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Barriers and support to the inclusion of deaf and hard-of-hearing students in visual art higher education in India

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Abstract

Academic research has paid minimal attention to the experiences of deaf and hard-of-hearing students in visual arts higher education programmes and is yet to be studied in the Indian context. This qualitative study aims to identify barriers and supports deaf and hard-of-hearing students' perceptions of a visual art higher education programme in India. Individual interviews with the assistance of a qualified sign language interpreter were conducted with 15 deaf and hard-of-hearing students at a public institute. This study highlights the experiences related to the visual art curriculum, interactions, and support services to provide a comprehensive view of their teaching and learning needs. When analysing the data through thematic analysis, the findings show that communication barriers and scarcity of support services impact deaf and hard-of-hearing students' access to various learning situations among visual art studio and theory subjects. Recognising the efforts in India to build inclusive practices in higher education institutions, it is crucial to be aware of the learning needs of deaf and hard-of-hearing students and provide suitable accommodations. Modifications in curriculum and teaching strategies, providing adequate support services, and sensitisation of teachers and students at educational institutes are possible strategies to develop inclusive visual arts higher education programmes.

Keywords
deaf and hard-of-hearing, visual arts, higher education, teaching and learning, inclusive education

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Introduction

Many past studies have reported the benefits and importance of visual arts education to deaf and hard-of-hearing school children (Greene & Hasselbring, 1981; Hoggard, 2006; James & James, 1980; Obosu et al. 2013; Schulz & Turnbull, 1984; Silver, 1989; Smith, 1995; Stanzione et al. 2012; Yuan-shih, 1984). However, sparse information is available about the experiences of deaf and hard-of-hearing students in visual arts higher education. Gannon (1981), Lang and Meth-Lang (1995), and Zausner (2007) have provided numerous life and work accounts of successful deaf artists around the world. However, such comprehensive data on the deaf artist in India are scarce. A basic search on internet could not reveal many successful deaf artists in India such as eminent artist Satish Gujral. Furthermore, deaf, and hard-of-hearing students' inclusion and accessibility in visual arts higher education programmes have received much less attention in academic research. These gaps led to an investigation into the higher education of deaf and hard-of-hearing students in visual arts. The purpose of this study is to gain an understanding of the challenges that deaf and hard of hearing students confront when pursuing higher education in the visual arts and to provide potential solutions to those challenges. This study is part of an ongoing investigation of lived experiences of deaf and hard-of-hearing students in multiple government/public art institutes offering visual arts higher education programmes. This exploratory study presents the preliminary finding from one of India's selected visual art institutes and addresses the central research questions: What barriers and support do deaf and hard-of-hearing students perceive in visual arts higher education programmes? What solutions do they use and propose to mitigate the barriers? It will be the first study to explore the experiences of deaf and hard-of-hearing students from visual arts higher education in Indian context.

India, being a signatory to the Salamanca Statement and Framework for Action on Special Needs Education (UNESCO, 1994) and the United Nations Convention on the Rights of Persons with Disabilities (CRPD) (2006), emphasises on providing inclusive education to all students (including students with disabilities) at all educational levels. Article 24 of the Convention on Education encourages facilitating the learning of sign language and promotion of the linguistic identity of the deaf community, and Article 21 encourages the recognition and promotion of the use of sign

language (United Nations, 2006). In India, the Rights of Person with Disabilities (RPWD) Act, 2016 (Government of India, Ministry of Law and Justice, 2016), concerning the education of deaf students suggests providing individualised support measures for academic and social development, appropriate modes and means of communication for deaf, and employment of teachers, including teachers with disabilities qualified in sign language. In India, the recent National Education Policy 2020 (Government of India, Ministry of Human Resource and Development, 2020) endorses all recommendations of the RPWD Act, 2016, concerning the education of students with disabilities in India. The RPWD Act, 2016 (India), defines inclusive education as "a system of education wherein students with and without disabilities learn together and the teaching and learning system is suitably adapted to meet the learning needs of different types of students with disabilities" (p. 3). This definition and recommendations of acts and policies point toward accommodating the communication and learning needs of deaf and hard-of-hearing students in inclusive education.

The World Health Organization (WHO) defines "deaf" as people with profound hearing loss, which implies very little or no hearing and often uses sign language for communication. "Hard-of-hearing" refers to people with hearing loss ranging from mild to severe. Hard-of-hearing people communicate through spoken language and can benefit from hearing aids, cochlear implants, other assistive devices, and captioning (WHO, 2021). The inability to hear speech sounds causes a delay in language development and communication barriers in children with hearing loss. Spencer and Marschark (2010) states that even minimal hearing loss (16–25 dB) could affect academic achievement, and there are likely many students who need extra educational services but are not receiving them (p. 10). College students with hearing loss have a wide variance in their communication skills, and students with profound hearing loss and weak signing skills may have more significant academic risks and require support such as note-takers or lecture transcripts (Spencer et al., 2018). Powell et al. (2014) observed that hearing loss negatively affected deaf students the most during lectures, tutorials, and social functions. The authors also highlight the critical importance of access to support (such as interpreters and note-takers) for deaf students' increased learning and participation of deaf students (Powell et al., 2014). While interpreters and note-takers improve accessibility for deaf and hard-of-hearing students, issues of the quality and availability of these support services at the university level may pose barriers to learning (Hyde et al., 2009). Hard-of-hearing students also face

