IMPACT ASSESSMENT FOR SPEECH AND HEARING IMPAIRED INTERVENTIONS OF TECH MAHINDRA FOUNDATION

May 2022

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Executive Summary

The Tech Mahindra Foundation believes in an inclusive society where those starting their lives on an inequitable ground can be supported to lead more productive and meaningful lives. One such initiative is to promote education and employment among the Speech and Hearing Impaired (SHI) children and youth respectively through its ARISE+ and SMART+ programs respectively.

Ten Civil Society Organisations (CSOs) across 3 cities of India viz. Mumbai, Kolkata and Chennai working with SHI are partners in this endeavor.

The broader objective of the study was to assess the level of social inclusion and mainstreaming of deaf children and youth within families, school and employers that would empower them to reach their full potential and contribute meaningfully in various aspects of life. Both primary research (incl. field visits) and secondary research methods were followed. A stratified random sample was identified to undertake the study. The assessment period was 2019-20, 2020-21 and 2021-22. Five data collection tools used were used suitably with 8 types of stakeholders to assess the programme across nine areas of importance. The findings obtained on the basis of standard descriptive statistical methods are as follows –

Early Intervention

TMF interventions through audiometric and speech therapy, encouragement for combined communication (that also includes development of the natural language for SHI which is sign language) have benefitted many ARISE+ children. More than 70% of SHI children across age groups used speech, lip reading and signs to communicate. Majority of SHI children who responded to the survey conducted were not in age appropriate classes.

Language Development and Comprehension Ability

All schools supported by TMF provide audiometric and speech training to children along with signs. While the signs and the tactile methods used build comprehension, some level of lip reading and speech. The teacher's survey show that nearly 61% teachers used tactile methods to promote learning.

Learning Assessments were conducted for SHI. It was found that all students in Std I and V scored more than 80%. The scores dropped suddenly from middle school onwards. It was evidenced during field visits that while children in junior classes coped with comprehension those from middle school onwards had difficulty in understanding concepts across subjects. Restricted ability of caregivers to explain subject matter and increased syllabus from middle school onwards put most SHI children into a learning whirlpool.

Principals of schools revealed that while 60% of their students had enrolled for higher education, 40% had not. Most SHI children have to join mainstream colleges with no special teachers because of the paucity of institutions in most geographies. This makes them a misfit and majority opt out.

Expectation of Parents and Communities

Most SHI children are born to hearing parents. The shock, trauma and inability to deal with the medical and social problems associated with bringing up the children lead them to have very low aspirations about their SHI child. These low aspirations manifest themselves in not paying adequate attention to the education and confidence building of their SHI children. The parents survey conducted shows and only 14% sign to their children. 76% of parents/caregivers who attempted the survey claimed to be aware of their SHI child's hobbies/interests.

Level of Employability and Life Skills

Though the percentage of enrolled trainees who dropped out is less than 7%. Responses of some key questions to understand how they operate at workplace were asked as exemplified in previous page. It was found that 63% preferred asking a deaf friend or interpreter. 87% of them realised the importance of punctuality. Survey suggests that 51% of respondents realised that relocating for a new job may give them more opportunities to explore while 44% wanted to become independent by relocating.

Level of Employment and Salaries

The average salary obtained by SHI trainees show increase by nearly 15%. It is found that E Commerce (58%) employed the majority of the SHI. Interviews revealed Amazon and Flipkart as the biggest employers and also those providing maximum salaries to the SMART+ trainees. 17% of female respondents and 32% of male respondents got promoted in the last 3 years.

Growth, Leadership and Retention

17% of female respondents and 32% of male respondents got promoted in the last 3 years.

63% of the male respondents regarded themselves to be in leadership roles (leader being one who has at least a few other working under him/her), only 17% of the female respondents did. This is indicative also to a certain extent of the confidence that they have gathered being productively employed.

Inclusion

70% of children in the ages 10-19 participated in household chores. All children confided that they participated in some celebration or the other. Of the children who were computer literate, 53% of respondents belonged to the age group of 13-16 followed by 23% in age group of 9-12 years.

Similarly, on trying to enquire whether they spent in any asset, it was found that the 58% had spent on mobile phone, 16% in more than one asset, 6% on repairing house and 3% on a plot of land. Despite being the first job, it was found that SHI youth are willing to shoulder responsibilities and contribute in their own small way.

35% said that there were no mainstream school in their area that admitted SHI children. All SMART+ training centres conduct sensitisation programmes for the employers to help them understand the nuances of SHI candidates and how to communicate with them.

87% of survey respondents acknowledged that they had received at least 3 months of handholding from their training centres after getting employed. 65% of SHI employees were familiar with the concept of interpreters. Buddy System where one SHI employee is paired with a non-SHI has the capability of breaking communication barriers and ensuring inclusion. But this is only occasionally deployed by the employers.

The last section of the report is another independent assessment of the SMART+ programme which includes both SHI and non-SHI disabled youth. This is called Social Return on Investment that articulates financial value of outcomes created by any social Intervention. It reveals in monetary terms the social value that is created for every rupee invested by a project/intervention. The outcomes mapped in this section were - Increased self-confidence; Increased employability; Increased communication skills; Increased happiness. The SROI value arrived at after accounting for attribution, deadweight, displacement and drop off is 1.44 This Indicates that there has been a significantly higher benefit for every rupee spent on SMART+.

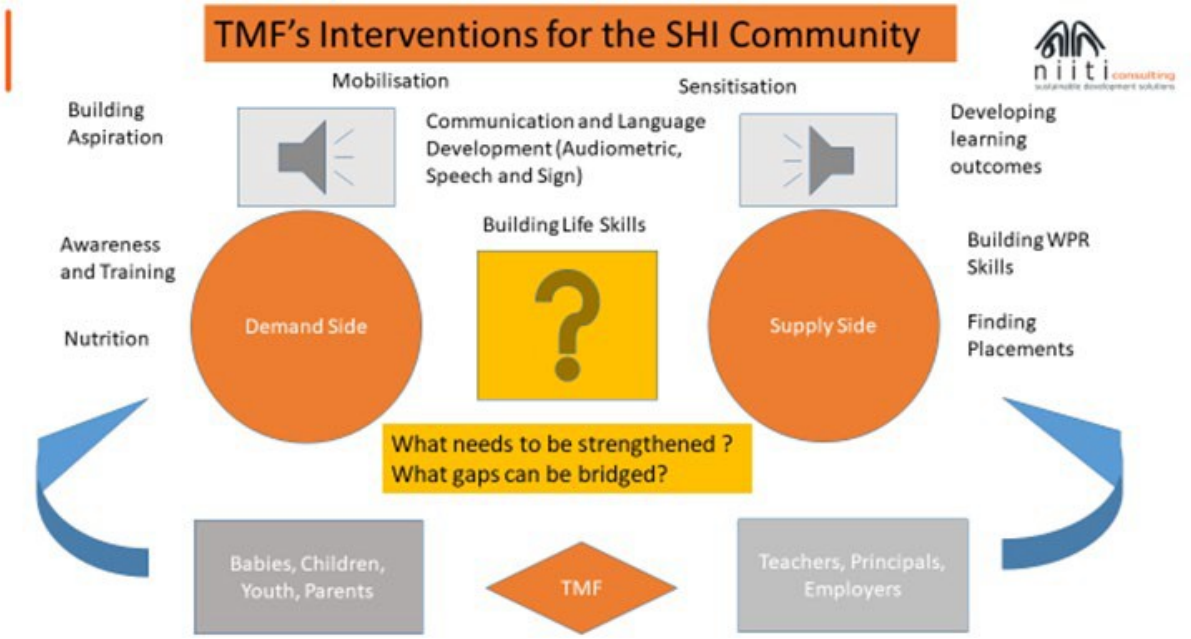
Some of the key recommendations of the study Include

1. Comprehension capacities need to be built through use of tactile methods, visual tools, props, experiments and experiential learning.
2. Subject specific sign dictionaries can be accessed or developed wherever necessary.
3. Sign language along with audiometric methods have to be encouraged for language development and inclusion.
4. SHI teachers can be recruited for better learning.
5. Vocational skills need to be developed from middle school.
6. ARISE+ children must be bridged to join SMART+
7. Duration of SMART+ course should be increased from 3 to 6 months to ensure development of skills that enable the SHI to diversify their job opportunities.
8. Use of apps like AVAZ, Signable, chatbots, captioning tools, reading of news from SHI news channels like ISH TV can be practised at ARISE+ and SMART+ centres.

Background

The Tech Mahindra Foundation believes in an inclusive society where those starting their lives on an inequitable ground can be supported to lead more productive and meaningful lives. One such initiative is to promote education and employment among the Speech and Hearing Impaired (SHI) children and youth respectively through its ARISE+ and SMART+ programs respectively.

Ten Civil Society Organisations (CSOs) across 3 cities of India viz. Mumbai, Kolkata and Chennai working with SHI are partners in this endeavor. Most of these partnerships have been continuing for more than 5 years now. The following diagram shows the existing TMF interventions at a glance.



In a bid to gauge the direction and depth of the two programs, niiti Consulting was engaged to conduct an independent 'Impact Assessment'.

Approach and Methodology

Objectives

The broader objective of the Impact Study initiated in January 2022 was to assess the level of social inclusion and mainstreaming of deaf children and youth within families, school and employers that would empower them to reach their full potential and contribute meaningfully in various aspects of life. This was further delineated into the following objectives under the 2 programs separately.

ARISE+

1. To assess whether a larger number of deaf children are accepted by their families and receive early intervention

2. To assess development of life skills among deaf children that make them comfortable in education systems after finishing special schools

3. To assess whether deaf children are receiving education at par with other children who are born normal in similar socio-economic and educational backgrounds

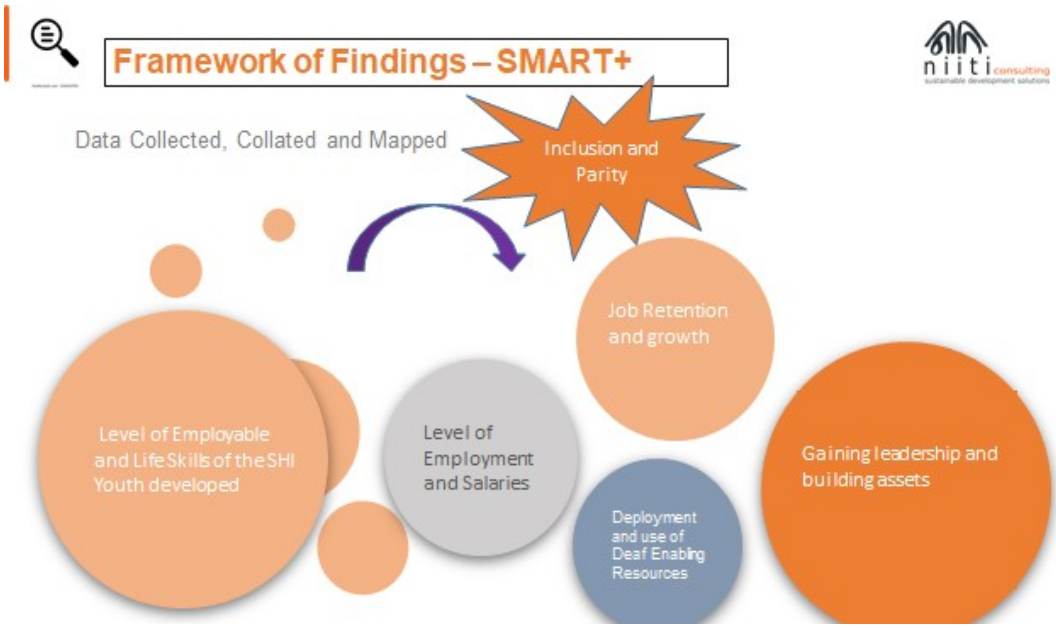
SMART+

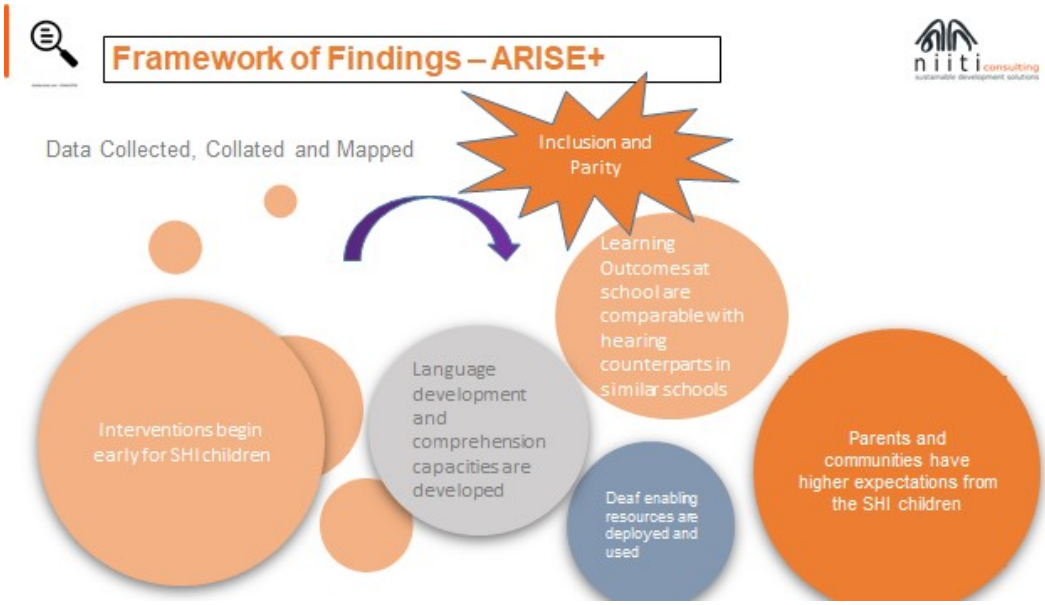
1. To assess whether the deaf are becoming financially independent and earning a living similar to their hearing counterpart

2. To assess whether the deaf are equipped in terms of skills and feel comfortable to work with their hearing counterparts similar socio-economic and educational backgrounds

Framework

The framework of the assessment on the basis of which data and information has been collected, collated and mapped is diagrammatically presented below.





