

# Examination Challenges Faced by Visually Impaired Undergraduates in Higher Education Institutions in Sri Lanka

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## Abstract

In Sri Lanka, undergraduates with visual impairments face many difficulties throughout their academic journey, ranging from social stigma to insufficient exam accommodations. Despite the laws such the Rights of Persons with Disabilities Act promoting equality, their inconsistent implementation has resulted in limited benefits of visual impaired students. This study explores the examination challenges encountered by visually impaired students within the selected universities. A quantitative approach was employed, and due to the less population of 33 students the census method was used, ensuring all visually impaired students in the target group were included. Ethical considerations, including informed consent and data confidentiality were strictly observed in this study. Most students reported that the majority of students (approximately 67%) currently take their exams through paper-based formats. In addition, the most widely adopted examination methods for visually impaired undergraduates are Braille question papers and oral examinations with 100% and 95% of respondents respectively. Students also reported a strong need for specific accommodations to support visually impaired students during examinations. Screen readers were reported as the most required support tool (85.7%). When analyzing the barriers to the examinations, the time constraints barrier is the most significant barrier to students' success in examinations, with 19 respondents as a key challenge. The lack of appropriate accommodations for the visually impaired students (17 respondents) was the second most reported challenge. These findings highlights the need for more inclusive, technology - driven examination solutions that promote social inclusion and equitable access. To ensure equality and enhance accessibility, the study recommends the implementation of technology-driven examination systems such as computer-based systems and mobile application solutions. By addressing these challenges, universities and other institutions can move toward a more equitable academic environment for visually impaired undergraduates.

**Keywords:** Challenges, Higher Education Institutions (HEIs), Human Computer Interaction, Sri Lanka, Visually Impaired Students

## Introduction

Undergraduates with visual impairments in Sri Lanka face many difficulties throughout their academic studies. Despite Laws such as the Rights of Persons with Disabilities Act, its implementation is not always consistent (Wickramasinghe, 2020). As a result, visually impaired students frequently rely on outdated or inefficient methods, such as using human scribes, which may compromise their independence and accuracy during examinations (Perera & Silva,

2021).

Students who have visual disability among the undergraduate students from selected universities in Sri Lanka, face numerous challenges when participating in traditional examinations. These difficulties include insufficient accessibility in examination venues, social stigma, lack of accommodation, and budgetary constraints. Current assistive technologies, such as braille-based systems and screen readers, have shown promise in general education. Still, they fall short in meeting the specialized needs of visually impaired students in



Table 1: Main Barriers Faced by Visually Impaired Students in Examinations

Barrier / Difficulty	Frequency (n=33)	Percent (%)
Writing	7	21%
Reading	7	21%
Physical accessibility & readability	6	20%
Time constraints	6	19%
Insufficient exam preparation	4	13%
Other	3	12%

Table 2: Current Examination Modes

Examination Method / Tool	Frequency (n=33)	Percent (%)
Paper-based exams	22	67%
Paper + Computer-based exams	11	33%
Braille question papers	33	100%
Oral examinations	31	95%
Screen reader-based digital exams	11	33%
Use of scribes (human assistants)	8	24%

Table 3: Barriers and Accommodation Needs in Examinations

Barrier / Accommodation	Frequency (n=33)	Percent (%)
Screen readers needed	28	85.7%
Time constraints	19	57.6%
Lack of appropriate accommodations	17	51.5%
Insufficient exam preparation facilities	13	39.4%
Physical accessibility issues	12	36.4%

high-stakes exams.

There is also no comprehensive mobile examination application designed for undergraduates with visual impairments that may offer an easy-to-use, safe, and accessible examination experience that while supporting independence, and academic success. This gap highlights the urgent need for innovative and practical solutions that address the particular requirements of this group while integrating with the unique socioeconomic setting of Sri Lankan higher educational institutions.

This study examines the challenges faced by visually impaired undergraduates in examination settings and provides evidence-based recommendations for enhancing accessibility in examination settings.

### General Objective

To explore the challenges faced by visually impaired undergraduates during examinations and

identify ways to improve accessibility and fairness.

### Specific Objectives

1. To identify the main barriers visually impaired students, face in examinations (e.g., reading, writing, time constraints, physical access).
2. To examine the current examination methods and assistive tools used by these students.
3. To assess students' needs and preferences for accessible, technology-based examination solutions.

### Literature Review

Visual impairment encompasses a range of conditions that affect vision, from mild visual diffi-

culties to complete blindness. According to the World Health Organization (WHO), about 2.2 billion people worldwide live with some form of visual impairment. And one billion people are affected by moderately to severe impairments that significantly affect their everyday lives (WHO, 2020). The majority of these individuals are students in educational institutions.

Inclusivity is a key principle of education, which guarantees that every student, regardless of disability, has an equal chance to participate in academic activities. Moreover, (Boza-Chua, Gabriel-Gonzales, & Andrade-Arenas, 2021) investigate the inequalities that visually impaired students encounter in Latin America, when educational access is impeded by systemic barriers. Their study introduced a mobile application that facilitating the integration of voice coaching, subject-specific modules, and progress-tracking elements, intended to assist visually impaired learners. According to the study, 90% of users were satisfied with the system, highlighting the potential of mobile applications to overcome accessibility (Boza-Chua et al., 2021).

A similar emphasis on technological accessibility was observed in the study by (Liimatainen, Häkkinen, Nousiainen, Kankaanranta, & Neittaanmäki, 2012), with the goal of encouraging visually impaired students to move around independently. Their study looks at interactive technologies that improve accessibility by giving real-time location-based information, such as barcode scanning and sensor-based navigation. Visually impaired students can find exam instructions, access assessment materials, and submit answers on their own without help from others if interactive technology such as this is incorporated into exam platforms (Liimatainen et al., 2012).