communication barriers and challenges in accessing lectures and curriculum because of inadequate support available at the university (Bell & Swart, 2018). Apart from support services, the attitudes of teachers and the experience of teaching deaf students act either as support or barriers, influencing the inclusive learning environment for deaf students (Kermit & Holiman, 2018). Communication barriers not only impact academic participation but also affect the social participation of deaf students in higher education institutes. One way to address communication barriers in an inclusive environment is to use assistive technologies. The use of assistive technology improves learning and access to educational materials and increases the academic performance of students with disabilities (McNicholl et al., 2019). A previous study identified the use of assistive technology as highly beneficial for deaf and hard-of-hearing students in communicating with hearing teachers and peers, leading to their inclusion in the university community (Lartz et al., 2008). Hyde et al. (2016) emphasised that the inclusion of deaf and hard-of-hearing students in the university requires recognising their diverse learning and communication needs and paying attention to providing quality and quantity of support services, assistive technologies, university staff development, and higher funding.

Method

This study was conducted to gain insight into the lived experiences of deaf and hard-of-hearing students while studying in a visual art higher education programme in India. A qualitative research design was the best suited for the exploratory nature of this study.

Participants

Fifteen deaf and hard-of-hearing students participated in the study. These participants belonged to painting, sculpture, and applied art specialisations and were studying from the 1st to the 4th year of a Bachelor of Visual Art (BVA) degree programme. Table 1 displays the demographic information.

Table 1: *Demographic Details of the Participants*

Pseudonym	Age	Gender	Age of hearing loss onset	Hearing loss	Amplification	Primary communication mode
Kriti	19	Female	At birth	Profound	None	Indian Sign Language
Lata	23	Female	At birth	Profound	None	Indian Sign Language
Rajesh	21	Male	Unknown	Moderate	Hearing aid	Total Communication
Nitika	25	Female	At birth	Severe	None	Indian Sign Language
Kalpana	25	Female	At birth	Profound	None	Indian Sign Language
Shruti	22	Female	At birth	Profound	None	Indian Sign Language
Rohan	20	Male	At age 5	Profound	None	Indian Sign Language
Suresh	26	Male	At birth	Profound	Hearing aid	Total Communication
Samir	28	Male	At birth	Profound	Hearing aid	Total Communication
Vikesh	21	Male	At birth	Profound	None	Indian Sign Language
Nirav	25	Male	At birth	Profound	Hearing aid	Indian Sign Language
Vikram	22	Male	At birth	Profound	None	Indian Sign Language
Manish	21	Male	At age 5	Profound	None	Indian Sign Language
Shiv	23	Male	Unknown	Profound	Hearing aid	Indian Sign Language
Raj	24	Male	At age 2	Profound	Hearing aid	Indian Sign Language

