Business education students' perception of computer-based test in public universities in Edo State, Nigeria", *CMU Academy Journal of Management and Business Education*, 2(1), 11-18, 2023. https://cmu-my.com/cmu-academy-journal-of-management-and-business-education

[5]. Enebechi R. I., Okoye G. N., Arisokwu E. J., "The perceptions of students towards the use of computer-based test (CBT) mode of examination in higher institution in Anambra State," *Interdisciplinary Journal of Educational Practice*, 10(2), 66-74, 2023. https://sadipub.com/Journals/index.php/ijep

[6]. Jimoh R. G., Shittu A. K., Kawu Y. K., "Students' perception of computer-based test (CBT) for examining undergraduate chemistry courses," *Journal of Emerging Trends in Computing and Information Sciences*, 3(2), 125-134, 2012. https://www.cisjournal.org

[7]. Khoshsima H., Hosseini M., Hashemi Toroujeni S. M., "Cross-mode comparability of computer-based testing (CBT) versus paper-pencil based testing (PPT): An investigation of testing administration mode among Iranian intermediate EFL learners," *English Language Teaching*, 10(2), 23-32, 2017. https://doi.org/10.5539/elt.v10n2p72

[8]. Malec W., "Computer-based testing: A necessary evil or a sensible choice?," *The Modern Higher Education Review*, 5, 100-113, 2020. https://doi.org/10.1234/mher.2020.0522

[9]. Ockey G. J., "Developments and challenges in the use of computerbased testing for assessing second language ability," *Modern Language Journal*, 93, 836–847, 2009. DOI: 10.1111/j.1540-4781.2009.00976.x

[10]. Trinh N. M. T., Trinh N. B., "Undergraduates' perceptions of online assessment in tertiary education: A case study at Tra Vinh University, Vietnam," *Vietnam Journal of Education*, 7(3), 357-364, 2023. https://doi.org/10.52296/vje.2023.340

[11]. Vo T.K.A., "E-exams in Vietnam's higher education: Students' computer efficacy and attitudes," *AsiaCALL Online Journal*, 14(2), 62-79, 2023. https://asiacall-acoj.org

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