1. INTRODUCTION

India, with its vast population, hosts a substantial number of individuals with disabilities. According to Census 2011, approximately 26.8 million people, or 2.21% of India's total population, have some form of disability (Census of India, 2011). However, the World Bank data proposes a more expansive range, estimating that the actual number of persons with disabilities in India may be anywhere between 40 and 80 million (World Bank, n.d.). This discrepancy in figures is supported by disability rights activists and academicians dedicated to disability research, who contend that the census numbers significantly underrepresented the true figures (Various Disability Rights Activists and Academicians, n.d.). To put the magnitude of this population in perspective, the number of people with disabilities in India surpasses the combined populations of countries like Ireland, New Zealand, Austria, Uruguay, and Kuwait.

Furthermore, on a global scale, India stands out with one of the highest populations of people with disabilities. When breaking down the types of disabilities prevalent in the nation, movement, hearing, visual, and multiple disabilities emerge as the most common. The 2011 population census delineates that 20% of persons with disabilities in India have movement-related challenges, 19% face visual impairments, another 19% grapple with hearing loss, and 8% have multiple concurrent disabilities (Census of India, 2011). Notably, the age demographic most affected encompasses those aged 10-19 years, with 46.2 lakh individuals reported in this group.

According to the 2011 population census data it was found that 20% of individuals in India with disabilities face difficulties related to movement. Additionally, around 19% of them experience impairments, another 19% struggle with hearing loss and 8% have multiple disabilities simultaneously. Interestingly the age group most impacted by these challenges is between 10 and 19 years old with a number of about 46.2 lakh individuals, in this category.

The Indian education system, despite its vastness and diversity, exhibits significant shortfalls when it comes to inclusivity for candidates with disabilities. A critical concern emerges from observations that the system may not be adequately equipped to prepare candidates with disabilities with the necessary educational qualifications required to sit for exams related to certain governmental posts or higher education pursuits (Narayan & Rao, 2019). Furthermore, a deeper systemic issue pertains to potential discrimination, where employers,

perhaps influenced by societal biases, might be disinclined to recruit individuals with disabilities (Mishra & Gupta, 2016).

Advancements in Deaf Education in India

Deaf education in India has undergone significant transformation over time. The inception of deaf education dates to 1884 with the establishment of the inaugural deaf school in Mazgaon, Bombay. Historically, the emphasis was placed on oralism, a method that prioritized speech over sign language, as pointed out by Erting (1996). Nevertheless, the advocacy for the incorporation of Indian Sign Language (ISL) in educational contexts has grown stronger in recent times. A pivotal development was the formal acknowledgment of ISL by the Indian Government in 2016, per The Rights of Persons with Disabilities Act, 2016.

Yet, the journey is far from smooth. Many institutions dedicated to deaf education adopt a hybrid methodology, intertwining oralism with facets of signing, which sometimes yields inconsistent outcomes (Moores & Panara, 2016). A primary obstacle remains the paucity of accredited ISL educators and inadequate resources, impeding the advancement of deaf education. Remarkably, the current number of certified ISL interpreters stands at around 250, serving a deaf demographic estimated between 1.8 to 7 million.

Moreover, India's diverse socio-economic and regional landscape further complicates the task of providing uniform, high-calibre education for all deaf learners. Prominent advocacy entities, like the National Association of the Deaf (NAD) in India, persistently champion more inclusive strategies, underscoring the crucial role of ISL in availing equitable academic opportunities (Kumar & Lata, 2020).

A notable step forward was the sanctioning of ISLRTC (Indian Sign Language Research & Training Centre) in 2015. In a progressive move in 2021, the Indian Prime Minister, Mr. Narendra Modi, in line with the New Education Policy 2020, introduced sign language as a formal academic discipline in schools. In the realm of academic research, the investigator’s publications such as “The Comprehension of Basic Mathematics among Children with Hearing Impairment using Multimedia in Accessible and Non-Accessible Format – A Comparative Study” featured in IEEE, and “Usage of Textbook and Accessible Electronic Multimedia Textbook for Children with Hearing Impairment in Terms of Information and Education – A Comparative Study” presented at the International Conference on Disability Communication, ICDC 2017, have been influential. Notably, the latter publication served as a

foundational reference for NIOS in launching the Gyan Amrit channel 30 on the Swayam Digital platform, dedicated to offering education in sign language.

Given the context, the present study has chosen to focus on the deaf community for several compelling reasons:

- **Discrimination among Disabilities:** Within the spectrum of disabilities, the deaf community often experiences a distinct form of discrimination compared to other disabled groups (Dhar, 2017).
- **Invisible Disability:** Deafness, being a non-visible disability, brings its set of unique challenges, especially in an education system that might not recognize or accommodate its nuances (Chopra & Suresh, 2020).
- **Visual Perception:** While the ability to see is often considered an advantage, for the deaf, it might become a limitation when the emphasis is on auditory learning methods.
- **Visual Thinking:** Deaf individuals often think visually; however, traditional educational frameworks might not cater to this form of cognition (Smith, 2018).
- **Cognitive Development:** Merely seeing does not ensure comprehensive cognitive development for deaf individuals. There's a need for specific interventions that cater to their unique learning needs (Johnson & Erting, 2019).
- **Stereotyping:** A prevailing stereotype labels the deaf community as "deaf and dumb," further marginalizing them in educational and employment arenas.
- **Memory Concerns:** Studies have indicated that some deaf individuals might exhibit shorter memory spans, a factor that can impact their learning process (Smith, 2018).
- **Inner Sign vs. Inner Voice:** Deaf individuals often possess an 'inner sign' as opposed to an 'inner voice,' emphasizing the centrality of sign language in their cognitive processes (Liddell, 2019).
- **Sign Language as Mother Language:** Sign language serves as the primary linguistic medium for many in the deaf community. Their cognitive development, therefore, is closely intertwined with the accessibility and quality of sign language education. Recognizing this, early childhood interventions that prioritize sign language can significantly boost cognitive development (Johnson & Erting, 2019).

In light of these reasons, it is important to introduce the sign language at play schools for deaf children, where the medium of instruction is sign language only, ensuring a foundational level of cognitive development and learning that is both inclusive and effective.

Entrepreneurship is a vital engine of growth in the global economy, and ensuring that all individuals, irrespective of their physical capabilities, have access to its basics is essential for inclusive economic progress. The Deaf community, representing a significant portion of the global population, often faces unique barriers to accessing information, especially in areas like entrepreneurship which may not traditionally cater to their specific needs. Digital media, with its multi-modal potential, can play a pivotal role in bridging this accessibility gap.

This research seeks to understand the impact of accessible digital media in video format on enhancing the comprehension of the Basics of Entrepreneurship among the Deaf.

1.1. Rationale of the Study

- **Magnitude of the Issue:** According to the World Federation of the Deaf, there are approximately 70 million Deaf people worldwide. These individuals, like everyone else, deserve equal opportunities in all aspects of life, including education and business. However, the traditional educational resources related to entrepreneurship are primarily auditory and verbally interactive, inherently excluding those who communicate through sign language or rely heavily on visual content.
- **Digital Media as a Solution:** Digital media, especially videos, can incorporate a blend of visual, textual, and sign language elements. When correctly utilized, videos can provide comprehensive, multifaceted information to the viewer, making them an ideal medium for the Deaf community. With advancements in technology and the proliferation of online platforms, there is vast potential for creating accessible video content for Deaf learners.
- **Empowering the Deaf Community:** Entrepreneurial knowledge empowers individuals to start their businesses, innovate, and contribute to their communities. By making the basics of entrepreneurship accessible to the Deaf, this research can potentially lead to a rise in Deaf entrepreneurs, which can consequently boost the overall socio-economic status of the Deaf community.
- **Gap in Existing Literature:** While research exists on digital media's role in education and on methods of teaching entrepreneurship, there is limited literature specifically focused on creating entrepreneurship educational content for the Deaf. This research aims to fill this critical gap by investigating the efficacy of video-based digital media in conveying entrepreneurial concepts to the Deaf community.

- **Potential for Wider Application:** This research, while primarily focused on the Deaf community, has implications for broader audiences. The principles of accessible design and inclusive teaching methodologies derived from this study can inform the creation of educational content for other groups with unique learning needs.
- **Economic Implications:** By empowering the Deaf community with entrepreneurial skills, there is potential for economic growth, job creation, and community development. Every individual who gains the confidence and knowledge to launch a business or contribute to the workforce represents a step forward for inclusive economic progress.

The relevance of this research cannot be overstated. It stands at the intersection of accessibility, digital media, and entrepreneurial education, aiming to drive both social change and economic advancement. By focusing on the Deaf community's unique needs and leveraging the power of digital media, this study hopes to make a meaningful contribution to a more inclusive world of entrepreneurship.

2. OBJECTIVES OF THE STUDY

1. To prepare a profile of the deaf respondents from the ***National Institute Speech & Hearing, Thiruvananthapuram, Kerala***.

2. To **design & develop** a **module I** on *"Understanding Entrepreneurial Interest*" in accessible digital media in video format for deaf respondents.

3. To study the **effectiveness** of the developed **module I** on *"Understanding Entrepreneurial Interest"* in terms of comprehension of selected deaf respondents.

4. To study the **differences in the effectiveness** of the developed **module I** on *"Understanding Entrepreneurial Interest"* in terms of comprehension of selected deaf in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

5. To study the **accessibility** of the **developed module I** on *"Understanding Entrepreneurial Interest"* for selected deaf respondents.

6. To study the **differences in the accessibility** of the **developed module I** on *"Understanding Entrepreneurial Interest*" for selected deaf respondents in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

7. To study the **accessibility** of the **developed module I** on *"Understanding Entrepreneurial Interest*" with reference to the following **features:**

- The Content
- The Sign Language
- The Visuals
- The Captions

8. To prepare a **profile** of the deaf respondents from the **North-East (Dimapur-Nagaland, Imphal-Manipur& Shillong-Meghalaya).**

9. To **design & develop a module II** on *"Choosing a Strategic Enterprise Location"* for being an entrepreneur in accessible digital media in video format for the selected deaf respondents **North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya).**

10. To **study the effectiveness** of the **developed module II** on *"Choosing a Strategic Enterprise Location*" in terms of comprehension of the selected deaf respondents **North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya).**

11. To study the **differences in the effectiveness** of the developed **module II** on *"Choosing a Strategic Enterprise Location"* in terms of comprehension of the selected deaf **North-East (Dimapur- Nagaland, Imphal-Manipur & Shillong-Meghalaya)** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

12. To study the **accessibility** of the **developed module II** on *"Choosing a Strategic Enterprise Location"* for the selected deaf respondents **North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya).**

13. To study **the differences in the accessibility** of the developed **module II** on *"Choosing a Strategic Enterprise Location*" for the selected deaf respondents **North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya)** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

14. To study the **accessibility** of the **developed module II** on *"Choosing a Strategic Enterprise Location*" with reference to the following **features:**

- The Content
- The Sign Language
- The Visuals
- The Captions

15. To prepare a **profile** of deaf respondents from the **Special Industrial Training Institute for PWDs, Jatni, Odisha.**

16. To **design & develop** a **module III** on *"Navigating the Finances of your Enterprise*" for being an entrepreneur in accessible digital media in video format for deaf respondents from the **Special Industrial Training Institute for PWDs, Jatni, Odisha.**

17. To **study the effectiveness** of the **developed module III** on *"Navigating the Finances of your Enterprise*" in terms of comprehension of the selected deaf respondents from the **Special Industrial Training Institute for PWDs, Jatni, Odisha.**

18. To study **the differences in the effectiveness** of the **developed module III** on *"Navigating the Finances of your Enterprise*" in terms of comprehension of the selected deaf respondents from the **Special Industrial Training Institute for PWDs, Jatni, Odisha** in relation to the following **variables**:

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

19. To study the **accessibility** of the **developed module III** on *"Navigating the Finances of your Enterprise" f*or the selected deaf respondents from the **Special Industrial Training Institute for PWDs, Jatni, Odisha.**

20. To study **the differences in the accessibility** of the **developed module III** *on "Navigating the Finances of your Enterprise"* for selected deaf respondents from the **Special Industrial Training Institute for PWDs, Jatni, Odisha** in relation to the following **variables**:

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

21. To study the a**ccessibilit**y of the **developed module III** on *"Navigating the Finances of your Enterprise"* with reference to the following **features:**

- The Content
- The Sign Language
- The Visuals
- The Captions

22. To prepare a profile of deaf respondents from the **Government College for Deaf, Jaipur**, **Rajasthan.**

23. To **design & develop** a **module IV on** *"Effective Resource Management Strategies"* for being an entrepreneur in accessible digital media in video format for deaf respondents from the **Government College for Deaf, Jaipur**, **Rajasthan.**

24. To **study the effectiveness** of the **developed_module IV** *on "Effective Resource Management Strategies*" in terms of comprehension of the selected deaf respondents from the **Government College for Deaf, Jaipur**, **Rajasthan.**

25. To study the **differences in the effectiveness** of the **developed module IV** on *"Effective Resource Management Strategies"* in terms of comprehension of the selected deaf respondents from the **Government College for Deaf, Jaipur**, **Rajasthan** in relation to the following **variable**s:

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

26. To study the **accessibility** of the **developed module IV** on "*Effective Resource Management Strategies"* for the selected deaf respondents from the **Government College for Deaf, Jaipur**, **Rajasthan.**

27. To study the **differences in the accessibility** of the **developed module IV** on *"Effective Resource Management Strategies"* for the selected deaf respondents from the **Government College for Deaf, Jaipur**, **Rajasthan** in relation to the following **variables**:

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

28. To study the a**ccessibility** of the **developed module IV on** *"Effective Resource Management Strategies"* with reference to the following **features:**

- The Content
- The Sign Language
- The Visuals
- The Captions

29. To prepare a **profile** of the deaf respondents from the **Institute of Sign Language Research & Training Centre, New Delhi.**

30. To **design & develop** a **module V** on *"Mastering the Art of Enterprise Marketing*" in accessible digital media in video format for deaf respondents from the **Institute of Sign Language Research & Training Centre, New Delhi.**

31. To **study the effectiveness** of the **developed module V** on *"Mastering the Art of Enterprise Marketing* "in terms of comprehension of selected deaf respondent from the **Institute of Sign Language Research & Training Centre, New Delhi.**

32. To study **the differences in the effectiveness** of the **developed module V** on *"Mastering the Art of Enterprise Marketing*" in terms of comprehension of the selected deaf respondents from the **Institute of Sign Language Research & Training Centre, New Delhi** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

33. To study **the accessibility** of the developed **module V** on *"Mastering the Art of Enterprise Marketing"* for the selected deaf respondent from the **Institute of Sign Language Research & Training Centre, New Delhi.**.

34. To study **the differences in the accessibility** of the developed *module V on "Mastering the Art of Enterprise Marketing* "for selected deaf respondents from the **Institute of Sign Language Research & Training Centre, New Delhi** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

35. To study the a**ccessibility** of the **developed module V** on *"Mastering the Art of Enterprise Marketing*" with reference to the following **features:**

- The Content
- The Sign Language
- The Visuals

- The Captions

36. To prepare a **profile** of deaf respondents from the **Indore Deaf Bilingual Academy, Indore.**

37. To **study the effectiveness** of the **designed & developed module** on *"Basics of Entrepreneurship"* in terms of **comprehension** amongst the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore.**

38. To study the **significant differences in the effectiveness** of the developed module on *"Basics of Entrepreneurship"* in terms of the comprehension of the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore** in relation to the following **variables**:

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

39. To study **the accessibility** of the **developed module** on *"Basics of Entrepreneurship"* for the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore.**

40. To study the **differences in the accessibility** of the developed module on *"Basics of Entrepreneurship"* for the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

41. To study the **accessibility** of the **developed module** on *"Basics of Entrepreneurship"* with reference to the following **features:**

- The Content
- The Sign Language
- The Visuals
- The Captions

42. To study **the module-wise effectiveness** in terms of the comprehension amongst the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore.**

43. To study the **significant differences in the module-wise effectiveness** in terms of comprehension of the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore** in relation to the following **variables**:

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

44. To study the **module-wise accessibility** for the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore.**

45. To study the **differences in the module-wise accessibility** of the developed module for the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore** in relation to the following **variables**:

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

46. To study the **module-wise accessibility** of the developed module with reference to the following **features**:

- The Content
- The Sign Language
- The Visuals
- The Captions

2.1. Null Hypotheses of the Study:

1. There will be no significant differences in the **effectiveness of the developed module I on "Understanding Entrepreneurial Interest"** in terms of comprehension of the selected deaf respondents ***from the National Institute Speech &Hearing, Thiruvananthapuram, Kerala***. in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

2. There will be no significant differences in the **accessibility of the developed module I on "Understanding Entrepreneurial Interest"** for the selected deaf respondents ***from the National Institute Speech &Hearing, Thiruvananthapuram, Kerala*** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

3. There will be no significant differences in the **effectiveness of the developed module II on "Choosing a Strategic Enterprise Location" for being an entrepreneur** in terms of comprehension of the selected deaf respondents from the **North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya)** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

4. There will **be no significant differences in the accessibility of the developed module II on "Choosing a Strategic Enterprise Location"** for being an entrepreneur "for the selected deaf respondents from the **North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong - Meghalaya)** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

5. There will be **no significant differences in the effectiveness of the developed module III on "Navigating the Finances of your Enterprise**" in terms of comprehension of the selected deaf respondents from the **Special Industrial Training Institute for PWDs, Jatni, Odisha** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

6. There will **be no significant differences in the accessibility of the developed module III on "Navigating the Finances of your Enterprise**" for the selected deaf respondents from the **Special Industrial Training Institute for PWDs, Jatni, Odisha** in relation to the following variables:

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

7. There will be **no significant differences in the effectiveness of the developed module IV on "Effective Resource Management Strategies**" for being an entrepreneur in terms of comprehension of the selected deaf respondents from the **Government College for Deaf, Jaipur**, **Rajasthan** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

8. There will **be no significant differences in the accessibility of the developed module IV on "Effective Resource Management Strategies** " for being an entrepreneur for the selected deaf respondents from the **Government College for Deaf, Jaipur**, **Rajasthan** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

9. There will be **no significant differences in the effectiveness of the developed module V on "Mastering the Art of Enterprise Marketing**" in terms of comprehension of the selected deaf from the **Institute of Sign Language Research & Training Centre, New Delhi i**n relation to the following **variables**:

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

10. There will **be no significant** in the **accessibility of the developed module V on "Mastering the Art of Enterprise Marketing"** for the selected deaf respondents from the **Institute of Sign Language Research & Training Centre, New Delhi** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

11. There will be **no significant differences in the effectiveness of the developed module on "Basics of Entrepreneurship"** between the pre & post comprehension of the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore, M.P** in relation to the following **variables**:

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

12. There will **be no significant differences** in the **accessibility of the developed module on "Basics of Entrepreneurship"** for the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore, M.P** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

13. There will be **no significant differences in the module-wise effectiveness** in terms of the comprehension of the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore, M.P** in relation to the following **variables:**

- Age
- Gender
- Education
- Exposure to Social Media
- Exposure to Accessible Media

14. There will be **no significant differences in** the **module-wise accessibility** for the selected deaf respondents from the **Indore Deaf Bilingual Academy, Indore, M.P** in relation to the following **variables:**

- Age
- Gender
- Education

- Exposure to Social Media
- Exposure to Accessible Media

2.2. Assumptions of the Study:

1. It is possible to develop & design modules in accessible digital media in video format on 'Basics of Entrepreneurship' for Deaf.

2. The modules in accessible digital media in video format on 'Basics of Entrepreneurship' for Deaf will be effective for comprehension, of the Deaf.

3. The respondents for the study will vary with reference to:

    - Age
    - Gender
    - Education level
    - Exposure to Social Media
    - Exposure to Accessible Video Format

4.Respondents will take interest in the designed and developed **"Accessible Digital Media in Video format on 'Basics of Entrepreneurship' for Deaf".**

2.3. Delimitations of the Study:

1. The study is delimited to the selected deaf of Kerala, North East, Odisha, Jaipur-Rajasthan, Delhi & Indore-M.P.
2. The study is delimited to check the effectiveness of the modules in accessible digital media in video format on Basics of Entrepreneurship in terms of the comprehension level of the selected deaf respondents.
3. The study is delimited to check the accessibility of the modules in accessible digital media in video format on Basics of Entrepreneurship with reference to the following features:

    - The Content
    - The Sign Language
    - The Visuals
    - The Captions

4. The study is delimited to study the following variables:

- Age
- Gender
- Education level
- Exposure to Social Media
- Exposure to Accessible Video Format

2.4. Operational Definitions

1. Accessibility of Modules Developed

In this current study, "Module Accessibility" pertains to the ease of comprehension related to:

- The content presented
- The sign language used
- The captions provided
- The visuals shown in the video format

2. Digital Media

In the current study, "digital media" specifically pertains to video content only.

3. Modules

In this study, "modules" pertain to the organized educational units on "Basics of Entrepreneurship" arranged sequentially and tailored to enhance its comprehension for the deaf.

4. Comprehension of a module for the deaf

Comprehension of a module for the deaf refers to the clear understanding and grasping of the content, concepts, and objectives of a specific instructional unit, adapted or designed to cater to the unique learning needs and communication methods of deaf individuals.

5. Deaf

In this study, "deaf" describes individuals with significant to profound hearing impairments who primarily communicate through sign language and are of employable age, starting from 16 years old.