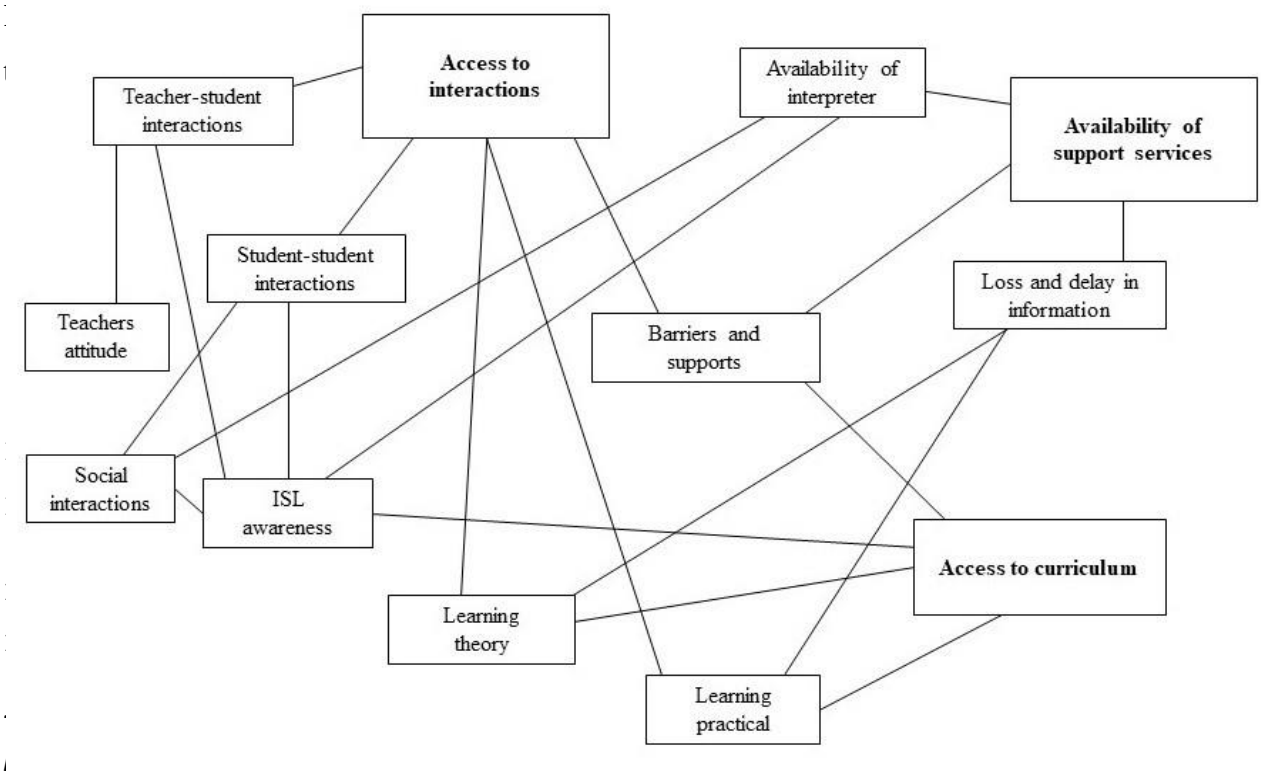
Data Collection

Data were collected through face-to-face semi-structured interviews with the participants. The semi-structured interview key questions are listed in Table 2. Additional questions and rephrasing of questions were common occurrences in all interviews. The university provided permission to conduct interviews at their visual art department. The interviews were conducted with the assistance of a qualified sign language interpreter. A confidentiality agreement with the interpreter was drawn out/signed before the interviews. The researcher and a qualified sign language interpreter created a video in Indian Sign Language (ISL) and English for the study brief. This video with a written transcript was then shared among the currently studying deaf and hard-of-hearing students at the visual art department through the WhatsApp mobile application. With the assistance of a sign language interpreter, participants were briefed about the study and filled out the consent and demographic information forms before the interview. All interviews were audio/video recorded with the consent of the participants. Interpretation accuracy was reviewed by another qualified sign language interpreter, and the audio/video interviews were transcribed.

Data Analysis

The content was the focus of the analysis rather than the sign language. Thematic analysis (Braun & Clarke, 2006, 2013) was employed for data analysis. This study used an inductive approach to data coding and analysis, which is a bottom-up approach based on the data. The themes were closely related to the data, and the six-phase analysis (Braun & Clarke, 2006) followed in the study is detailed below.

Figure 1: *Thematic Map*



1. Familiarisation with the data: In this step, the researcher conducted the interviews with the assistance of a qualified sign language interpreter and later transcribed the audio/video-recorded material from ISL into written English. The transcriptions were reviewed for accuracy by another qualified sign language interpreter from audio/video interviews. The corrected transcripts were used for coding and further analysis. All responses and initial ideas were tabulated in Microsoft Excel through repeated and careful reading of the transcripts.
2. Generating initial codes: These codes areassigned based on each comment's semantic content or surface-level meaning. Occasionally, multiple codes were assigned to a single comment. All responses were coded, and the data were collated according to each code. For example, Participant Response, "I can

understand if the interpreter is there; otherwise, I could not understand. The hearing teacher would come, teach, and leave, and I could not understand. I would just sit there, and the interpreter was also not coming," initially coded for Difficulty of understanding, Absence of interpreter, and Communication barrier.

3. Searching for themes: After assigning codes to all the data, this step refocuses the analysis on a wider range of themes. Each code was then categorised into potential themes. Some of the codes, such as interactions with teachers or interactions with students themselves, became themes. A visual representation of the codes was created to sort them into themes.
4. Reviewing themes: At this stage, each theme was reviewed to identify a coherent pattern in them. Among the identified themes, a few were merged into one theme, for example, loss of information, delay in receiving information, and absence of interpreter were merged into loss and delay in information. The 10 initial themes were broadly divided into barriers and support for participants' lived experiences. A final thematic map was developed at this stage. Figure 1 shows a thematic map with identified themes and the final themes marked in bold.
5. Defining and naming themes: Step 4 provided a satisfactory thematic map of the data. In Step 5, the themes were refined and defined based on their data, meaning that a detailed analysis of each theme was developed, the scope and focus of each theme were worked out, and the "story" of each theme was determined (Braun & Clarke, 2019). The collated data for each theme were reviewed and organised into a coherent narrative. The key part was identifying what was of interest and why, concerning the central research question of this study.
6. Producing the report: This final phase provided evidence of the themes within the data. The write-up of the report goes beyond the description of the data. The selected quotations were embedded within an analytic narrative related to the research question. The number of participants responses and the related codes are listed in Table 3.