Methodology

A thorough methodology was designed to ensure information and data from majority of the stakeholders are captured. Data was collected through secondary research and from primary sources. Several discussions with the 10 partners followed by Focus Group Discussions with the stakeholders led to creation of a logic model for the two programs. This evaluation tool helped in designing the other tools used in the assessment. This planning and evaluation matrix created can serve TMF as a useful strategic planning tool in future.

The assessment period was 2019-20, 2020-21 and 2021-22. The disaster caused by the COVID pandemic overlapped for nearly 2 years with the assessment period. The team at niiti took cognizance of the extra effort taken by the TMF partners during these trying times to ensure that learning of SHI children and training of SHI youth continued albeit the limitations and restrictions. The categorization of the 5 tools used, 8 types of stakeholders included can be discerned from the tables below.

Tools\Stakeholders	FGDs	Ground Truthing (Field Visits)	Questionnaire Surveys	Learning Assessments	Key Informant Interviews
SHI ARISE+ Children	✓	✓	✓	✓	✓
SHI ARISE+ Parents	✓	✓	✓		✓
SHI ARISE+ Principals/Leadership	✓	✓	✓		✓
SHI ARISE+ Teachers	✓	✓	✓		✓
SHI SMART+ Employees	✓		✓		
SHI SMART+ Trainees	✓	✓	✓	✓	✓
SHI SMART+ Teachers	✓	✓	✓		✓
TMF Team	✓	✓			✓

Findings

The findings of the study have been presented in separate sections that are relevant for the TMF objectives and interventions. These sections are as follows –

- Early Intervention
- Language Development and Comprehension Ability
- Expectation of Parents and Communities
- Level of Employability and Life Skills
- Level of Employment and Salaries
- Growth, Leadership and Retention
- Inclusion
-

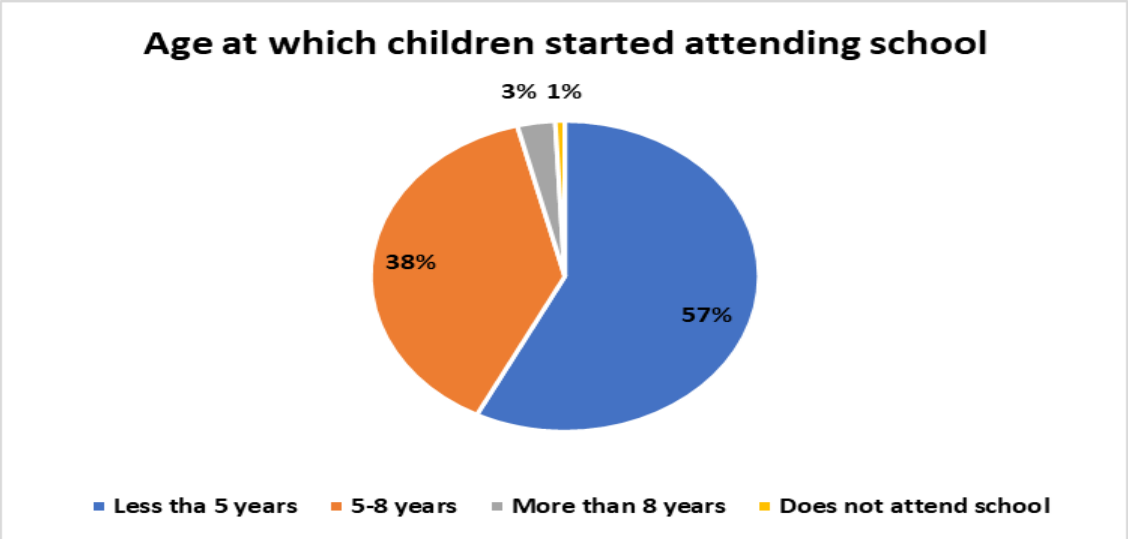
When we look at the lifecycle of the SHI, as is obvious, many issues are intertwined and cannot be assessed discretely. Nevertheless, an unbiased and distinct thinking has been consciously followed to synthesise and present facts based on responses of 1389 stakeholders (either SHI themselves or those very closely related to them) in different sections.

Facts from Secondary Research, Action Research done by niiti Consulting in the past, some important findings from field visits and Mini Case Studies have been embedded in the relevant sections along with some recommendations to help the reader relate better.

Data Collection Tools Used	Numbers Executed	Numbers Reached
Focussed Group Discussions	9	32-40
Ground Truthing (Field Visits)	2	~215
Questionnaire Surveys	8	651
Learning Assessments	11	473
Key Informant Interviews	10	10
Total	**40**	**1389**

Early Intervention

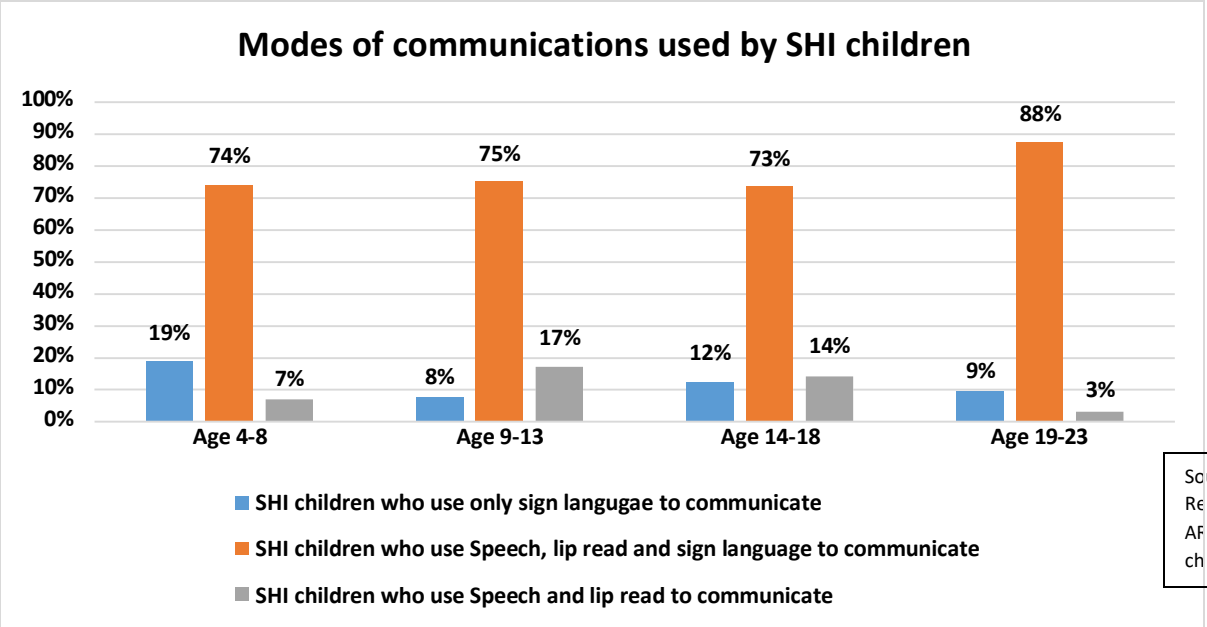
It is well established that the first 5 years are critical for development and 85% of brain development is achieved by that age. Like every child, SHI children also develop their executive functions (like cognitive development, language development, socio-emotional competencies and motor skills) to a great extent in the early years. Intervention during these years in terms of building familial bonds and language development is crucial. Gestures and signs along with speech and audiometric development are necessary in these early years. All partners of TMF's ARISE+ programme recognise this need adequately and engage in community and parent mobilisation activities to ensure every deaf child in their geographical area has access to early intervention. 57% of the respondents of ARISE+ parents confirmed that their children started attending school before 5 years of age.



Source: Parent Respondents of ARISE+ Survey

The lag in learning outcomes begin because of multiple deficits crippling a SHI child's language and comprehension abilities that need attention in early years through ambient support that can be provided jointly by family, teachers and society. TMF interventions through audiometric and speech therapy, encouragement for combined communication (that also includes development of the natural language for SHI which is sign language) have benefitted many ARISE+ children.

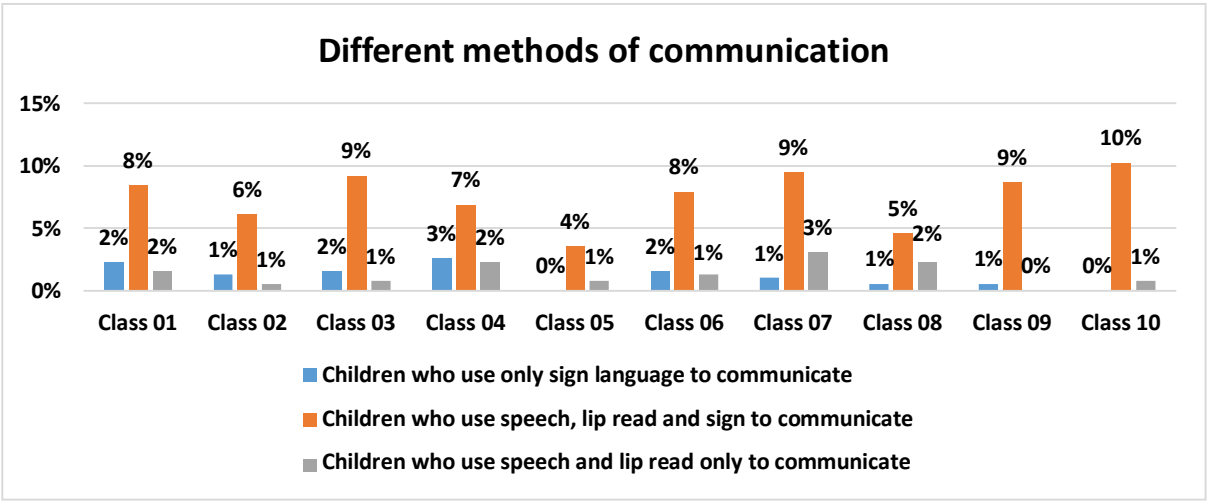
If we look at percentage of children studying in age appropriate classes, then it becomes evident that for majority of SHI children this is still a big gap. Further the percentages have fallen sharply from Std V onwards. Early and sustained intervention in communication and comprehension are the key factors that can catalyse the situation.



Source: Respondents of ARISE+ SHI children's survey

The mode of communication used by SHI children engaged with the ARISE+ programme makes it evident that more than 70% of SHI children across age groups used speech, lip reading and signs to communicate.

If we look at the same data obtained from survey of ARISE+ SHI children then we find across the 10 standards of schooling, combined communication methods are adopted by the majority.



Source: Respondents of ARISE+ SHI children's survey

Language Development and Comprehension Ability

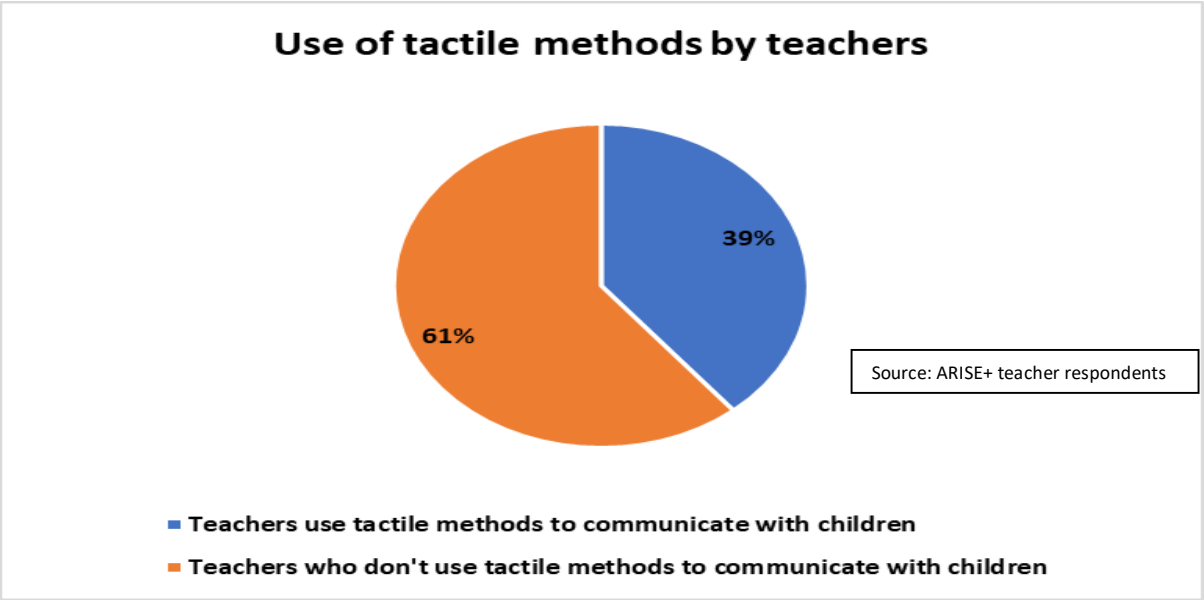
It is to be recognised that most deaf children were able to use combined communication because of their ability to access them. All schools supported by TMF provide audiometric and speech training to children along with signs. While the signs and the tactile methods used build comprehension, some level of lip reading and speech (applicable for those with some residual hearing) enable the SHI child to integrate with the larger society where majority are hearing.

The teacher's survey show that nearly 61% teachers used tactile methods to promote learning.