6. Basics of Entrepreneurship

"Basics of Entrepreneurship" refers to the fundamental concepts of starting and managing a business. This includes understanding the:

a) Understanding Entrepreneurial Interest
b) Choosing a Strategic Enterprise Location
c) Navigating the Finances of your Enterprise
d) Effective Resource Management Strategies
e) Mastering the Art of Enterprise Marketing

3. METHODOLOGY OF THE STUDY

The present study aimed at Designing and Developing Accessible Digital Media in Video-Format on Comprehension of Basics of Entrepreneurship for the Deaf.

The study was conducted using experimental design in the academic year 2021-23. Pre-post experimental research design was used to conduct the research. The present chapter describes the Methodology conducted for the study. These were as follows:

3.1 FEASIBILITY STUDY

3.2 POPULATION OF THE STUDY

3.3 SAMPLE OF THE STUDY

3.4 DESIGNINING OF THE SUB MODULES I TO V

3.4.1 Designing of the first Sub Module “Understanding Entrepreneurial Interest” at Kerala

3.4.1.1 Need Analysis

3.4.1.2 Content Development

3.4.1.3 Scripting

3.4.1.4 Validation of the script from Experts

3.4.1.5 Designing For Accessibility Features

3.4.2 Designing of Second Sub Module "Choosing a Strategic Enterprise Location" at Northeast

3.4.2.1 Need Analysis

3.4.2.2 Content Development

3.4.2.3 Scripting

3.4.2.4 Validation of the script from Experts

3.4.2.5 Designing For Accessibility Features

3.4.3 Designing of Third Sub Module "Navigating the Finances of your Enterprise" at Odisha

3.4.3.1 Need Analysis

3.4.3.2 Content Development

3.4.3.3 Scripting

3.4.3.5 Validation of the script from Experts

3.4.3.5 Designing For Accessibility Features

3.4.4 Designing of Fourth Sub Module "Effective Resource Management Strategies" at Rajasthan

3.4.4.1 Need Analysis

3.4.4.2 Content Development

3.4.4.3 Scripting

3.4.4.5 Validation of the script from Experts

3.4.4.5 Designing For Accessibility Features

3.4.5 Designing of Fifth Sub Module" Mastering the Art of Enterprise Marketing" at Delhi

3.4.5.1 Need Analysis

3.4.5.2 Content Development

3.4.5.3 Scripting

3.4.5.4 Validation of the script from Experts

3.4.5.5 Designing For Accessibility Features

3.5 DEVELOPMENT OF THE SUB MODULES I TO V

3.5.1 Development of the First Sub Module "Understanding Entrepreneurial Interest" at Kerala

3.5.1.1 Pre-Production

3.5.1.2 Production

3.5.1.3 Postproduction

3.5.1.4 Validation of Developed Module

3.5.1.5 Learning from Developed Module

3.5.2 Development of Second Sub Module "Choosing a Strategic Enterprise Location" at Northeast

3.5.2.1 Pre-Production

3.5.2.2 Production

3.5.2.3 Postproduction

3.5.2.4 Validation of Developed Module

3.5.2.5 Learning from Developed Module

3.5.3 Development of Third Sub Module "Navigating the Finances of your Enterprise" at Odisha

3.5.3.1 Pre-Production

3.5.3.2 Production

3.5.3.3 Postproduction

3.5.3.4 Validation of Developed Module

3.5.3.5 Learning from Developed Module

3.5.4 Development OF Fourth Sub Module "Effective Resource Management Strategies" at Rajasthan

3.5.4.1 Pre-Production

3.5.4.2 Production

3.5.4.3 Postproduction

3.5.4.4 Validation of Developed Module

3.11.2 Scoring and Categorization of the Dependent Variables of the Comprehension and Accessibility Tools for the Sub Module II "Choosing a Strategic Enterprise Location" at Northeast

3.11.3 Scoring and Categorization of the Dependent Variables of the Comprehension and Accessibility Tools for the Sub Module III "Navigating the Finances of your Enterprise" at Odisha

3.11.4 Scoring and Categorization of the Dependent Variables of the Comprehension and Accessibility Tools for the Sub Module IV "Effective Resource Management Strategies" at Rajasthan

3.11.5 Scoring and Categorization of the Dependent Variables of the Comprehension and Accessibility Tools for the Sub Module V "Mastering the Art of Enterprise Marketing" at Delhi

3.12 FINAL EXPERIMENT OF MODULES ON "ACCESSIBLE DIGITAL MEDIA IN VIDEO FORMAT ON BASICS OF ENTERPRENEURSHIP FOR DEAF"

3.12.1 Administration of pre-test

3.12.2 Screening of the modules

3.12.3 Administration of post test

3.12.4 Scoring & Categorization of independent variables

3.12.5 Scoring & Categorization of dependent variables

3.13 PLAN OF STASTISTICAL ANALYSIS

3.1 FEASIBILITY STUDY

A feasibility study refers to checking the possibility, viability, practicability, and probability of the research subject. The present feasibility study adopted a certain direction and willingness to carry out the lengthy and arduous research work process. In addition, it provided an insight into practical and ethical aspects, i.e., administrative structure, seeking permissions, sample availability and willingness, relevancy and effectiveness of the tools executed, methodology, etc,

Phase I – Feasibility Study

Objectives of the Feasibility Study:

1) To understand the means of livelihood of the selected deaf respondents.
2) To understand the employment status of the selected deaf respondents.
3) To study the awareness level of the selected deaf respondents about special employment exchange under RPWD Act.
4) To study the Deaf persons expectations from government agencies regarding their livelihood.

Population of the Feasibility Study: The population studied were eligible employable deaf persons of the Vadodara District.

Sample & Sampling Technique used for the Feasibility Study: Sample is the total quantity of the things or cases and were the subject of this research. Sample is part of the universe or population (Tailor, 2005). The study of comprehension of sign language by the deaf was undertaken based on nonprobability sampling, as randomization is unimportant in selecting a sample from the population of interest, while the study was about the deaf and their comprehension. Hence, non-probability sampling techniques were appropriated for this study, where the population was clearly defined, i.e., the deaf population. This study attempted to understand the subject matter's awareness and comprehension in sign language of the special employment exchange under the RPWD Act regarding employment and livelihood, therefore a sample of 96 deaf respondents were selected through the convenient sampling technique. The study required denoting the population eligible for employment, readily accessible, in close geographical proximity, available at any given time, with a willingness to participate; included in the purpose of the study.

Procedure of Feasibility Study

To understand the issues faced by the deaf community regarding employment, and to gauge their awareness about the RPWD Act and its comprehension in sign language, the following procedure was adopted:

1. **Partnership with Local NGO:** Partnered with the Vadodara-based NGO, Astitva Foundation, to initiate interactions with the deaf community about employment issues.

2. **Questionnaire Development:** A nine-question survey was created about personal information, disability, awareness of special employment exchange, and livelihood.

    - The questionnaire was sign-language based and recorded on video for easy distribution.
    - A script in English was prepared, and a native deaf person was selected to ask questions on camera.
    - The video was edited using the mobile app "In Shot".

3. **Validation:** Before distribution, the video was validated by experts namely, Mr. Sunil Saharasbudhe, President of All India Federation of the Deaf; two other renowned interpreters from Mumbai & Vadodara, Ms. Kinjal Shah & Ms. Trushna, respectively; and Principal of Mook Dhwani Trust's, GD Patel Senior and Secondary Deaf School, Ms. Rashmi Mehta.

    - Feedback was taken into account, particularly around regional colloquial sign language nuances.

4. **Distribution:** The video was shared with 96 deaf individuals via WhatsApp. No responses were received due to various observed reasons, including:

    - Deaf individuals think visually.
    - Difficulty memorizing content.
    - Absence of an inner voice.
    - Challenges in taking help from family members due to a communication gap.

5. **Personal Interaction:** It was determined that face-to-face interactions were necessary to gather responses. A livelihood fair, specifically for the deaf was planned to draw the respondents to a single location for the study.

Limitations:

- The study faced hurdles due to COVID-19 restrictions.
- Deaf community mobility issues during the pandemic made participation challenging.

Thus, the feasibility study, though impeded due to unforeseen circumstances, continued to aim to understand the unique challenges and awareness levels of the deaf community in Vadodara regarding employment**.**

- It was noted that deaf persons primarily process information visually and often struggle with memorization.
- Instead of an inner voice, the deaf rely on sign language, their first language, and tend to think in signs, having what might be termed an "inner sign".
- Upon receiving a video message on their phone, the deaf individuals were unable to respond due to difficulty in memorization.
- Seeking assistance from family was not always effective, since family members only grasp some basics of sign language, primarily using gestures to communicate with the deaf.
- The most effective responses were through direct face-to-face interviews conducted with them.
- The deaf community spread throughout the city made individual visits challenging, further complicated by their schedules.
- Gathering all deaf individuals at a single location was considered the best resolution.

Consequently, a livelihood fair was set-up to ensure their presence at a designated location and time.

Phase II – Organization Of The Livelihood Fair For The Deaf In Vadodara

Objective: Facilitate employment opportunities for the deaf community in Vadodara and gather insights for a feasibility study (phase - I).

Steps Involved:

1. **Collaboration Initiatives:**
    - Joined hands with the Vadodara-based NGO, Astitva Foundation.
    - Collaborated with Youth For Jobs and Piramal Glass Products to provide 100 job openings.
    - Partnered with 10 local Vadodara organizations from sectors like manufacturing, retail, food & beverages.

- Created 5 self-employment opportunities in fields such as scent-stick making, pizza outlets, bakeries, and multi-level marketing.

2. **Venue Selection:**

    - The fair was hosted at Mook Dhwani Trust's GD Patel Senior Secondary Deaf School.

3. **Support and Logistics:**

    - Engaged SL interpreters to facilitate smooth communication during interviews.
    - Provided refreshments for all participants.
    - Invited press for coverage. Notable local newspapers like Sandesh Press, Gujarat Samachar, and Divya Bhaskar covered the event.

4. **Team Formation and Training:**

    - A 13-member volunteer team was established, consisting of graduate and post-graduate students from The Maharaja Sayajirao University of Baroda.
    - The volunteers were oriented at the Department of Extension & Communication to ensure they could effectively coordinate with the deaf participants during interviews.

5. **Participation:**

    - 92 job seekers from Vadodara and its surrounding regions attended the fair.

Outcomes of Livelihood Fair

Outcomes of the Livelihood Fair:

1. **Employment Achieved:**

    - Of the 92 job seekers who attended the fair, 27 (or 29.34%) were successful in securing job opportunities.

2. Feasibility Study Insights:

- The primary goal of the fair was to conduct a feasibility study.
- A sample set of 72 participants from the total of 92 were selected to gather adequate responses.
- A concerning outcome observed was that only 4 out of these 72 participants accurately answered back.
- This brought to light significant difficulties faced by the deaf community in reading comprehension, shedding light on the broader state of deaf education in Vadodara and surrounding areas.

3. Educational Breakdown of Participants:

- 34% had completed the 12th class.
- 38% had completed the 10th class.
- 28% had not cleared the 8th standard.

4. Adjustments Made Post Study:

- Given the challenges faced during the feasibility study, a decision was made to modify the study's approach.
- The revised methodology centred on individual interviews, ensuring clear communication. The interviewer, equipped with proficiency in sign language, posed questions to the deaf interviewees, aiming for a more comprehensive understanding of their perspectives.

This overview underscores the significance of the fair, the challenges encountered, and the adaptive measures taken to ensure the study's objectives were met in a modified manner.

Phase III: Modified Feasibility Study :

Procedure adopted for the Modified Study:

1. **Reassessment Due to Unmet Outcomes:**

    - The study was re-evaluated and modified after the initial outcomes did not align with expectations.

2. **Challenges in Gathering Respondents:**

    - Ensuring the availability of deaf respondents was a challenge.
    - The number of interviewees was reduced from 72 to 30 due to difficulties in re-interviewing all participants.

3. **Utilizing the Deaf Cricket Tournament:**

    - An opportunistic approach was adopted by leveraging a deaf cricket tournament organized by the “Deaf Cricket Club of Baroda”.
    - This event facilitated the availability of 13 of the previously interviewed participants from the Livelihood Fair.

4. **Further Data Collection:**

    - The remaining 17 participants required personal interviews.
    - Subsequent to the Livelihood Fair, diverse methods were utilized, including home and workplace visits, as well as collecting video interviews via WhatsApp.
    - This process was time-consuming, taking over 2 months, largely due to non-responsiveness or participants availability issues.
    - Persistent efforts, including involving the respondent's family and friends and keeping tabs on them even during travels, were undertaken to gather the interviews.

5. **Data Conversion and Verification:**

    - All data in sign language was first transcribed, into text.
    - A certified sign language interpreter then verified the transcription for accuracy.

6. **Maintaining the Deaf Perspective:**

    - Maintaining authenticity and true representation, the entire study prioritized the deaf community's perspective.
    - Questions for the study were formulated by the deaf themselves.

- Both signing and interpretation from sign language into text were done by native deaf individuals from Gujarat, ensuring a genuine reflection of their experiences and viewpoints.

Necessary modifications in the study procedure showcased a meticulous approach of the investigator, highlighting the challenges faced and the measures taken to ensure a comprehensive study from the perspective of the deaf community in Gujarat.

Findings: A Summary

The feasibility study explored various dimensions of the deaf community's comprehension and awareness levels about their personal information, employment, and rights. Further is a concise summary:

1. **Reading and Comprehension Abilities:**
    - **Concern:** 20% of respondents, despite having passed the 8th grade, could not write, or read basic information about themselves.
    - **Cause:** Deaf education in special schools did not prioritize sign language, opting instead for total communication, which combined oral speech, lip reading, and visual aids. The focus has been more on enrolment than comprehensive education for the deaf.
    - **Implication:** There's a pressing need for introducing sign language at the elementary level to improve comprehension abilities.
2. **Employment and Expense Management:**
    - **Concern:** 43.3% were able to share details about their employment status and how they manage expenses.
    - **Cause:** A lack of comprehension in Gujarati & English language materials.
    - **Implication:** The 'Accessible India Campaign 2015' had not achieved its expected outcomes for the deaf community.
3. **Awareness about Rights:**
    - **Concern:** No respondents were aware of the RPWD Act 2016 or the special employment exchange for PWD.

- **Implication:** This gap in knowledge motivated further study on the importance of communicating vital information in sign language.

Modified Study Outcomes after Using Sign Language:

1. **Personal Information Comprehension:**

    - Each respondent answered basic questions about their name, education, and disability when asked in sign language.
    - 26% were employed and managed their expenses independently, while the remaining 74% were dependent on family and relatives.
    - When questioned in sign language, all respondents expressed difficulty in finding jobs.

This outcome stressed the need for more comprehensive communication methods, such as sign language, to improve the deaf community's access to employment information.

2. **RPWD Act Awareness:** Only one respondent was aware of the RPWD ACT 2016.

This implied the necessity of communicating crucial rights and provisions in sign language to ensure that the deaf community is informed and empowered.

After finishing the feasibility study, it became evident that gathering the deaf community in one location without an event is challenging. A follow-up revealed that several deaf individuals who found employment through the Livelihood Fair left their jobs within a few months. The reasons for their departure included:

- Exclusion from daily organizational communications, leading to feelings of demotivation and invisibility.
- Job discrimination and being assigned tasks outside of their job profiles.
- Inequitable compensation compared to their peers.
- Overall, the above factors caused them to resign from their positions.

This cycle affected their performance and perpetuated negative stereotypes, rendering them financially vulnerable and reliant on their families. They often settled for lower-paying, less dignified jobs, reinforcing the stereotype that deaf individuals are inferior and deserve less. This cycle needs urgent interruption, especially given the global emphasis on inclusivity.

Although the RPWD Act 2016 and SDGs Goal 8 promote equal opportunities for all disabled individuals, their implementation seems symbolic rather than sincere, shifting from a rights-based approach to charity-driven efforts.

Phase IV: Explored The Centre Of Empowerment Of The Differently Abled (CEDA)

Sponsored by the Social Justice of Empowerment Department & Gujarat State Handicapped (Divyang) Finance & Development Corporation, at Entrepreneurship Development Institute of India (EDII) Located in Gandhinagar, the researcher visited the Centre of Empowerment of the Differently Abled (CEDA). The institute mainly serves the physically disabled and blind, leaving the deaf community largely unaddressed. A significant reason is the lack of training modules accessible to the deaf community.

The findings underscored two immediate needs:

- The need to highlight entrepreneurial opportunities for the deaf.
- The need for including educational modules on entrepreneurship, incorporating sign language, together with digital captioning for improved comprehension, accessibility and affordability.

CONCLUSION OF FEASIBILITY STUDY AND OUTLINING THE FUTURE DIRECTION OF PRESENT RESEARCH STUDY:

Addressing the above needs may rectify the challenges identified during the feasibility study. The proposed accessible educational modules aim for genuine inclusion, promoting dignity and independence for the deaf community in society's mainstream.

Therefore, a comprehensive study of the deaf population throughout India not only will provide insight into the complexities and challenges faced by the deaf community but also may presented a roadmap for progress in the socioeconomic inclusion agenda. The investigator, with over a decade of expertise in deaf studies, spearheaded this nationwide research. Given India's extensive diversity, these in-depth findings are of immense importance. Vadodara is home to thousands within the deaf community. While they maintain

their distinct culture, they also grapple with issues related to healthcare, education, and economic engagement. Despite the unique challenges they face, one standout observation was the minimal entrepreneurial participation of the deaf. Hence, the study seeks to address this area of concern.

It facilitated the investigator **to Design & Develop modules for Deaf on Basics of Entrepreneurship** using the investigator's experience in creating digital educational content tailored for the deaf in today's tech-driven classroom setting.

Rationale for Planning a Nationwide Study:

Higher education for the deaf in India has progressed at a slower pace due to a combination of factors. Predominantly, a lack of accessible relevantly skilled persons and infrastructure, such as sign language interpreters in educational institutions, which hinders effective learning. Additionally, societal attitudes and misconceptions about the abilities of deaf individuals lead to reduced opportunities and support. The scarcity of specialized training for educators catering to deaf students and limited resources dedicated to the creation of an inclusive curriculum further exacerbated the challenges. Many deaf students in India faced barriers that prevented access and growth in higher education environments due to scarce specialized higher educational institutes. A targeted initiative was then launched across India to delve into higher educational aspirations and entrepreneurial inclinations of the deaf community. Thus, the five institute across India were identified to design and develop an accessible digital media in video format on basics of entrepreneurship for deaf.

Criteria for Selection of the Deaf Institutes across India

The following were vital criteria for selecting the institute/ Centre for Deaf higher Education, Sign Language Training & Research centre for design and develop an accessible digital media in video format on basics of entrepreneurship:

- **Accredited Deaf Institute:** The well-established nationally acclaimed government institutes known for deaf education which has expert and experienced faculty member with proficiency in sign language were selected.
- **Technological Readiness:** Institutes which have technological infrastructure to support the creation as well as testing of the accessible digital media in video format on basics of entrepreneurship was kept in mind.

- **Collaboration Readiness:** To create a digital media specifically for Deaf. It is essential to have collaboration with sign language experts, interpreters and deaf students to play the characters in the video. moreover institutes, active willingness to support the research are prime important. The institutes which reflected their readiness in supporting the research were chosen.
- **Commitment to Accessibility:** Those institutes which are strongly committed to accessibility standards were given priority for the present investigation.

INSTITUTES SELECTED FOR THE STUDY

NAME OF THE INSTITUTE	PLACE OF DESIGNING & TESTING THE MODULE
• **NISH The National Institute of Speech & Hearing**	**Kerala**
• **School & Centre of Hearing Handicapped Children** • **Deaf Biblical Ministry in Dimapur** • **Manipur Deaf Association**	**Northeast**
• **Special Industrial Training Institute for PWDs, Jatni**	**Odisha**
• **Government Deaf College**	**Rajasthan**
• **Indian Sign Language Research & Training Centre**	**New Delhi**

3.2 POPULATION OF THE STUDY

3.2.1 Population of the study for the sub modules I to V

The population of the study were all those eligible employable native deaf persons of the institutes selected at Thiruvananthapuram in Kerala, Shillong in Meghalaya, Dimapur in Nagaland, Imphal in Manipur, Khordha in Odisha, Jaipur in

Rajasthan, New Delhi in Delhi, for the sub modules I to V in accessible digital media in video format on basics of entrepreneurship.

3.2.2 Population of the study for the final experiment

The population for experiment study were eligible employable native deaf of the institute selected at Indore in Madhya Pradesh.

3.3 SAMPLE OF THE STUDY

The study on design and develop an accessible digital media in video format on basics of entrepreneurship by the native deaf was undertaken based on nonprobability sampling, as randomization is unimportant in selecting a sample from the population of interest. Hence, non-probability sampling techniques were appropriated for this study, where the population was clearly defined, i.e., the deaf population. The study to design and develop an accessible digital media in video format on basics of entrepreneurship for the deaf was planned in two phases.

