

INFLUENCE OF SIGN LANGUAGE BASED CONTENT ON EDUCATION OF DEAF AND HARD OF HEARING LEARNERS OF NIOS IN ODL CONTEXT

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ABSTRACT

This impact analysis study is done to understand Deaf and Hard-Of-Hearing learners' perspectives and opinions about learning contents in Indian Sign Language (ISL) medium and online videos, as well as their experience of a newly introduced secondary-level course by the National Institute of Open Schooling (NIOS), i.e., ISL as a language subject. For the first time in any part of the world, Indian Sign Language as a language subject is being offered in the Open and Distance Learning (ODL) context at the school level. The findings of the study are based on analysis of data collected using a survey tool. The survey was administered to the enrolled learners on NIOS at the secondary and senior secondary levels. The data analysis reveals a favorable impact of NIOS initiatives while using Indian Sign Language for the education of Deaf and Hard-Of-Hearing learners. It also posits that there is an emergent need to prepare and ensure the availability of learning content in ISL video format, particularly in topics related to science subjects. It also shows that a more job-oriented education, tailored to the present employment market, is also essential, as is hand-holding. There was also unanimous support for ISL to be introduced as a language course at the senior secondary level.

Keywords: Indian Sign Language, Learning Content, Deaf and Hard of Hearing Learner, NIOS.

INTRODUCTION

Over the past years, major progress has been made with regard to policies and implementation practices in expanding access to education. However, many people with disabilities are still being left behind in education. Still, Worldwide people with disabilities are lowly represented with regard to literacy rates compared to people without disabilities (UIS, 2018; United Nations, 2018). With regard to completion of primary, secondary, and further education, children with disabilities also fared less compared to children without disabilities. As per the report, around 33 million children with disabilities are out of school in low- and middle-income countries (Grant Lewis, 2019). While there is the mandate to accomplish Sustainable Development Goal 4 towards achieving quality education for all, it would not be possible without ensuring quality education reaches to children with disabilities and other marginalized groups worldwide.

The National Education Policy 2020, which was officially approved by the Government of India on July 29, 2020, towards making a way for a transformational shift in reform both in school education and higher education, recognized the critical role of education in the lives of persons with disabilities. NEP, 2020 talks about the provision of high-quality equitable, and inclusive education to ensure that all students with diverse learning needs realize their full potential. Further, it is suggested that to facilitate learning for all students, with special emphasis on Socio-Economically Disadvantaged Groups (SEDGs) including girls and transgender students, the scope of school education will be broadened to facilitate multiple pathways to learning involving both formal and non-formal education modes. ODL Programmes

offered by the National Institute of Open Schooling (NIOS) and State Open Schools will be expanded and strengthened to meet the learning needs of young people (NEP, 2020).

The NEP has very aptly incorporated the recommendation of the Rights of Persons with Disabilities (RPwD) Act (2016) and endorses its implementation. These include the use of sign language in deaf education and in the media, in order to provide accessible information to deaf sign language users. In the new National Education Policy (NEP 2020), Indian Sign Language is clearly highlighted, with the following provisions:

“Indian Sign Language (ISL) will be standardized across the country, and National and State curriculum materials developed, for use by students with hearing impairment. Local sign languages will be respected and taught as well, where possible and relevant”. (NEP, 2020).

“NIOS will develop high-quality modules to teach Indian Sign Language and to teach other basic subjects using Indian Sign Language” (NEP,2020).

Towards addressing the deaf and hard of hearing learners and especially addressing the concern of NEP, 2020, NIOS has taken various measures including the development of a sign language dictionary, the development of ISL videos at secondary and senior secondary levels and live personal contact program on ISL to resolve the queries from learners. The paper discusses the impact of ISL content on the education of deaf and hard-of-hearing learners in NIOS.

NIOS AND INITIATIVES FOR THE EDUCATION OF DEAF LEARNERS

The National Institute of Open Schooling (NIOS) was established as an autonomous body in 1989 to cater to the needs of a heterogeneous group of learners up to the pre-degree level. It has pioneered in offering sustainable, inclusive learning with universal and flexible access to quality school education and skill development through Open Basic Education, Secondary Education, Senior Secondary, and Open Vocational Education and Training (OVET) programs through Open and Distance Learning (ODL) mode. (NIOS, 2021)

The National Education Policy (NEP) 2020 also envisages that education is the foremost primary measure to achieve economic and social mobility, inclusion, and equality. It highlights inclusive practices by making corresponding changes in curriculum, pedagogies, continuous assessment, and student support systems to ensure quality education.