Ethical Considerations

The Institutional Human Ethics Committee at the researcher's parent institution provided ethical approval for the study. Before the interviews, the author obtained consent from the participants by explaining the purpose, procedures, and potential uses of their recorded interviews. Participants signed a consent form indicating their voluntary participation and filled out the demographic information form with the assistance of a qualified sign language interpreter. Anonymity was maintained, and pseudonyms were assigned to each participant's name.

Results

The analysis identified the following three themes in answering this study's central research question: What barriers and support do deaf and hard-of-hearing students perceive in visual arts higher education programmes?

Theme 1. Access to the curriculum

Theme 2. Access to interactions

Theme 3. Availability of support services

Existing barriers and supports in each of the identified themes are discussed below.

Theme 1: Access to the Curriculum

This theme presents participants' perceived barriers and support and their perceptions pertaining theoretical and practical components of the visual art curriculum.

Learning Theory: Theory subjects are a crucial component of visual art curriculum that informs student's practice. Several participants reported theory subjects being necessary component of the curriculum.

> When we work on both the practical and theory, it enhances the paintings because we also learn the theory of the painting. Sometimes, we do not know certain things or the meaning associated with a particular painting. In such cases, learning the theory helps. (Shruti)

Similar comments from other participants underline the importance of theory subjects for art practice and its relevance in the visual art curriculum. However, several other participants shared the view that theory subjects were unnecessary and felt that their removal would not affect their learning. There appears to be a difference of

opinion among participants regarding the inclusion and importance of theory subjects in the curriculum. The lack of modifications to teaching strategies and study materials could be the reason why participants viewed them as difficult or unnecessary.

Majority of participants shared challenges in accessing theory subject lectures and study materials. They stated that these theory subjects were taught along with hearing peers in classrooms with typical lecture settings without projectors and with minimal use of visual cues. The oral mode of instruction and irregular presence of sign language interpreter created gaps in accessing theory subject lectures for participants. In addition, participants reported that they received the same notes as their hearing peers, which they found difficult to comprehend. Concerning studying these notes, Shiv stated,

> Theory subjects are difficult because they are very lengthy. The new and complex words pose difficulty. I experience trouble in understanding the meaning of these difficult words. (Shiv)

These barriers to access theory subjects led participants to frequently use internet on their mobile phones. However, the outcome of using internet as a solution was not equal among participants. Shruti highlights the benefits of the above solution as "If we do not understand any word and part, then we search it up online and even images come up on the online search, so it becomes easier to understand," whereas Vikram highlights the challenge stating, "The meaning of different words become clear, but understanding the entire sentence is difficult, as it is not explained in sign language" and suggests that "It would be better if videos were available with sign language interpretation and closed captions". These responses highlight the importance of using visual cues in teaching deaf students who have a varying command on written language. Further, memorising and writing lengthy answers in exams was challenging for several participants and they proposed that theory subject examination should only require short answers. Many participants reporting of poor grades in theory subject examinations illustrate the impact of limited accessibility to theory subjects.

The results of the analysis indicate that the deaf students were taught the same way as their hearing peers. The theme identifies a need for deaf awareness among teachers and modification of study material and assessment practices.

Learning Practical: Compared with theory subject lectures, studio (practical) subject lectures are shorter and comprise open-ended instructions. Later, teachers guide through individual or group discussions during their practical work in progress. The

interpreter was often present for the lecture but unavailable for later interactions with the teacher due to their limited contact hours at the department. Participants reported interpreter's presence during the initial lectures whereas absence during the student-teacher discussions about the practical work due to their limited contact hours at the department. Some of the participants related their slow progress in studio subjects to communication barriers, "Hearing (students) can hear everything, so they understand easily and can work faster and better." (Vikram) Similarly, Samir observed, "Hearing students' artworks are better as the teaching mode is oral, and they grasp fast. It is difficult for me, as the interpreter is unavailable most of the time." (Samir). The preceding comments demonstrate the impact of communication barriers on creative processes and the need for interpreter in practical subjects. To address these challenges most often participants relied on themselves. A typical response, "Working on my own," was shared by many participants in two different contexts. One was that they had to work on their own due to communication barriers and inadequate support. The other context was that they could themselves solve the creative problems, thus corresponding to the studio-pedagogical aim of developing independent creative practitioners (Shreeve et al., 2010).

Due to the hands-on and performative nature of creative practise, visual resources were particularly useful for participants. The teachers used images on mobile phones, gestures, short written feedback, and sometimes demonstrations during the work process, which were easily accessible to the participants. Participants themselves utilised visual resources such as taking photographs, observing peers' artwork, and watching images/videos on the Internet for clarity. Several participants shared that they gained more clarity on an assignment when they observed the hearing peer's artwork. Particularly in practical subjects, participants learning with hearing peers were beneficial as it provided them with diverse visual resources and an opportunity to compare, evaluate, and reflect on their own and others' practices.

