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Challenges Faced by the Visually Impaired Students during Online Learning: Lessons for Teachers

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Abstract- The COVID-19 pandemic has changed the educational system from face-to-face learning to online learning mode. This shift had impacted visually impaired students. This study aims to understand the academic experiences of visually impaired learners and explore their challenges during online learning. The study employed a mixed-methods approach to obtain the aims. For data collection, the researcher used a questionnaire addressed to eighteen visually impaired participants (15 Impaired, three partially Impaired) pursuing various academic programs across India. The findings reveal that Google Meet (83.3%) was the most accessible platform, but students faced significant challenges, including inaccessible PDF materials, limited availability of scribes for online exams, and difficulties with visual teaching aids like PowerPoint presentations. Based on these findings, the study recommends improving web accessibility and providing materials in screen-reader-friendly formats to ensure the availability of online scribes. It suggests that teachers use more assistive technologies and create proper connectivity between educational institutions and specialized digital libraries for impaired students.

Keywords: Visual Impairment; Distance Education; E-learning; Digital Accessibility; Screen Readers; Online Teaching; Educational Technology; Assistive Technologies.

1. INTRODUCTION

Studies have proven that learners with special disabilities need a conducive environment. When the Pandemic era started, the entire education system shifted to online learning mode due to the pandemic, where students with Impairedness face many challenges. Furthermore, the New Education Policy (NEP)-2020 talks about providing Equitable and Inclusive Education for all, including Persons with Disabilities (PWD) Students (NEP, 2020, 27). The awareness and knowledge of how to teach children with specific disabilities are relevant. NEP2020 suggests that it should be part of the teacher education program. At the same time, support must be given to implement a more integral teaching approach (Horn et al., 2012). Hence, it is the need of the day to understand the online learning experiences of impaired students and to bring forth the challenges they face in online learning mode. This would help the teachers to develop strategies for an Inclusive teaching-learning process (Das, 2023).

Many digital tools and online platforms are being used for teaching during this pandemic. However, these tools are not always as friendly as the screen readers that visually impaired students use (Courtney & Keith, 2017). Teachers and students face problems using these tools for teaching and learning. Since many colleges and universities are continuing some online classes even after the pandemic, it is important to solve these problems. Furthermore, visually impaired students need proper support to use these online tools effectively. Without such support, these students cannot participate properly in online classes. Therefore, it is necessary to find out what problems teachers and visually impaired students face while using online tools and how to solve them. Therefore, this study aims to understand the academic experiences of Visually Impaired learners and explore the different challenges Impaired students face during online learning. Additionally, the study will suggest recommendations to improve online teaching-learning experiences for impaired students.

Thus, this study aims to answer the following main questions:

1. What are the challenges that Impaired students face during online learning?
2. How can we improve the online teaching-learning process for the Visually Impaired?

2. LITERATURE REVIEW

2.1 *Challenges Faced by Visually Impaired Learners during Online Learning*

Many platforms like Diksha have failed to provide material that is accessible to impaired students. It becomes difficult for such learners to navigate while finding material. In this platform, documents such as e-textbooks are not uploaded in a user-friendly format, i.e. a screen reader is unable to navigate any part of the material. In some cases, multiple pages within a chapter are uploaded in such a format that a screen reader skips onto the next accessible page. This makes it impossible for a student with a visual impairment to follow the content (Varnikar, 2020). Further, many online tools, such as Grammarly and Online Writing Tutor, could be used to improve writing skills. However, the errors these online tools highlight are usually incomprehensible for the screen reader software. As a result, such learners have to rely on their peers to correct errors (Ravichandran et al., 2022).

2.2 *Lack of Human Scribes*

During face-to-face learning, it was easier for impaired students to write the exam due to peer support, teachers, and college management authority. It has become difficult for Visually Impaired learners to find writers for online exams. Many Visually Impaired learners face difficulties writing online exams, particularly in rural areas, where students are not familiar with the effective use of assistive devices (Sharma et al., 2025). However, this situation is almost the same in the urban area. One of the prominent scholars in this field, Aadhithya MS, in his article titled, "Visually impaired students struggling scribes to take remote exams", has highlighted the problems the visually challenged students faced in writing remote exams and uploading the images of the answer sheets. Further, their study found a lack of awareness among visually impaired students of the effective use of assistive devices as one of the root causes of the aforementioned problems. Many Visually Impaired students are not familiar with the effective use of technology. As a result, such students have to rely on their peers to complete their assignments and edit or proofread the document.