3.3.1 Sample of the study for the sub modules 1to V:

The first phase was about designing and development of sub modules of basics of entrepreneurship and then testing its effectiveness in terms of the comprehension as well as accessibility of the modules on the selected deaf respondents. Therefore the total **426** deaf were selected from the identified Institutes across nation from different states:

NAME OF THE INSTITUTE	Sample size of the Selected Deaf
• **The National Institute of Speech & Hearing (NISH), Thiruvananthapuram, Kerala**	**69**
• **School & Centre of Hearing Handicapped Children, Imphal, Shillong** • **Deaf Biblical Ministry in Dimapur, Nagaland** • **Government Deaf & Mute School, Imphal, Manipur**	**113**
• **Special Industrial Training Institute for PWDs, Jatni, Khordha, Odisha**	**79**
• **Government Deaf College, Jaipur, Rajasthan**	**73**
• **Indian Sign Language Research & Training Centre, New Delhi, Delhi**	**92**

3.3.2 Sample of the study for the Final Experiment:

The final experiment aiming to study the effectiveness of the complete module in terms of the comprehension & the accessibility from the selected deaf respondents was conducted at Indore Deaf Bilingual Academy (IDBA) in Indore, Madhya Pradesh where **78 deaf** were selected for final experiment which included the administration of the pre-test, screening of the module & the administration of the post test.

3.4. Designing of the Sub Modules I to V

The design of an accessible digital media in video-format on entrepreneurship was planned, based on the Central Board of Secondary Education Class XI Book "Entrepreneurship" and Philip Kotler 4ps of marketing (Product, Price, Place, & Promotion) for the deaf.

References for the Sub Modules

The following five sub-modules were designed keeping in mind the specified content and purpose of each sub-module

Reference	**Title of the Sub Modules**
CBSE Book "Entrepreneurship" 1st unit "Entrepreneurship: Concept & Functions	1st module Entitled "Understanding Entrepreneurial Interest "
CBSE Book "Entrepreneurship" 5th unit "Concept of Market	2nd module Entitled "Choosing a Strategic Enterprise Location "
CBSE Book "Entrepreneurship" 6th unit "Business Finance & Arithmetic	3rd module Entitled "Navigating the Finances of Your Enterprise "
CBSE Book "Entrepreneurship" 4th unit "Entrepreneurship as Innovation & Problem Solving" & 7th unit "Resource Mobilization"	4th module Entitled "Effective Resource Management Strategies ".
CBSE Book "Entrepreneurship" 5th unit "Concept of Market" & Philip Kotler 4ps "Promotion"	5th module Entitled "Mastering the Art of Enterprise Marketing "

For the designing all the above mentioned sub modules the following steps were undertaken:

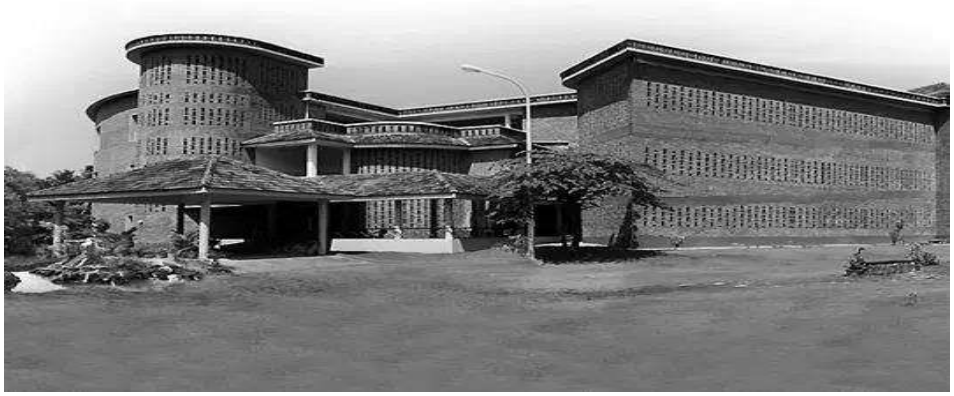
- Need Analysis
- Content Development
- Scripting
- Incorporation of the Accessibility Features
- Validation of the Scripts

3.4.1 DESIGNING OF THE FIRST SUB MODULE "UNDERSTANDING ENTREPRENEURIAL INTEREST" AT KERALA

No. of Module	Place	Title of the Module	Features of the Video Format	Accessibility
I	Kerala	Understanding Entrepreneurial Interest	Fiction	Sign language, captions,
II	North-East	Choosing a Strategic Enterprise Location	Fiction	Sign language, captions,
III	Odisha	Navigating the Finances of Your Enterprise	Non- Fiction	Sign language, captions,
IV	Rajasthan	Effective Resource Management Strategies	Non- Fiction	Sign language, captions,
V	Delhi	Mastering the Art of Enterprise Marketing	Fiction	Sign language, captions,

Figure 1Political Map of Kerala

Figure 2 ***The National Institute of Speech & Hearing*** *(NISH)* ***Thiruvananthapuram***



The National Institute of Speech & Hearing (NISH), Thiruvananthapuram

The National Institute of Speech & Hearing situated in Thiruvananthapuram, Kerala, is a pioneer in providing higher education programs in Indian Sign Language. This institute was approached to explore post-graduate aspirations. NISH's past endeavours significantly improved the lives of those with disabilities, particularly the hearing impaired. Their commitment to impactful research in the disability and rehabilitation sectors made them an apt choice for collaboration.

The investigator applied for an internship at NISH, which, after a successful telephonic interview, entailed a range of daily tasks. These varied from observing teaching methodologies to early childhood interventions and skill training programs. A daily log was maintained, culminating in a presentation on choosing between conventional employment and entrepreneurship.

Post-internship, the investigator sought permission for a more in-depth study from NISH's Review Authority for Research (RAR). Adherence to strict ethical guidelines and a standardized format, aligning with the American Psychological Association's seventh edition, was mandatory. Research proposals had to include various components, from title and objective to methodology and results, and even informed consent forms in multiple languages. A thorough review process ensued, requiring the investigator's patience and perseverance. Following several rounds of evaluations and an ethical clearance, the green light was given for the study at NISH.

While the internship phase fostered rapport-building, the research phase transformed the investigator's role. Upon receiving research permission, the investigator worked independently, supervised remotely by a guide from MSU Vadodara. The investigator would engage with students during specific times, and all interactions within NISH demanded prior approval. Despite initial administrative hurdles, the investigator's commitment remained unwavering. The study was executed at NISH with the cooperation of students, faculty, and staff, ensuring its content's validation and relevance.

The designing of a module in an accessible digital video-format for the Deaf involved a comprehensive process as explained earlier keeping in mind the following steps that prioritized the needs and experiences of the deaf.

3.4.1.1 Needs Analysis: To study ideas and interests of students at National Institute of Speech & Hearing (NISH), Thiruvananthapuram, for becoming an entrepreneur. At NISH, it was learned that deaf students were preparing to join the industry for jobs. Though there was no 100% placement guarantee, there were students without any jobs that led us to find other options for jobs. It was decided to study their interest or ideas about self-employment. By the end of the module, students would have a fair idea about their interest or about what they want to do as an entrepreneur.

3.4.1.2 Content Development: For developing the content of the Module, as described previously, the main source was the Central Board of Secondary Education for Class XI Book on “Entrepreneurship” and Philip Kotler 4ps of marketing (Product, Price, Place, & Promotion).

From the CBSE Book on “Entrepreneurship”, the 1st unit “Entrepreneurship: Concept & Functions” was referred to and considered as the base to develop the 1st module entitled “Interest”.

Deaf experts and educators were shown the content selected for module I to ensure its clarity, concision, and relevance with the comprehension level of the Deaf.

3.4.1.3 Scripting: The scripting was framed in consultation with the subject matter and subject experts, in a way that flowed smoothly when translated into sign language.

3.4.1.4 Designing for Accessibility Features: The followings elements were considered to ensure accessibility of the module:

- **Sign Language:** The mother language of the deaf is sign language and also their learning comfort is in sign language, therefore, the sign language was used to ensure accessibility. Simple and straightforward language minus unnecessary jargon was used.
- **A story format:** This technique was used to deliver the developed content to facilitate learning for deaf persons with short memory and slow grasping characteristics.
- **Captions:** The reverse captioning technique was used for the Deaf to easily comprehend. Using this technique, captions were written the way sign language is used, conversion of sign into text. With sign language incorporated, captions further support understanding. Captions were synchronized with the content, were easy to read, sharply contrasted against the background.

  Consistent Layout: A consistent layout throughout the video was maintained to make it easier to follow. This helped in reinforcing the information communicated, therefore only the location of the Tea Stall was used.

3.4.1.5 Validation of the script from Experts: The script was sent to deaf experts well-versed in sign language, viz., the President of Deaf Association, an academician of deaf studies primarily on sign language from Ali Yavar Jung National Institute of Speech & Hearing Disabilities (AYJNISHD), Mumbai, and NISH, in addition to prominent sign language interpreters, namely, General Secretary and Secretary of Indian Sign Language Interpreter Association (ISLIA) and NISH, for validation with reference to content, format and clarity.

3.4.2 DESIGNING OF SECOND SUB MODULE "CHOOSING A STRATEGIC ENTERPRISE LOCATION" AT NORTHEAST

Figure 3 Political Map of Northeast

The North-East states of India have historically faced challenges related to geographical isolation, limited infrastructure, socio-political issues, and lack of awareness about the needs of differently abled populations. As a result, the development of specialized higher education facilities for the deaf remains inadequate. While there are institutions that offer support for the differently abled in other parts of India, the North-East has not experienced equivalent growth. This can be attributed to a combination of limited resources, other pressing regional priorities, perhaps a lack of advocacy for the deaf community and/or lack of representation in these areas. The overarching issue is a complex interplay of regional challenges and the specific needs of the deaf community, leading to a lack of dedicated institutions and programs in the North-East.

North East (Meghalaya, Nagaland, Manipur)

The investigator delved into the research of Dr. Melissa Wallang, an Associate Professor of Linguistics at NERIE, NCERT Umiam, Meghalaya. Her examination of ‘Deafness and a Village Sign Language Community in Meghalaya' inspired the present study at the School & Centre of Hearing Handicapped Children (SCHHC), Shillong, Meghalaya. Before liaising with Dr. Wallang, a comprehensive review was undertaken. Upon seeking advice from experts and professionals in the deaf studies domain, investigator connected with Dr. Wallang. She graciously deputed a PhD student to aid the present research in Meghalaya. The assigned scholar provided with crucial contacts within Shillong's Deaf community. Following these leads, eventually coordinated with an educator at Bethany’s society, who directed to the Principal of SCHHC. The principal outlined specific research prerequisites concerning the safety and protection of special needs children, including obtaining various permissions and certificates. To satisfy these requirements, investigator engaged with the Director of Health Services (MI), Meghalaya, and other significant authorities. Upon securing the necessary approvals, the SCHHC, Principal, facilitated our research.

3.4.2.1 Content Development: For developing the content of the Module, as described previously, the main source was the Central Board of Secondary Education for Class XI Book on “Entrepreneurship” and Philip Kotler 4ps of marketing (Product, Price, Place, & Promotion).

From the CBSE Book on “Entrepreneurship”, 5th unit “Concept of Market was referred to and considered as the base to develop the 2nd module entitled “Choosing a Strategic Enterprise Location”.

Deaf experts and educators were shown the content selected for module II to ensure its clarity, concision and relevance with the comprehension level of the Deaf.

3.4.2.2 Scripting: The scripting was framed in consultation with the subject matter and subject experts, in a way that flowed smoothly when translated into sign language.

3.4.2.3 Designing for Accessibility: The followings elements were considered to ensure accessibility of the module:

- **Sign Language:** The mother language of the deaf is sign language and also their learning comfort is in sign language, therefore, the sign language was used to ensure accessibility. Simple and straightforward language minus unnecessary jargon was used.
- **A story format:** This technique was used to deliver the developed content to facilitate learning for deaf persons with short memory and slow grasping characteristics.
- **Captions:** The reverse captioning technique was used for the Deaf to easily comprehend. Using this technique, captions were written the way sign language is used. conversion of sign into text. With sign language incorporated, captions further support understanding. Captions were synchronized with the content, were easy to read, sharply contrasted against the background.

  Consistent Layout: A consistent layout throughout the video was maintained to make it easier to follow. This helped in reinforcing the information communicated, therefore single location was selected for each story. Therefore 3 locations in total were selected for shooting of three different stories for module II entitled Choosing a Strategic Enterprise Location.

3.4.2.4 Validation of the script from Experts: The script was sent to deaf experts, well-versed in sign language like the president and some selected deaf members of the Meghalaya Deaf Association; academician of deaf studies primarily on sign language Dr. Wallang and the SCHHC’s Principal and faculty for validation with reference to content, format and clarity.

Casting for this fictional module was challenging, but after extensive scouting, we managed to enlist participants. The module's shooting, split into indoor and outdoor sessions was

successfully concluded with the support of sign language interpreters. Subsequently, the module was showcased for feedback from Deaf experts – State Education Mission Authority of Meghalaya (SEMAM) officials, and the Meghalaya Deaf Association members. Interestingly, THE administrative engagements during this process aided a local resident in obtaining crucial resources for her differently abled daughter, revealing a skewed focus on rural areas over urban ones.

Figure 4 Deaf Biblical Ministry Dimapur Nagaland

In Nagaland, Dr. Wallang and her scholar suggested to explore the Deaf Biblical Ministry in Dimapur. Founded in 1987, this institution educates deaf students from grades 1-10, using English & American Sign Language (ASL). The second module, primarily in ISL, posed a linguistic challenge, but the school's principal, proficient in both sign languages, bridged the gap. In Manipur, post validation of the module, investigator journeyed to Imphal. Recognizing that the Deaf often knew multiple languages, the team was eager to extend its research there. Given that higher education opportunities for the deaf are limited in Manipur investigator collaborated with a former General Secretary of the Manipur Deaf Association. However, the research endeavour to assemble the adult deaf community in Imphal faced hurdles. However, undeterred, investigator aspired to extend the present research to other regions. The second module validation in Imphal concluded right before the Christmas break. The experiences in Imphal underscored that many individuals with disabilities remain unaware of their rights, particularly concerning their UDID.

3.4.3 DESIGNING OF Third SUB MODULE "NAVIGATING THE FINANCES OF YOUR ENTERPRISE" AT ODISHA

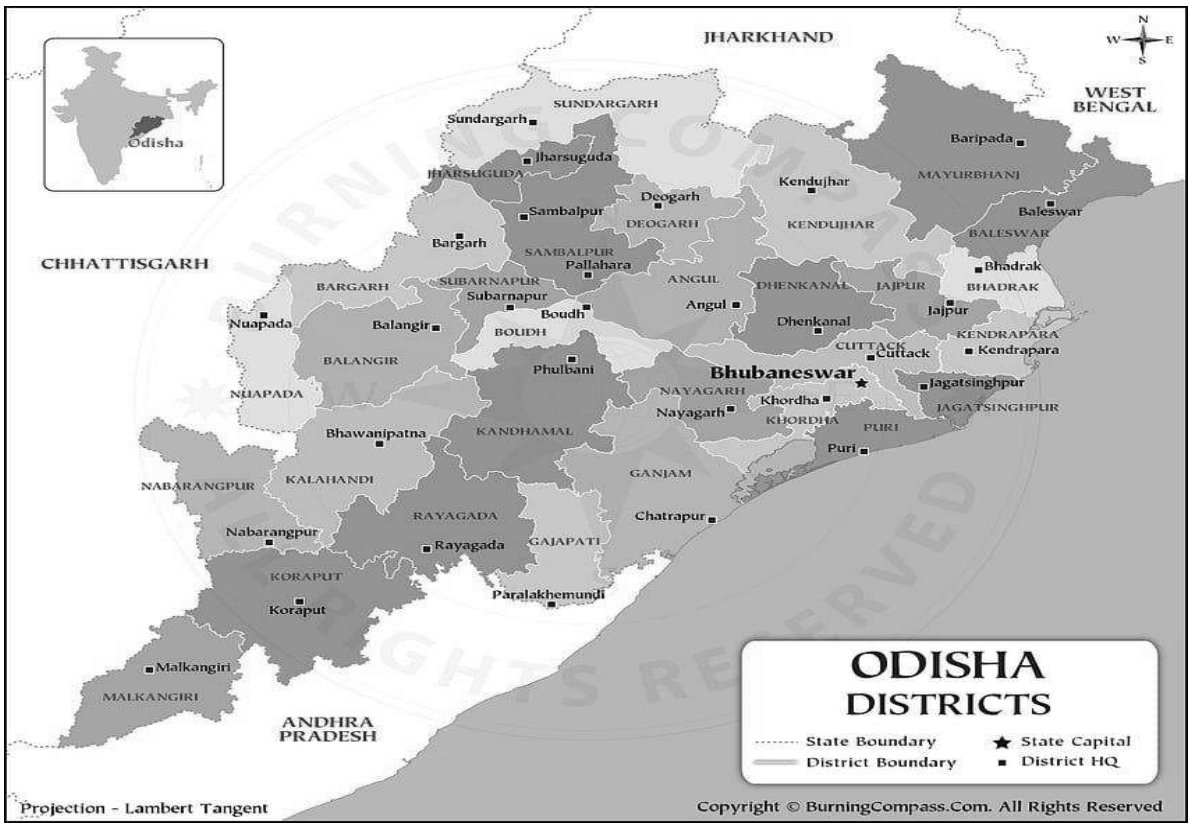


Figure 5 Political Map of Odisha

Module III, based on the CBSE Book "Entrepreneurship", 6th unit "Business Finance & Arithmetic", led the development of the 3rd module "Navigating the Finances of Your Enterprise". All the parameters in the design and development implemented in I & II module were also implemented in this module. Except this module was non-fiction based and interview based. This module focused on Finance Schemes to start businesses, therefore interviews of officials at the State Government of Odisha, Swabhiman NGO, and S.NO.M Group CSR, were featured with the service of sign language interpreters.

Mr. Sibaji Panda of Odisha, a renowned researcher in Deaf sign language and the founder of Happy Hand School, motivated us to undertake validation at the Bhubaneswar-based Satyabhama Devi College for the Deaf. When planning to execute research at this college, which receives support from the Department of Social Security & Empowerment of Person with Disability (SSEPD) — a division dedicated to individuals with disabilities under the Odisha government — permissions were to be sought from the Secretary and Commissioner of SSEPD. Meeting the Commissioner proved challenging, as he was available only on Mondays between 3 and 5 pm. Due to holidays and absences, it took a month to finally

appoint a scheduled meeting. However, investigator's request was initially declined. Persistence led to case being referred to a senior department director, an IAS officer, which added another month of waiting due to bureaucratic delays.

After a two-month-long effort, finally secured the necessary permission to conduct the research at Special Industrial Training Institute for Pwds, Jatni, Khudupur, Khordha, Odisha.

Figure 6 Special Industrial Training Institute for Pwds, Jatni, Khordha, Odisha
Figure 7 Special Industrial Training Institute for Pwds, Jatni, Khudupur, Khordha, Odisha

3.4.3.1 Content Development: For developing the content of the Module, as described previously, the main source was the Central Board of Secondary Education for Class XI Book on "Entrepreneurship" and Philip Kotler 4ps of marketing (Product, Price, Place, & Promotion).

From the CBSE Book on "Entrepreneurship",5th unit 6th unit "Business Finance & Arithmetic", led the development of the 3rd module "Navigating the Finances of Your Enterprise".

Deaf experts and educators were shown the content selected for module III to ensure its clarity, concision, and relevance with the comprehension level of the Deaf.

3.4.3.2 Scripting: The scripting was framed in consultation with the subject matter and subject experts, in a way that flowed smoothly when translated into sign language.

3.4.3.3 Designing for Accessibility: The followings elements were considered to ensure accessibility of the module:

- **Sign Language:** The mother language of the deaf is sign language and their learning comfort is in sign language, therefore, the sign language was used to ensure accessibility. Simple and straightforward language minus unnecessary jargon was used.
- **The interview-based format:** This technique was used to deliver the developed content to facilitate learning for deaf persons with short memory and slow grasping information.
- **Captions:** The reverse captioning technique was used for the Deaf to easily comprehend. Using this technique, captions were written the way sign language is used, conversion of sign into text. With sign language incorporated, captions further support understanding. Captions were synchronized with the content, were easy to read, sharply contrasted against the background.
- **Consistent Layout:** A consistent layout throughout the video was maintained to make it easier to follow. This helped in reinforcing the information communicated, therefore interviews were placed in systematic manner in sequence where in the government official was interviewed followed by NGO official and lastly with the CSR official.

3.4.3.4 Validation of the script from experts: The script was sent to Deaf experts, well-versed in sign language, to mention a few, the President, and some selected Deaf members at the Odisha Deaf Association; academician of Deaf studies, primarily on sign language from regional centre of AYJNISHD; and a sign language interpreter for validation with reference to content, format and clarity.

Yet, another challenge arose: a student raised concerns about the food quality at Satyabhama Devi College. As a result, the SSEPD launched an investigation, and the research was put on hold until the inquiry concluded.