The communication barriers impacted participants full access to the visual art curriculum. In comparison participants had more access to the practical than the theoretical component of visual art curriculum. The theme 1 identifies that the verbal and non-verbal interactions while working in studios were essential for participants learning. Here, non-verbal interactions refer to the visual resources whereas verbal exchanges relate to the student-student and student-teacher conversations. These verbal

interactions are dependent on various factors, and related findings are discussed in the next section.

Theme 2: Access to Interactions

Interactions with teachers and peers are crucial for any students to participate and access various learning opportunities.

Teacher-student interactions: At the current institute, the incompatibility of communication modes limits the interaction of participants with their teachers. Teachers' communication in oral and written modes were accessible to a few, but most participants reported partial understanding. Difficulties to understand were felt to a greater extent by the participants who preferred to communicate in sign language, such as Manish, "Having an interpreter helps us clear our doubts that could not be cleared even through writing, on the spot." Similar comments by many participants highlighted interpreter presence as crucial to have meaningful interactions with their teachers. The teachers lack of signing skills concerned many participants. However, the participants spoke highly of a former teacher who learned basic sign language to communicate with them: "I used to ask (teacher's name), and she would tell me; otherwise, the confusion would just stay like that." (Kriti). Marschark et al. (2008) stated that deaf students can learn on equal footing to hearing peers when teachers teach them in sign language. The need for direct and in-depth interactions with teachers was evident in many responses, as Vikesh suggested, "If the teachers become a little aware of sign language, then the problems faced by deaf students may reduce." Although the teachers lacked signing skills, some of them made extra efforts to support deaf students.

Teacher's attitude: Teachers supportive or unsupportive attitude towards participants' learning and communication needs was a decisive factor for participants to approach a particular teacher. Few teachers made sincere efforts to meet the communication needs of participants by using gestures, basic signs, drawings, or showing images on mobile phones to facilitate interactions. The participants highly valued these teachers and often approached them for guidance. Participants referred to these teachers as more supportive and motivating than others.

> Two teachers inspire me to work. They motivate me to do better; even if I make mistakes, they will not highlight the negatives but will positively tell me to do it a certain way to make it better. (Shiv)

On the other hand, the participants were hesitant to approach some of the teachers who did not make any communication modifications. Participants shared that these teachers would begin the lectures without calling the interpreter, ignored queries, avoided meeting them, and provided inadequate explanations.

> Whenever I show my drawing to (teacher's name), she will just say "Okay", sign it, and return it, whereas if a hearing student goes to her, she will point out all the mistakes and corrections; deaf students don't get any feedback. (Nitika)

As different teachers teach different subjects, this lack of interaction with some teachers may create potential learning gaps. These experiences indicate that some teachers are uninformed about the learning and communication needs of deaf students and how this impacts their learning.

Student-student interactions: Due to difficulties of understanding teachers' instructions, participants often turned to their peers to get a clarity on teacher's instructions. Hearing peers made efforts to support participants through writing and drawings to understand instructions, however in-depth discussions with peers were limited. Hearing peers helped participants to understand instructions through writing or drawing, however in-depth discussions were limited. Participants shared limited interactions and only short conversations with hearing peers. Many participants reported a "communication gap" (Lata) with hearing peers and only interacted with them when necessary.

> While I do talk to hearing classmates, I mostly communicate with the deaf students because hearing students do not understand sign language. So, until and unless it is really important, I do not communicate much with hearing students. (Shruti)

Many similar responses from other participants suggest that deaf students' social interactions with their hearing peers were severely limited.

Participants made efforts to eliminate the communication barrier and access academic information, as Shiv stated, "We have taught them (few hearing students) basics (of ISL). They cannot sign much, but yes, they can sign so that we can understand." The efforts to teach basic signs to class representative or a few hearing students facilitated participants access to important academic information. Even so, missing out on academic information concerned many participants, and to this end,

Manish suggests that "(Student) Groups should be made to make it easier for deaf students to find out about various things in the college."

Discussions between participants with hearing peers were limited compared with those between deaf peers and seniors. Deaf students at the department worked as a group that helped and supported each other socially and academically. Many participants stated that other deaf students support their learning: "Mostly deaf students help me in painting work. We deaf students help each other" (Suresh). Participants reported having more deaf friends and more interactions with deaf peers than with hearing peers. The presence of other deaf students in the department provided the opportunity to improve sign language skills, especially for participants who lacked opportunities to learn sign language during school education. Rajesh with speech ability was learning ISL from other deaf students at the department shared

> After taking admission here, I used to talk to hearing students only, but now in the second semester, I talk to all the deaf students. Now I can sign a little bit, so I can communicate with both the deaf and hearing students. If I have doubts, I ask deaf as well as hearing students. (Rajesh)

Participants teaching sign language to deaf and hearing students indicate their efforts towards their own inclusion at the department.

