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Synchronous and Asynchronous Learning for Students with Disability at Universitas PGRI Yogyakarta: Challenges and Implementation

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui implementasi pembelajaran sinkronus dan asinkronus bagi mahasiswa disabilitas di Universitas PGRI Yogyakarta (UPY). Penelitian ini menggunakan pendekatan kualitatif dengan metode deskriptif melalui desain studi kasus. Analisis data dilakukan melalui reduksi data, penyajian data, dan penarikan serta verifikasi kesimpulan, dengan partisipan penelitian yaitu mahasiswa penyandang disabilitas di UPY. Implementasi pembelajaran sinkronus dan asinkronus di UPY bagi mahasiswa disabilitas mendapatkan perhatian khusus karena kondisi belajar yang berbeda, sehingga digunakan berbagai platform seperti Zoom, Google Meet, WhatsApp Group, E-learning UPY, YouTube, dan Google Classroom. Masing-masing platform memiliki kelebihan dan kekurangan. Platform berbasis konferensi memungkinkan pembelajaran langsung seperti tatap muka, namun memerlukan jaringan internet yang stabil dan perangkat yang memadai. Penelitian ini mengungkap bahwa mahasiswa dengan kebutuhan belajar khusus di UPY menggunakan beragam platform daring, dengan Google Classroom dan Zoom sebagai media dominan. Meskipun kedua platform ini membantu, sebagian besar responden masih menghadapi kendala teknis dan aksesibilitas. Solusi yang diusulkan menekankan pada penyediaan materi yang ramah akses, perbaikan jaringan, dan fleksibilitas pembelajaran.

ABSTRACT

This study aims to investigate the implementation of synchronous and asynchronous learning for students with disabilities at Universitas PGRI Yogyakarta (UPY). Employing a qualitative approach with a descriptive method through a case study design, the data analysis involved data reduction, data presentation, and conclusion drawing and verification, with research participants being students with disabilities at UPY. The implementation of synchronous and asynchronous learning at UPY for students with disabilities received special attention due to their distinct learning conditions, utilizing various platforms such as Zoom, Google Meet, WhatsApp Group, UPY E-learning, YouTube, and Google Classroom. Each platform has its strengths and weaknesses. Conference-based platforms enable direct learning akin to face-to-face instruction but require stable internet connections and adequate devices. This study reveals that students with special learning needs at UPY utilize various online platforms, with Google Classroom and Zoom being the dominant media. Although these platforms are beneficial, most respondents still face technical and accessibility challenges. Proposed solutions emphasize the provision of accessible learning materials, network improvements, and greater learning flexibility.

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Background

At the end of 2019, the world faced a catastrophic outbreak caused by the coronavirus, or COVID-19. This pandemic, lasting approximately one year, brought significant changes to every aspect of human life, including education. The COVID-19 pandemic radically transformed the education landscape, affecting its design, implementation, and evaluation. Face-to-face/offline learning adapted to synchronous and asynchronous learning to break the chain of COVID-19 transmission. The pandemic forced universities to shift to online learning, with synchronous platforms like Zoom and asynchronous platforms like Google Classroom becoming primary solutions (Dhawan, 2020). However, challenges such as limited technological infrastructure have impacted the effectiveness of learning, particularly in developing countries (Tan et al., 2025). In accordance with the Circular Letter of the Indonesian Minister of Education and Culture regarding guidelines for implementing education during the COVID-19 emergency, all levels of education were mandated to conduct learning online.The terms synchronous and asynchronous emerged as patterns of learning in the current information technology era. Synchronous learning refers to real-time online learning using educational applications and social networks, while asynchronous learning involves non-face-to-face learning through available platforms, with the distribution of materials, communication, and assessments conducted online. This system is supported by applications such as Google Classroom, Google Meet, Edmodo, and Zoom, which meet requirements such as direct system control, real-time availability, and stable connectivity. During implementation, students have the flexibility to learn anytime and anywhere and interact through video calls or live chats. However, challenges such as inadequate internet connectivity, unsupportive home environments, ineffective communication, and time management remain significant barriers.