In consonance with the national education policies and its own vision and mission, NIOS seeks a way forward to remove barriers to learning and participation that can hinder or exclude pupils with special educational needs. NIOS works with the vision of promoting inclusion through different academic and vocational programs for all, for a better, inclusive, and financially independent society. In order to do this NIOS has taken several initiatives, especially for the education and skilling of deaf and hard-of-hearing learners –

- In an ongoing process, the development of ISL videos in different subjects at the secondary level and senior secondary level has been completed and ISL videos in the remaining subjects are under process. All the developed ISL-based content is available free for all on the YouTube channel of NIOS.
- NIOS has been delivering a one-hour live program in Indian Sign Language twice a week on PM e-Vidya 10 TV Channel for awareness of ISL and educational learning content in ISL based on NIOS curriculum, across the country.
- As the first education board in India, NIOS has introduced the Indian Sign Language as a first language subject at the secondary level. The course materials of ISL as a language subject have been developed with the unique aim of facilitating deaf and hard-of-hearing learners to learn in their first and preferred language and understand deaf culture.

It is well established that inclusive practices in education ensure quality education without discrimination to any learner. It fulfills diverse needs in a responsive and supportive manner. Such an inclusive environment benefits not only the learners but also forms a strong foundation of social inclusion and accessible environments as a whole. Taking a broad view of the inclusion of people with disabilities in the educational system, the provision of support in the form of learning content and support classes using cutting-edge technology is regarded as an indicator of positive key practices for a wide range of disabilities.

OBJECTIVE OF THIS STUDY

The study aims to provide granular data and analysis of the information collected from the learner in line with the following objectives -

- To find out the awareness about the availability of ISL-based learning content developed by NIOS,
- To know the learner's opinion on the quality of ISL-based learning content developed by NIOS,
- To know the learner's opinion on the usefulness of ISL as a language subject at secondary and senior secondary level courses of NIOS,
- To know the directional impact of ISL-related initiatives on the learner's enrollment status.

STUDY DESIGN

The existing study is an impact analysis of initiatives taken where a questionnaire-based survey tool was used on the enrolled learners at secondary and senior secondary levels in NIOS's education system. The study was directed towards the main aim of knowing the impact of learning content in Indian Sign Language (ISL) medium, online videos, and a newly introduced course at secondary level, i.e., ISL as a language subject, on deaf and hard of hearing learners. The purposive random sampling used for sample selection and sample belongs to the NIOS.

SAMPLE COMPOSITION

The sample consists of 38 respondents, out of which 22 were enrolled at the secondary level and 16 were at the senior secondary level. It can be visualized through Figure 1.

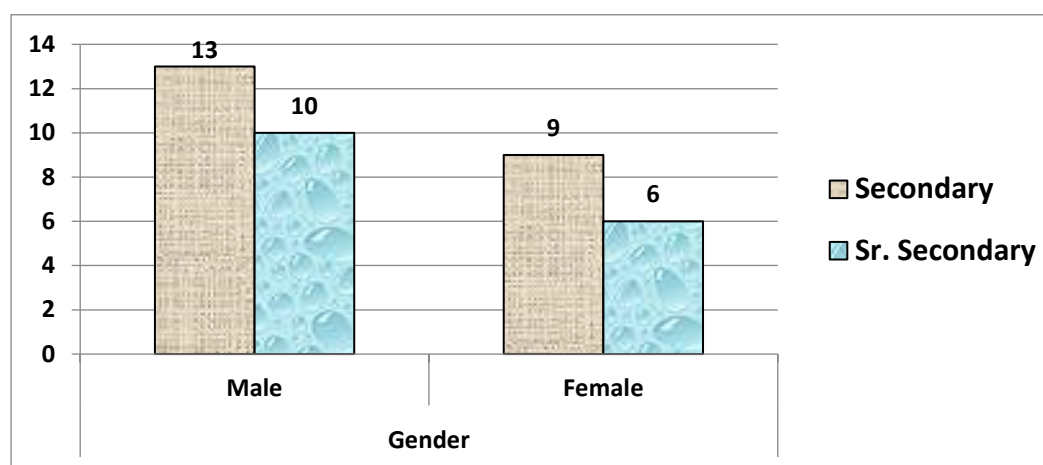


Figure 1.SAMPLE COMPOSITION

TOOL EMPLOYED FOR DATA COLLECTION

The data was collected through a close-ended questionnaire with a rating scale, consisting of 21 questions and one open-ended question to collect the experience and views of respondents if they wanted to share more. The questionnaire was shared with 65 learners on Goggle Form and received 38 responses.