3.4.4 DESIGNING OF Fourth SUB MODULE "EFFECTIVE RESOURCE MANAGEMENT STRATEGIES" AT RAJASTHAN

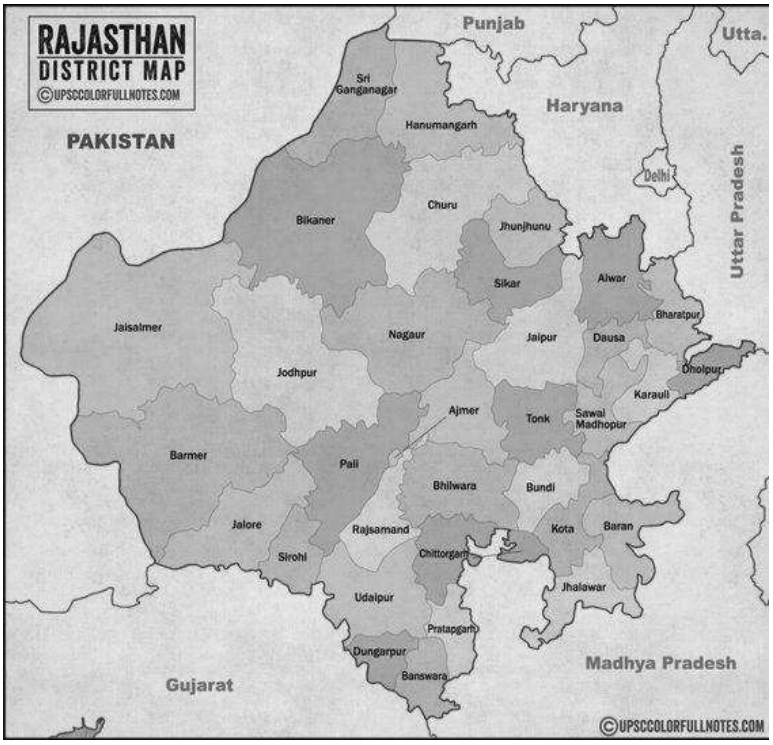


Figure 8 Political Map of Rajasthan

Having spent over a decade studying the deaf community, the researcher is familiar with the Jaipur Government Deaf College – the sole co-educational institution in Rajasthan catering to the deaf. Established in 2016, the college offers a Bachelor of Arts program in various disciplines, including Hindi, English, Political Science, Sociology, Public Administration, and Drawing. For the present study, which focused on resource management, the researcher sought to identify self-employed deaf individuals.

Figure 9 Government Deaf & Dumb College Jaipur, Rajasthan

3.4.4.1 Content Development: For developing the content of the Module, as described previously, the main source was the Central Board of Secondary Education for Class XI Book on "Entrepreneurship" and Philip Kotler 4ps of marketing (Product, Price, Place, & Promotion).

From the CBSE Book on "Entrepreneurship", 4th unit "Entrepreneurship as Innovation & Problem Solving" & 7th unit "Resource Mobilization".

Deaf experts and educators were shown the content selected for module IV "Effective Resource Management Strategies" to ensure its clarity, concision and relevance with the comprehension level of the Deaf.

3.4.4.2 Scripting: The scripting was framed in consultation with the subject matter and subject experts, in a way that flowed smoothly when translated into sign language.

3.4.4.3 Designing for Accessibility: The followings elements were considered to ensure accessibility of the module:

- **Sign Language:** The mother language of the deaf is sign language and also their learning comfort is in sign language, therefore, the sign language was used to ensure accessibility. Simple and straightforward language minus unnecessary jargon was used.
- **The Case study-based format:** This technique was used to deliver the developed content to facilitate learning for deaf persons with short memory and slow grasping of each case study.
- **Captions:** The reverse captioning technique was used for the Deaf to easily comprehend. Using this technique, captions were written the way sign language is used; conversion of sign into text. With sign language incorporated, captions further support understanding. Captions were synchronized with the content, were easy to read, sharply contrasted against the background.
- **Consistent Layout:** A consistent layout throughout the video was maintained to make it easier to follow. This helped in reinforcing the information communicated, therefore each case study was shot at selected deaf vicinity showing their work.

3.4.4.4 Validation of the Script from Experts: The script was sent to Deaf experts, well-versed in sign language, such as, an academician of Deaf studies primarily on sign language

from the Jaipur Government Deaf College, and a sign language interpreter for validation with reference to content, format and clarity.

Subsequently, an opportunity arose to hold a workshop on entrepreneurship. Given the tight timeline – as the college was soon closing for exam preparations – the researcher had to swiftly shoot and edit the workshop's footage. This content was then presented to the faculty, staff, and students at the Jaipur Government Deaf College for validation.

3.4.5 DESIGNING OF Fifth SUB MODULE "MASTERING THE ART OF ENTERPRISE MARKETING" AT DELHI

Figure 10 Political Map of Delhi

The final module focused on Marketing and was developed at the Indian Sign Language Research & Training Centre (ISLRTC), which was established in New Delhi on September 28, 2015. The researcher, having studied at the AYJ National Institute of Speech and Hearing Disabilities (AYJNISHD), utilized contacts from the institute who currently work at ISLRTC.

Due to ISLRTC's governmental affiliation, obtaining permission to conduct research there required adherence to established protocols.

3.4.5.1 Content Development: For developing the content of the Module, as described previously, the main source was the Central Board of Secondary Education for Class XI Book on “Entrepreneurship” and Philip Kotler 4ps of marketing (Product, Price, Place, & Promotion).

From the CBSE Book on “Entrepreneurship”, 5th unit “Concept of Market was referred to and considered as the base to develop the 5th module entitled “Mastering the Art of Enterprise Marketing ”.Deaf experts and educators were shown the content selected for module V to ensure its clarity, concision and relevance with the comprehension level of the Deaf.

3.4.5.2 Scripting: After securing permission from the ISLRTC's Director, logistical challenges arose, particularly concerning student schedules. Students were tasked with drafting a script as an assignment.

3.4.5.3 Designing for Accessibility: The followings elements were considered to ensure accessibility of the module:

- **Sign Language:** The mother language of the deaf is sign language and also their learning comfort is in sign language, therefore, the sign language was used to ensure accessibility. Simple and straightforward language minus unnecessary jargon was used.
- **A story format:** This technique was used to deliver the developed content to facilitate learning for deaf persons with short memory and slow grasping characteristics.
- **Captions:** The reverse captioning technique was used for the Deaf to easily comprehend. Using this technique, captions were written the way sign language is used, conversion of sign into text. With sign language incorporated, captions further support understanding. Captions were synchronized with the content, were easy to read, sharply contrasted against the background.
- **Consistent Layout:** A consistent layout throughout the video was maintained to make it easier to follow. This helped in reinforcing the information communicated, therefore as per the demand of the script, a single location of the Hair Salon was selected.

Figure 11 Indian Sign Language Research & Training Centre (ISLRTC) New Delhi

3.4.5.4 Validation of the script from Experts: This script underwent consultation with deaf teachers and sign language interpreters before being implemented in the shoot. The script was sent to Deaf experts, well-versed in sign language, such, an academician of Deaf studies, primarily on sign language from the Indian Sign language Research & Training Centre (ISLRTC), and a sign language interpreter for validation with reference to content, format and clarity.

3.5 DEVELOPMENT OF THE SUB MODULES I TO V ON "BASICS OF ENTREPRENEURSHIP"

3.5.1 Module-I "Understanding Entrepreneurial Interest " developed at National institute of Speech & Hearing Kerala

3.5.1.1 Pre-production

- **Storyboarding:** The script was broken down into shots, then sketched or the shot was outlined scene by scene. This helped the deaf to visualize the final video and guide the shooting process, as deaf people mainly think in visuals.
- **Select the cast/audition:** The modules were crafted to be infomercial/infotainment in nature. Therefore, the deaf well-versed in sign language, inclined towards filmmaking and a creative bent of mind were considered for the audition.

- A sign language interpreter was required to finish the shoot of the module per schedule in an effective and smooth way,
- **Crew/Team Selection:** The entire production team comprised Deaf from pre-production: assisting in script to production, actors, actresses, camera person to postproduction: editing and graphics, all were executed by a team of deaf with the help of sign language interpreters. This ensured accurate translation of content, so the perspective of the Deaf remained in the forefront.
- **Reece/Choose a location:** A tea stall was considered, per the requirement of the script for module-I "**Understanding Entrepreneurial Interest** ", as well as for assessing lighting, background noise, and visual aesthetics.
- **Equipment:** Camera, microphones, lights, editing software, etc.
- **Scheduler/Shooting dates:** A rehearsal schedule with shooting dates, along with a post-production time-plan helped the researcher to finish the module in the anticipated time frame.
- **Rehearsal:** At NISH the only time to rehearse was after classes, for which permission was sought to conduct rehearsals in one of the classes. During recess a plan was formed for rehearsal after class. To monitor and gain confidence a rehearsal was conducted on the location to check time and logistics.

3.5.1.2 Production (Shooting the Video)

A production manager ensured the availability of the cast and crew on time at location. As it was an outdoor shoot and no alternatives were planned for rainy-day scenarios, the shoot had to stop during rains, delaying the shoot. Subsequently, the time-plan was reworked as some cast had to leave earlier than expected, obligating a rework of their shoot schedule to accommodate their early exits. Furthermore, time consumed in equipment set-up was pushed through, using the storyboard and script as guides. Long signlogues obligated multiple shoots to capture the perfect shot.

3.5.1.3 Post-production

- **Video Editing:** A team of sign language interpreters and deaf editors was formed to edit the module for okay shots, and verify sign language content on software, such as Adobe Premiere for trim, splice, and arrange video clips, insert transitions, effects, and graphics.
- **Audio Editing: Booked an audio studio at NISH on prior permission for**

recording voice overs, adjusting volume levels, ensuring audio and video synchronization.

- **Colour Correction/Grading:** Adjusted video colours for consistency and desired tone.
- **Add Text and Titles:** Used legible fonts for captions and ensured they fit the video's style.
- **Usability Testing:** Conducted tests with members of the Deaf community to get feedback on the clarity, pacing, and effectiveness of the module. Adjusted content and design based on feedback. Then only was the final cut presented for screening.

3.5.1.4 Validation of the Developed Module: The developed module was screened at Centre for Communication and Media Development (CCMD) at NISH for its validation by selected academicians of deaf studies primarily on sign language and sign language interpretation

3.5.1.5 Learning from Developed Module I: Signlogues must be short, and an introduction of each character must be indicated at the beginning. This facilitates easy relation and identification of each character, allowing readers to differentiate between them easily.

3.5.2 DEVELOPMENT OF THE SUB MODULES II "CHOOSING A STRATEGIC ENTERPRISE LOCATION"

Shillong, Meghalaya

3.5.2.1 Pre-production

- **Storyboarding:** The script was broken down into shots, then sketched or the shot was outlined scene by scene. This helped the deaf to visualize the final video and guide the shooting process, as deaf people mainly think in visuals.
- **Select the cast/audition:** The modules were crafted to be infomercial/infotainment in nature. Therefore, the deaf well-versed in sign language, inclined towards filmmaking and a creative bent of mind were considered for the audition.
- A sign language interpreter was required to finish the shoot of the module per schedule in an effective and smooth way,
- **Crew/Team Selection:** The entire production team comprised Deaf from pre-production: assisting in script to production, actors, actresses, camera person to postproduction: editing and graphics, all were executed by a team of deaf with the help of sign language interpreters. This ensured accurate translation of content, so the perspective of the Deaf remained in the forefront.

- **Reece/Choose a location:** A girl's college and a home were considered, per the requirement of the script for module-II "**Choosing A Strategic Enterprise Location**", as well as for assessing lighting, background noise, and visual aesthetics.
- **Equipment:** Camera, microphones, lights, editing software, etc.
- **Scheduler/Shooting dates:** A rehearsal schedule with shooting dates, along with a post-production time-plan helped the researcher to finish the module in the anticipated time frame.
- **Rehearsal:** At SCHHC the only time to rehearse was after classes, for which permission was sought to conduct rehearsals in one of the classes. During recess a plan was formed for rehearsal after class. To monitor and gain confidence a rehearsal was conducted on the location to check time and logistics.

3.5.2.2 Production (Shooting the Video)

The second module, which is based on CBSE Book "Entrepreneurship" 5th unit "Concept of Market" led to the development of the 2nd module "**Choosing A Strategic Enterprise Location**", and was scheduled for development in Shillong Meghalaya. All the parameters in the design and development of I module were also implemented in the second module. However, unlike module I, a story of 5 friends, and one set-up at an outdoor tea stall, Module II was framed with three stories divided in three chapters and two set-ups. In Module II, one was an indoor home set-up, and the second was a set-up outside a girl's college. All the three stories had different casts. The first story/chapter included a father and daughter and the daughter's aspirations. The second story/chapter was about three college-going girls and their aspirations. The third story/chapter was about two brothers, their mother and a friend and their struggle. This module's singlogues of all three chapters were short and easy to sign. In this instance, each character's introduction was in the beginning of the story, so it was easier to relate.

A senior teaching staff of SCHHC who was well versed with sign language ensured the availability of the cast and crew on time at location. As this module has three chapter, so one chapter story was an outdoor shoot and two chapters were planned for indoor. Subsequently, the time-plan was worked as one day was allotted for outdoor shoot and another day for indoor shoot. Furthermore, time consumed in equipment set-up was pushed through, using the storyboard and script as guides. Long signlogues obligated multiple shoots to capture the perfect shot.

3.5.2.3 Post-production

- **Video Editing:** A team of sign language interpreters and deaf editors was formed to edit the module for okay shots, and verify sign language content on software, such as Adobe Premiere for trim, splice, and arrange video clips, insert transitions, effects, and graphics.
- **Audio Editing: Booked an Audio-Visual therapy (AVT) room at SCHHC on prior permission for recording voice overs,** adjusting volume levels, ensuring audio and video synchronization.
- **Colour Correction/Grading:** Adjusted video colours for consistency and desired tone.
- **Add Text and Titles:** Used legible fonts for captions and ensured they fit the video's style.

Usability Testing: Conducted tests with members of the Deaf community to get feedback on the clarity, pacing, and effectiveness of the module. Adjusted content and design based on feedback. Then only was the final cut presented for screening.

3.5.2.4 Validation of the Developed Module: The developed module was screened at the hall in the School & Centre of Hearing Handicapped Children (SCHHC) for its validation from selected academicians of deaf studies primarily on sign language, namely, the Principal, faculty staff of SCHHC, an official of the state's Education Ministry of Meghalaya, and a sign language interpreter from Shillong.

3.5.2.5 Learning from Developed Module II: In the three stories, all the cast consisted of native Deaf, except two characters/roles, one of a father and the other a mother in chapter 1 and chapter 3 respectively. Though both, mother & father, were in fact the actual mother and father of the Deaf kids, yet multiple takes were taken, delaying the shoot.

3.5.3 DEVELOPMENT OF THE SUB MODULES III "NAVIGATING THE FINANCES OF YOUR ENTERPRISE"

3.5.3.1 Pre-production

- **Storyboarding:** The script was broken down into shots, then sketched or the shot was outlined scene by scene. This helped the deaf to visualize the final video and guide the shooting process, as deaf people mainly think in visuals.
- **Select the interviewer:** The modules were crafted to be interview based in nature. Therefore, the sign language interpreter who was well-versed in sign language was

considered for conducting interview in sign language with hearing interviewer so he can interpret in sign language.

- A sign language interpreter was required to finish the shoot of the module per schedule in an effective and smooth way,
- **Crew/Team Selection:** The entire production team comprised Deaf from pre-production: assisting in script to production, camera person to postproduction: editing and graphics, all were executed by a team of deaf with the help of sign language interpreters. This ensured accurate translation of content, so the perspective of the Deaf remained in the forefront.
- **Reece/Choose a location:** the offices of government official, NGO, and CSR were considered, per the requirement of the script for module-III "**Navigating the Finances of your Enterprise**", as well as for assessing lighting, background noise, and visual aesthetics.
- **Equipment:** Camera, microphones, lights, editing software, etc.

3.5.3.2 Production (Shooting the Video)

This module delved into financial programs designed for individuals with disabilities looking to start a business. Initially intended to craft a fictional narrative for this module, but a lack of student's participation from Satyabhama College made it unfeasible. Consequently, transitioned to a nonfictional approach, centring on financial aspects. We reached out to the National Handicapped Financial Development Corporation (NHFDC), learning about their collaboration with the Punjab National Bank (PNB) and IDBI Bank. Investigators exploration led to interview the Under-Secretary of SSEPD, Government of Odisha, who, being visually impaired, necessitated the assistance of a sign language interpreter. The under-secretary provided insights into both state and NHFDC/PNB financial programs for the disabled community. An interview with the chairman of S.NO.M Group was also scheduled to understand their Corporate Social Responsibility (CSR) initiatives, which again involved the services of a sign language interpreter. Third interview featured the Project Officer from the Swabhiman NGO in Bhubaneswar, who was hearing-abled. Therefore, her discussion about their livelihood projects for the disabled community was translated by a sign language interpreter. This module primarily centred on financial opportunities for businesses owned by those with disabilities. In the course of the investigation, a critical gap was identified in the Odisha Government's support system: the lack of sign language interpreters in educational

institutions for the deaf, including schools and specialized ITIs. This finding underscored a pervasive issue in India's Deaf education system, motivating us to broaden our inquiry across the country.

3.5.3.3 Post-production

- **Video Editing:** A team of sign language interpreters and deaf editors was formed to edit the module for okay shots, and verify sign language content on software, such as Adobe Premiere for trim, splice, and arrange video clips, insert transitions, effects, and graphics.
- **Audio Editing: Booked an audio studio for recording voice overs,** adjusting volume levels, ensuring audio and video synchronization.
- **Colour Correction/Grading:** Adjusted video colours for consistency and desired tone.
- **Add Text and Titles:** Used legible fonts for captions and ensured they fit the video's style.

Usability Testing: Conducted tests with members of the Deaf community to get feedback on the clarity, pacing, and effectiveness of the module. Adjusted content and design based on feedback. Then only was the final cut presented for screening.

3.5.3.4 Validation of the Developed Module: The developed module was screened at the Odisha Deaf Association Hall for its validation from selected deaf official and members of Odisha, including the Deaf Association, academicians of deaf studies primarily on sign language from the regional centre AYJNISHD, and sign language interpreters from Bhubaneswar.

3.5.3.5 Learning from Developed Module III: Though the interpreter was a qualified interpreter and teaching deaf students in a government aided Deaf school run by the Odisha Deaf Association, they still could not match signs with the native deaf. Learning from this module was to only use/employ the Deaf when involved in policies or issues related to the Deaf community. Also, there was no Deaf working in the Department of SSEPD, Odisha Government; in the NGO, Swabhiman and S.NO.M Group, CSR, or otherwise a well-versed sign language interpreter.

3.5.4 DEVELOPMENT OF SUB MODULE IV: "EFFECTIVE RESOURCE MANAGEMENT STRATEGIES"

3.5.4.1 Pre-production

- **Storyboarding:** The script was broken down into shots, then sketched or the shot was outlined scene by scene. This helped the deaf to visualize the final video and guide the shooting process, as deaf people mainly think in visuals.
- **Case Study:** This module was crafted to be case study in nature. Therefore, the deaf well-versed in sign language, having their own business were considered for this module.
- A sign language interpreter was required to finish the shoot of the module per schedule in an effective and smooth way,
- **Crew/Team Selection:** The entire production team comprised Deaf from pre-production: assisting in script to production, camera person to postproduction: editing and graphics, all were executed by a team of deaf with the help of sign language interpreters. This ensured accurate translation of content, so the perspective of the Deaf remained in the forefront.
- **Reece/Choose a location:** All deaf who are running their own business were considered, per the requirement of the script for module-IV "**Effective Resource Management Strategies**", as well as for assessing lighting, background noise, and visual aesthetics.
- **Equipment:** Camera, microphones, lights, editing software, etc.
- **Scheduler/Shooting dates:** A schedule with shooting dates, along with a post-production time-plan helped the researcher to finish the module in the anticipated time frame.

3.5.4.2 Production (Shooting the Video)

While conducting research, investigator received help from a college alumna skilled in sign-language interpretation. Her expertise enabled us to coordinate interviews with Deaf entrepreneurs, though finding participants was initially difficult. Thus, sought assistance from the Deaf Association, parents and children of Deaf adults (CODA), siblings of Deaf adults (SODA), and educators with ties to the Deaf community, which helped to arrange the interviews. However, unexpected obligations led to the cancellation of some interviews at the last minute.

The module's script followed a non-fiction format, with interviews taking place at business locations of the participants. This setup necessitated detailed planning to conduct interviews throughout Jaipur City. Thus, a list of Deaf entrepreneurs was compiled and sought their agreement to participate. During the first interview, a Deaf entrepreneur was uncomfortable discussing his earnings and reluctant to be filmed. Then after persuasion the investigator was allowed filming at their respective business sites. Since all participants were Deaf entrepreneurs, their interviews were filmed directly with prior approval, accommodating their schedules. For instance, interview of a stationary owner was scheduled in the morning because his shop was near a school. Investigator also spoke with a Deaf female entrepreneur who operated a boutique from her house, another running a parlour from her home, and a confectionery owner. Each one was interviewed at their business premises about managing their operations. Once the shooting was completed the task of editing was done for three days, & the module was completed.

3.5.4.3 Post-production

- **Video Editing:** A team of sign language interpreters and deaf editors was formed to edit the module for okay shots, and verify sign language content on software, such as Adobe Premiere for trim, splice, and arrange video clips, insert transitions, effects, and graphics.
- **Audio Editing: Booked an audio studio at NISH on prior permission for recording voice overs,** adjusting volume levels, ensuring audio and video synchronization.
- **Colour Correction/Grading:** Adjusted video colours for consistency and desired tone.
- **Add Text and Titles:** Used legible fonts for captions and ensured they fit the video's style.

Usability Testing: Conducted tests with members of the Deaf community to get feedback on the clarity, pacing, and effectiveness of the module. Adjusted content and design based on feedback. Then only was the final cut presented for screening.

3.5.4.4 Validation of the Developed Module: The developed module was screened to Deaf experts, well-versed in sign language, such as academician of deaf studies primarily on sign language from Government Deaf College Jaipur, and a sign language interpreter for validation with reference to content, format and clarity.