The education process at the university level also had to adopt synchronous and asynchronous learning. This shift represented a fundamental change for the academic community within universities; lecturers, students, and others needed to adapt to the challenges during the COVID-19 pandemic. Like their non-disabled peers, students with disabilities pursuing higher education also faced challenges in the lecture process due to the transition from offline to online learning. Students with disabilities are those with special needs requiring accommodations to ensure equal access to education, as stipulated in Law No. 8 of 2016 on Persons with Disabilities. This law defines persons with disabilities and regulates their rights, including the right to education. Article 10 of the law affirms the right of persons with disabilities to access quality education, have equal opportunities to become educators or educational staff, and receive reasonable accommodations as learners. Furthermore, the Regulation of the Minister of Education and Culture No. 48 of 2023 on

Reasonable Accommodations for Students with Disabilities emphasizes the provision of accommodations through budget support, facilities and infrastructure, educators and educational staff, and curricula; the form of accommodations adheres to national education standards; the establishment, duties, and functions of Disability Service Units (ULD) across various educational levels; human resources, services, facilities, and infrastructure in ULDs; as well as reporting, supervision, evaluation, and administrative sanctions.

Within the framework of providing reasonable accommodations, Universitas PGRI Yogyakarta (UPY) strives to ensure that students with disabilities receive optimal services to fully access lectures, both online and offline. However, in reality, students with disabilities at UPY (predominantly those with sensory disabilities such as visual or hearing impairments) still face specific barriers in online learning, such as lack of digital accessibility (e.g., screen readers for the visually impaired or automatic subtitles for the hearing impaired), limited internet connectivity, and platforms that are not disability-friendly. This aligns with Riyadi's (2021) findings, which state that accessibility in higher education institutions in Yogyakarta remains low, with non-standard facilities, services based on personal empathy rather than inclusive policies, and a lack of disability service units. Implementing learning is complex, as various accessibility requirements must be met to provide optimal services, particularly in the post-pandemic era where hybrid learning models are increasingly dominant.Previous studies, such as Riyadi (2021), which focused on physical accessibility, human resources, and institutional inclusivity in Yogyakarta, and Umar et al. (2025), which addressed the fulfillment of rights for children with disabilities through inclusive education at the primary and secondary levels in Gorontalo, have not thoroughly explored the implementation of online learning for students with disabilities in higher education in the post-pandemic context. This indicates a gap in the analysis of challenges and solutions related to online technology (e.g., the advantages and limitations of platforms and accessibility flexibility) within the specific context of universities like UPY. This study aims to analyze the effectiveness and barriers of implementing synchronous and asynchronous learning for students with disabilities as the primary users of higher education services at Universitas PGRI Yogyakarta, and to propose solutions to enhance digital accessibility in accordance with national regulations, thereby contributing to the development of inclusive policies in the post-pandemic era.

Method

The research design used in this study is a descriptive qualitative method and a case study design. The qualitative approach was chosen because this research is field-based, aiming to describe and analyze phenomena, events, and group activities, specifically the implementation of synchronous and asynchronous learning for students with disabilities at the Faculty of Teacher Training and Education (FKIP), Universitas PGRI Yogyakarta (UPY). The case study design is used to provide an in-depth exploration of the experiences of students with disabilities in accessing online learning, focusing on effectiveness, barriers, and relevant solutions within the context of higher education in the post-pandemic era. Research Subjects.

The research subjects consist of 10 students with disabilities enrolled at FKIP UPY, comprising 6 visually impaired (low vision) students and 4 hearing-impaired students. These students are from the Special Education program, with entry years ranging from 2019 to 2022. Subject selection was conducted using purposive sampling, with the following criteria: (1) active students at FKIP UPY, (2) having sensory disabilities (visual or hearing impairment), and (3) having participated in synchronous and asynchronous learning during the COVID-19 pandemic. This selection ensures that the data obtained are relevant to the research objective of exploring the specific experiences of students with disabilities.