2.3 *Use of Visual Aids in the Classrooms*

Generally, visual aids are considered as effective tools for teaching in a classroom. However, the predominant use of visual aids affects the understanding of visually impaired learners. Most of the teachers use PPT in their classrooms. Teachers include lots of visual aids such as graphs, images, and scanned PDFs to convey their ideas, which are completely inaccessible for visually impaired learners because the screen-readers cannot read out for them (Makarova et al., 2017). For example, when teachers show pie charts or bar graphs to explain data, visually impaired students cannot understand the information because screen readers cannot describe these visual elements properly.

Furthermore, many teachers share their PowerPoint slides through screen sharing during online classes. They often use pointing words like "this," "here," or "there" while explaining, which makes it difficult for visually impaired students to follow the content (Ravichandran et al., 2022). When teachers upload these presentations on learning platforms, the PDF versions are usually image-based, making them inaccessible through screen readers. As a result, visually impaired students have to depend on their classmates to explain the content to them later.

Another problem is that many online learning platforms use icons and symbols for navigation. These platforms also have features like drag and drop, highlighting text, or drawing shapes, which are hard for visually impaired students to use (Courtney & Keith, 2017; Palan, 2020). Even simple tasks like finding the correct button to submit assignments or participate in online discussions become challenging when proper alt-text descriptions are not provided. Consequently, visually impaired students feel left out of the classroom and cannot participate fully in learning activities.

Moreover, teachers often ask students to share their screens or use collaborative tools like virtual whiteboards during online presentations or group activities. These activities are designed keeping sighted students in mind, and visually impaired students find it hard to participate meaningfully. Some students reported that they feel embarrassed to constantly ask for help or explanation of visual content, which affects their confidence and classroom participation (Sharma et al., 2025).

3. Methodology

3.1 *Research Desgin*

In this study, the researcher explored the challenges impaired students face during online teaching-learning. A mixed-methods approach with a survey design is used for this research. Previous research recommended this approach (AbuHamda et al., 2021). The researcher struggled to collect the data since this is an online learning model. Due to the online learning mode, it was challenging to reach many visually impaired students. However, the researcher has tried to include participants from different academic backgrounds to understand various challenges. The survey method helped to collect both numbers and detailed experiences from the participants.

3.2 *Sample*

Eighteen visually impaired learners from various areas of India have participated in this study. Of these, fifteen participants are totally Impaired, and three participants are partially Impaired. The participants include students from B.A., M.A., B.Ed., and some research scholars. Hence, the researcher has included participants from the courses mentioned above to understand different academic experiences. Since this study is about online learning challenges, the researcher wanted to include students from different courses to know their problems. Many participants came from different states of India, which helped to understand problems from different perspectives.

3.3 *Data Collection*

The questionnaire includes three sections and is used to collect the data. The first section asks for demographic details such as name, age, course, and type of visual impairment. The second section focuses on closed-ended questions such as yes or no questions and multiple-choice questions. These questions ask about challenges faced by Impaired students with regard to accessibility, availability, and usability of different resources, platforms to attend lectures online, and interactive tools. The questions also asked about which online platforms they find easy to use, which MOOC courses they can access, and what problems they face with screen readers. In the last section (open-ended questions), the participants are told to write about the challenges they face while online learning and accessing material. Moreover, participants are asked to provide suggestions to improve their teaching-learning process. Google Forms was created and circulated to the participants through WhatsApp and G-mail. The researcher made sure that the questions were simple and clear for participants to understand.

3.4 *Data Analysis*

The data is analyzed by using a mixed method (qualitative and quantitative). For quantitative data, an Excel sheet is used to analyze the responses from closed-ended questions. The researcher calculated how many students chose each answer and made percentage calculations. For the qualitative part, the researcher carefully read all open-ended answers to find common problems that many students discussed. The suggestions given by students were also grouped to see what changes they wanted in online learning. This helped to understand both the number of students facing problems and the kind of problems they face in detail.