3.5.4.5 Learning from Developed Module IV: The fourth module, based on the CBSE Book "Entrepreneurship", 4th unit "Entrepreneurship as Innovation & Problem Solving", and 7th unit "Resource Mobilization", led the development of the 4th module "Effective Resource Management Strategies". All the parameters of design and development of the module implemented in the 1st & 2nd modules were implemented in this module. Similar to the 3rd module, this module was also non-fiction and interview-based of deaf entrepreneurs.

3.5.5 DEVELOPMENT OF MODULE V: "MASTERING THE ART OF ENTERPRISE MARKETING"

3.5.5.1 Pre-production

- **Storyboarding:** The script was broken down into shots, then sketched or the shot was outlined scene by scene. This helped the deaf to visualize the final video and guide the shooting process, as deaf people mainly think in visuals.
- **Select the cast/audition:** The modules were crafted to be infomercial/infotainment in nature. Therefore, the deaf well-versed in sign language, inclined towards filmmaking and a creative bent of mind were considered for the audition.
- A sign language interpreter was required to finish the shoot of the module per schedule in an effective and smooth way,
- **Crew/Team Selection:** The entire production team comprised Deaf from pre-production: assisting in script to production, actors, actresses, camera person to postproduction: editing and graphics, all were executed by a team of deaf with the help of sign language interpreters. This ensured accurate translation of content, so the perspective of the Deaf remained in the forefront.
- **Reece/Choose a location:** A studio was considered, per the requirement of the script for module-V "**Mastering the Art of Enterprise Marketing**", as well as for assessing lighting, background noise, and visual aesthetics.
- **Equipment:** Camera, microphones, lights, editing software, etc.
- **Scheduler/Shooting dates:** A rehearsal schedule with shooting dates, along with a post-production time-plan helped the researcher to finish the module in the anticipated time frame.
- **Rehearsal:** At ISLRTC the only time to rehearse was after classes, for which permission was sought to conduct rehearsals in one of the classes. During recess a plan was formed for rehearsal after class. To monitor and gain confidence a rehearsal was conducted on the location to check time and logistics.

3.5.5.2 Production (Shooting the Video)

Due to class commitments, students would miss their sessions for filming, restricting the shooting opportunities during the alumna's class timings. However, several students with prior experience in filmmaking stepped up and played a significant role in developing the module. Rehearsals were planned & arranged during their regular classes to familiarize them with their roles. Once roles and scenes were finalized, the students were provided flexibility to help in production and post-production of the module based on their availability.

3.5.5.3 Post-production

- **Video Editing:** A team of sign language interpreters and deaf editors was formed to edit the module for okay shots, and verify sign language content on software, such as Adobe Premiere for trim, splice, and arrange video clips, insert transitions, effects, and graphics.
- **Audio Editing: Booked an audio studio on prior permission for recording voice overs,** adjusting volume levels, ensuring audio and video synchronization.
- **Colour Correction/Grading:** Adjusted video colors for consistency and desired tone.
- **Add Text and Titles:** Used legible fonts for captions and ensured they fit the video's style.
- **Usability Testing:** Conducted tests with members of the Deaf community to get feedback on the clarity, pacing, and effectiveness of the module. Adjusted content and design based on feedback. Then only was the final cut presented for screening.

3.5.5.4 Validation of the Developed Module: The developed module was screened for Deaf experts, well-versed in sign language, such as, an academician of Deaf studies primarily on sign language from the Indian Sign language Research & Training Centre (ISLRTC), and sign language interpreters for validation with reference to content, format and clarity.

3.5.5.5 Learning from Developed Module V: The fifth module, based on the CBSE Book "Entrepreneurship", 5th unit "Concept of Market", & Philip Kotler 4ps "Promotion", led to the development of the 5th module "Mastering the Art of Enterprise Marketing". All the parameters of design and development implemented in the Ist & IInd modules were implemented in this module. The script of the 5th module on "Mastering the Art of Enterprise

Marketing" was fiction and in a story form with 5 characters, 3 females and two males as the lead

3.6 CONSTRUCTION OF THE RESEARCH TOOLS for SUB MODULE I TO V:

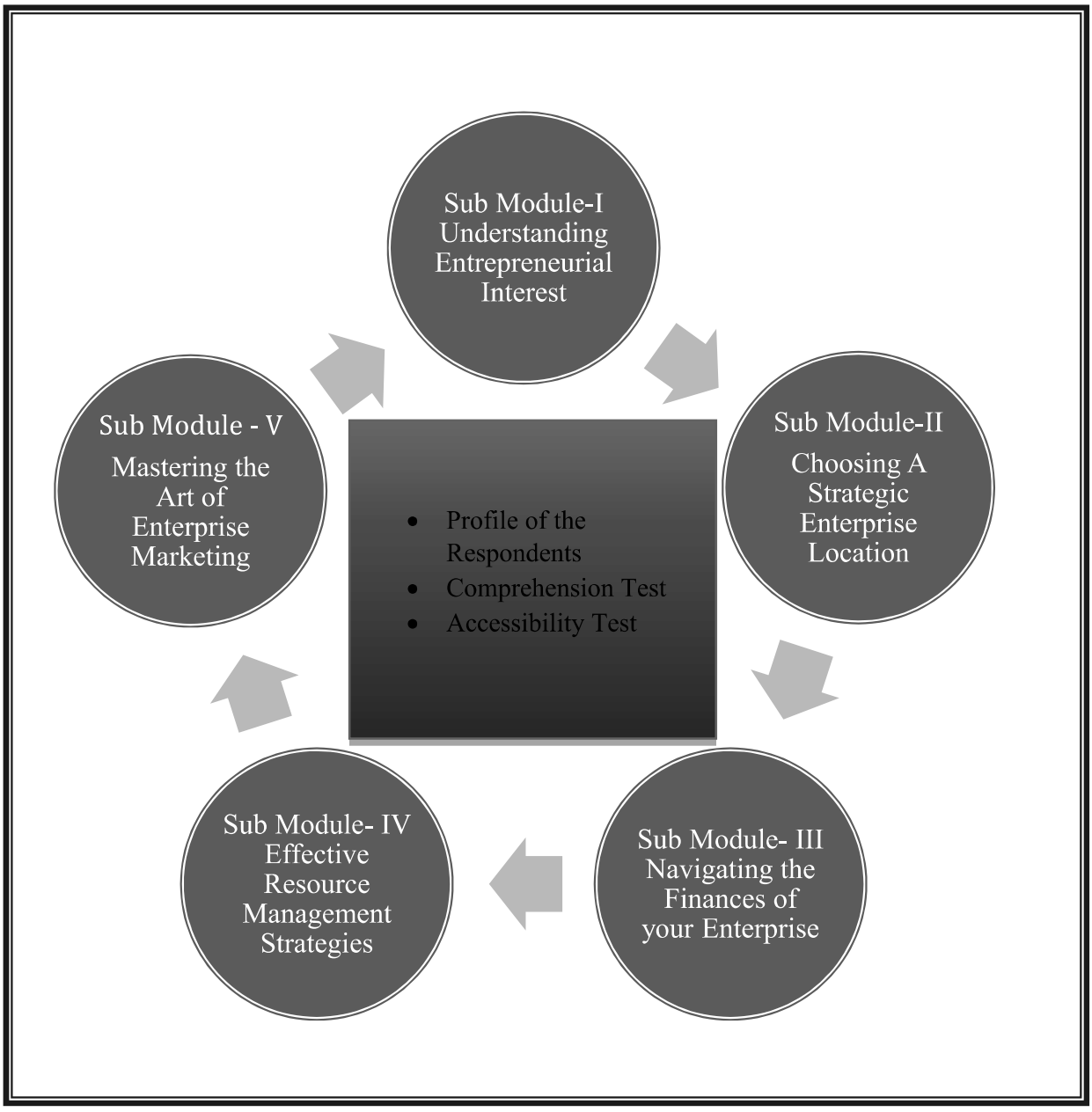


Figure 12 CONSTRUCTION OF THE RESEARCH TOOLS for SUB MODULE I TO V

3.6.1 Construction of the Research Tool for first Sub Module "Understanding Entrepreneurial Interest" at Kerala

The research tools were constructed based on the developed sub modules on **Understanding Entrepreneurial Interest,** considering the following parameters:

S. No.	Sections	Tools
a	Background information including variables of selected respondents	Checklist (Profile)
b	Comprehension of module	Checklist (Comprehension test)
c	Features & Aspects of module	Checklist (Accessibility test)

The first section was a checklist meant to collect specific demographic details in terms of age, gender, education level, exposure to social media and experience with accessible video formats.

The second section aimed to evaluate knowledge about the basics of entrepreneurship, focusing on "**Understanding Entrepreneurial Interest**".

The third section delved into module features, aspects, and problems faced in comprehending Accessible Digital Media and suggestions.

The construction of the tool was framed in simple English with multiple choices for easy comprehension for the deaf.

3.6.2 Construction of second Research Tool Sub Module "Choosing a Strategic Enterprise Location" at Northeast

The research tool was developed based on a developed module considering the following parameters:

S.No.	Sections	Tools
a	Background information including variables of selected respondents	Checklist (Profile)
b	Comprehension of module	Checklist(Comprehension test)
c	Features & Aspects of module	Checklist (Accessibility test)

The first section includes a checklist meant to collect specific demographic details in terms of age, gender, education level, exposure to social media and experience with accessible video-format.

The second section aimed to evaluate knowledge about the basics of entrepreneurship, focused on the "Choosing a Strategic Enterprise Location".

The third section delved into module features, aspects, problems faced in comprehending Accessible Digital Media, and suggestions.

The construction of the tool was in simple English with multiple choices for easy comprehension for the deaf.

3.6.3 Construction of third Research Tool Sub Module "Navigating the Finances of your Enterprise" at Odisha

The research tool was developed based on developed module considering the following parameters:

S.No.	Sections	Tools
a	Background information including variables of selected respondents	Checklist (Profile)
b	Comprehension of module	Checklist (Comprehension test)
c	Features & Aspects of module	Checklist (Accessibility test)

The first section is a checklist meant to collect specific demographic details in terms of age, gender, education-level, exposure to social media and experience with accessible video-format.

The second section aims to evaluate knowledge about the basics of entrepreneurship, focusing on "Finance/ Money – To Start your Own Business/ Enterprise".

The third section delves into module features, aspects, problems faced in comprehending Accessible Digital Media and suggestions.

The construction of the tool implemented simple English with multiple choices for easy comprehension for deaf.

3.6.4 Construction of fourth Research Tool Sub Module "Effective Resource Management Strategies" at Rajasthan

The research tool was developed based on developed modules considering the following parameters:

S.No.	Sections	Tools
a	Background information including variables of selected respondents	Checklist (Profile)
b	Comprehension of module	Checklist (Comprehension test)
c	Features & Aspects of module	Checklist (Accessibility test)

The first section is a checklist meant to collect specific demographic details in terms of age, gender, education-level, exposure to social media and experience with accessible video-format.

The second section aims to evaluate knowledge about the basics of entrepreneurship focusing on "Effective Resource Management Strategies".

The third section delves into module features, aspects, problems faced in comprehending Accessible Digital Media and suggestions.

The construction of the tool was made in simple English with multiple choices for easy comprehension for deaf.

3.6.5 Construction of Fifth Research Tool Sub Module "Mastering the Art of Enterprise Marketing" at Delhi

The research tool was developed based on developed modules considering the following parameters:

S.No.	Sections	Tools
a	Background information including variables of selected respondents	Checklist (Profile)
b	Comprehension of module	Checklist (Comprehension test)
c	Features & Aspects of module	Checklist (Accessibility test)

The first section is a checklist meant to collect specific demographic details in terms of age, gender, education-level, exposure to social media and experience with accessible video-formats.

The second section aims to evaluate knowledge about the basics of entrepreneurship focusing on “Mastering the Art of Enterprise Marketing”.

The third section delves into module features, aspects, problems faced in comprehending Accessible Digital Media and suggestions.

The construction of the tool was made in simple English with multiple choices for easy comprehension for deaf.

3.7 VALIDATION OF THE RESEARCH TOOLS FOR THE SUB MODULES I TO V

3.7.1 Validation of the Research Tool for first Sub Module “Understanding Entrepreneurial Interest” at Kerala

The research tool was validated by an academician of Deaf studies, primarily on sign language at the Centre for Communication and Media Development (CCMD), and a sign language interpreter from NISH.

3.7.2 Validation of second Research Tool Sub Module “Choosing a Strategic Enterprise Location” at Northeast

The research tool was validated by an academician of Deaf studies primarily on sign language, the Principal, faculty staff at SCHHC, and a sign language interpreter from Shillong.

3.7.3 Validation of third Research Tool Sub Module “Navigating the Finances of your Enterprise” at Odisha

The research tool was validated by selected deaf official and members of the Odisha Deaf Association; academicians of deaf studies, primarily on sign language from the regional centre AYJNISHD; Deaf College; an NGO working for the Deaf; and a sign language interpreter from Bhubaneswar.

3.7.4 Validation of fourth Research Tool Sub Module “Effective Resource Management Strategies” at Rajasthan

The research tool was validated by an academician of Deaf studies primarily on sign language, Principal, faculty staff of Govt. Deaf College, and a sign language interpreter from Jaipur.

3.7.5 Validation of fifth Research Tool Sub Module "Mastering the Art of Enterprise Marketing" at Delhi

The research tool was validated by academicians of Deaf studies primarily on sign language from the Indian Sign language Research & Training Centre (ISLRTC), and sign language interpreters, New Delhi.

3.8 SCREENING OF THE SUB MODULES I TO V AT KERALA, NORTHEAST, ODISHA, RAJASTHAN, DELHI

The sub modules I to V were showcased in a classroom setting using a projector in the institutes at Kerala, Northeast, Odisha, Rajasthan and Delhi respectively.

3.9 ADMINISTRATION OF THE COMPREHENSION AND ACCESSIBILITY TOOLS FOR THE SUB MODULES I TO V AT KERALA, NORTHEAST, ODISHA, RAJASTHAN, DELHI

After the module screening, respondents were distributed a questionnaire, which included a comprehension and an accessibility test at Kerala, Northeast, Odisha, Rajasthan and Delhi respectively.

3.10 SCORING AND CATEGORIZATION OF THE INDEPENDENT VARIABLES FOR THE SUB MODULES I TO V AT KERALA, NORTHEAST, ODISHA, RAJASTHAN, DELHI

3.10.1 Scoring and Categorization of the Independent Variables for the Sub Module I "Understanding Entrepreneurial Interest" at Kerala

The following table describes scoring and categorizing of the selected independent variables undertaken in the study.

Table 1: Categorisation of the Independent Variables of Deaf Respondents from Kerala.

S.NO.	Variable	Basis	Categories
1	Age	16-20 Years	Teenagers
		21-25 Years	Young Adults
		26-30 Years	Early Adults
2	Gender	Males	Males
		Females	Females
3	Exposure to Social Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
4	Exposure to Accessible Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
5	Education	Undergraduates	Undergraduates

3.10.2 Scoring and Categorization of the Independent Variables of the Profile Tool for the Sub Module II "Choosing a Strategic Enterprise Location" at Northeast

The following table describes scoring & categorizing of the selected independent variables undertaken in the study.

Table 2: Categorization of the Independent Variables of Deaf Respondents from Northeast.

S. No.	Variable	Basis	Categories
1	Age	16-20 Years	Teenagers
		21-25 Years	Young Adults
		26-30 Years	Early Adults
2	Gender	Males	Males
		Females	Females
3	Exposure to Social Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
4	Exposure to Accessible Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
5	Education	8^{th} Pass	Middle
		10^{th} Pass	Secondary
		12^{th} Pass	Senior Secondary
		Undergraduates	Undergraduates

3.10.3 Scoring and Categorization of the Independent Variables for the Sub Module III "Navigating the Finances of your Enterprise" at Odisha

The following table describes scoring & categorizing of the selected independent variables undertaken in the study.

Table 3: Categorization of the Independent Variables of Deaf Respondents from Odisha

S.NO.	Variable	Basis	Categories
1	Age	16-20 Years	Teenagers
		21-25 Years	Young Adults
		26-30 Years	Early Adults
2	Gender	Males	Males
		Females	Females
3	Exposure to Social Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
4	Exposure to Accessible Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
5	Education	8th Pass	Middle
		10th Pass	Secondary
		12th Pass	Senior Secondary
		Undergraduates	Undergraduates

3.10.4 Scoring and Categorization of the Independent Variables for the Sub Module IV "Effective Resource Management Strategies" at Rajasthan

The following table describes scoring & categorizing of the selected independent variables undertaken in the study.

Table 4: Categorization of the Independent Variables of Deaf Respondents from Jaipur Rajasthan

S.No.	Variable	Basis	Categories
1	Age	16-20 Years	Teenagers
		21-25 Years	Young Adults
		26-30 Years	Early Adults
2	Gender	Males	Males
		Females	Females
3	Exposure to Social Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
4	Exposure to Accessible Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
5	Education	10th Pass	Secondary
		12th Pass	Senior Secondary
		Undergraduates	Undergraduates

3.10.5 Scoring and Categorization of the Independent Variables for the Sub Module V "Mastering the Art of Enterprise Marketing" at Delhi

The following table describes scoring & categorizing of the selected independent variables undertaken in the study.

Table 5: Categorization of the Independent Variables of Deaf Respondents from Delhi.

S.NO.	Variable	Basis	Categories
1	Age	16-20 Years	Teenagers
		21-25 Years	Young Adults
		26-30 Years	Early Adults
2	Gender	Males	Males
		Females	Females
3	Exposure to Social Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
4	Exposure to Accessible Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
5	Education	12^{th} Pass	Senior Secondary
		Undergraduates	Undergraduates

3.11 SCORING AND CATEGORIZATION OF THE DEPENDENT VARIABLES OF THE COMPREHENSION AND ACCESSIBILITY TOOLS FOR THE SUB MODULES I TO V AT KERALA, NORTHEAST, ODISHA, RAJASTHAN, DELHI

3.11.1 Scoring and Categorization of the Dependent Variables of the Comprehension and Accessibility Tools for the Sub Module I "Understanding Entrepreneurial Interest" at Kerala

A comprehension test was prepared to measure the comprehension level of the deaf respondents regarding the content of the module screened. There was a total of 14 questions asked. A correct answer scored 1 and an incorrect answer scored 0. Thus, the maximum possible score of this test was 14, and minimum possible score was 0.

Table 6: Categorization of Scores in Comprehension Test

S.NO.	Variables	Basis	Categories
1	Comprehension regarding the Content of the Module I	Below Mean	Low Comprehension
		Mean & Above	High Comprehension

An accessibility scale prepared, measured the reactions of the respondents regarding the accessibility of the module screened. There was a total of 9 questions asked. The correct answer scored 1 and an incorrect answer scored 0. Thus, the maximum possible score of this test was 9, and the minimum possible score was 0.

Table 7: Categorization of Scores in Accessibility Scale

S.NO.	Variables	Basis	Categories
1	Accessibility of the Module I	Below Mean	Low Accessibility
		Mean & Above	High Accessibility

3.11.2 Scoring and Categorization of the Dependent Variables of the Comprehension and Accessibility Tools for the Sub Module II "Choosing a Strategic Enterprise Location" at Northeast

A comprehension test prepared, measured the respondent's comprehension-level regarding the content of the module screened. There was a total of 24 questions asked. The correct answer scored 1and an incorrect answer scored 0. Thus, the maximum possible score for this test was 24, and the minimum possible score was 0.

Table 8: Categorization of Scores in Comprehension Test

S. No.	Variables	Basis	Categories
1	Comprehension regarding the Content of the Module II	Below Mean	Low Comprehension
		Mean & Above	High Comprehension

An accessibility scale prepared, measured the reactions of the respondents regarding the accessibility of the module screened. There was a total of 9 questions asked. The correct answer scored 1and an incorrect answer scored 0. Thus, the maximum possible score for this test was 9, and the minimum possible score was 0.

Table 9: Categorization of Scores in Accessibility Scale

S.No.	Variables	Basis	Categories
1	Accessibility of the Module II	Below Mean	Low Accessibility
		Mean & Above	High Accessibility

3.11.3 Scoring and Categorization of the Dependent Variables of the Comprehension and Accessibility Tools for the Sub Module III "Navigating the Finances of your Enterprise" at Odisha

A comprehension test prepared, measured the comprehension level of the respondents regarding the content of the module screened. There was a total of 16 questions asked. The correct answer scored 1 and an incorrect answer scored 0. Thus, the maximum possible score for this test was 16 and the minimum possible score 0.

Table 10: Categorization of Scores in Comprehension Test

S.No.	Variables	Basis	Categories
1	Comprehension regarding the Content of the Module II	Below Mean	Low Comprehension
		Mean & Above	High Comprehension

An Accessibility scale prepared, measured the reactions of the respondents regarding the accessibility of the module screened. There was a total of 9 questions asked. The correct answer scored 1, and an incorrect answer scored 0. Thus, the maximum possible score of this test was 9, and the minimum possible score 0.

Table 11: Categorization of Scores in Accessibility Scale

S.No.	Variables	Basis	Categories
1	Accessibility of the Module II	Below Mean	Low Accessibility
		Mean & Above	High Accessibility

3.11.4 Scoring and Categorization of the Dependent Variables of the Comprehension and Accessibility Tools for the Sub Module IV "Effective Resource Management Strategies" at Rajasthan

A comprehension test prepared, measured the comprehension level of the respondents regarding the content of the module screened. There was a total of 21 questions asked. The correct answer scored 1 and an incorrect answer scored 0. Thus, the maximum possible score of this test was 21, and the minimum possible score was 0.