Data Collection Techniques

Data were collected through two main techniques:

1. In-depth Interviews: Conducted in a semi-structured format with 10 students with disabilities to explore their experiences in synchronous and asynchronous learning. Interview questions covered barriers encountered (e.g., accessibility of online platforms, network stability, communication with lecturers) and proposed solutions. Interviews were conducted online via Zoom and in person (based on the accessibility needs of each respondent, such as with the assistance of a sign language interpreter for hearing-impaired students).
2. Non-participant Observation: Conducted to observe students' interactions with online platforms (e.g., Zoom and Google Classroom) during synchronous and asynchronous lectures. Observations included the use of accessibility features (e.g., screen readers, subtitles) and technical challenges encountered.
   Additional data were obtained from documents, such as UPY's online learning guidelines and teaching materials, to analyze the extent to which reasonable accommodations have been implemented in accordance with the Regulation of the Minister of Education and Culture No. 48 of 2023.

Data Analysis

Data analysis was conducted in three stages based on the Miles and Huberman (1994) model:

1. Data Reduction: Data from interviews and observations were filtered to select information relevant to the research objectives, such as specific barriers (e.g., incompatibility of screen readers with Google Classroom for visually impaired students or lack of automatic subtitles on Zoom for hearing-impaired students) and proposed solutions (e.g., accessible learning materials, lecturer training).
2. Data Presentation (Data Display): Data were organized in the form of descriptive narratives and thematic tables to illustrate patterns of barriers and solutions. For example, a summary table indicates that 40% of visually impaired students reported difficulties with PDF formats lacking text alternatives, while 100% of hearing-impaired students noted the absence of automatic subtitles.
3. Conclusion Drawing and Verification: Preliminary conclusions were drawn based on identified patterns, such as the dominance of Google Classroom and Zoom in learning and technical barriers hindering accessibility. Verification was conducted through data

triangulation, comparing findings from interviews, observations, and documents, and through discussions with respondents to ensure the validity of the findings.

Result and Discusion

Based on the data that has been obtained by researchers by researching the google form link that has been distributed to disability student within the scope of PGRI Yogyakarta University, it was found that there were 10 active students spread across various study programs.

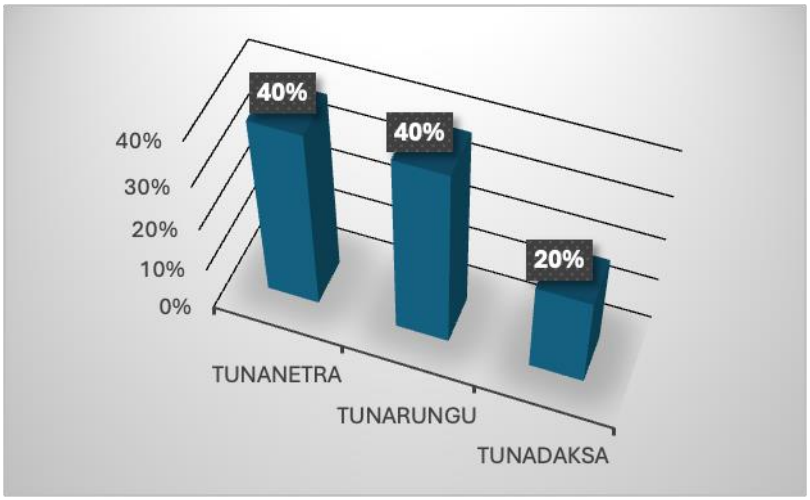


Figure 1. Student with disability in Universitas PGRI Yogyakarta

Based on the data obtained from 10 respondents with special needs students at Universitas PGRI Yogyakarta (UPY) through Google Forms, the distribution of types of disabilities provides an initial overview of the composition of participants in the implementation of synchronous and asynchronous learning during the COVID-19 pandemic. Table 1 shows that students with visual impairments (tunanetra) and hearing impairments (tunarungu) each account for 40% of the total respondents (4 students per group), while students with physical disabilities (tunadaksa) only make up 20% (1 student), where the tunanetra group often faces challenges related to visual accessibility, such as dependency on screen readers or human assistance for image-based tasks, whereas the tunarungu group encounters obstacles in understanding audio without subtitle support. The balanced distribution between tunanetra and tunarungu (80% overall) indicates that the majority of respondents rely on assistive technology for online learning, while the minority tunadaksa group places greater emphasis on infrastructure issues such as network stability. These findings suggest the need for an inclusive approach tailored to diverse needs, with a priority on enhancing accessibility features to support the majority group, in line with the principles of Universal Design for Learning (UDL) that emphasize flexibility in material representation.These students have difference of special learning needs, including students with visual impairments, students with hearing impairments and .