MAJOR FINDING OF THIS STUDY

The current Impact Assessment Study drew conclusions from the responses of 38 NIOS Learners enrolled in secondary and senior secondary level courses. As learners' education is the focus area of all the ISL-based initiatives, their opinion that shows their awareness, enthusiasm, and positive interest in the ISL-related initiatives has been analyzed. This will also help in decision-making and planning

strategies for future development. The detailed analysis done on the collected information in the different layers is as follows:

- **Usefulness and availability of developed ISL contents among learners:**

The pictorial representation shows the positive impact of ISL learning content that is reflected in their opinion about the usefulness of ISL learning content and how easily it is available to the learners. Data shows that out of 38 respondents, 100% (Extremely useful + Very useful) (in Figure 2) are in support of the usefulness of ISL content.

Overall data shows that developing and providing learning content in ISL has developed interest and awareness about ISL among learners.

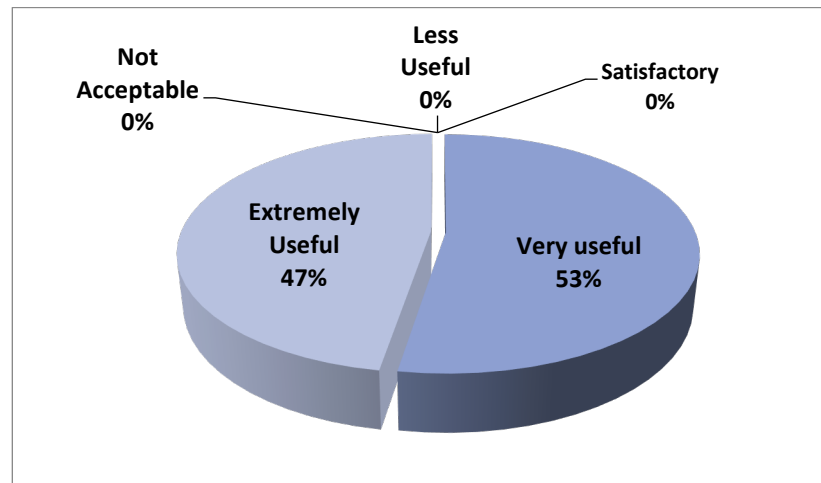


Figure 2. USEFULNESS OF ISL CONTENT

Data presented in Figure 3 shows that 42% of the total participants says that the contents are Extremely easy to find on the web portal and YouTube channel of NIOS.

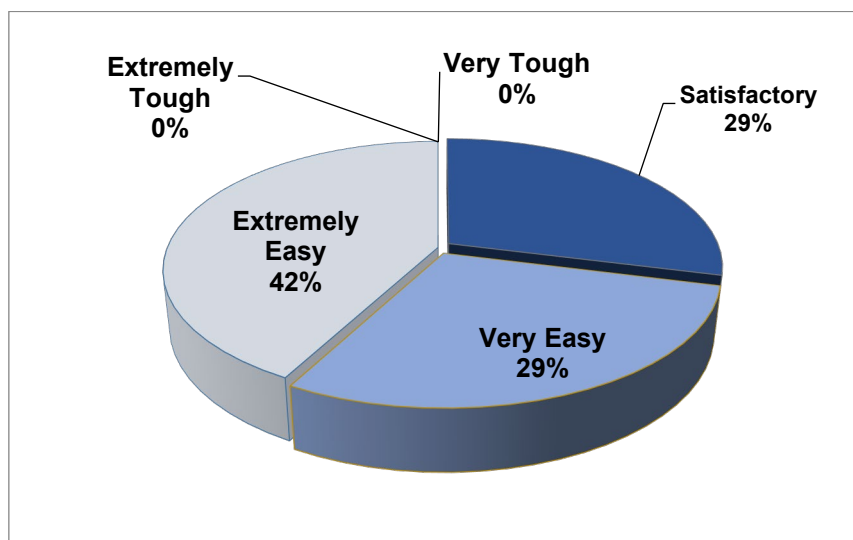


Figure 3. AVAILABILITY OF ISL LEARNING MATERIAL

➤ **ISL content quality:**

The data in Table 1 indicates that, from the total collected responses, 76.32% of learners agree that theoretical contents are explained very well, but only 21.05% agree that practical experiences provided in the available ISL videos are up to the mark or sufficient.

Table 1 also indicates that images and text ratio are well represented to some extent; that is, 57.89%. These findings demonstrate learners' keen interest in and observation of learning content, as well as the positive impact of NIOS initiatives.