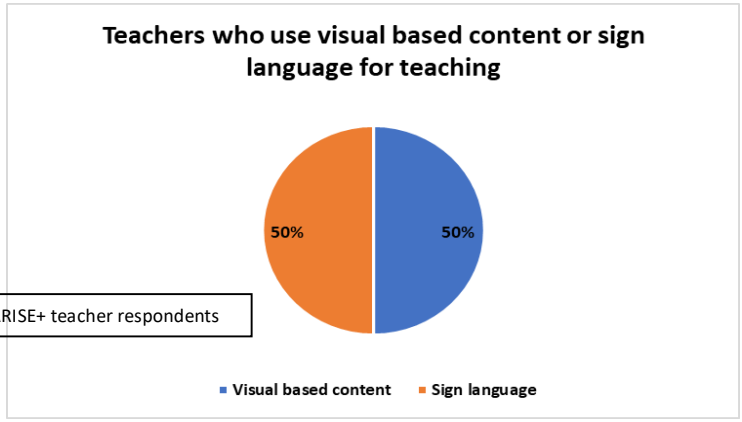
"Action Research conducted by niiti Consulting identified AVAZ as a technology resources. It uses the principles of Augmentative and Alternative Communication to offer a visual-led method of communication for non-verbal individuals. The AVAZ app has been used by autistic children and those with intellectual disability, with good results in family communication. Visual-led communication, as part of Augmentative and Alternative Communication (AAC) has been recommended for children who are deaf or hard of hearing.

Source: https://ehdimeeting.org/Archive/2016/System/Uploads/pdfs/Poster_AutumnSanderson_2077.pdf

It is recommended to scale up tactile methods of teaching to 100% and ensure facilitation by the schools through provision of training and tools.



Like most children, SHI children are visual learners. Usage of visual tools like videos, pictorial powerpoints can improve their understanding considerably. This can improve subject based learning for higher classes as well. It was evident during the field visits that teachers who knew sign language could connect, encourage and support the SHI children far more than their counterparts who were not comfortable with sign language.



It is recommended that all schools ensure that all its teachers are trained in sign language and use it along with other visual tools available in the internet to improve learning.

Interviews undertaken by niiti in an attempt to understand enabling and empowering tools available for the SHI revealed NCERT has attempted making a sign language dictionary for the languages spoken in the North Eastern states of India. Another school in Karnataka has attempted creating a dictionary of signs specific to mathematical concepts to improve comprehension of students in higher classes.

Bharti Lele; Teacher

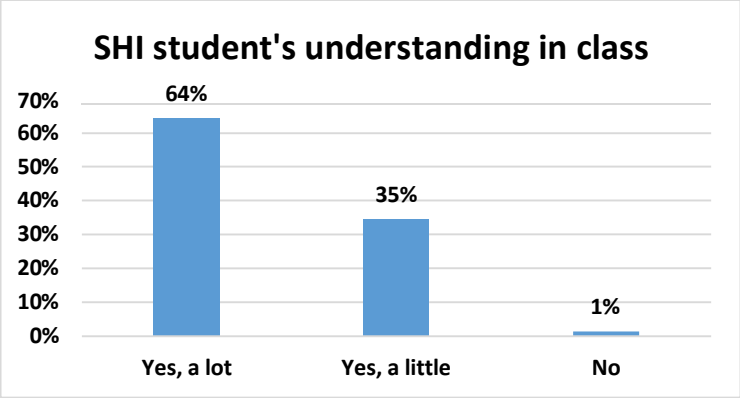
Trained ISL interpreter; passionate about working with deaf, teaches and mentors the deaf children on all subjects and uses ISL as a medium

Connects deeply with the students; took the group to Himalayan trek on her own initiative

School management mentioned that due to her teaching of Maths to senior classes the students opted for commerce stream for the first time in 2019 and this year 8-10 students have again opted for commerce.

She was observed teaching deaf students english grammer using ISL. Understands well the issues of the deaf students and open to ideas to overcome the issues.

Learning outcomes were assessed using assessments that had 15 questions. The first set of 10 questions were a test of comprehension and general knowledge, while the latter set of 5 questions were based on mathematics. The standard of questions was a level lower than the standards recommended by ASER given the challenge the SHI children face in academic curriculum-based learning. While the survey revealed that 98% of SHI children could understand what was being taught in class, ground truthing during field visits had a different story to tell. Many SHI children regarded ability to read and write as equivalent to understanding. Thus, while children in junior classes coped with comprehension those from middle school onwards had difficulty in understanding concepts across subjects.



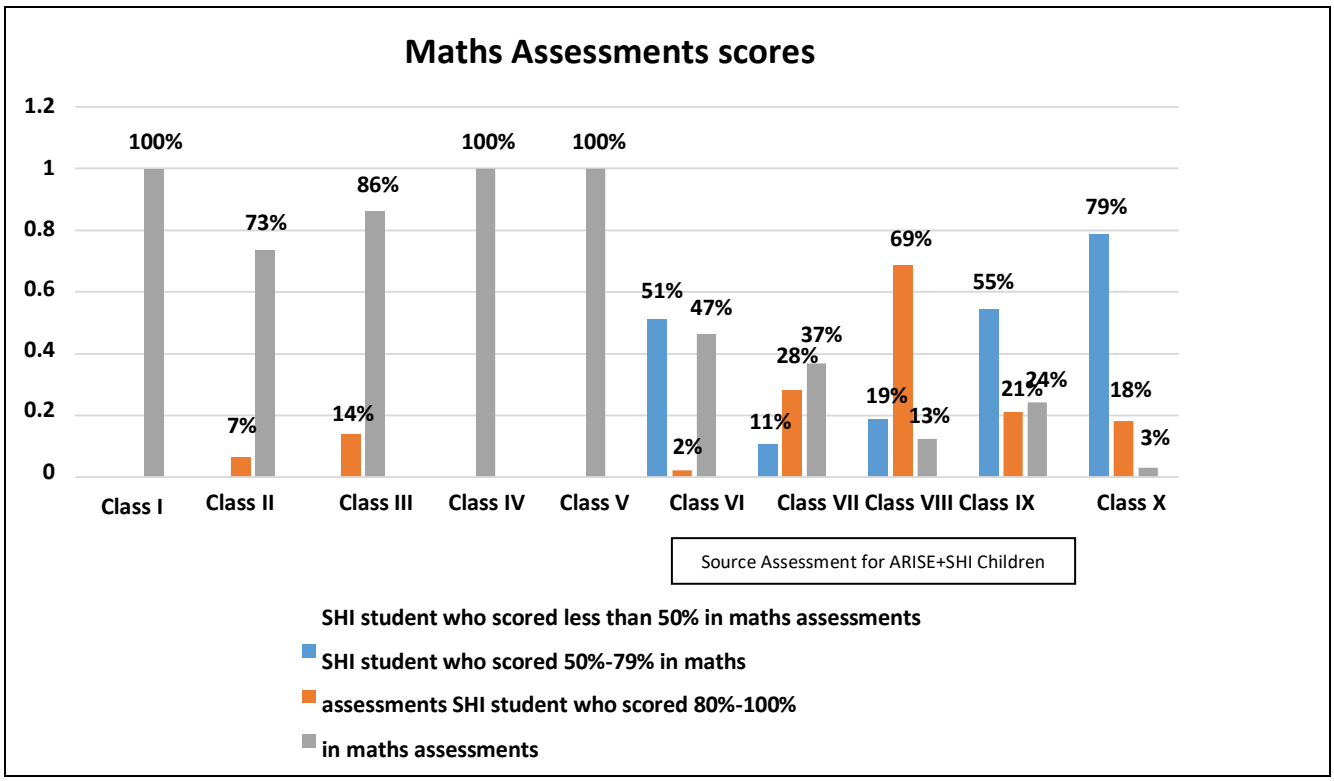
Source: Assessments for ARISE+ SHI children

"A communication evaluation includes signed, spoken, and/or written language, as deemed appropriate for the individual." (https://www.in.gov/health/cdhhe/files/Guidelines-for-Assessment.pdf)

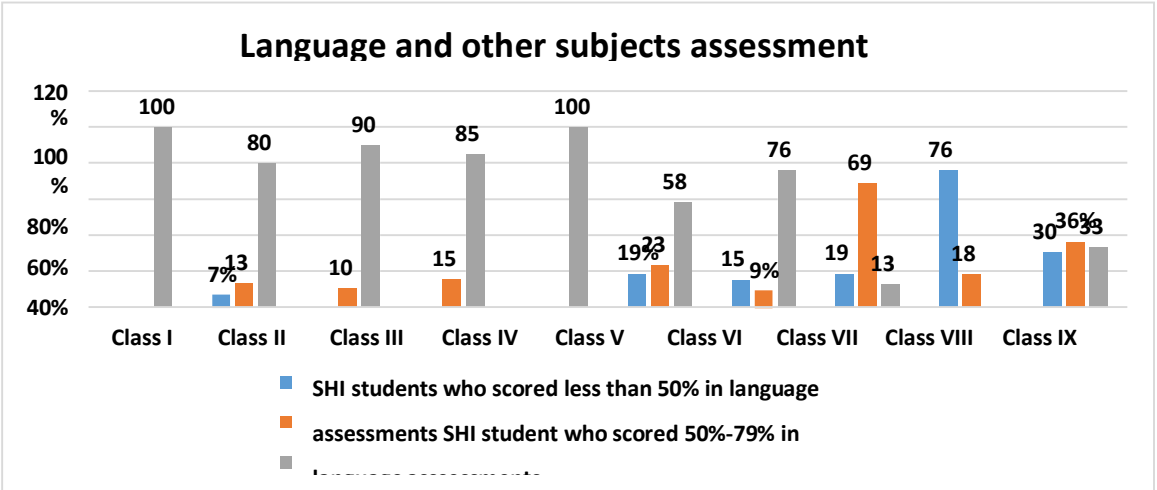
Restricted ability of caregivers to explain subject matter and increased syllabus puts most SHI children into a learning whirlpool.

The results of the learning assessments conducted also point towards the same inference.

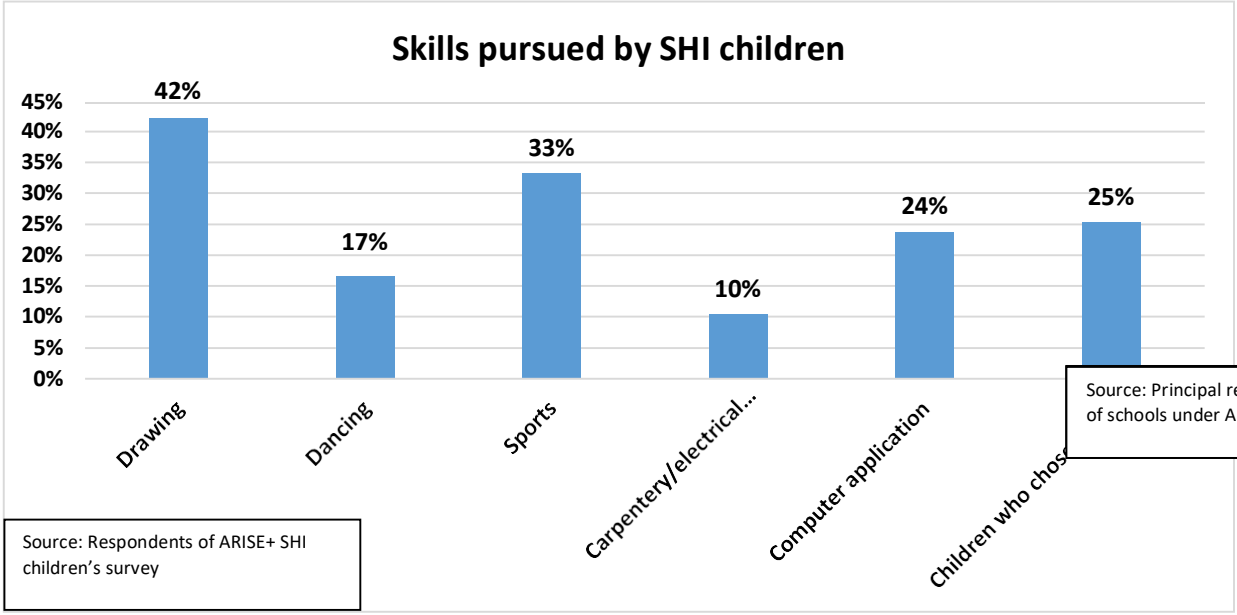
All students in Std I and V scored more than 80%. The scores dropped suddenly from middle school onwards. To look into things deeper, assessment scores were divided into those in Maths and others. This analysis revealed that 79% of students of Std X had scored less than 50% in the Maths assessment and 30% of students in Std X scored less than 50% in the 'Other Subjects' assessment.



One must be cognizant of the fact that in the absence/lack of hearing and speech abilities, the SHI sign naturally. But grammar is almost irrelevant in sign language and here comes in the problem of communicating with the non-SHI or hearing world even when a SHI candidate can read and write. Under such circumstances, understanding questions of higher classes become a genuine challenge. Given that non-standard grammatical forms commonly appear in the writing of SHI children, their writing tends to be less syntactically fluent and grammatically complex for their non-SHI world.



In addition to this situation, one must acknowledge a significant number of these children come from socio-economically backward families. So, for a large number of them their parents are also either just literate or with low educational accomplishments. Hence, even if these children were not born SHI, many would not have pursued education beyond school. Given these two realities of their lives, skilling from middle school onwards is perhaps the right direction in which a significant number of children could be guided. Some SHI students opined that they were pursuing skills like drawing, sports, computer application and others as evident from the above graph, in addition to what was covered in school as a part of their curriculum.