The problems faced by students with disabilities at PGRI Yogyakarta University are very diverse according to their respective conditions and learning needs. These problems include internal problems that come from the students themselves, such as physical

conditions, and also interest in learning. The second is external conditions, these external conditions are influenced by the stability of the network used by students with disabilities. Likewise, the interests they are interested in in the implementation of Synchronous and Asynchronous learning are different. Students with visual impairments tend to prefer the youtube and classroom platforms, students with hearing impairments like classrooms because classrooms make it easier for them to understand the material and download it anytime, for students with disabilities. physically like the various platforms used because the more diverse the platforms used, the more interesting the learning will be.

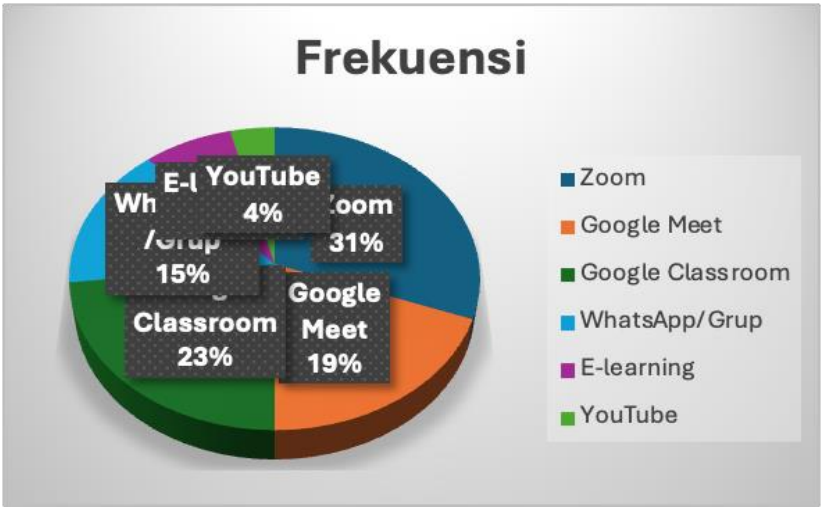


Figure 2. Frekuensi data Synchronous and Asynchronous learning

Based on the data obtained from students with special needs at Universitas PGRI Yogyakarta (UPY) through Google Forms, the pie chart titled "Frekuensi" illustrates the distribution of the use of various online teaching platforms during the implementation of synchronous and asynchronous learning during the COVID-19 pandemic. The chart shows the frequency of platform usage based on the number of students mentioning each platform, with a total of 27 mentions from 9 respondents (as some students mentioned more than one platform). The most dominant platform is Zoom, used by 8 students (approximately 29.6% of the total frequency), marked by the largest blue segment. This is followed by Google Classroom with 6 mentions (22.2%), represented by the yellow segment, indicating a high preference for this platform due to its ease of access and material storage. Google Meet ranks third with 5 mentions (18.5%), indicated by the red segment, often used for real-time interaction despite network challenges. WhatsApp/Group appears 4 times (14.8%), represented by the green segment, popular for coordination and voice messages. E-learning has 2 mentions (7.4%), shown by the orange segment, while YouTube is mentioned only once (3.7%), represented by the light green segment, likely due to its subtitle feature benefiting hearing-impaired students. This distribution reflects that synchronous platforms like Zoom and Google Meet dominate usage, yet asynchronous platforms like Google Classroom are preferred for their flexibility, especially by students with visual and hearing disabilities who often rely on materials accessible at any time. These findings indicate a diverse reliance on online technology at UPY, with a need for improved network infrastructure and accessibility features to support effective inclusive learning.