Table 12: Categorization of Scores in Comprehension Test

S.No.	Variables	Basis	Categories
1	Comprehension regarding the Content of the Module II	Below Mean	Low Comprehension
		Mean & Above	High Comprehension

An Accessibility scale prepared, measured the reactions of the respondents regarding the accessibility of the module screened. There was a total of 9 questions asked. A correct answer scored 1 and an incorrect answer scored 0. Thus, the maximum possible score on the test was 9, and the minimum possible score was 0.

Table 13: Categorization of Scores in Accessibility Scale

S.No.	Variables	Basis	Categories
1	Accessibility of the Module II	Below Mean	Low Accessibility
		Mean & Above	High Accessibility

3.11.5 Scoring and Categorization of the Dependent Variables of the Comprehension and Accessibility Tools for the Sub Module V "Mastering the Art of Enterprise Marketing" at Delhi

A knowledge test prepared, measured the comprehension-level of the respondents regarding the content of the module screened. There was a total of 13 questions asked. A correct answer scored 1 and an incorrect answer scored 0. Thus, the maximum possible score of this test was 13, and the minimum possible score was 0.

Table 14: Categorization of Scores in Knowledge Test

S.No.	Variables	Basis	Categories
1	Comprehension regarding the Content of the Module II	Below Mean	Low Comprehension
		Mean & Above	High Comprehension

An Accessibility scale prepared, measured the reactions of the respondents regarding the accessibility of the module screened. There was a total of 9 questions asked. A correct answer scored 1 and an incorrect answer scored 0. Thus, the maximum possible score of this test was 9, and the minimum possible score was 0.

Table 15: Categorization of Scores in Accessibility Scale

S.No.	Variables	Basis	Categories
1	Accessibility of the Module II	Below Mean	Low Accessibility
		Mean & Above	High Accessibility

4. PLANNING FOR THE FINAL EXPERIMENT

The Feasibility Study was conducted in Vadodara, the city housing the investigator's university, which also served as the planned location for the final pre-post evaluation. Due to observed challenges in gathering deaf individuals initially in Vadodara for a single event, it was deemed necessary to create an event to accomplish this. A workshop was proposed in collaboration with the Vadodara Municipal Corporation (VMC) and Mook Badhir Mandal (MBM), under the auspices of the Department of Extension & Communication, Faculty of Family & Community Sciences at The Maharaja Sayajirao University of Baroda (MSUB). The researcher obtained a support letter for the workshop, where all modules on entrepreneurship for the Deaf would be presented. While VMC was hesitant to participate under the MSUB banner, MBM endorsed the event. After VMC's withdrawal, United Way of Baroda, a Vadodara-based NGO, was approached but subsequently declined participation.

Consequently, Indore was selected due to existing connections with the Indore Deaf Bilingual Academy (IDBA). Managed by Mook Badhir Sangathan, IDBA offers a comprehensive educational program, from nursery to post-graduation levels, including various vocational training courses. Central to IDBA's ethos is Educational Bilingualism, which emphasizes teaching through Indian Sign Language (ISL), ensuring fluency in ISL among both teachers and students.

4.1 RESEARCH INSTRUMENT DEVELOPMENT

A research instrument was devised that employed questionnaires in both sign language and English. This tool mainly utilized objective-type questions in a yes/no format and multiple choices.

The investigator designed the following sections to gather data:

S.No.	Sections	Tools
a	Background information including variables of selected respondents	Checklist (Profile)
b	Comprehension of module	Checklist (Comprehension test)
c	Features & Aspects of module	Checklist (Accessibility test)

The first section was to collect specific demographic details in terms of age, gender, education level, exposure to social media and experience with accessible video format.

The second section aimed to evaluate knowledge about the basics of entrepreneurship, focusing on Interest, Choosing a Strategic Enterprise Location, Navigating the Finances of your Enterprise, Mastering the Art of Enterprise Marketing and Effective Resource Management Strategies.

The third section delved into module features, aspects, problems faced in comprehending Accessible Digital Media and suggestions.

4.2. RESEARCH TOOL VALIDATION

The research tools were validated by the experts in the field of Deaf Disability. The validators were requested to review the tools and give their expert critical remarks about the content, framing of the questions/statements, clarity of the language, ease in comprehension, and the time required to complete the tool. The researcher invited suggestions to include in the research tool. However no major suggestions were received.

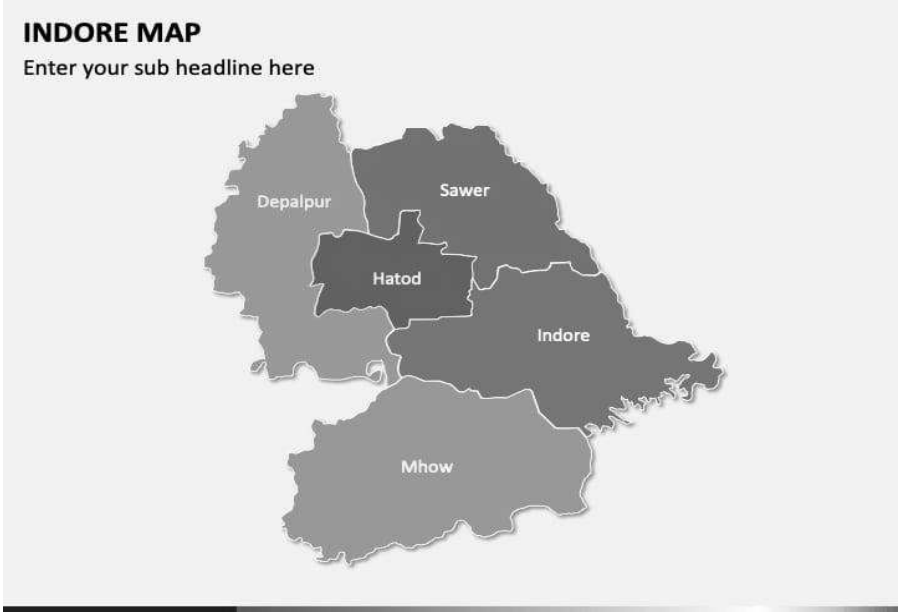
4.3. ETHICAL CONSIDERATIONS: During the research study, the investigator considered and followed the necessary ethical measures. First and foremost, important permissions were sought from the administrative authorities of various institutes/organisations for the designing and development of the modules, as well as administering the experiments. For this, the Ministry of Health & Ministry of State Education at Shillong, Meghalaya, Ministry of Social Justice & Empowerment, Orissa, and Ministry of Social Justice & Empowerment, New Delhi, were approached.

The investigation required to get the written scripts of the modules validated by the experts from the field of Deaf Disability as well as Media Experts.

Once the experts validated the scripts, five modules were developed. Further, the modules were validated by experts.

Moreover, the tools constructed by the investigator were validated by the experts in the field of Deaf Disability.

The investigator also had gained written consent from all the participants before the execution of the experiment in all the six states namely: Kerala, North-East, Orissa, Rajasthan, New Delhi, and Madhya Pradesh.



4.4. PART3: EXPERIMENT OF MODULES ON ACCESSIBLE DIGITAL MEDIA IN VIDEO FORMAT ON "BASICS OF ENTREPRENEURSHIP FOR DEAF"

4.4.1 PLANNING FOR THE FINAL EXPERIMENT OF THE STUDY

The experimental treatments were assigned to first- and third-year graduate students assembled in one class. The target segment was above 16 and pursuing higher education, in place of individuals, due to constraints of administration. Thus, the nature of the study was experimental, taking into consideration heterogeneity with reference to gender and education-level. Permission was taken from the Founder & Principal of Indore Deaf Bilingual Academy (IDBA) for screening and conducting the experiment; from Director of Higher Education, for availability of faculty and students, from the Indian Sign Language Cell for the availability of sign language interpreters, as well as from the faculty of FY, SY and TY. The class was secured in advance to conduct the experiment. A time-plan was prepared, and classes fixed accordingly.

4.4.2 EXPERIMENT EXECUTION

The experiment was executed in April 2023, incorporating both pre and post-test designs. Therefore, the execution involved three distinct stages:

- Administering the Pre-test.

- Screening of Modules.
- Administering the Post-test.

4.4.3 ADMINISTERING THE PRE-TEST

The pre-test was conducted with the selected Deaf before the actual screening. It included the administration of the first and second section of the research tool.

- An orientation was given regarding the experiment by the investigator, followed by the sign language interpreter.
- Their consent was sought for participation by filling-in a consent form.
- The pre-test form was distributed to all the selected Deaf respondents.
- The consent form and each question with their multiple choices were explained through a sign language interpreter.

4.4.4 PRE-TEST CHALLENGES

- Participants, due to limited vocabulary, frequently sought clarifications.
- Even with explanations provided by interpreters, there were numerous questions regarding the wording in the research tool.
- Due to extensive queries, multiple sign language interpreters were required, with six interpreters ultimately assisting 78 participants.

4.4.4 MODULE SCREENING

Modules were showcased in a classroom setting using a projector.

4.4.5 ADMINISTERING THE POST-TEST

After module screening, participants were immediately given a post-test, which included a knowledge and an accessibility test.

The concluding pre-post study was conducted in Indore. Notably, IDBA boasts some of India's most proficient sign language interpreters. Through this experience, the importance of sign language interpreters in enhancing the comprehension of the Deaf became evident to the researcher.

4.4.5.1 Scoring & Categorization of the Independent Variables: The following Tables describe scoring & Categorizing of the selected variables under the study.

Table 1: Categorization of the Independent Variables of Deaf Respondents from North East.

S.No.	Variable	Basis	Categories
1	Age	16-20 Years	Teenagers
		21-25 Years	Young Adults
		26-30 Years	Early Adults
2	Gender	Males	Males
		Females	Females
3	Exposure to Social Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
4	Exposure to Accessible Media	Below Mean	Low Exposure
		Mean & Above	High Exposure
5	Education	10^{th} Pass	Secondary
		12^{th} Pass	Senior secondary
		Undergraduates	Undergraduates

4.4.5.2 Scoring & Categorization of the Dependent Variables: A knowledge test prepared, measured the comprehension-level of the respondents regarding the content of the module screened. There was a total of 14 questions asked. A correct answer scored 1 and an incorrect answer scored 0. Thus, the maximum possible score for this test was 14, and the minimum 0.

Table 2: Categorization of Scores in Knowledge Test

S.NO.	Variables	Basis	Categories
1	Comprehension regarding the Content of the Module II	Below Mean	Low Comprehension
		Mean & Above	High Comprehension

An Accessibility scale prepared, measured the reactions of the respondents regarding the accessibility of the module screened. There was a total of 9 questions asked. A correct answer scored 1, and an incorrect answer 0. Thus, the maximum possible score for this test was 9, and the minimum 0.

Table 3: Categorization of Scores in Accessibility Scale

S.No.	**Variables**	**Basis**	**Categories**
1	Accessibility of the Module II	Below Mean	Low Accessibility
		Mean & Above	High Accessibility

4.5. PLAN OF STATISTICAL ANALYSES

Table-21: Different Statistical Measures Used for Analysis of Data

S.No	Purpose	Statistical Measures Used
1.	Background information of the respondents	Percentages
2.	Effectiveness of the module on' Basics of Entrepreneurship' in terms of Comprehension amongst the selected Deaf	Wilcoxon Sign Rank Test (Non-parametric Statistics)
3.	Significant differences in the effectiveness of the module on' Basics of Entrepreneurship' in terms of comprehension amongst the selected Deaf in relation to the following variables: Age Gender Education Level Exposure to social Media Exposure to Accessibility Media	Mann-Whitney U Test (Non-parametric Statistics)
4.	Significant differences in the Accessibility of the module on' Basics of Entrepreneurship' in terms of comprehension amongst the selected Deaf in relation to the following variables: *Age *Gender *Education Level *Exposure to social Media *Exposure to Accessibility Media	Mann-Whitney U Test (Non-parametric Statistics)

5. FINDINGS OF THE STUDY

Section I

- **Module Designing & Development**

National Institute Speech & Hearing, Thiruvananthapuram, Kerala.

5.1 Profile of the Deaf Respondents From National Institute Of Speech & Hearing, Thiruvananthapuram, Kerala.

1) The majority, i.e., 81% of the respondents belonged to the 21-25 age group.
2) 100% of the respondents in Kerala were studying for a bachelor's degree (FY-TY).
3) There's a significantly higher number of male respondents i.e., 65% compared to female deaf respondents i.e., only 34%.
4) A little less than the majority i.e., 58% of the participants had low exposure to social media.

The respondents were almost equally divided in terms of exposure to accessible media, with a slight inclination towards high accessibility i.e., 53%.

5.2 Overall Effectiveness of the Designed & Developed Sub Module I on "Understanding Entrepreneurial Interest" in terms of Comprehension of the selected Deaf Respondents From National Institute Of Speech & Hearing, Thiruvananthapuram, Kerala.

A majority i.e., 63% of the Deaf respondents found the developed Sub Module I to be highly effective. However, 36.2% of respondents from Kerala found the accessible digital media in video-format to be of low effectiveness in comprehension of the Basics of Entrepreneurship.

5.3 Variable-wise effectiveness of the designed & developed sub module I on "Understanding Entrepreneurial Interest" in terms of comprehension of the selected deaf Respondents From National Institute of Speech & Hearing, Thiruvananthapuram, Kerala.

1) 100% of the mature students i.e., belonging to the age group of 26-30 years, expressed the module entitled "Interest" as highly effective, followed by 64.3% of the students belonging to the age group of 21-25 years. 58% of the students from the age group of 16-20 years found the module to be highly effective.
2) With respect to the variable education, 63.8% of the Deaf students of a bachelor's degree (FY-TY) found the module highly effective. However, their counterparts, i.e., 36.2% found it to be not so effective.
3) Male and female Deaf students were similar in percentage i.e., 64.4% and 62.5%, respectively, found the module to be highly effective.
4) 69% of the respondents with high exposure to social media found the module to be highly effective compared to their counterparts i.e., from the group of students with low exposure to social media at 60%.
5) Almost 57% of respondents with high exposure to accessible media reported that the module was highly effective, compared to 71.9% of students with low exposure to Accessible Media found the module highly effective.

5.4 Differences in the variable-wise effectiveness of the designed and developed sub module I on "Understanding Entrepreneurial Interest" in terms of comprehension of the selected Deaf Respondents From National Institute of Speech & Hearing, Thiruvananthapuram, Kerala.

1) There was no significant difference in the comprehension of the selected Deaf concerning the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** in relation to the variable Gender. Therefore, the null hypothesis, stating no significant differences in the effectiveness of the developed sub module I on **"Understanding Entrepreneurial Interest",** in terms of comprehension of the selected deaf respondents in relation to the variable Gender, was **accepted.**
2) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** in relation to the variable Exposure to Social Media. Therefore, the null hypothesis, stating no significant differences in the effectiveness of the developed sub module I on **"Understanding Entrepreneurial Interest"** in terms of comprehension of the selected Deaf respondents, in relation to the variable Exposure to Social Media was **accepted**.
3) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** in relation to the variable Exposure to Accessible Media. Therefore, the null hypothesis stating no significant differences in the effectiveness of the developed sub module I on **"Understanding Entrepreneurial Interest"** in terms of comprehension of selected deaf respondents in relation to the variable Exposure to accessible Media was **accepted**.
4) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** in relation to the variable age. Therefore, the null hypothesis, stating no significant differences in the effectiveness of the developed sub module I on **"Understanding Entrepreneurial Interest"** in terms of comprehension of the selected Deaf respondents in relation to the variable Age was **accepted**.
5) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** in relation to the variable Education. Therefore, the null hypothesis, stating no significant differences in the effectiveness of the developed sub

module I on **"Understanding Entrepreneurial Interest"** in terms of comprehension of the selected deaf respondents in relation to the variable Education was **accepted**.

5.5 Accessibility of the designed & developed sub module on "Understanding Entrepreneurial Interest" for the selected deaf Respondents From National Institute of Speech & Hearing, Thiruvananthapuram, Kerala.

5.5.1 Overall accessibility of the designed & developed sub module I on "Understanding Entrepreneurial Interest" for the selected deaf Respondents From National Institute of Speech & Hearing, Thiruvananthapuram Kerala.

A significant majority of Deaf students in the BA, FY-TY program i.e., 66.7%, found Accessible Digital Media to be of high accessibility. This indicated its suitability and effectiveness in addressing their learning needs in entrepreneurship basics. However, one-third i.e., 33.3% of the students experienced difficulties, pointing to existing barriers or unmet needs in accessibility of the digital media developed.

5.5.2 Variable-wise accessibility of the designed & developed sub module I on "Understanding Entrepreneurial Interest" for selected deaf Respondents From National Institute of Speech & Hearing, Thiruvananthapuram, Kerala.

1) Youngest and oldest age groups generally reported higher accessibility, although the representation of the 26-30 age group was minimal.

2) All participants held a bachelor's degree, with about one-third reporting low accessibility.

3) Females generally perceived higher accessibility (75%) compared to males (62.2%).

4) Students with low exposure to social media perceived higher accessibility (72.5%) compared to those with high exposure (58.6%).

5) High accessibility was perceived more by those with high access to media (70.3%) compared to those with low media access (62.5%).

5.5.3 Differences in the variable-wise accessibility of the designed & developed sub module I on "Understanding Entrepreneurial Interest" for selected deaf Respondents From National Institute Of Speech & Hearing, Thiruvananthapuram, Kerala.

1) There was no significant difference in the accessibility of the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** of the selected Deaf in relation to the variable Gender. Therefore, the null hypothesis stating no significant differences in the accessibility of the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** of the selected Deaf in relation to the variable Gender, was **accepted**.
2) There was no significant difference in the accessibility of the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** of the selected Deaf in relation to the variable Exposure to Social Media. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed module on **"Understanding Entrepreneurial Interest"** of the selected Deaf in relation to the variable Exposure to Social Media, was **accepted**.
3) There was no significant difference in the accessibility of the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** of the selected Deaf in relation to the variable Exposure to Accessible Media. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** of the selected Deaf in relation to the variable Exposure to Accessible Media, was **accepted**.
4) There was no significant difference in the accessibility of the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** of the selected Deaf in relation to the variable age. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** of the selected Deaf in relation to the variable Age, was **accepted**.
5) There was no significant difference in the accessibility of the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** of the selected Deaf in relation to the variable Education. Therefore, the null hypothesis

stating that there will be no significant differences in the accessibility of the designed & developed sub module I on **"Understanding Entrepreneurial Interest"** of the selected Deaf in relation to the variable education, was **accepted**.

5.5.4 Accessibility of the designed & developed sub module I on "Understanding Entrepreneurial Interest" for selected deaf Respondents From National Institute of Speech & Hearing, Thiruvananthapuram, Kerala with reference to the selected features:

1) 34.6% of the respondents reported low accessibility of content, while 65.4% reported high accessibility.
2) Approximately 39.7% of respondents indicated low accessibility of sign language, and 60.3% reported high accessibility.
3) A small proportion (15.4%) found visuals to have low accessibility, whereas the majority (84.6%) reported high accessibility.
4) Similar to language accessibility, 39.7% of respondents reported low accessibility of text, while 60.3% reported high accessibility.
5) All respondents (100.0%) indicated short-time duration, with none reporting long-time duration.
6) About 23.1% of respondents reported low accessibility of captions, while the majority (76.9%) reported high accessibility.
7) Almost all respondents (98.5%) indicated the presence of accessibility formats, while only a small proportion (1.5%) reported no accessibility format.

5.6 North-East:

5.6.1 Profile of the Respondents from the North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya).

1) The age of participants was evenly distributed, 64.6% belonged to the 16-25 age group and 35.4% belonged to the 26- 35 age group.
2) 70.8% of the respondents in NE had completed 10^{th} class, 17.7% had finished 12^{th} class, and 11.5% had a bachelor's degree.
3) The gender distribution was balanced, with 41.6% female participants and 58.4% male participants.

4) A substantial 83.2% of the respondents reported low exposure to social media, while only 16.8% reported high exposure.
5) The respondents were almost equally divided in terms of Exposure to Accessible Media, with a slight majority towards low accessibility i.e., 57%.

5.6.2 Overall Effectiveness of the designed & developed sub module II on "Choosing a Strategic Enterprise Location" in terms of comprehension of the selected Deaf from the North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya).

A majority i.e., 52% of the deaf respondents found the developed sub module II to be highly effective. However, 48% of respondents from North-East found the accessible digital media in video format to be of low effectiveness in comprehension of the basics of entrepreneurship.

5.6.3 Variable-wise effectiveness of the designed & developed sub module II on "Choosing a Strategic Enterprise Location" in terms of comprehension of the selected deaf from the North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya).

1) Particularly the 26-30 years group showed high effectiveness at 88.9%, while the 31-35 years group showed significantly lower high effectiveness (32.3%) in comprehension compared to other age groups.
2) Those with 12th pass education-level reported a higher high effectiveness (65.0%) compared to 8th pass (46.7%) and 10th Pass (51.4%) education-levels.
3) Females have a slightly higher high effectiveness (55.3%) compared to males (50.0%) in comprehension.
4) Those with high exposure to social media have substantially higher high effectiveness (73.7%) compared to those with low exposure (47.9%).
5) Participants with high accessibility to media show greater high effectiveness (60.4%) in comprehension compared to those with low accessibility (46.2%).

5.6.4 Differences in the variable-wise effectiveness of the designed & developed sub module II on "Choosing a Strategic Enterprise Location" in terms of comprehension of the selected deaf from the North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya).

1) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module II on **"Choosing a Strategic**

Enterprise Location" in relation to the variable Gender. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed sub module II on **"Choosing a Strategic Enterprise Location"** in terms of comprehension of the selected deaf respondents in relation to the variable Gender, was **accepted**.

2) There was a significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module on **"Choosing a Strategic Enterprise Location"** in relation to the variable Exposure to Social Media. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed sub module II on **"Choosing a Strategic Enterprise Location"** in terms of comprehension of the selected deaf respondents in relation to the variable Exposure to Social Media was **rejected**.
3) There was a significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module on **"Choosing a Strategic Enterprise Location"** in relation to the variable Exposure to Accessible Media. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed sub module II on **"Choosing a Strategic Enterprise Location"** in terms of comprehension of selected deaf respondents in relation to the variable Exposure to Accessible Media was **rejected**.
4) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** in relation to the variable Age. Therefore, the null hypothesis, stating that there will be no significant differences in the effectiveness of the developed sub module II on **"Choosing a Strategic Enterprise Location"** in terms of comprehension of the selected deaf respondents in relation to the variable Age, was **accepted.**
5) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** in relation to the variable Education. Therefore, the null hypothesis, stating that there will be no significant differences in the effectiveness of the developed sub module II on **"Choosing a Strategic Enterprise Location"** in terms of comprehension of the selected deaf respondents in relation to the variable Education, was **accepted.**

5.6.5. Accessibility of the designed & developed sub module II on "Choosing a Strategic Enterprise Location" for the selected deaf from the North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong -Meghalaya).

5.6.6 Overall accessibility of the designed & developed sub module II on "Choosing a Strategic Enterprise Location" for the selected deaf. from the North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya).

A significant majority of Deaf in the NE region i.e., 66.4% found Accessible Digital Media to be high in accessibility, indicating its suitability and effectiveness in addressing their learning needs in entrepreneurship basics. However, one-third i.e., 33.3% of the deaf experienced difficulties, pointing to existing barriers or unmet needs in accessing the digital media developed.

5.6.7. Variable-wise accessibility of the designed & developed sub module II on "Choosing a Strategic Enterprise Location" for the selected deaf from the North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong -Meghalaya).

1) The 21 to 25 years age group reported the highest high accessibility at 80.0% while the 31 to 35 years age group experienced significantly lower high accessibility (45.2%) compared to other age groups.
2) Bachelor's degree holders reported substantially higher accessibility (76.9%) than other education levels.
3) Females experienced higher accessibility (78.7%) in comparison to males (57.6%).
4) Respondents with high exposure to social media reported overwhelmingly high accessibility (89.5%), compared to those with low exposure (61.7%).
5) Participants with high media accessibility experienced considerably higher accessibility (75.0%) to the content, compared to those with low media accessibility (60.0%).

5.6.8. Differences in the variable-wise accessibility of the designed & developed sub module II on "Choosing a Strategic Enterprise Location" for selected deaf from the North-East (Dimapur-Nagaland, Imphal-Manipur & Shillong-Meghalaya).

1) There was a significant difference in the accessibility of the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** of the selected Deaf in relation to the variable Gender. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub

module II on **"Choosing a Strategic Enterprise Location"** of the selected Deaf in relation to the variable Gender, was **rejected**.

2) There was a significant difference in the accessibility of the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** of the selected Deaf in relation to the variable Exposure to Social Media. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** of the selected Deaf in relation to the variable Exposure to social Media, was **rejected**.
3) There was no significant difference in the accessibility of the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** of the selected Deaf in relation to the variable Exposure to Accessible Media. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** of the selected Deaf in relation to the variable Exposure to accessible Media, was **accepted**.
4) There was no significant difference in the accessibility of the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** of the selected Deaf in relation to the variable Age. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** of the selected Deaf in relation to the variable Age, was **accepted**.
5) There was no significant difference in the accessibility of the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** of the selected Deaf in relation to the variable Education. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module II on **"Choosing a Strategic Enterprise Location"** of the selected Deaf in relation to the variable Education, was **accepted**.

5.6.9. Accessibility of the designed & developed sub module II on "Choosing a Strategic Enterprise Location" for selected deaf with reference to the selected features.

1) A small proportion, 37.2% of the respondents reported low accessibility of content, while 62.8% reported high accessibility.
2) Approximately 29.5% of respondents indicated low accessibility of sign language, and 70.5% reported high accessibility.

3) A small proportion, 32.1% found visuals to have low accessibility, whereas the majority at 67.9% reported high accessibility.
4) Similar to language accessibility, 46.2% of respondents reported low accessibility of text, while 53.8% reported high accessibility.
5) All respondents (100.0%) indicated short-time duration, with none reporting long-time duration.
6) About 44.9% of respondents reported low accessibility of captions, while the majority 55.1% reported high accessibility.
7) All respondents (100%) indicated the presence of accessibility formats.

5.7. Odisha

5.7.1. **Profile of the Respondents** from the **Special Industrial Training Institute for PWDs, Jatni, Odisha.**

1) The majority of participants were clustered in the 16-25 age range, with both 16-20 and 21-25 years representing 48.1% each, of the total, and only 3.8% were between 26-30 years.
2) The most represented educational level is 10th Pass at 53.2%, followed by 2nd Intermediate at 38%, and a bachelor's degree at 7.6%. Very few have an 8th Pass, constituting only 1.3%.
3) There was a higher representation of males at 70.9%, compared to females at 29.1%.
4) They were almost equally divided between Low Exposure (49.4%) and High Exposure (50.6%) to social media.
5) A significant 64.6% of the participants reported Low Accessibility to media, with only 35.4% having High Accessibility.

5.7.2. **Overall effectiveness of the designed & developed sub module III on "Navigating the Finances of your Enterprise" in terms of comprehension of the selected Deaf** from the **Special Industrial Training Institute for PWDs, Jatni, Odisha.**

A majority i.e., 55.7% of the deaf respondents found the developed sub module III to be highly effective. However, 44.3% of respondents from Odisha found the accessible digital media in video format to be of low effectiveness in comprehension of the basics of entrepreneurship.

5.7.3. Variable-wise effectiveness of the designed & developed sub module III on "Navigating the Finances of your Enterprise" in terms of comprehension of the selected Deaf from the Special Industrial Training Institute for PWDs, Jatni, Odisha.

1) The 16-20 age group showed 47.4% High Effectiveness, while the 21-25 group had 57.9% High Effectiveness.
2) The 8th Pass education-level stood out with 100% High Effectiveness, while other education levels showed varying percentages.
3) Males had a slightly higher percentage (57.1%) of High Effectiveness compared to females (54.5%).
4) High Exposure to social media correlated with 67.5% High Effectiveness, whereas Low Exposure had 56.4%.
5) High Accessibility to Media was associated with 67.9% High Effectiveness, while Low Accessibility was at 51.0%.

5.7.4. Differences in the variable-wise effectiveness of the designed & developed sub module III on "Navigating the Finances of your Enterprise" in terms of comprehension of the selected deaf from the Special Industrial Training Institute for PWDs, Jatni, Odisha.

1) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** in relation to the variable Gender. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed sub module III on **"Navigating the Finances of your Enterprise"** in terms of comprehension of selected Deaf respondents in relation to the variable Gender, was **accepted**.
2) There was a significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** in relation to the variable Exposure to Social Media. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed sub module III on **"Navigating the Finances of your Enterprise"** in terms of comprehension of selected Deaf respondents in relation to the variable Exposure to Social Media was **rejected**.
3) There was a significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module III on **"Navigating the Finances of**

your Enterprise" in relation to the variable Exposure to Accessible Media. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed sub module III on **"Navigating the Finances of your Enterprise"** in terms of comprehension of the selected Deaf respondents in relation to the variable Exposure to accessible Media was **rejected**.

4) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** in relation to the variable Age. Therefore, the null hypothesis, stating that there will be no significant differences in the effectiveness of the developed sub module III on **"Navigating the Finances of your Enterprise"** in terms of comprehension of selected deaf respondents in relation to the variable age was **accepted**.
5) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** in relation to the variable Education. Therefore, the null hypothesis, stating that there will be no significant differences in the effectiveness of the developed sub module III on **"Navigating the Finances of your Enterprise"** in terms of comprehension of the selected Deaf respondents in relation to the variable Education was **accepted**.

5.7.5. Accessibility of the designed & developed sub module III on "Navigating the Finances of your Enterprise" for the selected deaf from the **Special Industrial Training Institute for PWDs, Jatni, Odisha.**

5.7.6. Overall accessibility of the designed & developed sub module III on "Navigating the Finances of your Enterprise" for the selected deaf from the **Special Industrial Training Institute for PWDs, Jatni, Odisha.**

In Odisha, regarding the feedback on accessible digital media content, 54.4% of participants reported low accessibility, and 45.6% experienced high accessibility, indicative of varied experiences with the content's accessibility.

5.7.7. Variable wise accessibility of the designed & developed sub module III on "Navigating the Finances of your Enterprise" for the selected deaf

1) The 21 to 25 age group had the highest Low Accessibility feedback at 68.4% and the 16-20 age group followed with 39.5% Low Accessibility.

2) The 10th Pass and 12th Pass groups showed significant percentages of Low Accessibility at 57.1% and 53.3%, respectively and 8th Pass respondents expressed 100% Low Accessibility feedback.
3) Females responded with 77.3% Low Accessibility feedback compared to males at 67.9%.
4) The Low Exposure to social media group had 48.7% Low Accessibility feedback, while the High Exposure to social media group had 60.0%.
5) High accessibility was perceived more by those who already had high access to media, the Low Accessibility group had 56.9% Low Accessibility feedback, while the High Accessibility group had 50.0%.

5.7.8 Differences in the variable-wise accessibility of the designed & developed sub module III on "Navigating the Finances of your Enterprise" for selected deaf.

1) There was a significant difference in the accessibility of the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** of the selected Deaf in relation to the variable Gender. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** of the selected Deaf in relation to the variable Gender, was r**ejected**.
2) There was no significant difference in the accessibility of the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** of the selected Deaf in relation to the variable Exposure to Social Media. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** of the selected Deaf in relation to the variable Exposure to Social Media, was **accepted**.
3) There was no significant difference in the accessibility of the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** of the selected Deaf in relation to the variable Exposure to Accessible Media. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** of the selected Deaf in relation to the variable Exposure to accessible Media, was **accepted**.

4) There was no significant difference in the accessibility of the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** of the selected Deaf in relation to the variable age. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** of the selected Deaf in relation to the variable age, was **accepted**.
5) There was no significant difference in the accessibility of the designed & developed sub module on **"Navigating the Finances of your Enterprise"** of the selected Deaf in relation to the variable education. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module III on **"Navigating the Finances of your Enterprise"** of the selected Deaf in relation to the variable education, was **accepted**.

5.7.9 Accessibility of the designed & developed sub module III on "Navigating the Finances of your Enterprise" for the selected deaf with reference to the selected features:

1) 65.4% of respondents find the content to be highly accessible, while 34.6% find it to have low accessibility.
2) 57.7% of respondents perceive high accessibility in sign language, while 42.3% find it to be less accessible.
3) Visuals are considered highly accessible by 59.0% of respondents, while 41.0% find them less accessible.
4) Similar to language accessibility, text used for caption is perceived as less accessible by 52.6% of respondents, while 47.4% find it highly accessible.
5) All respondents (100.0%) indicated short time duration, with none reporting long time duration.
6) Captions are considered highly accessible by 59.0% of respondents, while 41.0% find them less accessible.
7) All respondents (100%) find the format accessible.

5.8. Rajasthan

5.8.1. Profile of the Respondents from the Government College for Deaf, Jaipur, Rajasthan.

1) A substantial portion (45.2%), of the respondents between 21-25 years old hold bachelor's degrees.
2) The majority (68.5%) of participants were males.
3) Exposure to social media was evenly distributed between low and high.
4) A substantial majority (71.2%) report low accessibility to media.
5) The majority (76.7%) falls within the 21-25 age group, indicating a focus on young adults in pivotal stages of career planning and higher education.

5.8.2. Overall Effectiveness of the designed & developed sub module IV on "Effective Resource Management Strategies " in terms of comprehension of the selected deaf from the Government College for Deaf, Jaipur, Rajasthan.

In Rajasthan, the comprehension levels of the participants were almost evenly split, with 52.1% of the participants showcasing high effectiveness in comprehension and 47.9% showcasing low effectiveness.

5.8.3. Variable wise effectiveness of the designed & developed module IV on "Effective Resource Management Strategies" in terms of comprehension of the selected deaf from the Government College for Deaf, Jaipur, Rajasthan

1) The age group 26-30 exhibits the highest low effectiveness at 80%, suggesting that older participants may find the material less comprehensible.
2) Participants with a bachelor's degree show the highest low effectiveness in comprehension (60.6%), indicating potential discrepancies in the content's alignment with their educational level or learning needs.
3) Males exhibit higher low effectiveness (54%) compared to females, implying possible gender-related preferences or needs in learning materials.
4) Those with low exposure to social media have a slightly higher rate of low effectiveness in comprehension, hinting at a potential correlation between digital exposure and comprehension levels.

5) Participants with high accessibility demonstrate more balanced comprehension levels compared to those with low accessibility, highlighting the significance of accessibility in comprehension.

5.8.4. Differences in the Effectiveness of the Designed & Developed sub module IV on "Effective Resource Management Strategies" in terms of comprehension of selected deaf from the Government College for Deaf, Jaipur, Rajasthan.

1) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module IV on **"Effective Resource Management Strategies"** in relation to the variable gender. Therefore, the null hypotheses stating that there will be no significant differences in the effectiveness of the developed sub module IV on **"Effective Resource Management Strategies"** in terms of comprehension of selected deaf respondents in relation to the variable Gender, was **accepted**.

2) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module IV on **"Effective Resource Management Strategies"** in relation to the variable age. Therefore, the null hypotheses stating that there will be no significant differences in the effectiveness of the developed sub module IV on **"Effective Resource Management Strategies"** in terms of comprehension of selected deaf respondents in relation to the variable age, was **accepted**.

3) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module IV on **"Effective Resource Management Strategies"** in relation to the variable exposure to social Media. Therefore, the null hypotheses stating that there will be no significant differences in the effectiveness of the developed sub module IV on **"Effective Resource Management Strategies"** in terms of comprehension of selected deaf respondents in relation to the variable Exposure to social Media, was **accepted**.

4) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module IV on **"Effective Resource Management Strategies"** in relation to the variable exposure to accessible media.

Therefore, the null hypotheses stating that there will be no significant differences in the effectiveness of the developed module IV on **"Effective Resource Management Strategies**" in terms of comprehension of selected deaf respondents in relation to the variable Exposure to accessible media, was **accepted**.

5) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module IV on **"Effective Resource Management Strategies"** in relation to the variable education. Therefore, the null hypotheses stating that there will be no significant differences in the effectiveness of the developed module IV on **"Effective Resource Management Strategies"** in terms of comprehension of selected deaf respondents in relation to the variable Education was **accepted**.

5.8.5. Accessibility of the designed & developed sub module IV on "Effective Resource Management Strategies" for selected deaf from the **Government College for Deaf, Jaipur**, **Rajasthan.**

5.8.6. Overall Accessibility of the designed & developed sub module IV on "Effective Resource Management Strategies" for selected deaf from the **Government College for Deaf, Jaipur**, **Rajasthan.**

In Rajasthan, the feedback on accessibility to the provided digital media is balanced, with 52.1% reporting high accessibility and 47.9% reporting low accessibility. This near-equivalent distribution between high and low accessibility suggests that while accessible digital media is available to approximately half of the participants, there is an almost equal proportion facing difficulties in accessing the content.

5.8.7 Variable wise accessibility of the designed & developed sub module IV on "Effective Resource Management Strategies" for selected deaf from the Government College for Deaf, Jaipur, **Rajasthan.**

1) The table is divided into four age groups: 16-20 years, 21-25 years, 26-30 years, and 31-35 years, in the age group of 16-20 years, 33.3% reported low accessibility, while 66.7% reported high accessibility.

2) Education levels include 8th pass, 10th pass, 12th pass, 2nd intermediate, and Bachelor's degree. Similar to age range, the counts and percentages represent feedback responses categorized by low and high accessibility.
3) The table separates accessibility based on gender, with counts and percentages for female and male respondents. 8.7% of females reported low accessibility, while 91.3% reported high accessibility.
4) Social Media Exposure: Divided into low exposure and high exposure, this section shows counts and percentages of feedback responses. 29.7% of respondents with low social media exposure reported low accessibility.
5) Media Accessibility: For the low accessibility category, 25.0% reported low accessibility, while 75.0% reported high accessibility.

5.8.8. Differences in the variable wise accessibility of the designed & developed sub module IV on "Effective Resource Management Strategies" for selected deaf.

1) There was no significant difference in the accessibility of the designed & developed sub module IV on **"Effective Resource Management Strategies"** for selected deaf in relation to the variable gender. Therefore, the null hypotheses stating that there will be significant differences in the accessibility of the designed & developed sub module IV on **"Effective Resource Management Strategies"** of the selected Deaf in relation to the variable Gender, was **accepted**.

2) There was no significant difference in the accessibility of the designed & module IV on **"Effective Resource Management Strategies"** for selected deaf in relation to the variable Exposure to Social Media. Therefore, the null hypotheses stating that there will be significant differences in the accessibility of the designed & developed sub module IV on **"Effective Resource Management Strategies"** of the selected Deaf in relation to the variable Exposure to Social Media, was **accepted**.

3) There was no significant difference in the accessibility of the designed & developed sub module IV on **"Effective Resource Management Strategies"** for selected deaf

3) in relation to the variable Exposure to Accessible Media. Therefore, the null hypotheses stating that there will be significant differences in the accessibility of the designed & developed sub module IV on **"Effective Resource Management Strategies"** of the selected Deaf in relation to the variable Exposure to Accessible Media, was **accepted**.

4) There was no significant difference in the accessibility of the designed & developed sub module IV on **"Effective Resource Management Strategies"** for selected deaf. in relation to the variable Age. Therefore, the null hypotheses stating that there will be significant differences in the accessibility of the designed & developed sub module on **"Effective Resource Management Strategies"** of the selected Deaf in relation to the variable Age, was **accepted.**

5) There was no significant difference in the accessibility of the designed & developed sub module IV on **"Effective Resource Management Strategies"** for selected deaf. in relation to the variable Education. Therefore, the null hypotheses stating that there will be significant differences in the accessibility of the designed & developed sub module on **"Effective Resource Management Strategies"** of the selected Deaf in relation to the variable Education, was **accepted.**

5.8.9. Accessibility of the designed & developed module on “ffective Resource Management Strategies ” for selected deaf with reference to the selected feature

1) Content Accessibility: A somewhat balanced view emerged, with 43.6% of participants expressing low accessibility to content, while 56.4% found it highly accessible.
2) Sign Language Accessibility: While the majority (63.2%) perceived sign language in the content as highly accessible, 36.8% faced challenges, indicating a significant proportion with difficulties.
3) Visual Accessibility: Participants reported challenges in visual accessibility, with 38.5% finding it low and 61.5% high, suggesting a substantial portion encountering issues.
4) Text Accessibility: A considerable challenge exists in text accessibility, as 60.3% reported low accessibility, while only 39.7% found text highly accessible.
5) Time Duration of Modules: Interestingly, all participants (100.0%) favored short module durations unanimously, indicating a strong preference for concise content delivery.
6) Caption Accessibility: The perception of caption accessibility was relatively balanced, with 51.3% reporting low accessibility and 48.7% finding captions highly accessible.
7) Accessibility of the Format: All participants (100.0%) reported the overall format as accessible, showing a positive perception and no reported inaccessibility.

5.9. Delhi

5.9.1. Profile of the deaf respondents from the Institute of Sign Language Research & Training Centre, New Delhi.

1) In Delhi, the majority of participants were in the 21-25 years age group, representing 63% of the total.
2) The majority of participants had intermediate education-level, making up nearly 70% of participants, while the remaining 30% had a bachelor's degree.
3) There was a relatively balanced gender distribution with females approximately 47% and males 53% of the total.
4) Considering social media access, 64.1% of participants had high exposure, and 35.9% had low exposure.
5) Regarding media access with an almost even split, 52.2% reported low accessibility and 47.8% reported high accessibility

5.9.2. Overall effectiveness of the designed & developed sub module V on "Mastering the Art of Enterprise Marketing" in terms of comprehension of the selected deaf respondents from the Institute of Sign Language Research & Training Centre, New Delhi.

In Delhi the participant-group data revealed a nearly even distribution in comprehension levels, where 47.8% demonstrated Low Effectiveness and 52.2% reflected High Effectiveness.

5.9.3. Variable-wise effectiveness of the designed & developed sub module V on "Mastering the Art of Enterprise Marketing" in terms of comprehension of the selected deaf respondents from the Institute of Sign Language Research & Training Centre, New Delhi.

1) The 26-30 years age group exhibited the highest Low Effectiveness at 61.5%, while the 21-25 years group demonstrated a more balanced comprehension level.
2) There was a relatively even distribution of High and Low Effectiveness comprehension across education levels. Both bachelor's degree holders and those with a 2nd Intermediate-level displayed almost equal proportions in both comprehension categories.
3) Males demonstrated a slightly higher Low Effectiveness at 51.0% compared to Females at 44.2%.

4) Participants with High Exposure to Social Media displayed higher Low Effectiveness in comprehension at 54.2%.
5) Respondents with High Accessibility to Media exhibited higher levels of Low Effectiveness in comprehension at 56.8%.