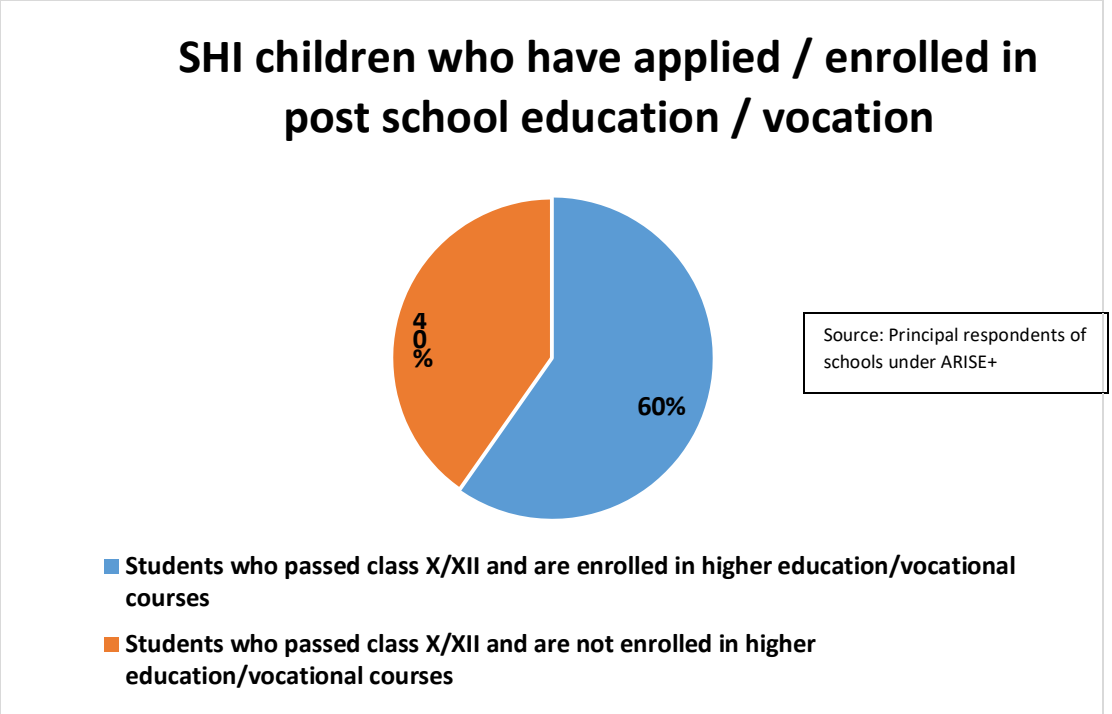


"If a child is delayed in any area, a test of intellectual functioning may be conducted as part of the evaluation, if deemed appropriate by the team. Current best practices recommend the assessment of both verbal and nonverbal abilities as language reasoning is considered a good indicator of academic functioning. Verbal reasoning abilities should be considered along with the student's performance on the language skills measures. An educational evaluation of visual perceptual skills is of great significance for a student who relies heavily on the visual channel for communication. Early identification of areas of weakness is important." (https://www.in.gov/health/cdhhe/files/Guidelines-for-Assessment.pdf)

Assessment of current level of achievement: As per age exposure to school, the child may be attending a class while his achievement in reading, reading comprehension, writing, spelling, arithmetic reasoning may be different. Comparing them with the expected level of achievement will provide the extent of discrepancy in child's achievement." https://niepid.nic.in/Grade%20Level%20Assessment%20Device%20For%20Children.pdf)

Given the New Education Policy of India emphasises on skilling while in school, it is important to build skills of SHI from middle school itself to enable them to lead empowered lives in future.

Some schools like the Mookdhwani Vidyalay run by Utkarsh Mandal have initiated a bakery unit. They are also teaching child how to make soaps and candles. More such initiatives that are in line with the New Education Policy, if consciously undertaken would enable many to become productively employed and prosper in future.

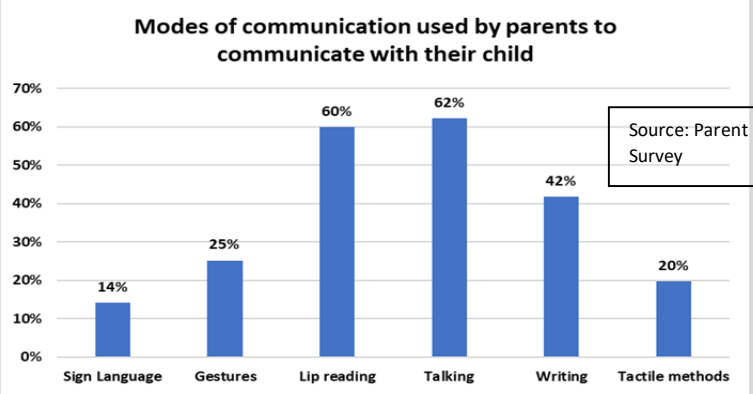


Principals of schools revealed that while 60% of their students had enrolled for higher education, 40% had not. Most SHI children have to join mainstream colleges with no special teachers because of the paucity of institutions in most geographies. This makes them a misfit and majority opt out. Also as mentioned earlier, low comprehension ability arising out of lack of educational resources available in sign language makes only a few academically competent. Under such circumstances, most prefer joining the employment sector despite the limited opportunities available for them.

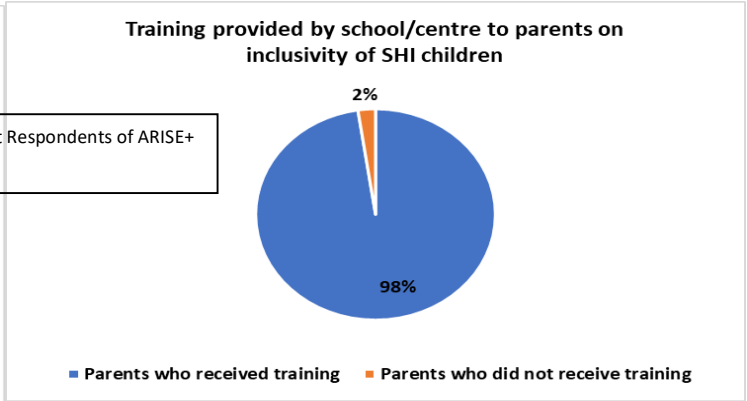
Expectations of Parents and Communities

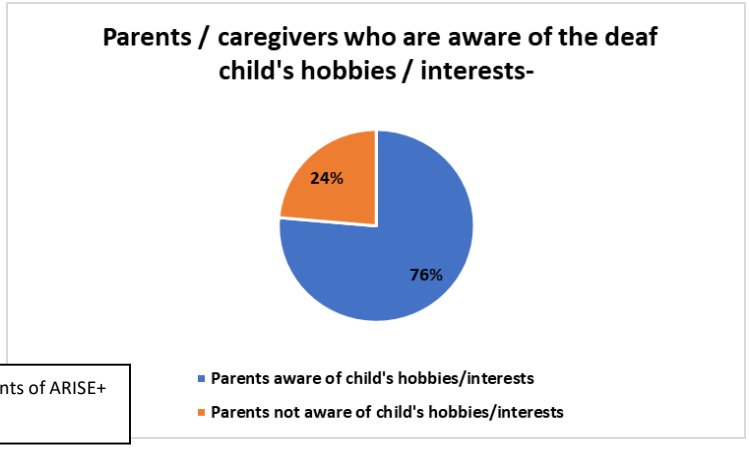
Most SHI children are born to hearing parents. The shock, trauma and inability to deal with the medical and social problems associated with bringing up the children lead them to have very low aspirations about their SHI child. These low aspirations manifest themselves in not paying adequate attention to the education and confidence building of their SHI children. The first hindrance is the language barrier. All schools in the ARISE+ programme counsel the parents explaining the nuances of the SHI and all other abilities of their SHI child. But some partners like Vaani, ensure that one caregiver attends every session with the child and learns how to use tactile methods, sign, speak and help the child lip read simultaneously. The parents survey conducted shows that 62% of them talk and another 60% speak to enable the SHI child lip read. Only 14% sign to their children. In the absence of signing, the communication gap gets created within the family and this grows over time.

It is known that parents play a very important role in building aspirations of a child and in equipping a child to pursue them. As a first step to this, they follow a child's areas of interest and hobbies. It was heartening to find that 76% of parents/caregivers who attempted the survey claimed to be aware of their SHI child's hobbies/interests. However, when the survey of Principals probed into how many children applied or enrolled in post school education/vocation, it was found that 60% had while 40% did not.



Source: Parent Respondents of ARISE+ Survey





Source: Parent Respondents of ARISE+ Survey

Observations from class visits at Utkarsh Mandal, Mumbai

7 students (3 girls 4 boys) (14-15yrs)
Teacher used gestures, signs and spoke to communicate

Topic being taught was magnetic field, teacher had magnets, metals to show to children.
Video lesson was in marathi with subtitles and pictures.

If one of them understood the teacher, he gestured or signed to other students and explained. While teacher used oral method and children could speak few words, the communication between them was thru sign language

When mathematics problems were given –
Find x if x +5 =3,
Find n if n/15=30
Children took time. They copied answers from neighbours, needed hints or tips. They were able to read, understanding was low

Reading abilities being tested

Deb Purkait, SHI; 14 years; Studies in Std V

Detected at 4 years; Receiving Intervention since then.

Parents indifferent; Grandparents are the caregivers

Goes to a mainstream school; to a deaf school and visits Vaani. Also attends tuition classes.

Can read and write ; Excels in both schools in academics.

When asked to read a passage from school text book on the gravitational pull, he could read but assessor couldn't follow his reading. When asked through signs and verbally couldn't explain what is gravitational pull.

Plays football; Can travel on his own; Gives strength to aging grandparents.

Encouraging Employability

As is evident from the previous section, employability is the next challenge faced by the SHI youth whether irrespective of the academic certifications they have to their credit. The SMART+ programme of TMF builds employability and life skills amongst the SHI youth and also aids I placement.

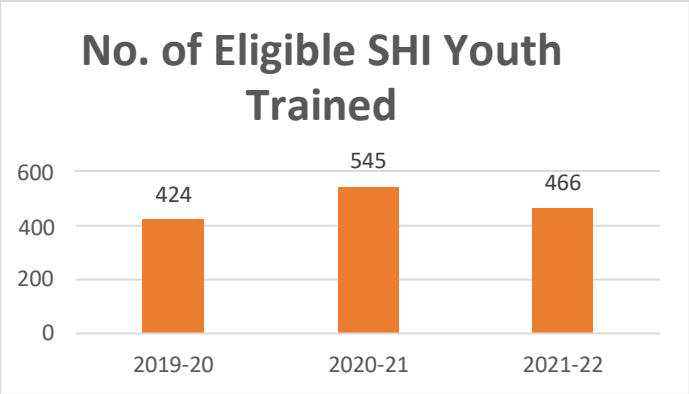
4 partners located who execute the SMART+ programme funded by TMF were included in this study. The partners assessed were -

Youth4Jobs, Kolkata

Youth4Jobs, Chennai

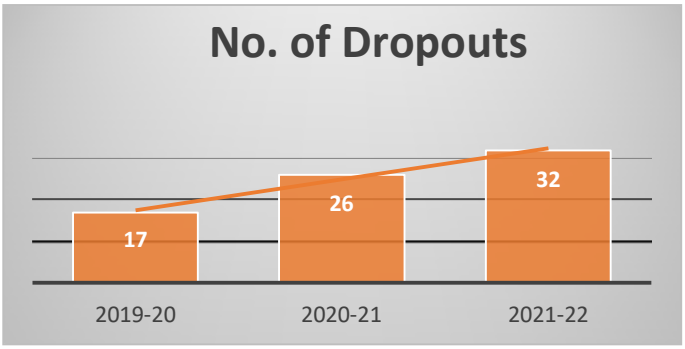
Sujaya Foudation, Mumbai Hellen Keller Institute for Deaf and Blind, Mumbai

The programme run is a short 3 months course which covers lessons around, spoken English, Basic written English required for official communication, types of work in industries where the SHI candidates usually get placed, computer and basic internet skills and some other workplace readiness skills.



Source: MIS SMART+ data

Surveys were thus conducted for SHI youth who were still trainees and are for those who had found employment through SMART+ initiatives. The MIS data maintained by TMF shows that more than 1300 SHI youth benefitted from the SMART+ programme in the last 3 years.



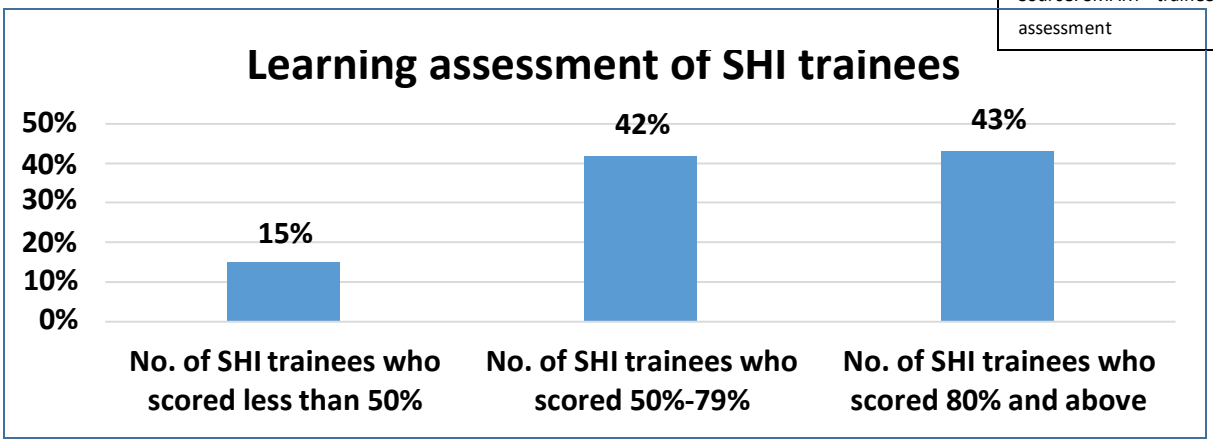
Though the percentage of enrolled trainees who dropped out is less than 7% but there was an increasing trend observed. The pandemic along with the restrictions, fears and sufferings could be identified as the key reason for increased dropouts. One must bear in mind that the main industry/sector where a large number of SHI find employment is the e-Commerce sector which boomed during the pandemic apart from the lockdown periods.