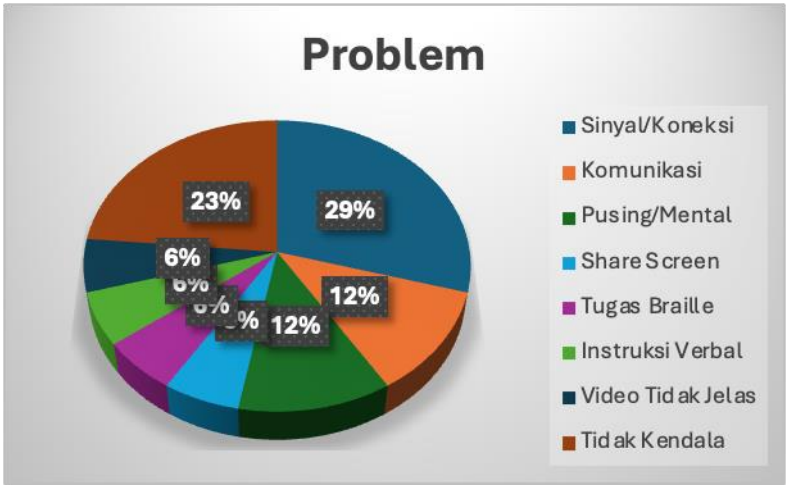
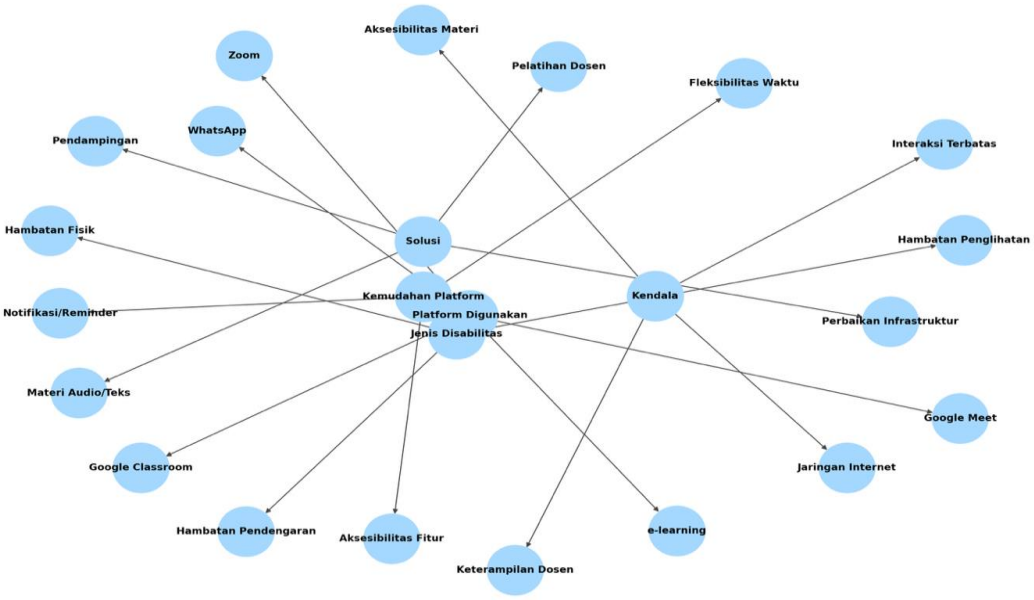


Figure 3. The Problem of Sycncoriunus Asyncrounus Learning

Based on the data obtained from respondents with special needs students at Universitas PGRI Yogyakarta (UPY) through Google Forms, the pie chart titled "Hambatan" illustrates the distribution of the main challenges faced in the implementation of synchronous and asynchronous learning during the COVID-19 pandemic, with a total percentage reaching 100% from 10 valid respondents. The greatest challenge is unstable signal/connection, accounting for 29% (blue segment), frequently reported by students with visual and hearing disabilities, causing disruptions on synchronous platforms like Zoom and Google Meet, where interrupted audio or automatic disconnections hinder material comprehension. This is followed by communication issues at 23% (red segment), primarily experienced by hearing-impaired students due to the lack of subtitles or assistants for verbal instructions, necessitating extra coordination via WhatsApp Group. Next, the dizziness/mental burden reaches 12% (yellow segment), commonly reported by visually impaired students due to prolonged device use with screen readers like TalkBack, leading to reduced motivation and concentration. Verbal instruction challenges also account for 12% (light blue segment), related to difficulties in understanding lecturer explanations without visual or text support, while issues with screen sharing (6%, green segment), Braille tasks (6%, orange segment), and unclear video (6%, dark blue segment) highlight specific problems such as the need for human assistance for image-based tasks or low video quality on asynchronous platforms like YouTube. Lastly, 6% of respondents reported no challenges (dark red segment), indicating good adaptation to flexible platforms like Google Classroom. These findings highlight that external barriers, such as technological infrastructure (approximately 52% when combining signal and communication issues), dominate, while internal issues like mental health and verbal instructions (24%) require inclusive solutions based on Universal Design for Learning (UDL), such as providing multi-format materials and lecturer training, to optimize online learning for students with disabilities at UPY.