3.5 *Ethics*

Since this study focuses on visually impaired learners, the researcher made sure that the Google form was accessible with screen readers. The participants were first told about what this study is for and how their answers will be used. All participants agreed to be part of the study without any force. The researcher kept all personal information private and used the data only for research purposes. No names or personal details are shared in the study results. Moreover, participants were told they could leave the study at any time if they wanted.

4. RESULTS

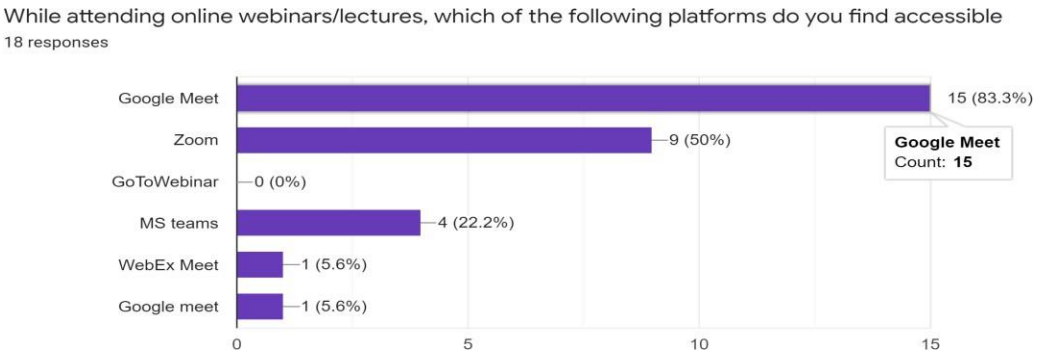
Eighteen Visually Impaired participants participated in this survey. Of these, fifteen are totally Impaired, and three are partially Impaired. The data is analyzed only from the 2nd and third sections. Wherein participants are asked descriptive/open-ended questions and closed-ended questions such as multiple-choice, yes, or no these types of questions are asked. The data from the 2nd section is analyzed using a quantitative approach, and for the third section, a qualitative approach is used.

4.1 *Demographic Details and Students' Profiles*

A total of 18 participants participated in the survey; 11 were male, and 7 were female participants. 83.3% belong to the category of total Impairedness, and 16.7% are partially Impaired. The majority (55.6%) responded that they use Laptops to attend online classes. Each of them responded that they use assistive technologies to complete peer assignments. To write exams in online mode, 77.8% use assistive devices. At the same time, 88.9% of them are unfamiliar with online writing tools such as Grammarly or Hemingway Editor.

4.2 *Accessibility*

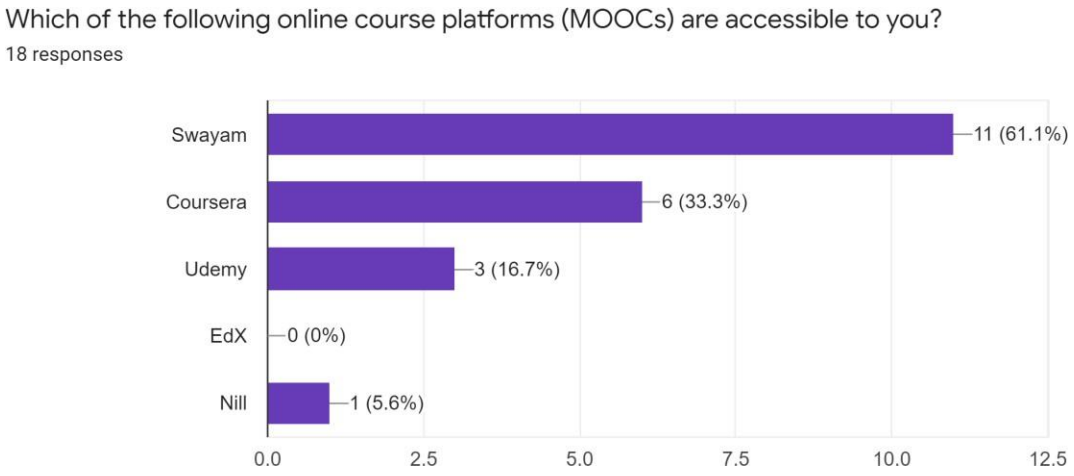
4.2.2 Accessibility of Different Online Platforms.



Graph 1: The use and accessibility of various online platforms.