Participation in group discussions: Group discussions were particularly challenging for all participants compared with individual interactions. Few participants mentioned that with the help of an interpreter, they could follow-up on classroom discussions to some extent. Many students participating simultaneously in the discussion and sudden changes in discussion topics made it difficult for them to follow the conversations.

> Sometimes (during discussion), some hearing students start talking and the teacher also starts talking about something else, and then the conversation becomes unclear. (Vikram)

Few other participants reported nonparticipation in discussions and receiving information afterwards from hearing peers.

The theme 2 identifies the varied level of deaf awareness among teachers and peers at the institute. Participants interactions at the department were dependent on the efforts made by those with whom they interacted. Although participants made efforts for their inclusion, a greater responsibility lies on hearing individuals for successful

inclusion and participation of deaf students at the institute. Powell et al. (2014) discovered that deaf students' learning and participation experiences depended on availability of accommodations that facilitated communication and inclusion. The next theme highlights the availability of support services at the institute.

Theme 3: Availability of Support Services

Deaf students' positive learning and participation experiences are dependent on the availability of accommodations that facilitate communication and inclusion (Powell et al., 2014). The availability of an interpreter was the most important issue across the dataset. The analysis shows that many barriers and supports were the result of the absence or presence of a sign language interpreter, respectively.

Support of interpreter: All the participants appreciated the interpreter's assistance in their learning, as Lata said, "If the teacher and interpreter both are present, then they explain everything very well." The interpreter's individualised communication strategies made the provision highly valuable for all participants. In this regard, Rohan with speech and signing ability shared, "I can understand because the interpreter uses images, a little bit of sign, and voice." Similarly, Nitika with speech ability shared:

> I always take the interpreter with me. If I go and ask directly, the teacher does not understand. So, the teachers ask me to come with the interpreter. When the interpreter is with me, then the questions get clarified. (Nitika)

Similarly other participants who preferred to communicate in sign language emphasised the significance of interpreter in interactions and in receiving information from teachers and peers. Availability of a sign language interpreter was not only essential for participants but also for their teachers to interact with them effectively. Despite the relatively small size of this study's participants; sign language, speech, reading and writing abilities were diverse. Participants' experiences indicate the need for individualised methods to communicate with them and providing additional support services.

Scarcity of interpreter: All the participants stressed the need for more interpreters for their continued accessibility to interactions and information. The department recruited only one interpreter who had limited contact hours. Issues of loss or delay in getting information concerned many participants. Some of the participants shared that in the absence of the interpreter they would avoid going to the lecture or even leave the

classroom leading to the loss of information. Sometimes the interpreter arrived late to the class or only the next day which would leave the participants waiting to receive information. The participants had to invest valuable academic time in managing and coordinating with one interpreter.

> Only if the interpreter is present, then the lesson becomes clear. Half of the time the interpreter is absent. So, if there were more interpreters, it would be more helpful. We want to learn, but because there is only one interpreter, it hampers our learning. (Samir)

All the participants shared concerns over the intermittent presence of the interpreter and the lack of a substitute interpreter. Participants' inclusion in various learning situations depended highly on the interpreter's availability.

Other Support Services: When asked what additional support services could be beneficial, no participants suggested anything other than additional interpreters. It is possible that deaf students have never experienced other support services before, or as Cawthon and Leppo (2013) suggested they may be unaware of the different choices of support services available in educational settings. However, the following comment indicates the need for additional support to access lecture

> We all sit together. If the teacher is teaching and the interpreter is absent, then we cannot take notes instantly as the hearing students do. So, we just sit there and copy the notes after the lecture. The following day, when the interpreter will be present, we will clarify the previous class theory notes. (Vikram)

Even if the interpreter is present, paying attention to the interpreter and taking notes will be challenging for deaf and hard-of-hearing students. As note taking services were not provided at the department, Participants relied on the hearing peers' notes by manually copying or photocopying them. Having accessible notes provides deaf students with flexibility of reading at own pace and re-reading the text for better comprehension. While professional note taker and electronic notes (speech-to-text) are beneficial for deaf students, Stinson et al. (2017) found that college deaf students preferred speech-to-text notes more than manual notes. The absence of other support services could also be a reason for participants' heavy reliance on the interpreter. The data analysis directs toward the need of providing diverse support services for deaf students to choose from as per their individual requirements and learning situations.

Discussion

This exploratory study with a qualitative research approach presents information on the academic experiences of deaf and hard-of-hearing students. Responding to the research questions, what barriers and support do deaf and hard-of-hearing students perceive in visual arts higher education programmes? What solutions do they use and propose to mitigate the barriers? the analysis identified three overarching themes:1) access to curriculum, 2) access to interactions, and 3) access to interpreters.