Table1. QUALITY OF ISL CONTENTS

Statement	Agree	Disagree	Total
Do you think the ISL videos provide the right amount of theoretical experience?	76.32%	23.68%	100.00%
Do you think the ISL videos provide the right amount of practical experience?	21.05%	78.95%	100.00%
Is the ratio of text contents and images well balanced in learning contents provided as ISL video?	57.89%	42.11%	100.00%

The presented graph in Figure 4 indicates a positive sign about content flow and presentation in the developed ISL videos, with 63.16% of learners responding as Very Good, 36.84% responding with Excellent, 0% responded with poor, 0% fair and 0% with good.

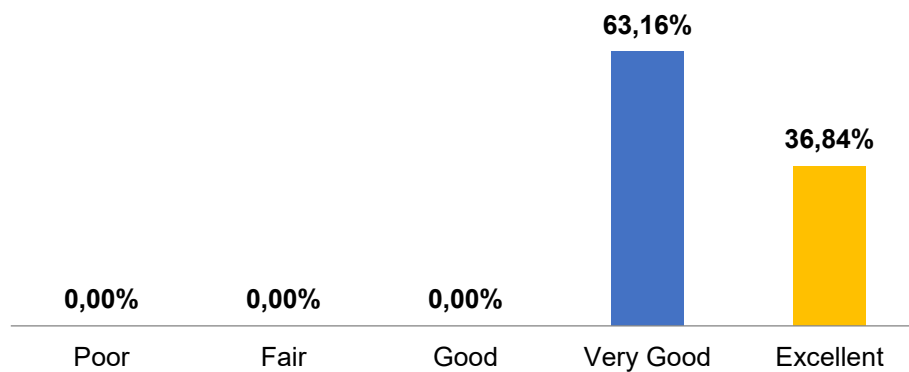


Figure 4. CONTENT FLOW AND PRESENTATION IN ISL VIDEOS

Overall, 66% of learners are Extremely Satisfied with the ISL-based learning content and even if no one gives any negative remarks, that shows a positive indication for the efforts made in the area of education with ISL.

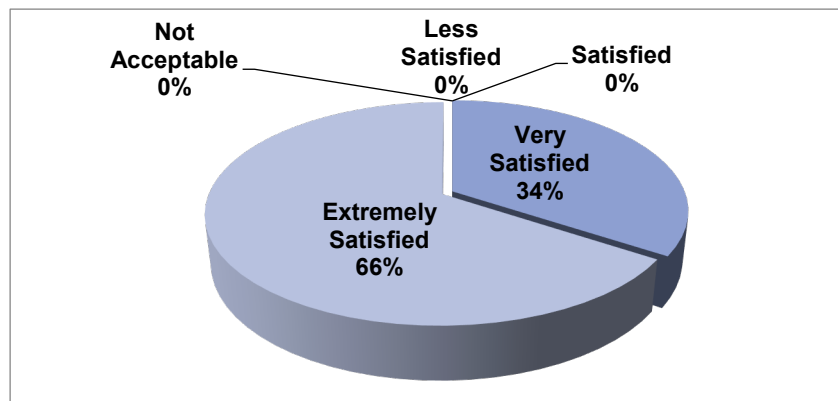


Figure 5. OVERALL QUALITY OF ISL VIDEOS

➤ **Signing quality in ISL videos:**

The data depicted in Figure 6 clearly supports the signing quality of signers and rates them as Excellent (73.68%). The very similar responses registered about the knowledge of the signers and their method of presenting any topic.