Most of them find Google Meet (83.3%) as the most accessible online platform for learning. At the same time, they also use other platforms such as ZOOM(50%) and MS Teams (22.2%).

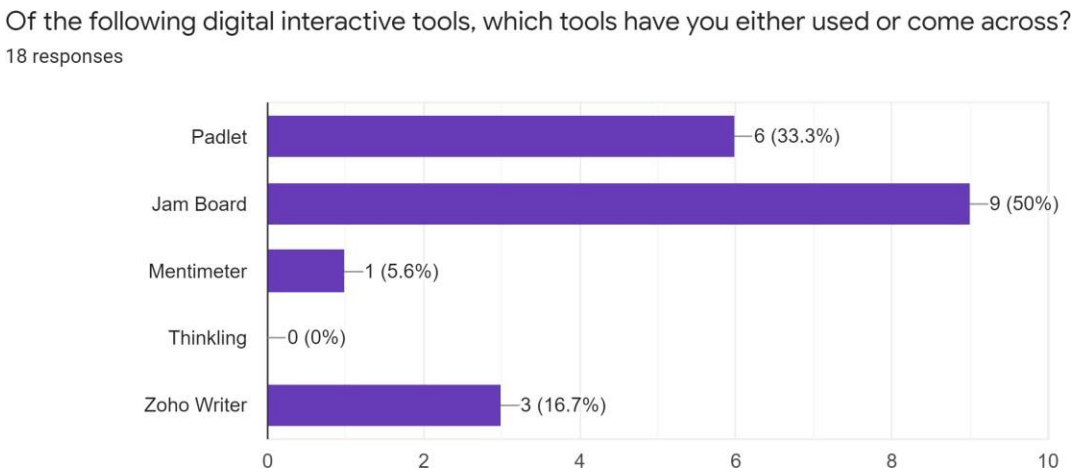
4.2.3 Accessibility of MOOC Platforms to do Online Courses



Graph 2: The accessibility of online courses

The majority responded that the most used online course platform is SWAYAM (61.1%). Followed by Coursera (33.3%) and Udemy (16.7%), the number of participants using Edx is Nil.

4.2.4 Accessibility of Different Online Tools

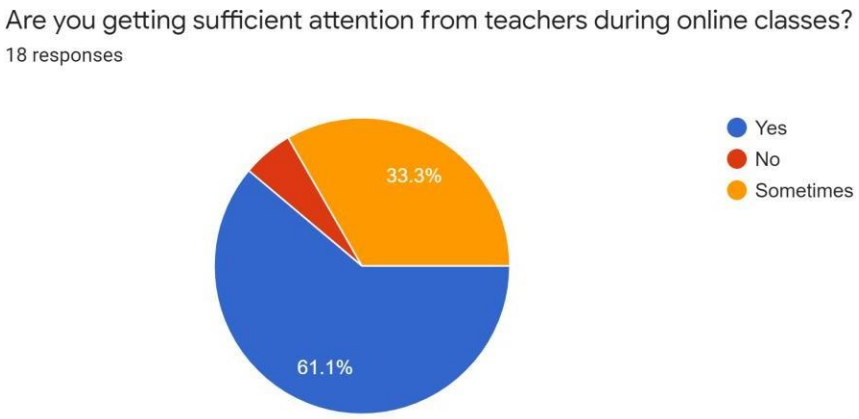


Graph 3: The accessibility of online tools

The most frequently used online tool is Jam Board (50%), followed by Padlets (33.3%), Zoho Writer (16.7%), and Mentimeter (5.6%).