The implementation of Synchronous and Asynchronous learning for students with disabilities at PGRI Yogyakarta University is one of the latest innovations for students with disabilities. The implementation of the learning was carried out not without reason, but to prevent the spread of COVID 19, which has been an international pandemic for almost 2 years. Various opinions between the pros and cons in the implementation of Synchronous and Asynchronous learning have become a new phenomenon in the educational environment, especially the special education environment. The implementation of Synchronous and Asynchronous learning at PGRI University, Yogyakarta, for students with disabilities gets special attention due to different learning conditions, therefore various platforms are used to make it easier for students with disabilities to learn. The platforms are Zoom Meeting, Google Meet, WA Group, E-learning UPY, YouTube, Google Classroom. The platform has its strengths and weaknesses for students with disabilities. The advantage of a conference-based learning platform is that learning can be held directly face to face so that the implementation of learning is not much different from face to face. Conferencing platforms, among others, Zoom Meeting and Google Meet. Weaknesses of the conference platform include (1) it requires a strong and stable signal or network, whereas in place that the situation is less supportive. (2) Adequate gadgets or PCs to access the platform. Students at UPY face challenges with unstable internet connections, which hinder access to synchronous platforms such as Zoom. Students with disabilities at UPY face challenges such as confusion during online learning, similar to the findings of Gin et al. (2021), which noted that students with cognitive disabilities struggle with online platforms that are not optimized for accessibility.

This also happened in a study by (Rimba Hamid, Izlan Sentryo, Sakka Hasan, 2020) entitled "Synchronous and Asynchronous learning and its problem in the Covid-19 emergency period". This study aims to obtain a more in-depth picture of (1) the distribution

of PGSD FKIP UHO students based on domicile in carrying out Synchronous and Asynchronous learning during the Covid-19 period, (2) infrastructure support for the effectiveness of Synchronous and Asynchronous learning during the Covid-19 period, and (3) student perceptions of Synchronous and Asynchronous learning conducted by PGSD FKIP lecturers at UHO during the Covid-19 period. The results of this study indicate that: (1) PGSD FKIP UHO students in the Synchronous and Asynchronous learning process are concentrated in 3 main districts/cities, namely Kendari City, Muna Regency, and South Konawe Regency, (2) The main supporting factors for the effectiveness of Synchronous and Asynchronous learning in the Covid-19 period is the carrying capacity of network access and the ability of devices to access the internet, (3) Students assess the application of Synchronous and Asynchronous learning during the Covid-19 period has not been fully effective.

Meanwhile, another platform is a discussion-based learning platform where the platform makes it easier for participants to access the files provided by the teacher. Discussion-based learning platforms include E-learning and Google Classroom. Navas (2020) highlights that assistive technology, such as text-to-speech software, can enhance accessibility, aligning with the needs of blind students at UPY who rely on Talk Back to access Google Classroom. E-learning is a web-based platform specifically designed to make Synchronous and Asynchronous learning successful at UPY. The platform is specially managed by the PPTIK UPY team. Google Classroom is a web-based tool developed by Google, this platform are used by teachers and students in conducting Synchronous and Asynchronous learning in the form of written discussions. According to Muhaidat and Al-Makhzoomy (2023), UDL enhances learning outcomes by providing flexibility in the representation of materials, as demonstrated by the preference of blind students at UPY for Google Classroom, which is compatible with screen readers.