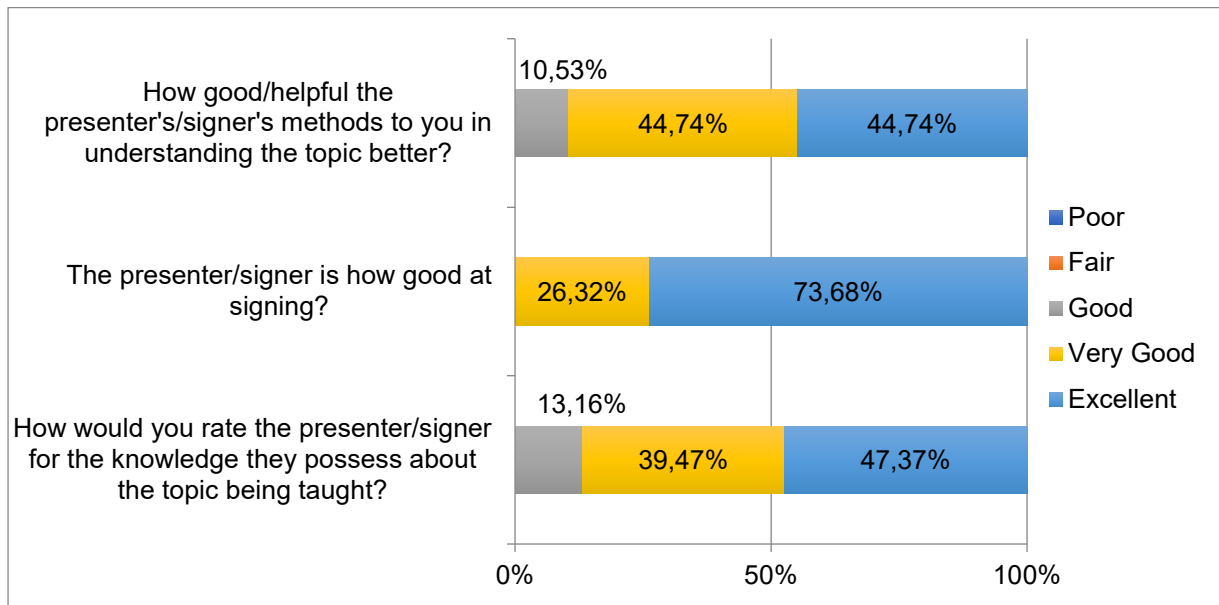


Figure 6. SIGNING QUALITY IN ISL VIDEOS

➤ **Learners study habit and interest:**

- Data in Table 2 indicates the habit as only 18.42% of learners spend 6 to 12 hours a week reading their course books. That is very low in comparison to 57.89% of learners who prefer watching ISL video-based learning content for the same time duration. The data table shows that learners prefer ISL videos over reading books, which indicates the positive influence of ISL and the need to develop more ISL video content in other subjects.

Table 2. STUDY HABIT

		< 2hr	>2hr to < 6hr	>6hr to <12hr	>12hr to <16hr	More than 16hr
1	How often do you read books related to your syllabus in a week where ISL videos are available?	39.47%	42.11%	18.42%	0.00%	0.00%
2	How often do you watch ISL learning content related to your syllabus in a week?	0.00%	0.00%	57.89%	42.11%	0.00%

- The Figure 7 shows that learners 60% learners preferred medium of examination is Indian Sign Language.

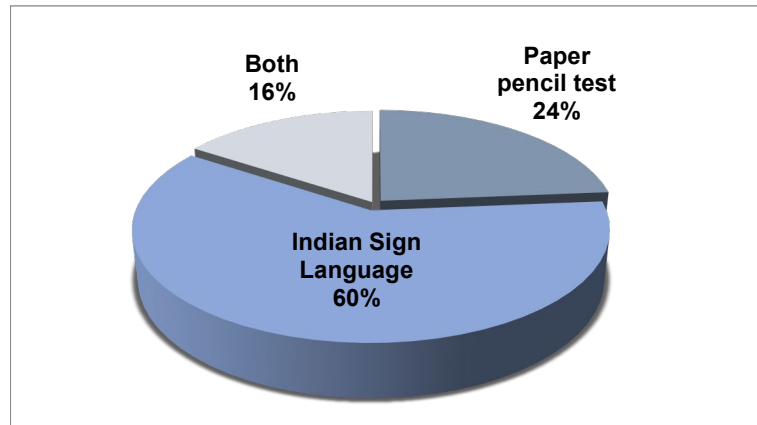


Figure7.PREFERRED MEDIUM OF EXAMINATION

- The data presented in Figure 8 shows that 68% of total learners as participants of this study prefer Indian Sign Language as their first language subject.

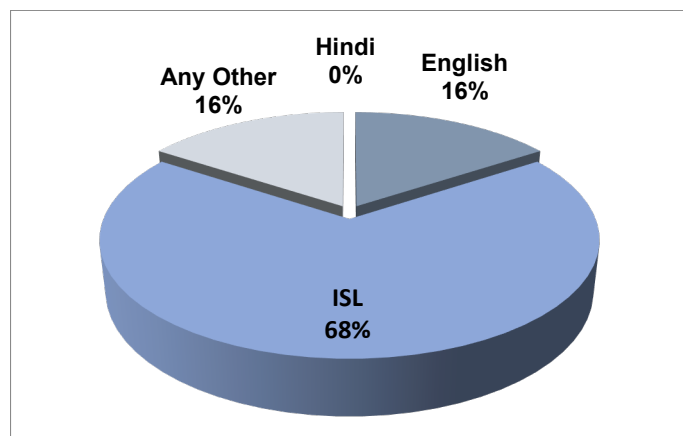


Figure 8. PREFERRED FIRST LANGUAGE SUBJECT

- Overall, the data presented in Figure 7 and 8 shows that learners are really enthusiastic and very much interested in using ISL as their medium of examination, and prefer ISL as their first language subject. It may be considered a positive indicator of ISL-related initiatives.