4.3 *Teacher Support*

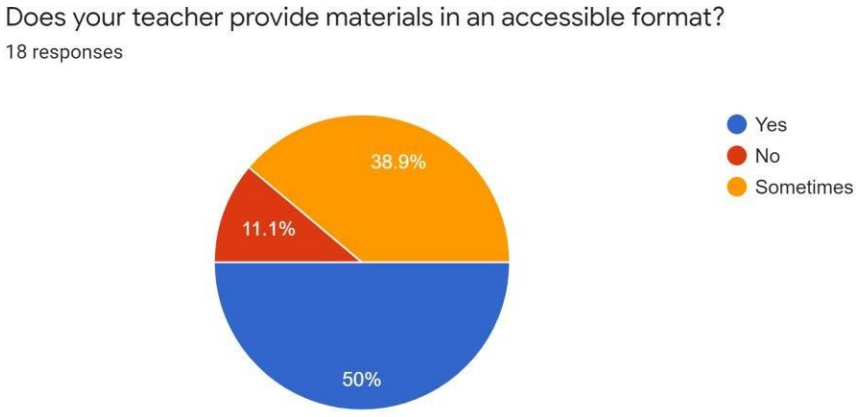
4.3.1 *Attention*



Graph 4: The teacher's attention to VI learners

Most learners responded that teachers provide proper attention (61.1%). Only a few responses marked NO(33.3%) are significant in an Online teaching scenario.

4.3.2 *Materials*



Graph 5: Teacher support for material accessibility in online classrooms.

Teacher support in providing materials is significantly high (50%) compared to those who responded NO was negligibly low (38.9%). At the same time, 11.1% responded that they only receive it sometimes.

4.3.3 *Learners' Perceptions*

Three questions are asked in this section, through which we try to analyze learners' perceptions of the challenges faced by Impaired students.

The first question is, *What are the challenges that Impaired students face during online learning?*

Many participants have talked about the lack of internet connectivity, peer interaction, and inaccessibility of material such as image-based PDF, PPTs, etc. One participant said there is a lack of awareness among the teachers, compounded by a lack of face-to-face interaction. Often, teachers fail to understand the problems of accessibility and do not design class activities keeping accessibility in mind. Another participant said that following the teachers' pace and accessing tools like the jam board during class were some of the difficulties I faced.

The 2nd question is asked about challenges faced by Impaired students while accessing material from various sources. The question states: *What are some of the problems/challenges you face while trying to access materials from online sources such as websites?*

Many students have emphasized the lack of accessibility, availability, and usability of the material from various sources, such as websites where most of the PDFS will not be in an accessible format. Most of the PDFs consist of visual elements like graphs and images, which remain inaccessible for impaired students due to the low comfort of screen-readers like JAWS and NVDA. One of the respondents claims, "Sometimes, it was tough for me 2 read the website material, and I had to read some digital books. As for the digital books, I could not download them in any of the formats. Neither could read them on that particular website because of the font size of the text provided on the website".

One more participant stated, "Some of the websites are not screen reader-friendly, and I depended on my sister to click the download button to download the book. I faced problems with websites that show free download titles on their title page, which will have some other content instead of my requested content on the main page".

In the last question, participants are asked to provide a minimum of three suggestions to improve teaching-learning experiences for IMPAIRED students. The question states: *How can we improve the online teaching-learning process for the Visually Impaired?*

Many participants have suggested providing material in an accessible format. Applications like Word, PDF, E-pub ETC. PPTS should be accessible with screen readers. Sharing PPTs after or before the class would be helpful, too. Homework should be circulated in digital documents. One participant suggested that teachers and online course designers should be aware of the training. It is an excellent opportunity to interact with the teacher during and after class. Flexible deadlines for those assignments which require substantial reading and writing. Another participant said that instead of taking more exams or assignments, taking or conducting more presentations might help increase the online teaching mode. Further, another participant suggests that Teachers have to circulate accessible books. Forming a particular group for the visually impaired by the teachers for performing pad let and jam board tasks. Teachers have to spend some extra time with

visually impaired students after or before the class, which would be helpful for both students and teachers to understand the requirements of specially-abled students.

Finally, at the end of the questionnaire, participants are asked about the usefulness of the questionnaire. Out of eighteen participants, sixteen participants felt that this questionnaire had been useful.

5. DISCUSSION

Based on the data collected from participants, many important things have been found about the online learning experiences of visually impaired students. Most visually impaired students (83.3%) said they can use Google Meet easily. However, they still face many problems in getting study materials and doing online activities properly, which aligns with Varnikar's (2020) findings about accessibility issues with educational platforms. Based on the responses of participants, some suggestions are provided for the betterment of teaching-learning experiences of the Visually Impaired. Web accessibility should be met, and the government should take the initiative. Apart from web accessibility, the actual impediment to inclusion in the classroom lies in the curriculum. Therefore, more inclusive teaching materials should be used (Horn et al., 2012). If Impaired students are present, oral instructions and activities should be given more preference, or such activities should be specifically assigned to them. Government and school or university authorities should ensure the availability of online scribers. This is particularly important as Sharma et al. (2025) found that visually impaired students, especially in rural areas, face significant difficulties in finding writers for online exams. A tap recording facility should be provided so that students with visual disabilities can record lectures and, if necessary, transcribe the address into Braille.