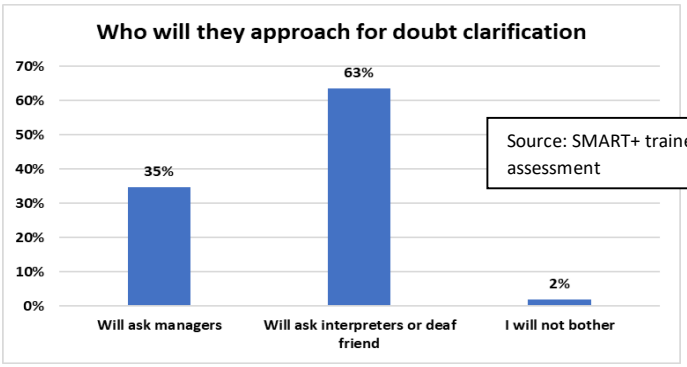
Source SMART+ MIS

Level of Employability and Life Skills

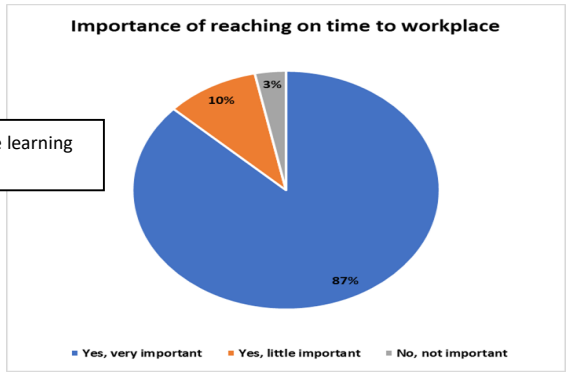
The assessment conducted for the SHI trainees was attempted by a small percentage of trainees. The standard of questions asked were below average given that most trainees attended the sessions virtually and were unable to learn as much. The assessment results obtained under the circumstances

Source: SMART+ trainee learning assessment





Source: SMART+ trainee learning assessment



Vidya, an alumnus of Sujaya Foundation is now the IT trainer of SMART+

Vidya is a hardworking and intelligent girl

She is Hearing Impaired

Excels in lip reading

Has studied till her 12th boards

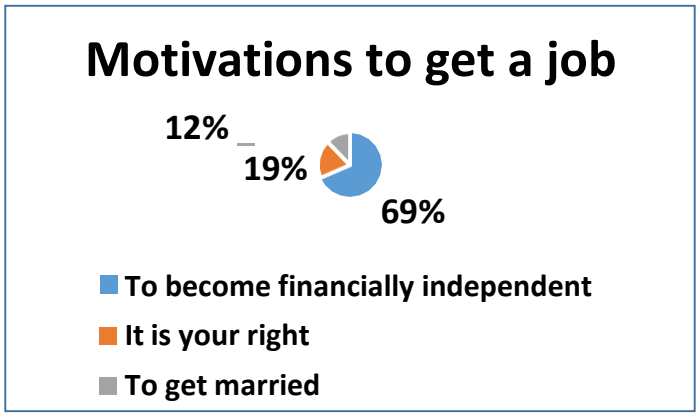
Teaches nearly 45 students of SMART+ every working day modules on MS Office, internet browsing and emailing

Very smart and confident, she also plays the role of an interpreter

Could communicate very well with hearing interviewer during virtual Focus Group Discussions

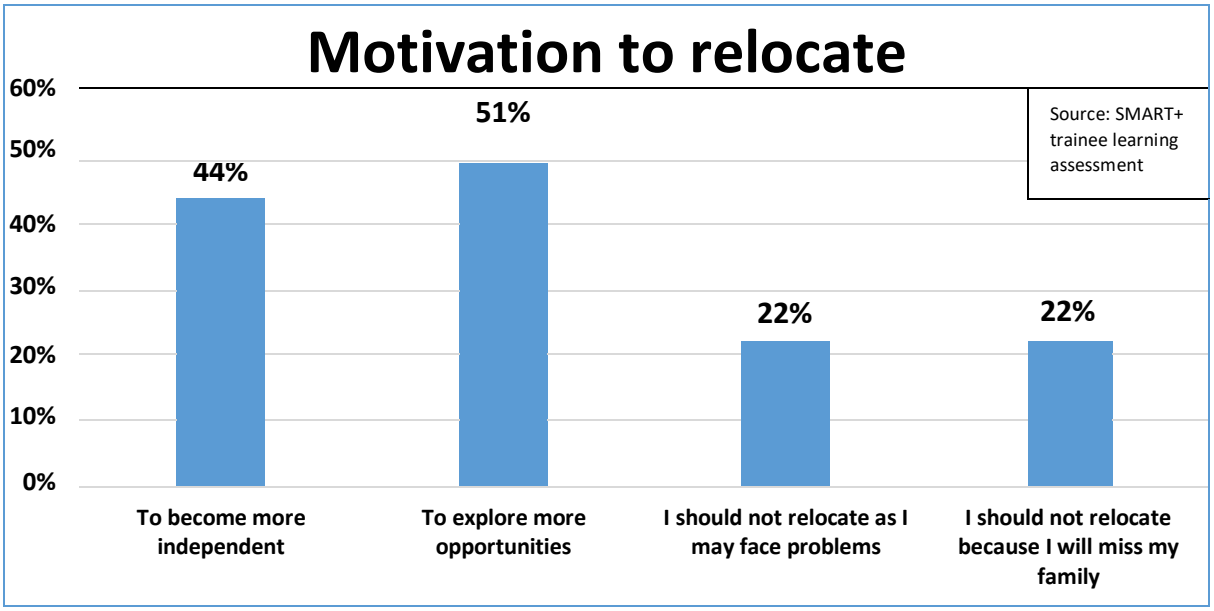
Is a happy wife and a proud mother to her newborn

Some information were collected from Sujaya Foundation since she was on maternity leave



Responses of some key questions to understand how they operate at workplace were asked as exemplified in previous page. It was found that 63% preferred asking a deaf friend or interpreter. 87% of them realised the importance of punctuality.

Source: SMART+ trainee learning assessment



It was found that 69% of the respondents wanted a job to become financially independent. However, as many as 19% thought that it was their right to get a job because they had enrolled into the SMART+ programme.

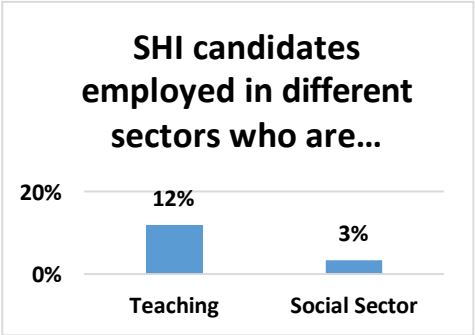
Survey suggests that 51% of respondents realised that relocating for a new job may give them more opportunities to explore while 44% wanted to become independent by relocating. Thus while employability skills were not developed for many SMART+ trainees as evident from the assessment, but life skills were. The “sheep behaviour” where one follows the other without reasoning was still found in the SHI trainees and employees.

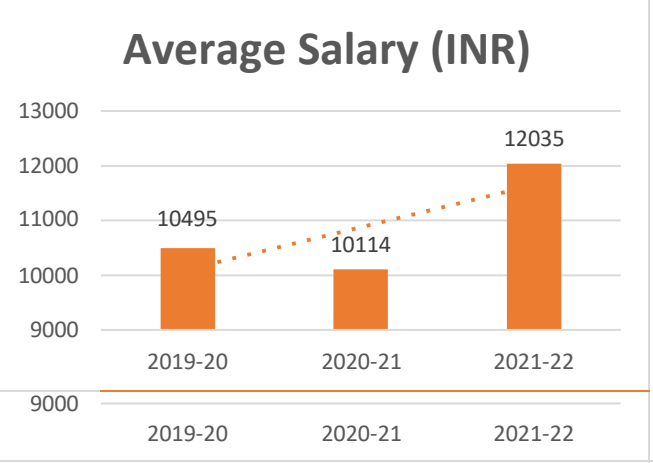
It is recommended that ample cases study analysis be included in the training curriculum to enable the SHI to analyse and handle different situations that each one may face.

During the Kolkata field visit, the Youth4Jobs trainers were struggling to place candidates in a particular company that had bulk vacancy for the SHI because of an incident where one SHI employee had got hurt while lifting a bulky package. Without understanding the situation other trainees waiting to be placed refused to even appear for the interview with that company. Such stories of unreasonable camaraderie were common among the SHI.

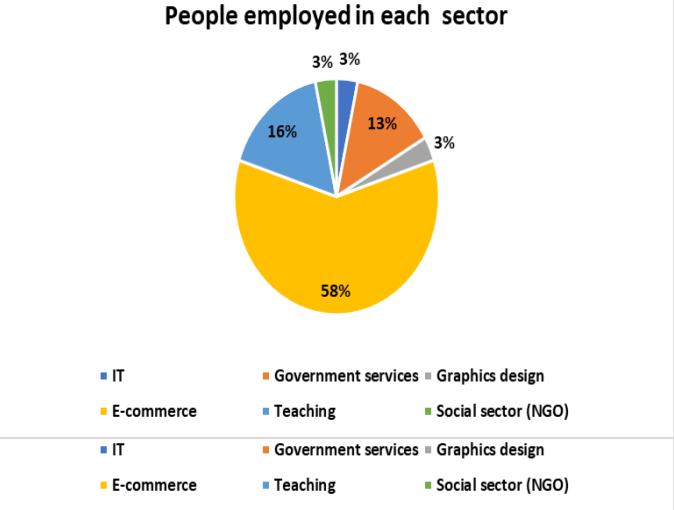
Level of Employment and Salaries

If we look at the percentage of trainees placed, then there is a noticeable drop from 71% in 2019-20 to 43% in 2021-22 (calculated on the basis of MIS data). The average salary obtained by SHI trainees show increase by nearly 15%.





Source: MIS SMART+ data

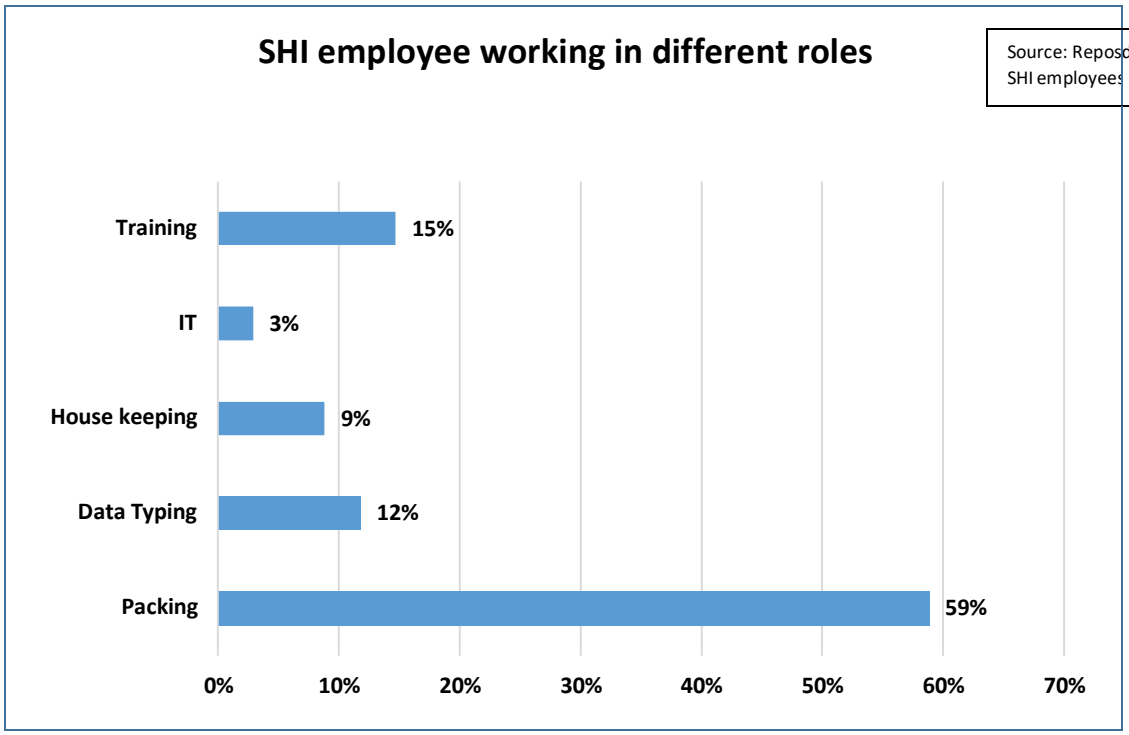


The survey conducted for SHI employees enquired into the sector in which they were

working. It is found that E Commerce (58%) employed the majority of the SHI. Interviews revealed Amazon and Flipkart as the biggest employers and also those providing maximum salaries to the SMART+ trainees. While some 13% regarded themselves as govt. employees, probing revealed that most did not understand what was a govt. job.

As evident from the sector distribution, most youth respondents were into packing. Some were still training (mostly to become teachers). Data typing and housekeeping were the other popular jobs available to the SHI youth. Most youth who were into data typing identified themselves to be employees of the IT and E Commerce. This analysis shows that employment opportunities for the deaf were limited to a few job roles only. Most of these were repetitive in nature requiring minimal

communication. Action Research done by Questera in recent times revealed that physical presence and physical work is easier to communicate to the deaf than others.