The solutions the participants utilised in response to the barriers varied as per the learning situation. Hence, these solutions were incorporated in each of the identified themes and are discussed collectively here. Deaf students worked as a group to support each other and mitigate the barriers, although participants tried to teach sign language to hearing peers, which improved access to information to some extent. The presence of an interpreter is valued as the most effective solution to communication barriers, however scarcity of interpreters hindered continuous access to interpretation. For having equal access to information as their hearing peers, participants had to invest valuable time in contacting several individuals such as teachers, peers, or the interpreter. Approaching supportive teachers was a common solution to clear doubts. Comprehension of complex theory subject text using internet was effective to some whereas most participants relied on the interpreter's assistance. Overall, supportive teachers and peers, their use of communication accommodations, and the presence of a sign language interpreter were the most effective solutions in various learning situations for deaf students.

The first theme identifies the reading and writing challenges with regard to theoretical subject lectures and examinations and the lack of an appropriate format of study materials. The theoretical component of the visual arts curriculum posed significant difficulties for deaf and hard-of-hearing students. Visual art-specific terminologies and their proper explanations are essential for deaf and hard-of-hearing students' understanding, and their lack/absence could also impact the quality of interpreters' interpretations in creative disciplines (Boamah, 2021). Careful consideration of the learning needs of deaf students is essential when preparing notes, for example using plain language and supplementing with clarification of terms. Such a modification could reduce the extra time going back and forth between notes and online dictionaries. According to Luckner and Muir (2001), constructing glossaries and pre-teaching concepts/vocabulary and sending notes to the interpreter ahead of time are

effective strategies for supporting deaf and hard-of-hearing students in learning independently. The National Institute of Open Schooling (NIOS) in India responded to the lack of an accessible format of learning material by creating videos in ISL for secondary and higher secondary education level subjects (including visual art) (NIOS, 2020). This initiative proves the need (also raised by participants in this study) and possibility of making an alternative form of learning material accessible to deaf and hard-of-hearing students at higher educational levels.

The second theme demonstrated that the mismatch of communication modes affected deaf and hard-of-hearing students' interactions with hearing teachers and peers. Prakash (2012) identified teacher attitudes as the most critical aspect affecting deaf and hard-of-hearing students in inclusive classes. Valuing diversity (of learners and needs) is of paramount importance in both inclusive education (Ainscow, 2005) and visual arts higher education (Edstrm, 2008). Teaching and learning in visual art studios are interactive in nature, and the interactions between teacher-student and student-student revolve around the artwork(s) in progress (Sawyer, 2017). These interactions challenge students to think critically and reflect on their own and others' practices or processes. Exclusion from interactive sessions with teachers and peers could potentially hinder the learning of deaf and hard-of-hearing students. According to Edstrm (2008), studio interactions are vital for students' learning, which serves as exposure to possibilities, others' interpretation of their artwork, and situating themselves in the professional art world. Shreeve et al. (2010) highlighted that student developing social networks and discussions with peers and experienced students (seniors) is crucial to learning, in art and designing higher education. The results of this study indicate extra efforts towards inclusion; this could not be said about all teachers at the institution. Thus, indicating a lack of deaf awareness meaning informing individuals at the institution about the difficulties deaf students face daily and how to resolve those by adapting to the individual needs of deaf students. This reflects the lack but also the need for the implementation of awareness programmes as suggested in the RPWD Act 2016 of India, "provide orientation and sensitisation on disability and the rights of persons with disabilities at the school, college, university and professional training level" (p. 17).

Organising workshops on deaf awareness for all teachers and students may encourage interactions and the social and academic inclusion of deaf and hard-of-hearing students. In addition, offering an optional/elective course on learning Indian sign language could be a way to improve the interaction among deaf and hearing

individuals. This includes online resources for learning Indian sign language (NIOS, 2012).

The third theme identified the barriers but also the need for support for interpreting service**s**. All participants appreciated the support in various academic contexts, such as interacting with teachers and peers, accessing lectures and discussions, and accessing notes. However, the scarcity of interpreters hinders their access, and all participants emphasised the need for more interpreters. This scarcity of interpreters in higher education institutes could be attributed to limited funding or the lack of interpreters offering their services in higher education programmes in various countries (Powell et al., 2014). Difficulties in taking notes during interpreted lectures can be addressed by providing professional note-takers or speech-to-text services. Other support services for deaf and hard-of-hearing students in higher education are found to be effective, including Electronic Note-Taking (Powell et al., 2014), C-Print (a speech-to-text service) (Stinson et al., 2014), Speech-To-Text (Stinson et al., 2017), and Automatic Speech Recognition (Butler et al., 2019). These studies highlight the significance of these services for the higher comprehension that educational content often demands in higher education. Hyde et al. (2016) recommend that interpretation must be provided in conjunction with other communication and learning support systems, thus addressing student diversity, and providing diverse sources of information and learning opportunities for deaf and hard-of-hearing students. In addition to interpreting and note-taking services, assistive technologies (Lartz et al., 2008) could empower teachers to improve teaching strategies, develop visual-oriented instructions, and support deaf and hard-of-hearing and improving students' access to academic content in visual arts.