The study shows that teachers try to help, but sometimes they cannot. Around 61.1% of students said teachers give them proper attention, but only 50% of students get materials they can read with screen readers. This means teachers must learn how to improve their teaching materials for visually impaired students. Universities should train teachers on how to use assistive technologies and make accessible content, supporting earlier findings by Courtney & Keith (2017). Also, the study found that most students (88.9%) do not know how to use online writing tools. This aligns with Ravichandran et al. (2022) findings about the challenges students face with online writing tools. This shows they need more training in using technology. Universities should have regular classes where students can learn to use different online tools. Other visually impaired students who know these tools can also help teach their friends. The study also shows that more students can use SWAYAM (61.1%) compared to Coursera (33.3%) and Udemy (16.7%). This means Indian platforms are trying to help visually impaired students. However, more work still needs to be done to make all platforms easy to use.

PPTS should be accessible and comfortable for screen readers. So that IMPAIRED learners can follow the lectures. If the teacher uses visual aids like images, posters, and graphs to convey ideas in the classroom, the teacher should briefly describe them. It could be done by adding Alt-Text. Incorporating more assistive technologies: Technology training: There is a gap in the depth of technology and movement around the use of access technology for youth who are Impaired or have low vision. At least one computer training

centre is necessary for IMPAIRED learners in every district. The accessibility of online learning labs should be improved. There should be proper connectivity between the various schools, colleges, universities, and libraries specially designed for disabled students. Two digital libraries already provide books in an accessible format for all differently-abled students. Book Share is an international library. Various countries have been involved and are working tremendously to avail the material for such learners. On the contrary, Sugamya Pustakalaya is an Indian initiative. Several universities prepare material in accessible formats such as Daisy, E-Pub, and daisy-audio, which benefits Impaired learners by reducing dependency. Hence, if every institution joins these initiatives, the dependence on Impaired learners will be diminished as early as possible. Muthuprasad et al. (2025) have found similar problems in their studies. However, our study shows that these problems have become bigger because of sudden online learning during a pandemic. To solve these problems, everyone needs to work together - government, colleges, teachers, and technology companies.

6. CONCLUSION

In this paper, we have discussed the challenges impaired students face while learning online. These challenges are identified with the help of the literature review discussed above and based on self-experiences. Our study with eighteen visually impaired participants found that problems like inaccessible study materials, lack of proper online platforms, and difficulties with screen readers are common. Most participants said they face problems with PowerPoint presentations and PDF files during online classes. Based on the findings, the researcher has tried to develop some solutions. For example, making materials screen-reader friendly, providing proper training to teachers, and ensuring the availability of online scribes for exams. Our study shows that platforms like Google Meet (83.3%) and SWAYAM (61.1%) are more accessible for visually impaired students, but many improvements are still needed on other platforms. The problems discussed above are essential for Impaired students. Most of the time, these issues are overlooked. More research should be done in this area, especially about how to make online learning platforms more accessible and how to train teachers better for teaching visually impaired students online. The government should take the initiative to encounter these issues. For example, they can make rules about the accessibility of educational websites and provide funds for assistive technologies. These problems could be tackled and should be tackled only with the proper coordination between the stakeholders - educational institutions, teachers, technology developers, and government authorities. Only when everyone works together we can make online education truly inclusive for visually impaired learners.

7. RECOMMENDATION

1. Teachers should be given proper training about how to make their teaching materials accessible for visually impaired students.
2. Every district should have at least one computer training center for visually impaired students.
3. Universities and colleges should provide online scribes for exams.
4. All educational websites and platforms should follow web accessibility guidelines. PDF files and study materials should be made screen-reader friendly, and proper Alt-text should be added for all images.

5. Digital libraries like Book Share and Sugamya Pustakalaya should be connected with more colleges and universities.
6. Teachers should record their online lectures so that visually impaired students can listen to them again..
7. Regular feedback should be taken from visually impaired students about their online learning problems.

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9. DECLARATION

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