Focus Group Discussions and Key Informant Interviews made it clear that very limited job roles were available for the SHI who had only completed schooling and did not/could not access and use any technology to enable hearing like hearing aids or cochlear implant. For those who could communicate with the non-SHI world smoothly more opportunities were available. Exceptions always exist as evident from a Focussed Group Discussion where a SHI youth revealed that he was earning through a few acting opportunities that chanced by him.

Growth, Leadership and Retention

"niiti Consulting's discussions with some HR personnel from a Bengaluru based employer of SHI youth revealed the following-

Communication with the deaf is easier in a physical rather than virtual workspace. Colleagues could point to documents and gesture, to get the message across. In the virtual space, getting on a video call and overcoming technical difficulties becomes time consuming. Some strategies adopted by them that benefitted both the employer and the SHI employee were

- *Setting aside 'buffer' days for training of deaf candidates and setting up separate Skype messenger groups for clearing doubts easily*
- *Parents of SHI individuals are asked to play a role in understanding company policies during induction, in bridging communication for leave etc."*

Source: Action Research done by niiti Consulting

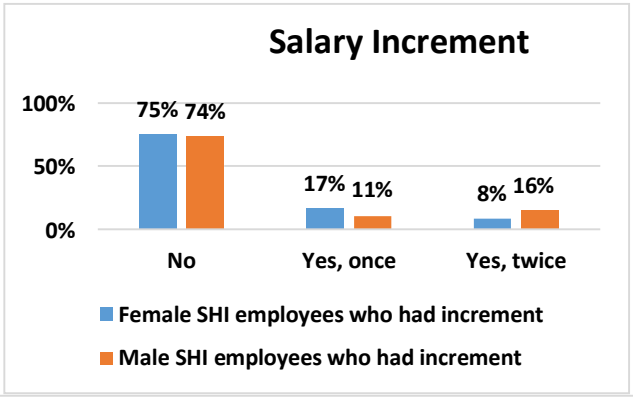
Growth, Leadership and Retention

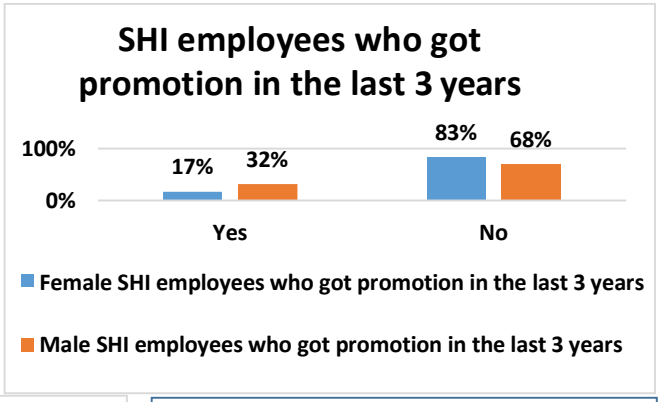
A standard method of assessing growth (in job) has always been to measure salary. It was found that out of the female respondents to the survey, 75% did not receive any increment in salary in the last 3 years. Similar was the situation for 74% of male respondents.

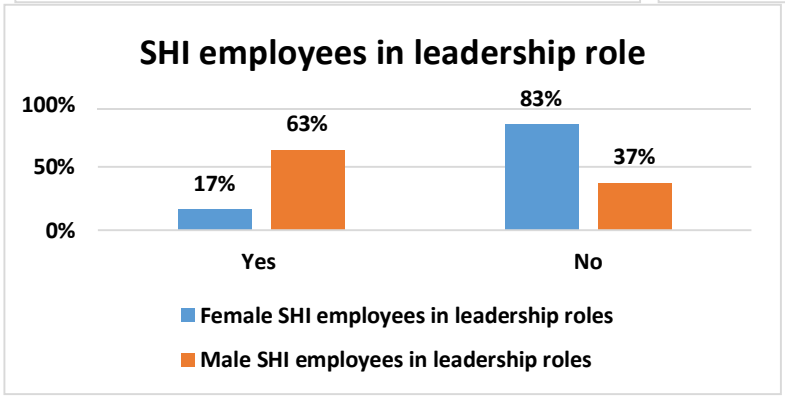
This information supports the data evidenced in the following graph that shows that 17% of female respondents and 32% of male respondents got promoted in the last 3 years.

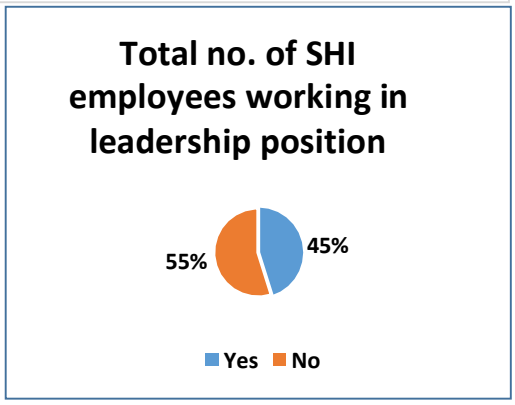
The survey exemplified that many of the SMART+ trainees could emerge as leaders among the group. It is evident from the graph that while 63% of the male respondents regarded themselves to be in leadership roles, only 17% of the female respondents did. This is indicative also to a certain extent of the confidence that they have gathered being productively employed.

Retention was judged from a second survey conducted for SHI SMART+ employees that showed that 46% out of 50 respondents were out of jobs in April 2022. Field visits revealed, Opportunity Cost of SHI employees to relocate (since a significant number hail from rural areas) and pursue a job was quite low. This coupled with repetitive nature of the jobs they find and peer reviews (other SHI) about employers lead to low job retention.









Sources of all Graphs in this page:
SMART+ SHI employees survey

Building vocational skills of SHI youth can be used to earn a living without relocating. It also has the potential for increasing diversity in job roles and leading to higher retention along with opportunities for growth. TMF could engage in a market research to identify vocational skils relevant for its SMART+ trainees.

As discussed earlier if skills imparted through ARISE+ can be honed further in SMART+ along with opportunities to choose from a variety of relevant vocational skills then many SHI candidates could evolve into entrepreneurs or assist their families in existing businesses or pick up jobs in the vicinity of their homes. Such kind of employment may bring long term prospect in their lives.

Soumen Chakrabarty, a SMART+ trainer

Soumen has many accomplishments to his credit. He has a double masters degree along with a B.Ed and a D.Ed.
His job profile at outh4Jobs, Kokata is that of a trainer. He uses youtube videos and visual powerpoints for all his classes.

The smile on his face makes his students very comfortable. He appreciates every action and gesture of the SHI youth before trying to teach them any protocol of a corporate job.

He and his team begins each day of class with meditation.

They also play cricket with the trainees to teach team rsponsibilty when a mixed group is working together.

Anger management, visit to BDO/Welfare Office/Some Schools and meeting placed candidates in their workplace in the guise of a brother/friend ar some of the things he and Biswajit his collegue does regularly to ensure that SHI youth receive the SMART+ training, get placed and retain their jobs

They have created SHI leaders like Rehanuddin (Warehouse Associate) leader) and Shubhodeep Maity (Scanner) who guide many other SHI employees

Inclusion

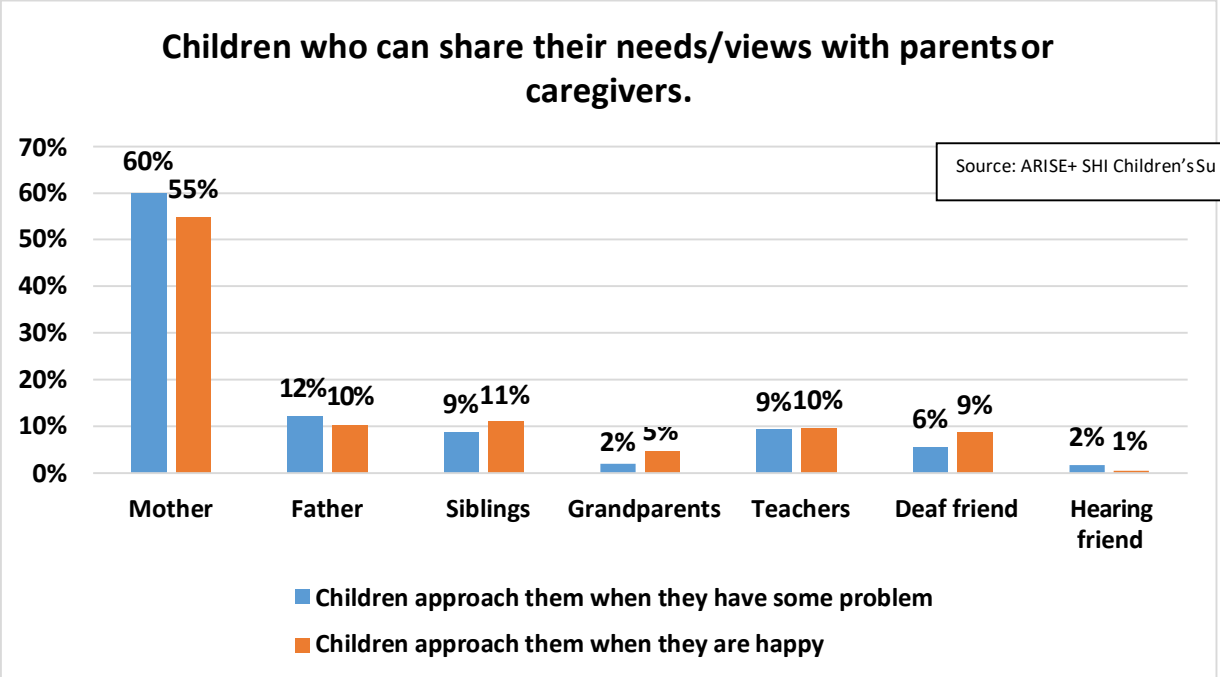
Inclusion is the biggest challenge faced by any minority group, and thus for the SHI community who face an invisible disability, this is no exception.

As expressed at the outset, the broader goal of both the ARISE+ and SMART+ programmes is to achieve higher inclusion for the SHI. Some specific demand side and supply side questions indicate achievement toward this broader adjective. Some factors on demand side (by SHI children, youth and parents) and some on the supply side (by teachers and employers) have been measured to assess the trajectory to inclusion.

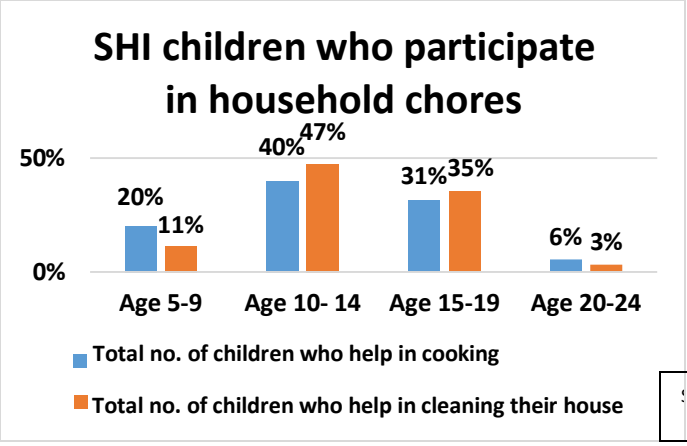
At the childhood level, contribution in household chores, sharing of joys and worries with family, participation in celebrations, access to online classes during pandemic, computer literacy was assessed. At the level of young adulthood factors like money spent, investments made were enquired upon, to indicate whether the SHI got an opportunity to contribute to their own wellbeing as well as that of others like any other human.

Demand Side –

It was seen that 60% children went to their mother when faced with a problem and 12% went to their father. Happiness was also shared in approximately the same proportion between mother and father.



Small advices given to SHI parents/caregivers by Vaani like inclusion of the SHI child at the dining table conversations go a long way in ensuring inclusion within the family first and in the society thereafter.

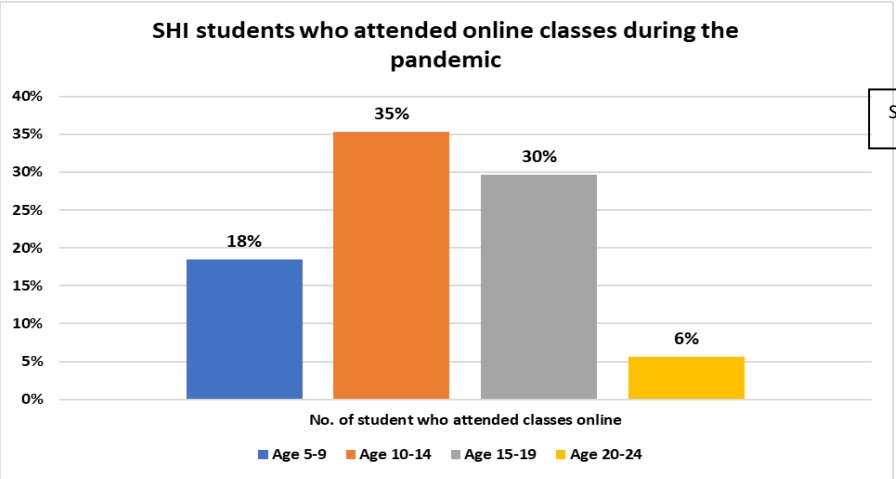


From the survey conducted it was evident that more than 70% of children in the ages 10-19 participated in household chores. This percentage really fell for those in ages 20-24 years. Association of household chores with low dignity or aloofness could be among other factors leading to such low percentages.

Source: ARISE+ SHI Children's Survey

All children confided that they participated in some celebration or the other. This is a big achievement since it is commonplace to isolate children with disability from social functions.