➤ **Learners 'feedback on newly introduced and to-be-introduced courses/programs:**

The data in Table 3 shows the learners' responses to the newly introduced program and plan to be introduced. It clearly indicates the fulfillment of learner interest and their needs as 76.32% say that the newly introduced ISL course as a language subject at the secondary level is Extremely Useful for them and similar types of response are recorded in support of the program to be launched, that is ISL as a subject at the senior secondary level (68.42%) and CCRM (73.68%). It also shows their positive interest in these initiatives and how they are welcoming these steps.

Table 3: FEEDBACK ON NEWLY INTRODUCED AND TO BE INTRODUCED COURSE

	Not Acceptable	Less Useful	Satisfactory	Very Useful	Extremely Useful
How useful is the newly introduced ISL subject as a language at secondary level for the education of deaf and hard of hearing students?	0.00%	0.00%	0.00%	23.68%	76.32%
How useful would it be to introduce an ISL subject as a language at senior secondary level for the education of deaf and hard of hearing students?	0.00%	0.00%	0.00%	31.58%	68.42%
NIOS is introducing a job-oriented course on Customer Relationship Management in Indian Sign Language. What a useful thing would it be, in your opinion?	0.00%	0.00%	0.00%	26.32%	73.68%

➤ **Overall impact:**

- The presented in Figure 9a shows that enrollment of learners are high in the subjects at secondary level courses where learning contents are developed and available to the learners through portal and YouTube channel of NIOS in comparison to the other subject where contents are in under development. For example, enrollment in subject like painting and English are high in comparison to the Sanskrit and psychology where learning content in ISL format are under development.

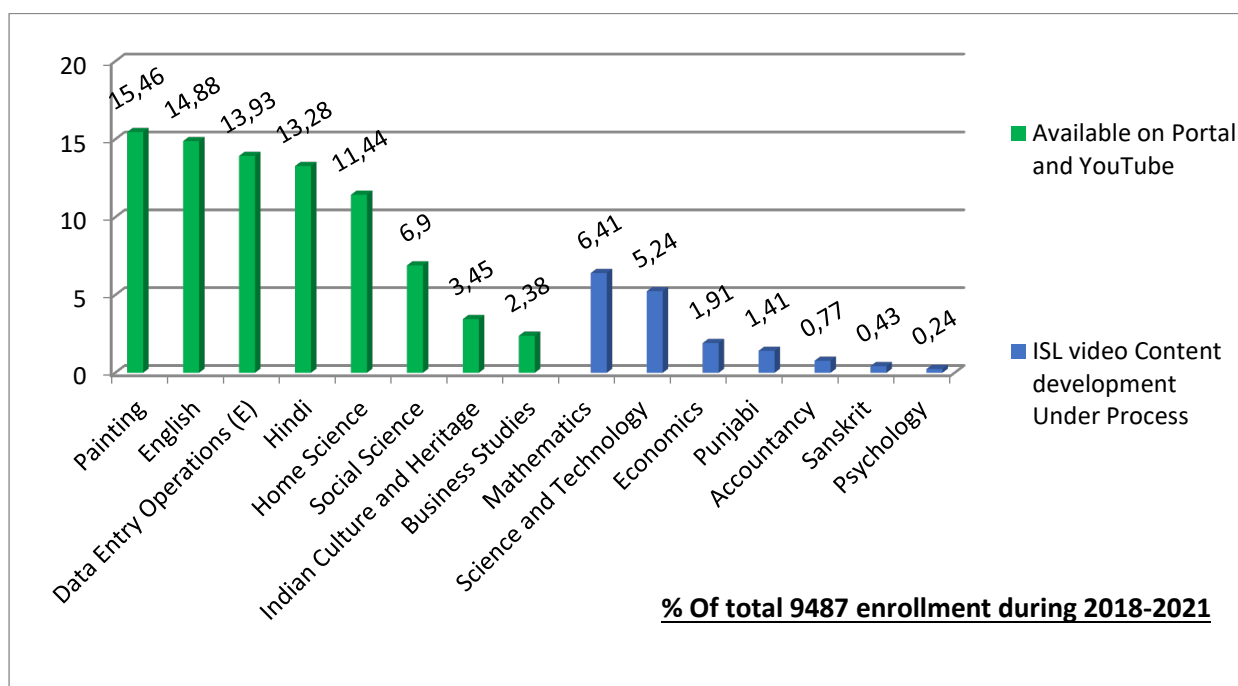


Figure 9a. ENROLLMENT OF LEARNERS WITH HEARING IMPAIRMENT AT SECONDARY LEVEL

- The presented in Figure 9b shows that among total 8625 enrollment of learners the highest percentage of enrollment in the subjects at senior secondary level courses was in English i.e., 17.33% while lowest was 2.5% in History. It shows that learners opted the subject more where learning contents are available on portal or YouTube.