The advantage of a discussion-based platform is that it can be accessed at any time without time constraints and also saves quota. The weakness of using a discussion-based platform is that many students who have a limited reading interest are not interested in participating in learning with the platform. Blind students at UPY prefer Google Classroom due to its flexibility, aligning with the findings of Hung et al. (2024), which state that asynchronous learning reduces cognitive load (Hung et al., 2024)

The challenge experienced by students in carrying out Synchronous and Asynchronous learning with various platforms used divided into three types,

1. Obstacles experienced by blind students
    a. Feeling dizzy because using laptops and cellphones continuously requires a high level of concentration in identifying each article, sentence, and paragraph in the talkback program, especially when using a written discussion-based platform.
    b. Requires the help of an alert person in making assignments with photo media.
    c. Network Constraint
2. Barriers experienced by deaf students
    a. Feeling confused when using a video conference-based platform because of the difficulty of reading lips and also there is no translation in Indonesian
    b. Do not understand the syntax in Synchronous and Asynchronouslearning

c. Lecturers who support courses that use video conference-based platforms do not explain or delegate translators to assist in understanding the material and assignments
d. Network problem
e. Lack of motivation

3. Barriers experienced by students with disabilities
   a. Network problem

In response to the various challenges encountered in Synchronous and Asynchronous learning, students with disabilities have proposed several practical and needs-based solutions. These include the provision of learning materials in both audio and text formats to accommodate diverse learning styles, individualized academic support, and training for lecturers on the use of inclusive educational technologies. In addition, improvements in infrastructure—such as enhanced internet access on campus and the optimization of institutional e-learning systems—are also viewed as essential. To address accessibility challenges, UPY can adopt assistive technologies such as automatic subtitles in Zoom, as recommended by Tichy et al. (2022) [4], and enhance faculty training to support inclusive learning (Tan et al., 2025) These solutions extend beyond technical aspects, touching on pedagogical dimensions and institutional policy. Therefore, the realization of truly inclusive Synchronous and Asynchronous learning requires a synergistic effort that integrates technological availability, the preparedness of educators, and the institutional commitment to ensuring equal learning opportunities for all students, including those with special needs.

Conclusion

Based on the data from 10 students with special needs at Universitas PGRI Yogyakarta (UPY) through Google Forms, this study reveals that 40% each consist of visually impaired (tunanetra) and hearing-impaired (tunarungu) students, with 20% physically disabled (tunadaksa), the majority relying on assistive technology and facing accessibility challenges specific to their needs. The implementation of synchronous and asynchronous learning, supported by platforms such as Zoom (29.6%), Google Classroom (22.2%), Google Meet (18.5%), WhatsApp (14.8%), E-learning (7.4%), and YouTube (3.7%), highlights a strong preference for Google Classroom due to its flexibility, though synchronous platforms are often hindered by unstable signals (29%) and communication issues (23%), as indicated in the "Hambatan" pie chart. External barriers (52%) dominate over internal ones (24%, including dizziness/mental strain at 12% and verbal instruction challenges at 12%). This conclusion affirms that online learning at UPY is not yet fully inclusive, with network and accessibility challenges as key concerns. Solutions based on Universal Design for Learning (UDL), such as multi-format materials (audio/text) and lecturer training, along with infrastructure improvements, are proposed to support the diverse needs of students with disabilities. A synergistic effort involving technology, educator readiness, and institutional commitment is essential to achieve equitable learning, aligning with identified platform preferences and solutions, including support for Braille

tasks and automatic subtitles. To enhance Universal Design for Learning (UDL) in accommodating students with special needs, the Research and Community Service Institute (LPP) of UPY is recommended to undertake the following: (1) Develop a collaborative research program to integrate UDL into the curriculum, such as creating multi-format modules (audio, text, and visual) compatible with assistive technologies like screen readers and automatic subtitles; (2) Conduct regular training for lecturers through LPP workshops, focusing on UDL principles for flexible learning design, including the use of inclusive platforms like Google Classroom and Zoom; (3) Implement community service based on research to improve infrastructure, such as collaborating with network providers to strengthen campus connectivity and distribute assistive devices to students with disabilities; (4) Establish an LPP monitoring team for periodic evaluations of platform accessibility, involving students with special needs as partners, to ensure an adaptive and sustainable UDL implementation.

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