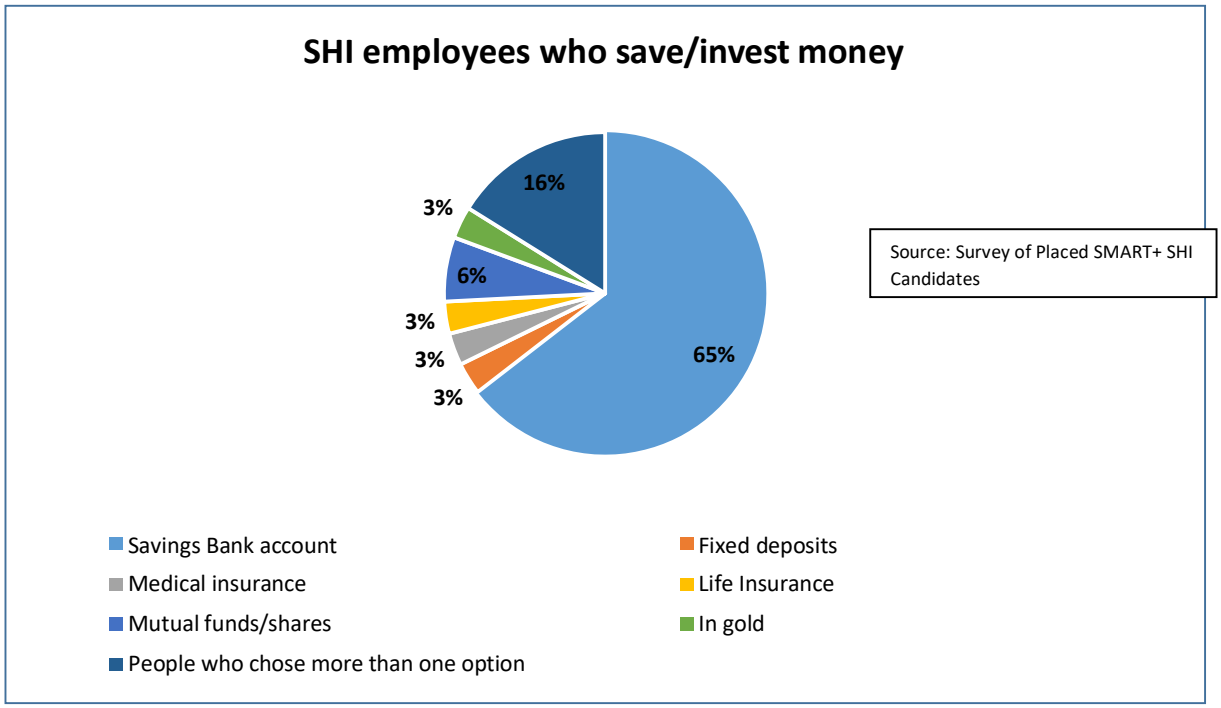
The survey also tried to gauge whether any attempt was made to ensure education of the SHI during the pandemic when offline school was suspended by the government. Out of total respondents 89% accessed online education during the pandemic, the graph alongside shows their age distribution. Computer literacy is regarded as a life skill necessary for inclusion in society. Of the children who were computer literate, 53% of respondents belonged to the age group of 13-16 followed by 23% in age group of 9-12 years.

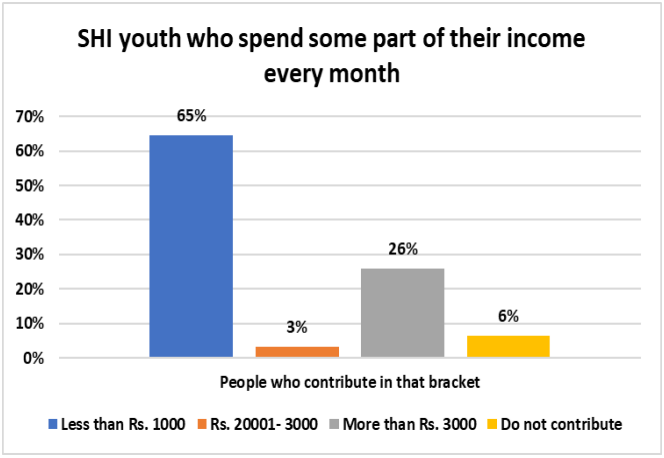


Source: ARISE+ SHI Children's Survey

A school alumnus of Utkarsh Mandal is now a drawing teacher in the school. SHI candidates mostly enjoy drawing and with a teacher who they can understand, this skilling class becomes fun and useful.

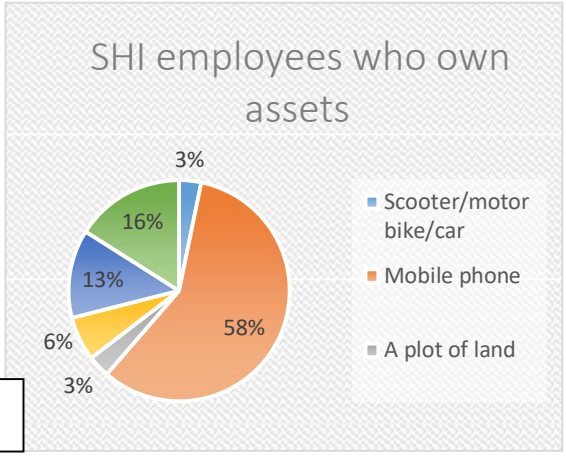
As a child grows into an employable young adult, an important aspect of fulfilment is to be capable of spending one's own money. 65% of SHI youth respondents contributed less than Rs 1000, 26% contributed more than Rs 3000 to fulfil their own needs or that of their families.



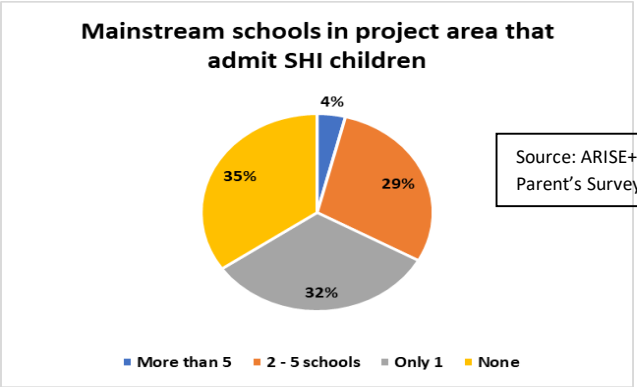


Similarly, on trying to enquire whether they spent in any asset, it was found that the 58% had spent on mobile phone, 16% in more than one asset, 6% on repairing house and 3% on a plot of land.

Despite being the first job, the two graphs below indicate that SHI youth are willing to shoulder responsibilities and contribute in their own small way.

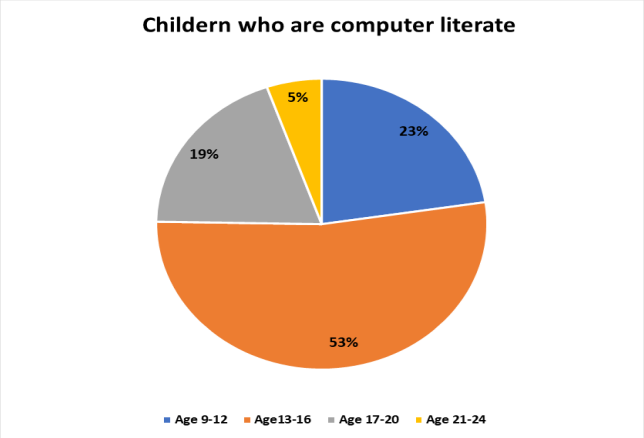


Supply Side factors to inclusion gauged in the study include access to school, access to deaf enabling resources at home, at school and at workplace.



Source: ARISE+ Parent's Survey

The Sarva Shiksha Abhiyan mandates all children to be in school. But very often mainstream schools deny admission to the disabled citing lack of resources to cater to their special needs. It is undoubtedly true that learning outcomes are better achieved in special schools but not every SHI child has a SHI special school in the vicinity. It was found that only some mainstream schools admitted deaf children. Field visits revealed that many children who move to mainstream schools move back to SHI schools after a few months being unable to adjust there. However, majority of children who attended special classes with Vaani in Kolkata were enrolled into mainstream schools and faced limited challenges till in middle school. When parents were asked how many mainstream schools existed in the vicinity of their houses that admitted SHI children, only 4% said more than 5 schools and 35% said that there were no mainstream school in their area that admitted SHI children.



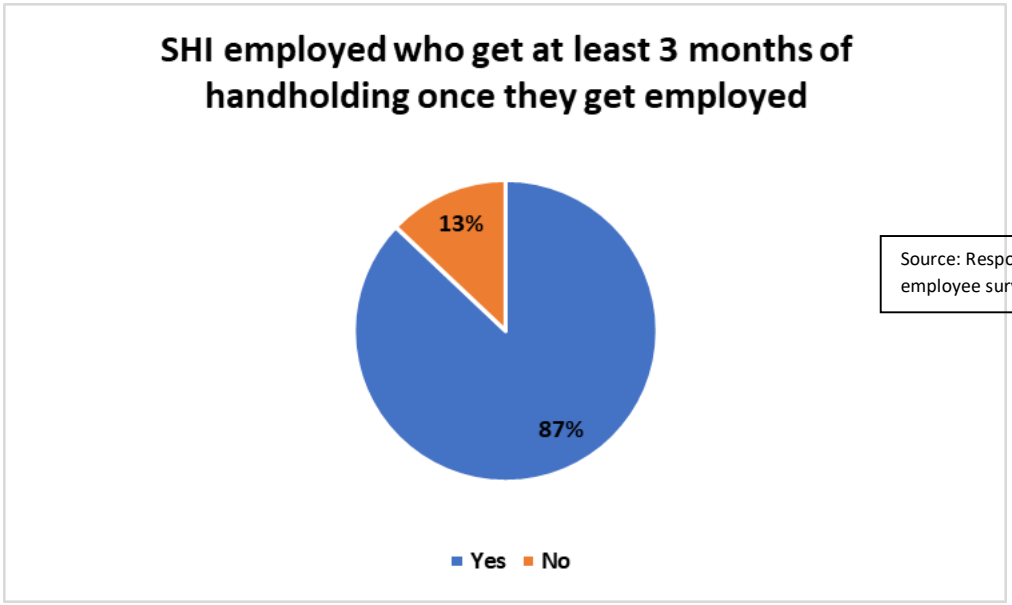
"Inclusive Education is a model of education wherein a child with disability and child without disability study alongside each other under the same roof. Ashray Akruti has been successfully implementing this model of education since 2016 by collaborating with Government schools in Hyderabad to provide quality education for children with hearing loss.

Ashray Akruti supports these schools by providing special educators and speech therapists. These professionals work closely with the students with disability and their respective educators to provide them an enabling environment in the school. Assistive devices like hearing aids are provided to the students. They are given inputs by the special educators to help them cope with academics in the classroom. The speech therapists help students use their residual hearing and acquire speech and language. For all the other activities, the students are together which fosters a sense of a camaraderie among the students with and without disability.

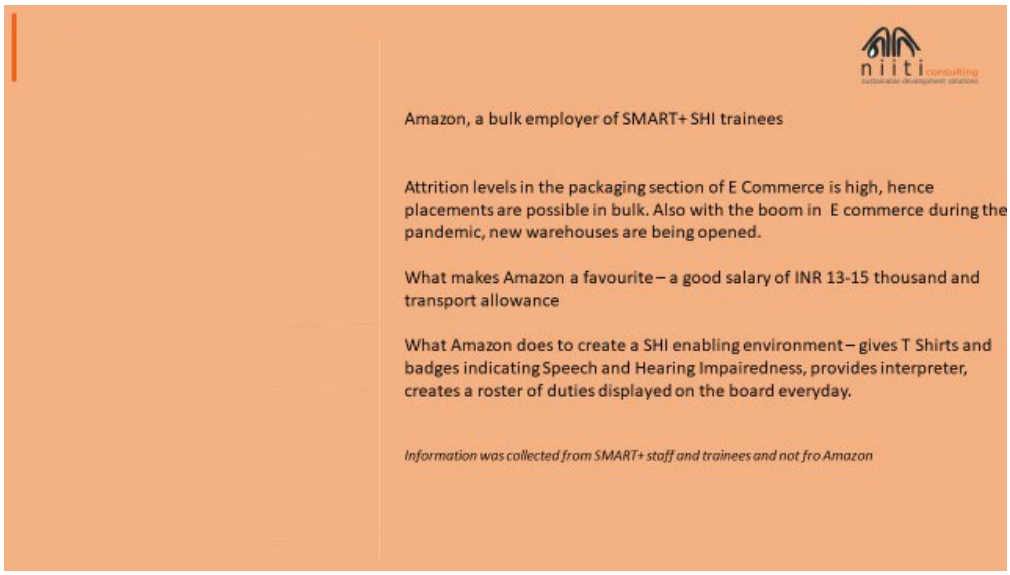
Workshops are conducted for school staff, parents, and students to bring awareness about Inclusive education and its benefits." (https://ashrayakruti.org/)

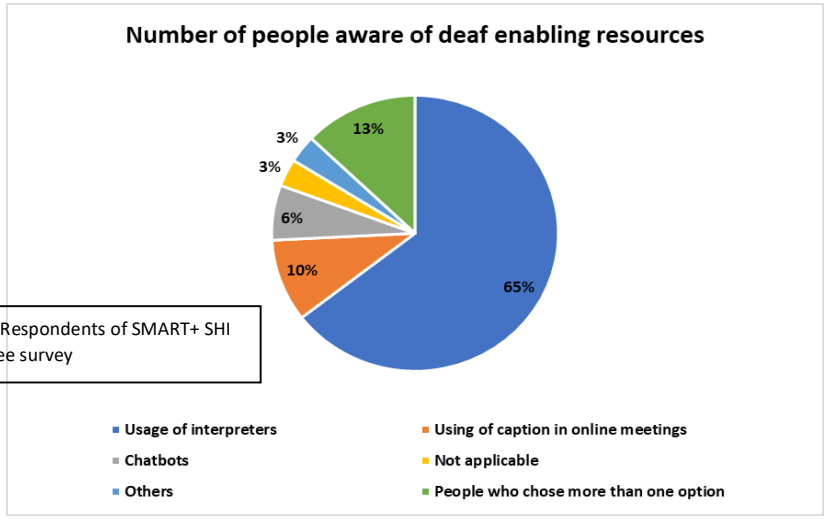
As highlighted in the section on language development, all schools used youtube videos to explain concepts. But not all teachers knew sign language nor did they use any app/interpreter to communicate with the children. Visual props and tools were also limited to the individual effort of each teacher. When it came to parents, interpreter was the resource most popularly known. Using of regular mobile apps was regarded by many parents as SHI friendly resources that they accessed. 17% of parents had made an effort to make their house SHI friendly.