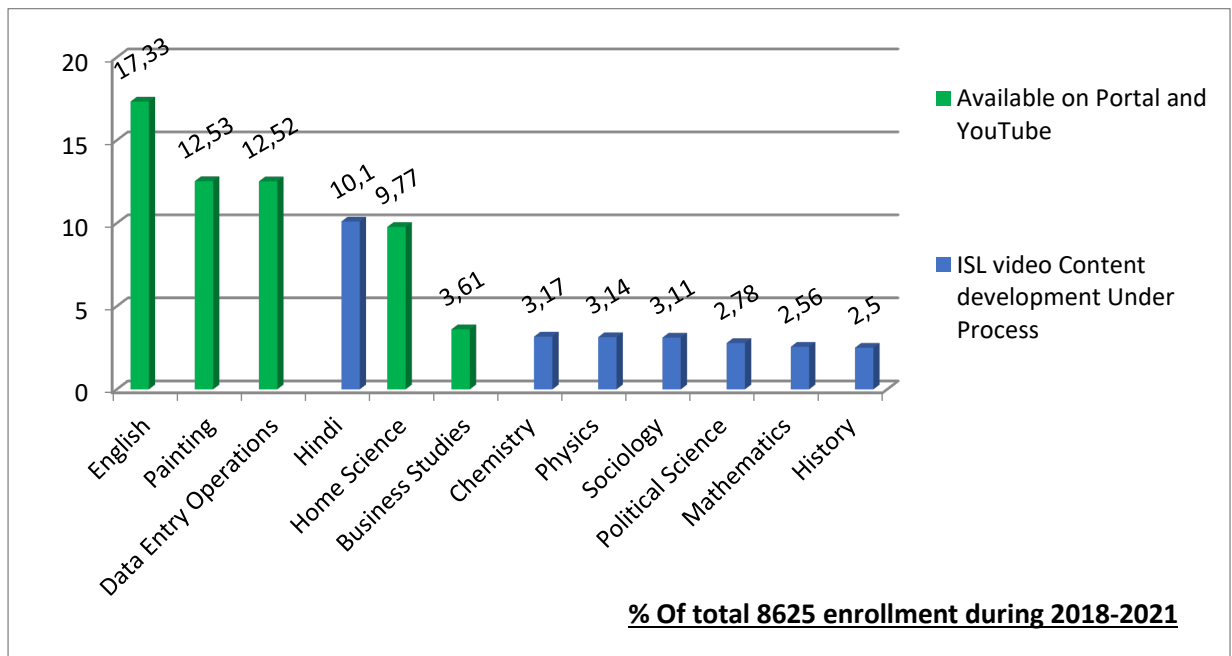


Figure 9b. ENROLLMENT OF LEARNERS WITH HEARING IMPAIRMENT AT SR. SECONDARY LEVEL

The overall impact of all the initiatives taken was also assessed, and the reflection of all initiatives regarding ISL and collected response-based results shows a very positive indication that is supported by the increased enrollment pattern of deaf and hard-of-hearing learners. It can be visualized in Figures 9a and 9b.

AREA OF IMPROVEMENT

Data shows that there is a need and scope for improvement to make these initiatives more effective.

- Need to disseminate information about the availability of ISL-based learning content – The responses of around 47.37% of learners show that there is scope to disseminate the information and spread awareness about “How a learner can get these ISL contents easily?”
- Figure 10 shows that there is a need to improve the quality of images used in ISL video content. While 15.79% of learners are extremely relevant, the remaining 13.16% say that images are less relevant and therefore should be taken care of to improve the learning video quality.