These empirical studies can be interpreted through the lens of Human-Computer Interaction (HCI), which emphasizes designing systems that are user-centered, accessible, and efficient for diverse learners (Norman, 2013). Moreover, the adoption of mobile examination tools aligns with the Technology Acceptance Model (TAM), as students' perceived usefulness and ease of use directly influence their willingness to engage with technology-based solutions (Davis, 1989). By linking these frameworks, the literature suggests that the successful implementation of mobile exam applications depends not only on tech-

nical features but also on how well they meet the cognitive and usability needs of visually impaired students.

Despite these improvements, there still remains a scarcity of research specifically focusing on accessible examination applications in the South Asian context, particularly within Sri Lankan universities.

## Methodology

The study employed a quantitative research approach to examine the challenges faced by visually impaired undergraduates in Sri Lankan Universities. The population consisted of 33 visually impaired undergraduate students from enrolled in selected universities in Sri Lanka. These universities were chosen based on their prominence within Sri Lankan higher education system and their relatively large population of visually impaired students, which makes them perfect for exploring the difficulties this group faces on academic examination. In particular, the University of Kelaniya and the University of Sri Jayawardenepura were selected for this study. Faculties of the Social Sciences and Humanities of these universities were chosen, as the majority of visually impaired students are enrolled in these academic areas.

A survey method was adopted for data collection, as the study aimed to include all 33 visually impaired students population as the sample within the targeted faculties. The survey instrument was designed to capture information on examination-related challenges, accessibility barriers, accommodations, and assistive technology usage. Descriptive statistical analysis was conducted to identify key patterns and insights related to the challenges faced by visually impaired undergraduates. Ethical considerations, for data confidentiality, were strictly maintained throughout the research process.

## Results and Discussions

The study focused on examining the current examination-related obstacles faced by visually impaired undergraduates, emphasizing the existing modes of examination, challenges encountered, and the specific accommodations required to ensure equitable access.

The analysis of examination related difficulties revealed that the most significant challenges faced by visually impaired undergraduates were writing (21%) and reading exam questions (21%) as shown in Table 1. The second most reported difficulty was physical accessibility and readability issues (20%), indicating a shortage of accessible facilities and readable materials. Additionally, 19% of students identified time constraints as a major barrier, suggesting that the provision of extra time alone is insufficient to address their needs. Other challenges accounted for 12% of responses. The results based on the current mode of exam they face were another important experience by visually impaired undergraduates. It was found that a majority of students (approximately 67%), currently take their exams through paper-based formats as indicated in Table 2. Meanwhile, 33% of students reported using a combination of both paper-based and computer-based examinations. The study further revealed that the most widely adopted examination methods for visually impaired undergraduates in selected universities are Braille question papers and oral examinations with 100% and 95% of respondents respectively. However, only 33% of students reported having access to screen reader-based digital exams, showing a limited implementation of technological facilities that could offer greater independence and flexibility. Furthermore, 24% of students mentioned the use of human assistants as a method that, although useful but privacy, consistency, and autonomy issues might arise. These results demonstrate a strong dependence on traditional formats and a lack of institutional support for more scalable and inclusive digital alternatives.

The findings further indicate a strong demand for specific accommodations to support visually impaired students during examinations. Screen readers reported as the most requested support tool, while 85.7% of participants highlighted their need for accessing exam content as presented in Table 3.

The analysis of barriers to students' success in examinations revealed that time constraints were the most significant obstacle, reported by 57.6% of respondents. The lack of appropriate accommodation was the second most frequently cited difficulty (51.5%), emphasizing the urgent need to enhance examination environ-

ments, particularly for students requiring special support. In addition, insufficient exam preparation facilities (39.4%) and physical accessibility issues (36.4%) were identified as notable difficulties, indicating significant gaps in both resource availability and university infrastructure. Addressing these barriers through improved time management strategies, enhanced accessibility accommodations, and inclusive institutional policies could significantly enhance the examination experiences and overall academic outcomes of visually impaired undergraduates.

These findings highlight the critical need for technology-driven, accessible examination platforms that support independence, improve usability, and comply with inclusive education principles. Integrating these solutions could help universities align with the best global practices in accessibility (WHO, 2020; UNESCO, 2017) and support and equal assessment for visually impaired students.

## Conclusion

The findings of this study highlight significant challenges faced by visually impaired undergraduates in Sri Lankan universities during examinations. These results clearly show that there is a strong need for several aspects of the current examination system, particularly accessibility, reliance on traditional methods, the need for appropriate accommodations, and broader systemic barriers that affect academic success.

Although adopted examination methods, such as Braille question papers and oral examinations, are widely used, these traditional approaches dominate assessment practices and restrict independence and flexibility with technology-based solutions. Excessive use of paper-based exams has restricted the use of screen reader abilities, and minimal use of scribes represents an urgent need to modernize exam administration procedures.

Time management limitations were identified as the major obstacle, indicating that simple time extensions are insufficient without addressing more extensive accessibility and cognitive demands. The findings suggest the need for inclusive, technology-driven examination solutions to address the different needs of visually impaired students and support more equitable examination

experiences and outcomes.

To optimize the effectiveness needs of visually impaired students, educational institutions should

- Increase the availability of user-friendly screen readers to provide visually impaired students enhanced independence and accessibility. Ensure compatibility with digital technologies and provide adequate Training for students.
- Implement Technology-Driven Exam Solutions like mobile applications, computer-based system to to ensure equality among all students. That approach will reduce the extra time and enhance the accessibility.
- Upgrade university facilities to ensure easy physical access to exam venues and ensure adequate preparation resources tailored for visually impaired students.
- Regularly assess the effectiveness of implemented accommodations through student feedback and performance analysis to continuously improve exam accessibility and fairness.

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