Implications

Participants were proactive to find and suggest solutions to the barriers they faced. Based on their proposed solutions and the findings of this study, we suggest the following recommendations to facilitate inclusion of deaf students in higher education institution.

- Providing adequate quantity and diverse support services such as more sign language interpreters to assist communication inside and outside classrooms and note taking services.

- Conducting deaf awareness programmes for teachers and students on effective communication practices, delivery of academic content and sign language courses.
- Making deaf students an active part in developing strategies to deliver and assess curriculum components especially theory subjects.

Conclusion

Successful higher education may result in employment prospects and in earning a livelihood. Inclusive education is at the forefront of educational policies in India, and to this end, institutions must focus on addressing issues of diversity, equity and awareness. Deaf and hard-of-hearing students daily encounter language and communication challenges. The study has highlighted such challenges concerning accessibility and participation in various academic situations. The discussion focused on some strategies to develop inclusive visual arts higher education for deaf and hard-of-hearing students.

The primary limitation of this study is the small number of participants. Findings from the current study cannot be generalised to all deaf and hard-of-hearing students pursuing higher education. However, past studies with smaller number of participants (for example, Bisol et al., 2010; Kermit & Holiman, 2018) have provided crucial insights into the higher education experiences of deaf students. Due to the scarcity of research in the current context in India, further studies with mixed method approach (such as, Powell et al. 2014) may provide additional insights. Another limitation of the study being conducted at only one educational institute, and the findings cannot be generalised to other visual arts institutes in India. Future studies may involve data from diverse educational settings for deaf and hard-of-hearing students, such as mainstream and special colleges., Studies employing observations in studios and the outcome/artworks analysis of deaf and hard-of-hearing students may provide a comprehensive view of visual arts educational programmes.

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Appendix

Table 2: *Interview Key Questions*

1. Can you tell me about your experience in 1st year at this institute? Did your experience change in later years? (2nd, 3rd or 4th year)
2. Do you face any challenges in learning practical and theory subjects? If yes, can you describe them? In your opinion, what would resolve them?
3. Can you describe your experience in the classroom? (Practical and theory subjects)
4. Can you tell me about your interactions with teachers? (Lectures and discussions)
5. Can you tell me about your interactions with peers? (Deaf and hearing)
6. Did you encounter any challenges at this institute? How did you or others support you in resolving them?
7. Can you tell me about the positive experiences you had at the institute? (Teacher, peer, interpreter, lecture, discussion, artmaking)
8. What do you think about your progress in artmaking and that of others? (Deaf and hearing)
9. Which support services are available at the institute? And how do they help you?
10. What should the institute do to improve the learning experiences of deaf students?
11. Are there any other thoughts or comments you would like to share about your academic or social experiences?

Table 3: *Number of Participant Responses and Related Codes*

	Barriers and supports	**No. of participants *(n=15)***	**Related initial codes**
1	Theory as necessary	9	Learning theory, curriculum view
2	Theory as unnecessary	6	Learning theory

3	Challenges in accessing theory subject lectures and study materials	14	Learning theory, accessibility barrier
4	Theory vocabulary challenges	12	Learning theory, accessibility barrier, reading & writing challenge
5	Sign language video as a solution	3	Learning theory, solution proposed, accessibility support
6	Barriers impact poor grades in theory	11	Learning theory, barriers to interaction, accessibility barrier
7	Short answer theory exam as solution	5	Learning theory, assessment needs, solution proposed, accessibility support
8	Artwork clarity from observing hearing peer artworks	6	Communication support, non-verbal interaction
9	Gradual progress in artmaking	15	Learning support, own assessment
10	Slow progress in artmaking	6	Learning barrier, own assessment
11	Hearing has better artworks than deaf	9	Learning support, others assessment
12	Working on own	12	Learning support, Learning barrier, own assessment
13	Barrier to understand oral and written communication	13	Communication barrier, reading & writing challenge, barriers to interaction
14	Need to direct interact with teacher	15	Communication barriers, accessibility barrier, learning needs
15	Few teachers making sincere efforts	15	Supportive attitude of others, communication support, learning needs
16	Teachers' ignorance	6	Unsupportive attitude of others, communication barrier
17	Communication gap with hearing peers	13	Barriers to interaction, communication barrier
18	Missing out on academic information concerned many participants	12	Loss and delay of information, accessibility barrier
19	Support from deaf peers	14	Supportive attitude of others, communication support
20	Group discussion challenge	15	Barriers to interaction, communication barrier
21	Interpreter support in group discussion	3	Availability of interpreter, supportive attitude of others, communication support, learning needs

22	Interpreter as learning support	15	Availability of interpreter, supportive attitude of others, communication support, learning needs
23	Interpreter low quantity as challenge, loss or delay of information	15	Availability of interpreter, loss and delay in information, accessibility barrier
24	Need for more interpreter as solution	15	Availability of interpreter, solution proposed, learning needs