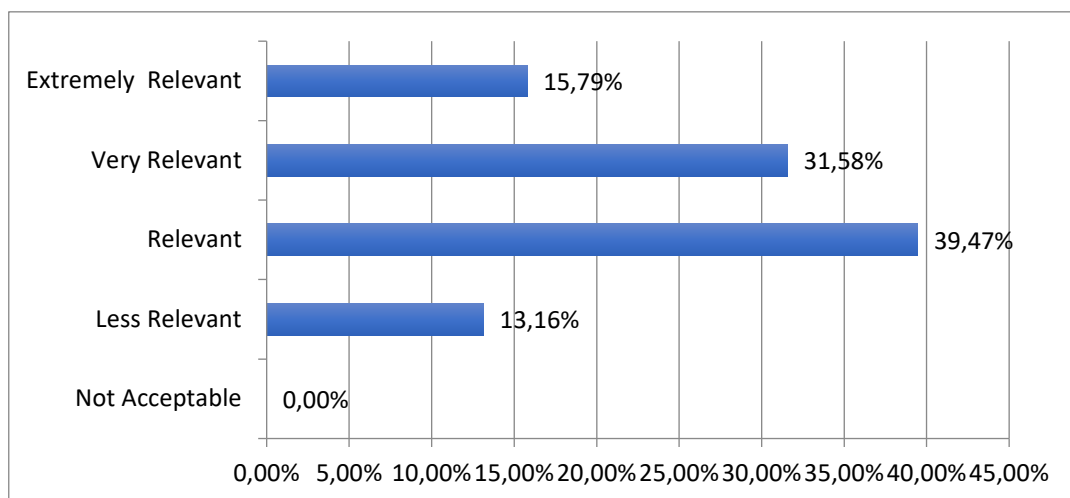


Figure 10. IMA Figure 10: Images used in The ISL Videos

- Data shown in Figure 11 shows that most of the learners prefer desktop computers to

watch ISL based learning videos (45%), but 37% use mobile phones and 10% use tablets as their preferred devices. Therefore, images and animation selection may be considered and used accordingly, which is mobile and tablet friendly.

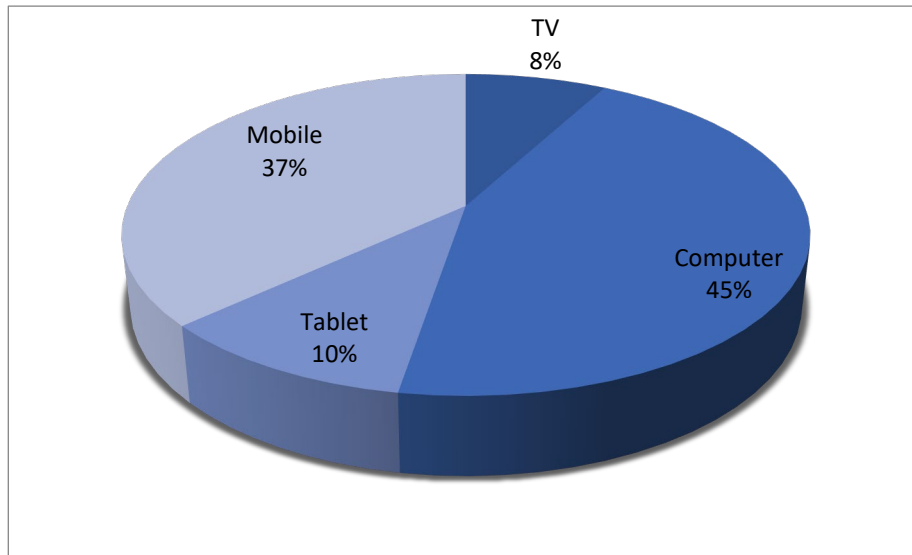


Figure 11. PREFERRED DEVICE TO WATCH ISL VIDEOS

CONCLUSION

Taking a broad view of the inclusion of people with disabilities in the educational system, the provision of support in the form of learning content and support classes using cutting-edge technology is regarded as an indicator of positive key practices for a wide range of disabilities.

In this regard, NIOS has taken several initiatives, especially for the education and skilling of deaf and hard-of-hearing learners through providing educational support in the form of learning content and new academic and job-oriented courses in ISL. The study was undertaken to understand how various initiatives such as developing ISL videos in different subjects at secondary and senior secondary level and further introducing Indian Sign Language as a language subject are benefiting deaf and hard-of-hearing learners. This also enables NIOS to explore gaps and priorities to make deaf education better and more meaningful.

As of now, it may be small steps that have been initiated by the NIOS, but its positive impact has been visible now which is reflected in the increasing trend in enrollment of deaf and hard of hearing learners. The analyzed data in this study indicates the learners' awareness, their study habits, their educational needs, and their opinion on ISL content and program quality, which shows their positive interest in the initiatives taken by the NIOS in the domain of ISL. Deaf Education particularly, research based on sign language-based education is a very new area, particularly in the case of developing and third world countries and such kinds of studies can be undertaken in these countries to understand the educational needs of deaf and hard-of-hearing learners.

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