5.9.4. Differences in the variable-wise effectiveness of the designed & developed sub module V on "Mastering the Art of Enterprise Marketing" in terms of comprehension of the selected deaf respondents from the Institute of Sign Language Research & Training Centre, New Delhi.

1) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module V on **"Mastering the Art of Enterprise Marketing"** in relation to the variable Gender. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed sub module V on **"Mastering the Art of Enterprise Marketing"** in terms of comprehension of the selected Deaf respondents in relation to the variable Gender, was **accepted**.
2) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module V on **"Mastering the Art of Enterprise Marketing"** in relation to the variable Exposure to Social Media. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed sub module V on **"Mastering the Art of Enterprise Marketing"** in terms of comprehension of the selected Deaf respondents in relation to the variable Exposure to Social Media was **accepted**.
3) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module V on **"Mastering the Art of Enterprise Marketing"** in relation to the variable Exposure to Accessible Media. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed sub module V on **"Mastering the Art of Enterprise Marketing"** , in terms of comprehension of the selected Deaf respondents in relation to the variable Exposure to Accessible Media was **accepted**.
4) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module V on **"Mastering the Art of Enterprise Marketing"** in relation to the variable Age. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the

developed sub module V on **"Mastering the Art of Enterprise Marketing"** , in terms of comprehension of the selected deaf respondents in relation to the variable Age was **accepted**.

5) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed sub module V on **"Mastering the Art of Enterprise Marketing"** in relation to the variable Education. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed sub module V on **"Mastering the Art of Enterprise Marketing"** in terms of comprehension of the selected deaf respondents in relation to the variable Education was **accepted**.

5.9.5. Accessibility of the designed & developed sub module on "Mastering the Art of Enterprise Marketing" for the selected deaf respondents from the Institute of Sign Language Research & Training Centre, New Delhi.

5.9.6. Overall accessibility of the designed & developed sub module on "Mastering the Art of Enterprise Marketing" for selected deaf.

In Delhi, 40.2% of the participants experienced Low Accessibility while 59.8% found High Accessibility. The majority of participants in Delhi found the entrepreneurship content to be highly accessible, however, a significant minority faced challenges in accessibility.

5.9.7. Variable-wise accessibility of the designed & developed sub module on "Mastering the Art of Enterprise Marketing" for the selected deaf.

1) Respondents aged 16-20 years showed a split preference, with 37.5% indicating Low Accessibility and 62.5% favouring High Accessibility. Similarly, the 21-25 age group demonstrated a slight majority with 56.9% in favour of High Accessibility. Notably, respondents aged 26-30 years inclined towards High Accessibility, constituting 65.4% of the group.
2) The majority of respondents with an intermediate education background (59.4%) expressed a preference for High Accessibility. A similar trend was observed amongst those with a bachelor's degree, where 60.7% favoured High Accessibility.
3) Females exhibited a higher inclination towards High Accessibility (55.8%) compared to males (63.3%), who showed a preference for Low Accessibility at

36.7%. The low exposure to social media group had 48.7% Low Accessibility feedback, while the High Exposure to social media group had 60.0%.

4) Respondents with low exposure to social media were highly inclined towards Low Accessibility (36.4%), while those with high exposure to social media leaned towards high accessibility (57.6%).
5) 35.4% of respondents with Low Accessibility reported a preference for Low Accessibility, and 45.5% of those with High Accessibility indicated a preference for High Accessibility.

5.9.8. Differences in the variable-wise accessibility of the designed & developed sub module V on "Mastering the Art of Enterprise Marketing" for the selected deaf respondents from the Institute of Sign Language Research & Training Centre, New Delhi.

1) There was no significant difference in the accessibility of the designed & developed sub module on **"Mastering the Art of Enterprise Marketing"** of the selected Deaf in relation to the variable Gender. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module V on ""**Mastering the Art of Enterprise Marketing"** of the selected Deaf in relation to the variable Gender, was **accepted**.
2) There was no significant difference in the accessibility of the designed & developed sub module V on **"Mastering the Art of Enterprise Marketing"** of the selected Deaf in relation to the variable Exposure to Social Media. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module on **"Mastering the Art of Enterprise Marketing"** of the selected Deaf in relation to the variable Exposure to Social Media, was **accepted**.
3) There was no significant difference in the accessibility of the designed & developed sub module V on **"Mastering the Art of Enterprise Marketing"** of the selected Deaf in relation to the variable Exposure to accessible Media. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module V on **"Mastering the Art of Enterprise Marketing"** of the selected Deaf in relation to the variable Exposure to accessible Media, was **accepted**.

4) There was no significant difference in the accessibility of the designed & developed sub module V on**"Mastering the Art of Enterprise Marketing"** of the selected Deaf in relation to the variable Age. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module V on **"Mastering the Art of Enterprise Marketing"** of the selected Deaf in relation to the variable Age, was **accepted**.

5) There was no significant difference in the accessibility of the designed & developed sub module V on **"Mastering the Art of Enterprise Marketing"** of the selected Deaf in relation to the variable Education. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed sub module V on ""**Mastering the Art of Enterprise Marketing"** of the selected Deaf in relation to the variable Education, was **accepted**.

5.8.9 Accessibility of the designed & developed sub module V on "Mastering the Art of Enterprise Marketing" for the selected deaf with reference to the selected features:

1) In terms of content accessibility, the majority, constituting 66.7%, reported High Accessibility, while 33.3% experienced Low Accessibility.
2) Sign language accessibility showed a notable positive trend, with 79.5% reporting High Accessibility, compared to 20.5% reporting Low Accessibility.
3) Visual accessibility demonstrated a similar pattern, with 61.5% reporting High Accessibility and 38.5% reporting Low Accessibility.
4) For text accessibility, 55.1% reported High Accessibility, while 44.9% reported Low Accessibility.
5) All respondents (100.0%) indicated short-time duration, with none reporting long-time duration.
6) Caption accessibility saw 60.3% reporting High Accessibility, and 39.7% reporting Low Accessibility.
7) The positive feedback on the overall format's accessibility (100.0%) was a
8) success.

5.10. Indore

5.10.1. Profile of the Respondents from the Indore Deaf Bilingual Academy, Indore, M.P

1) The majority of participants were in the age group of 21-25 years (70.5%).
2) The gender distribution was relatively balanced with slightly more males at 55.1% than females at 44.9%.
3) Most participants had completed Class 12th (51.3%) or were Under Graduates (47.4%).
4) The participants were predominantly single (96.2%) and were students (100%).
5) English and ISL (Indian Sign Language) were the known languages among the Deaf participants.
6) Access to Facebook and WhatsApp was common among participants.
7) Majority of the participants had access to MBM (96.1%) and ISH News (90.9%) as accessible media sources.

5.10.2. Overall Effectiveness of the designed & developed modules on "Entrepreneurship" in terms of comprehension of the selected deaf respondents from the Indore Deaf Bilingual Academy, Indore, M.P

In Indore 44.9% of the participants found the accessible digital media in video-format on the basics of entrepreneurship for the deaf to be of low effectiveness, whereas 55.1% of the participants perceived it as highly effective.

5.10.3. Variable-wise effectiveness of the designed & developed modules on "Entrepreneurship" in terms of comprehension of the selected deaf respondents from the Indore Deaf Bilingual Academy, Indore, M.P

1) For age groups 16-20 and 21-25 years, the effectiveness is nearly equally perceived, with a 50-50 or near 50-50 split. However, the 26-30 years age group perceived it as more highly effective (68.4%).
2) Both genders perceived more high effectiveness, but the split was relatively even, with males at 46.5% low effectiveness and females at 42.9% low effectiveness.
3) Those with an undergraduate education perceived the programme as more effective (59.5%) compared to those with a Class 12th education (51.2%).
4) Those with high social media exposure perceived the program as more effective (58.3%) compared to those with low exposure (50%).

5) Those with high accessibility to media perceived the program as more effective (65.1%) compared to those with low accessibility (42.9%).

5.10.4. Differences in the variable-wise effectiveness of the designed & developed module on "Entrepreneurship" in terms of comprehension of the selected deaf respondents from the Indore Deaf Bilingual Academy, Indore, M.P during pre-post.

1) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed modules on "**Entrepreneurship**" in relation to the variable Gender. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed modules "**for being an entrepreneur**" in terms of comprehension of the selected deaf respondents in relation to the variable Gender, was **accepted**.
2) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed modules on "**Entrepreneurship**" in relation to the variable Exposure to Social Media between pre-test and post-test scores. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed modules on "**for being an entrepreneur**" in terms of comprehension of the selected deaf respondents in relation to the variable Exposure to Social Media was **accepted**.
3) There was a significant difference in the comprehension of the selected Deaf regarding the designed & developed module on "**Entrepreneurship**" in relation to the variable Exposure to Accessible Media between pre-test and post-test scores. Therefore, the null hypothesis stating that there will be no significant differences in the effectiveness of the developed modules" **for being an entrepreneur**" in terms of comprehension of the selected deaf respondents in relation to the variable Exposure to Accessible Media was **rejected**.
4) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed module on "**Entrepreneurship**" in relation to the variable Age between pre-test and post-test scores. Therefore, the null hypothesis, stating that there will be no significant differences in the effectiveness of the developed modules "for being an entrepreneur" in terms of comprehension of the selected deaf respondents in relation to the variable Age was **accepted**.

5) There was no significant difference in the comprehension of the selected Deaf regarding the designed & developed modules on "**Entrepreneurship**" in relation to the variable Education. Therefore, the null hypothesis, stating that there will be no significant differences in the effectiveness of the developed modules "**for being an entrepreneur**" in terms of comprehension of the selected deaf respondents in relation to the variable Education was **accepted**.

5.10.5. Accessibility of the designed & developed modules on "Entrepreneurship" for the selected deaf respondents from the Indore Deaf Bilingual Academy, Indore, M.P

5.10.6. Overall accessibility of the designed & developed modules on "Entrepreneurship" for the selected deaf respondents from the Indore Deaf Bilingual Academy, Indore, M.P

In Indore, the overall accessibility of all modules displayed that only a small fraction of the participants, 10.3%, found the modules to have low accessibility, while nearly half, 48.7%, rated them as having medium accessibility, and 41% rated high accessibility.

5.10.7. Variable-wise accessibility of the designed & developed modules on "Entrepreneurship" for the selected deaf respondents from the Indore Deaf Bilingual Academy, Indore, M.P

1) The age category from 26-30 years predominantly came under the high accessibility range at 73.7%, while the 16-20 years age group has a significant proportion in the medium accessibility category at 52.0%.
2) Undergraduates showcased a relatively even distribution, while those with a high-school education leaned towards medium accessibility at 56.1%.
3) Male participants predominantly fell within the medium accessibility range at 55.8%, whereas females showed a more balanced distribution across accessibility levels.
4) The analysis of social media exposure reveals that participants with high exposure levels exhibit a split between medium (52.1%) and high (39.6%) accessibility.
5) Similarly, in access media, the high accessibility group consists largely of individuals with high exposure, with 48.8% falling into the medium accessibility range.

5.10.8. Differences in the variable-wise accessibility of the designed & developed module on 'Entrepreneurship' for the selected deaf respondents from the Indore Deaf Bilingual Academy, Indore, M.P

6) There was no significant difference in the accessibility of the designed & developed modules on "**Entrepreneurship**" of the selected Deaf in relation to the variable Gender. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed modules on "**Entrepreneurship**" of the selected Deaf in relation to the variable Gender, was **accepted**.
7) There was no significant difference in the accessibility of the designed & developed modules on "**Entrepreneurship**" of the selected Deaf in relation to the variable Exposure to Social Media. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed module on "**Entrepreneurship**" of the selected Deaf in relation to the variable Exposure to Social Media, was **accepted**.
8) There was no significant difference in the accessibility of the designed & developed modules on "**Entrepreneurship**" of the selected Deaf in relation to the variable Exposure to accessible Media. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed modules on "**Entrepreneurship**" of the selected Deaf in relation to the variable Exposure to accessible Media, was **accepted**.
9) There was a significant difference in the accessibility of the designed & developed modules on "**Entrepreneurship**" of the selected Deaf in relation to the variable Age. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed modules on "**Entrepreneurship**" of the selected Deaf in relation to the variable Age, was **rejected**.
10) There was no significant difference in the accessibility of the designed & developed modules on "**Entrepreneurship**" of the selected Deaf in relation to the variable Education. Therefore, the null hypothesis stating that there will be no significant differences in the accessibility of the designed & developed modules on "**Entrepreneurship**" of the selected Deaf in relation to the variable Education, was **accepted**.

5.10.9. Accessibility of the designed & developed module I on "Interest" for the selected deaf with reference to the selected features:

1) In terms of content accessibility, 65.4% of respondents found the content to be highly accessible, while 34.6% reported low accessibility.
2) Sign language accessibility showed a notable positive trend, high accessibility was reported by 60.3%, while 39.7% reported low accessibility of sign language.
3) Visual accessibility demonstrated a similar pattern, a high percentage (84.6%) reported the visuals as highly accessible, compared to 15.4% reporting low accessibility.
4) For text accessibility similar to sign language, 60.3% reported high accessibility of text, while 39.7% reported low accessibility.
5) All respondents (100.0%) indicated short-time duration, with none reporting long-time duration.
6) High accessibility of captions was reported by 76.9%, with 23.1% finding it low.
7) The positive feedback on the overall format's accessibility received an overwhelming 98.5% noting the accessibility format satisfactory, with only 1.5% expressing dissatisfaction.

5.10.10 Accessibility of the designed & developed module II on "Place" for the selected deaf with reference to the selected features:

1) In terms of content accessibility, High Accessibility of content was reported by 62.8% of participants, while 37.2% found the content to have Low Accessibility.
2) Sign language accessibility showed a notable positive trend, with 70.5% of participants reporting High Accessibility of Sign Language, and 29.5% indicating Low Accessibility.
3) Visual accessibility was demonstrated by 67.9% reporting High Accessibility of Visuals, while 32.1% reported Low Accessibility.
4) The accessibility of text was almost evenly split, with 53.8% reporting High Accessibility and 46.2% reporting Low Accessibility.
5) All respondents (100.0%) indicated short-time duration, with none reporting long-time duration.
6) Caption accessibility saw high accessibility of captions reported by 55.1%, compared with 44.9% reporting Low Accessibility of Captions.
7) The positive feedback on the overall format's accessibility (100.0%) was a success.

5.10.11 Accessibility of the designed & developed module III on "Finance" for selected deaf with reference to the selected features:

1) In terms of content accessibility, 65.4% reported High Accessibility, while 34.6% experienced Low Accessibility to content.
2) Sign language accessibility displayed a positive trend, with 57.7% of participants reporting High Accessibility of Sign Language, and 42.3% reporting Low Accessibility.
3) 59.0% reported High Accessibility of Visuals, while 41.0% reported Low Accessibility.
4) The accessibility of text was almost evenly split with Low Accessibility (52.6%) when compared to those who found it to have High Accessibility (47.4%).
5) All respondents (100.0%) indicated short-time duration, with none reporting long-time duration.
6) High Accessibility of captions was reported by 59.0% with 41.0% reporting it Low Accessibility.
7) The positive feedback on the overall format's accessibility (100.0%) was a success.

5.10.12 Accessibility of the designed & developed module IV on "Resource management" for selected deaf with reference to the selected features:

1) In terms of content accessibility, 56.4% of participants reported High Accessibility of Content, while 43.6% found Low Accessibility.
2) Sign language accessibility showed a notable positive trend, High Accessibility of Sign Language was reported by 63.2% of the participants, with 36.8% reporting Low Accessibility.
3) Visual accessibility demonstrated 61.5% reporting High Accessibility of Visuals, while 38.5% reported Low Accessibility.
4) The accessibility of text with most participants (60.3%) reported Low Accessibility of Text, indicating potential issues in text readability or understanding.
5) All respondents (100.0%) indicated short-time duration, with none reporting long-time duration.
6) Accessibility of captions was almost equally divided, with 51.3% reporting Low Accessibility and 48.7% reporting High Accessibility.

7) The positive feedback on the overall format's accessibility (100.0%) was a success.

5.10.13 Accessibility of the designed & developed module V on "Marketing" for selected deaf with reference to the selected features:

1) In terms of content accessibility, a majority (66.7%) of participants reported High Accessibility of Content, with 33.3% experiencing Low Accessibility.
2) Sign language accessibility showed a notable positive trend: a significant majority, 79.5%, reported High Accessibility of Sign Language, suggesting effective incorporation of sign language in the module.
3) Visual accessibility demonstrated 61.5% finding High Accessibility of Visuals, while 38.5% found Low Accessibility.
4) The participants were nearly split on the accessibility of text, with 55.1% finding High Accessibility and 44.9% finding Low Accessibility.
5) All respondents (100.0%) indicated short-time duration, with none reporting long-time duration.
6) 60.3% found High Accessibility of Caption, whereas 39.7% reported Low Accessibility.
7) The positive feedback on the overall format's accessibility (100.0%) was a success.

5.10.14. Module-wise Comparison of Features

1) **Content Accessibility:** Module-4 had the highest low accessibility (43.6%), while Module-5 had the highest high accessibility (66.7%).
2) **Language Accessibility (Sign Language):** Module-5 exhibited the most significant high accessibility of sign language (79.5%), while Module-1 had the highest low accessibility (39.7%).
3) **Visual Accessibility:** Module-3 indicated the highest low accessibility of visuals (41.0%), while Module-1 indicated the top-most high accessibility (84.6%).
4) **Text Accessibility:** Module-4 had the most considerable low accessibility in text (60.3%), and Module-1 the highest high accessibility (60.3%).
5) **Time Duration:** All modules were considered to have a short-time duration (100%), with no instances of long-time durations.
6) **Caption Accessibility:** Module-4 had the highest low accessibility of captions (51.3%), while Module-1 had the greatest high accessibility (76.9%).
7) **Format Accessibility:** All modules were largely accessible concerning format, with Module-1 reflecting a slight deviation.

Implications related to the accessibility features:

- Content Refinement: The variability in content accessibility necessitates continuous refinement to enhance clarity and relevance, catering to a broader audience.
- Enhancement in Language Representation: Sustained efforts to enhance the quality and clarity of sign language across all modules are crucial for effective communication.
- Improvements in Visuals and Text: The discrepancies in visual and text accessibility require focused improvements to resolve existing issues, ensuring coherent visual representation and text readability.
- Consistency in Time Duration: Maintaining consistent and optimal time duration across all modules is crucial to sustaining user engagement and comprehension.
- Captioning Consistency: Ensuring consistent, clear, and synchronized captioning across modules is paramount for enhanced user experience.
- Standardization of Accessibility Features: A consistent standard of accessibility features across all modules is imperative to provide a uniformly accessible learning experience to all users.

This comparative analysis between different modules in terms of accessibility features provides crucial insights into the areas of improvement and standardization. The variability in accessibility levels in content, language, visuals, text, and captions underscores the need for continuous refinement and consistency in delivery to ensure optimal learning experiences for the deaf community in entrepreneurship education. The uniform satisfaction with time duration and overall format accessibility implies the effectiveness of concise content delivery and user-friendly interface, which should be maintained across all modules.

CONCLUSION OF THE STUDY:

The experimental pre-post research design on the design and development of accessible digital media in video format focusing on the Basics of Entrepreneurship for the deaf community yielded promising results. The research findings indicated that the modules prepared were highly effective and accessible for deaf individuals across various states in India. This suggests a significant step forward in promoting inclusive education and empowerment within the entrepreneurship domain for the deaf population. The positive outcomes of the study underscore the importance of tailoring educational content to meet the specific needs of diverse learners, particularly those with hearing impairments. The use of

accessible digital media, specifically video formats, proved to be an effective means of delivering entrepreneurial concepts to the deaf community. The success of this research emphasizes the potential for leveraging technology to bridge educational gaps and create a more inclusive learning environment.

Recommendations for Future Research:

- Expand Content and Topics: Future research could focus on expanding the range of entrepreneurship topics covered in the modules. This might involve exploring advanced entrepreneurial concepts, case studies, or specific industry-related insights to provide a more comprehensive understanding.
- Diverse Learning Formats: Consider experimenting with diverse learning formats beyond video, such as interactive modules, virtual reality, or gamified content. This can help cater to varied learning preferences and enhance engagement among the deaf audience.
- Long-Term Impact Assessment: Conduct longitudinal studies to assess the long-term impact of entrepreneurship education on the deaf community. This will help determine the sustainability and lasting influence of the modules on the entrepreneurial endeavors of individuals.
- Collaboration and Stakeholder Involvement: Collaborate with deaf entrepreneurs, educators, and advocacy groups to ensure that the content remains relevant and responsive to the evolving needs of the community. Involving stakeholders in the research process can enhance the authenticity and effectiveness of the educational materials.
- Localization and Cultural Sensitivity: Customize content based on regional variations and cultural nuances to ensure maximum accessibility. Understanding the unique challenges and opportunities in different states across India will contribute to a more tailored and effective educational approach.
- Technological Advances: Stay abreast of technological advancements to explore new tools and platforms that can further enhance accessibility and engagement for the deaf community. This may include advancements in sign language recognition technology, subtitles, and interactive features.
- Replication in Different Settings: Replicate the study in different educational settings, such as schools, vocational training centers, or community-based programs, to evaluate the scalability and adaptability of the modules.

In conclusion, this research on accessible digital media for entrepreneurship education among the deaf has paved the way for future endeavours aiming at inclusive learning opportunities. By building on the success of this study and incorporating the above recommendations, researchers can contribute to creating a more equitable educational landscape for individuals with hearing impairments.

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