Once the SHI candidates get placed, they as well as their hearing colleagues and managers require handholding to help them settle down in the job. All SMART+ training centres conduct sensitisation programmes for the employers to help them understand the nuances of SHI candidates and how to communicate with them. When such sensitisation programmes happen with senior leadership participating then inclusion is better achieved. However, when only immediate managers attend such programmes, inclusion of the SHI remain limited to the work needs only. 87% of survey respondents acknowledged that they had received at least 3 months of handholding from their training centres after getting employed.



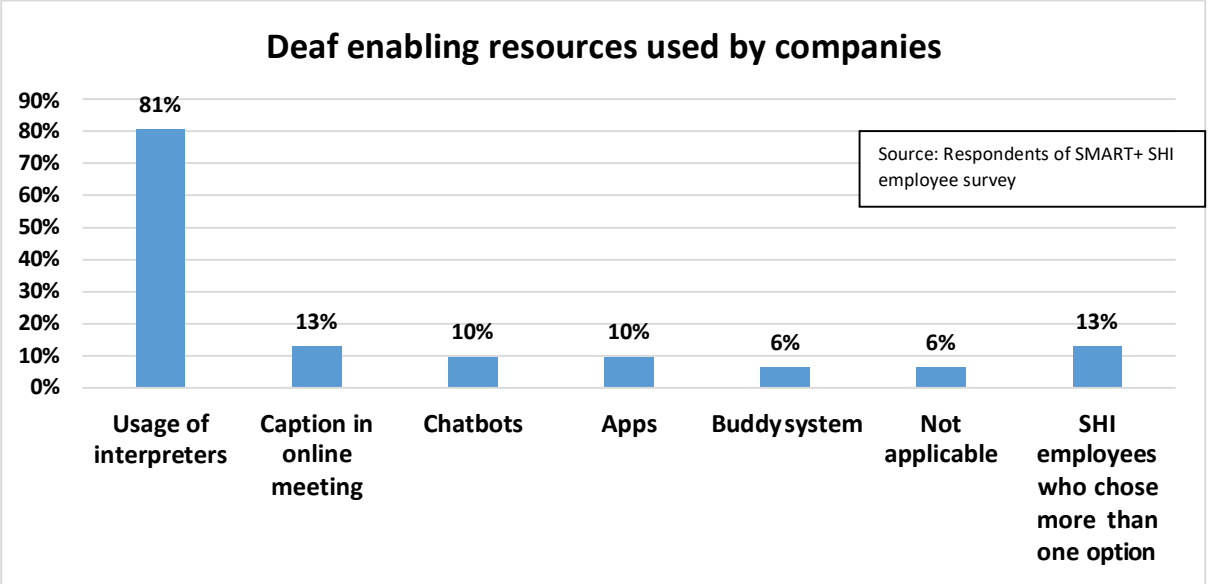
Source: Respondents of SMART+ SHI employee survey





Source: Respondents of SMART+ SHI employee survey

Another important factor that facilitated inclusion of the SHI employees was awareness on enabling resources like interpreters, captions, chatbots etc. It was found that 65% of SHI employees were familiar with the concept of interpreters who helped them communicate with the hearing world. Smaller percentage of employees were familiar with other enabling resources like chatbot or usage of captions etc. When employees were asked about the resources deployed by their employers then 81% said that employers used interpreters for facilitating work. Some mentioned usage of captions in meetings or the buddy system to ensure inclusion. One must realise in this context that for those youth for whom language has not developed using enabling resources like chatbots, captions or also other apps become difficult. For many of them while they were disabled only in terms of speech and hearing during the early stages of life, they have developed language disability over time.



Source: Respondents of SMART+ SHI employee survey

Buddy System where one SHI employee is paired with a non-SHI has the capability of breaking communication barriers and ensuring inclusion. But this is only occasionally deployed by the employers.

SOCIAL RETURN ON INVESTMENT – SMART+ PROGRAM

Social Return on Investment articulates financial value of outcomes created by any social Intervention. It reveals in monetary terms the social value that is created for every rupee invested by a project/intervention. Thus, SROI methodology goes beyond the generic economic analysis and focuses on the value of outcomes or changes experienced by the stakeholders and does not limit to focusing only on investments and outputs.

The SROI analysis in this report limits itself to the SMART+ interventions of TMF across 3 cities and 4 centres. The evaluation done here is based on retrospect. It is based on outcomes that have already taken place.

The analysis undertaken by niiti Consulting includes assessment of both outputs and outcomes. While some of these outcomes are tangible such as salaries, some are not. Some intangible social outcomes included in the study are happiness quotient, confidence level and communication skills which are very pertinent to the lives of the Speech and Hearing Impaired.

The SROI analysis of SMART+ program has been done with an aim to assess the value derived by the trainees through the program. We have analysed the factors affecting the social values with an aim to:

- facilitate strategic review of the program features
- help target appropriate resources for better outcomes
- identify the common ground between the implementation organisations and funder organisation

The result of SROI analysis is obtained as a ratio that compares investment made to the financial value of social outcomes generated.

DISCLAIMER - SROI is expressed in financial terms but is not equivalent to the financial return. Thus it should always be understood alongside the findings of the impact report (Section 1).

SCOPE & STAKEHOLDERS –

The following process explains the scope of the SROI in this report.

The implementation organisations chosen for the intervention by TMF have the infrastructure and resources to train and place SHI and other candidates. TMF has provided them with a curriculum that aims to skill the trainees and make them job ready. The SMART+ centres mobilise youth who are in search of jobs into a 3 months long training, and then run batches with 15-20 trainees in each during the year. TMF provides funds to enable these centres to skill and place the candidates.

The organisations who participated in the SROI assessment were the following:

1) Youth4Jobs, Kolkata
2) Youth4Jobs, Chennai
3) Helen Keller Institute, Mumbai
4) Sujaya Foundation, Mumbai

The stakeholders considered were:

a. Candidates who completed the training and were placed during the period (2019-20, 2020-21, 2021-22)
b. Trainees undergoing SMART+ program in 2022

The various tools used for data collection are:

1) Focussed Group discussion with trainees and teachers
2) Key Informant Interviews
3) Field visit to review the state of training in Mumbai and Kolkata
4) Survey responses from SHI and other trainees placed in 2019-2021
5) Survey responses from SHI and other trainees of the program in 2022
6) MIS data available with TMF

MAPPING OUTCOMES – Outcomes may be defined as those changes experienced by the trainees of the SMART+ program beyond the training. To map these, the Theory of Change of the SMART+ program was used. A logic model was designed with outputs and outcomes along with indicators. Of the multiple outcomes and changes that the trainees may have experienced, the most important ones were considered for SROI computation.

The narrowed down SROI logic model is given below:

Stakeholders	**Objectives**	**Input**	**Output**	**Outcomes**	**Impact**
Candidates under training/trained/placed	To offer industry specific / demand-driven skills to the disadvantaged*(SHI) youth	Mobilisation and training	SHI youth and other disadvantaged youth undergo 3 months training which covers Basic Computers, English reading and writing, workplace readiness training (soft skills, life skills, ICT, basic English), etc. They also get trained on skills required to get job opportunities with the placement partner organisation	Increased confidence Increased happiness Increased career prospects Improved communication skills Increased respect from community/family Increase contribution to family income Improved status of family	SHI and other youth are financially independent and realise their full potential

	To enable increased and sustained income for all the Participants through Placements	Placement and post-placement support	SHI and other trainees are placed as per the employment opportunities available and supported for one year	Placed trainees stay on in their employment as they see potential growth and improvement in economic standards	

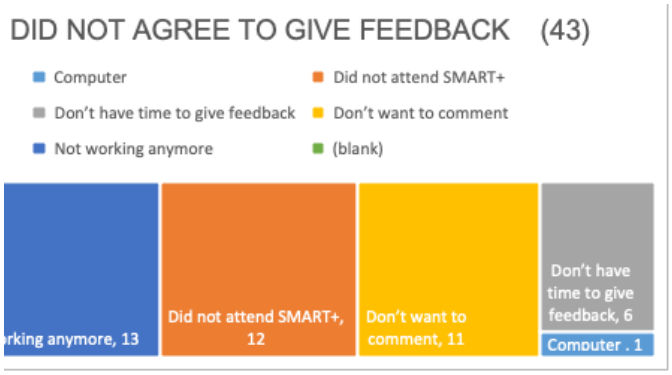
EVIDENCING OUTCOMES - The mapped outcomes as outlined above were used to establish the financial value. The outcomes which directly result from the needs of the beneficiaries have been considered. Employment to support themselves and their families was Identified as a major need. The training received develops skills that improve their employability. Gaining employment helps them to contribute to their family income and thus has a positive impact on their well-being.

The outcomes that are considered are as follows:

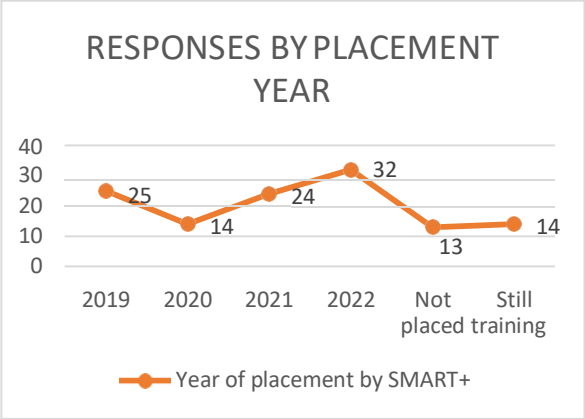
- Increased self confidence
- Increased employability
- Increased communication skills
- Increased happiness

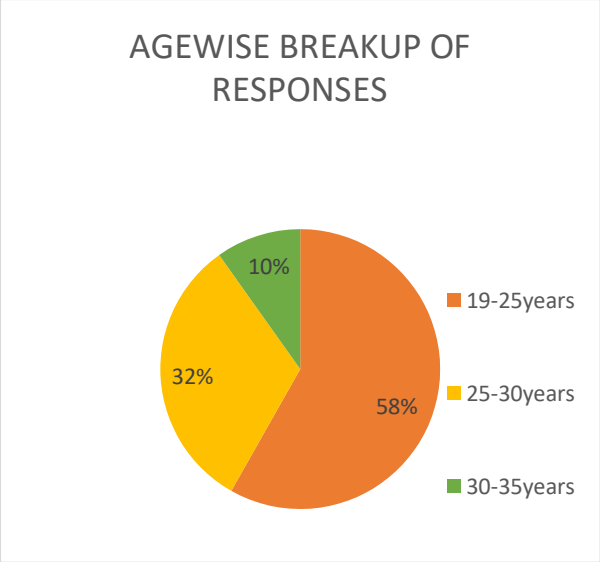
COLLECTING DATA REPRESENTING OUTCOMES – A survey was commissioned of all candidates trained and placed in the locations and centres, as defined in the scope. The survey form was sent to 800+ candidates to which 122 responses (14%) were received. Some graphs to provide understanding about the quality, type and kind of responses received are given below.

Candidates were given a choice to respond to the survey by free will. Some of them exercised this option to abstain and cited reasons such as not employed at present, network/computer issues, didn't want to comment etc.

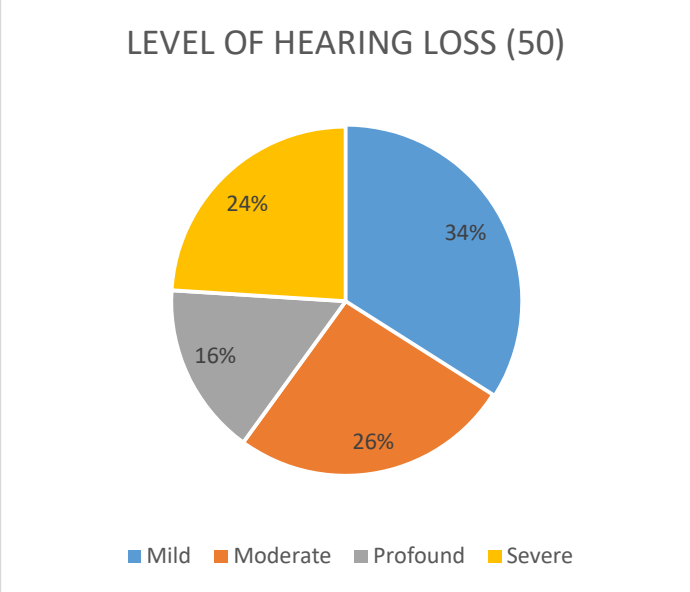


The responses received after data cleaning were distributed evenly across the period from 2019-2022. It is evident from the pie diagram alongside that most respondents are in the age group of 19-25yrs.

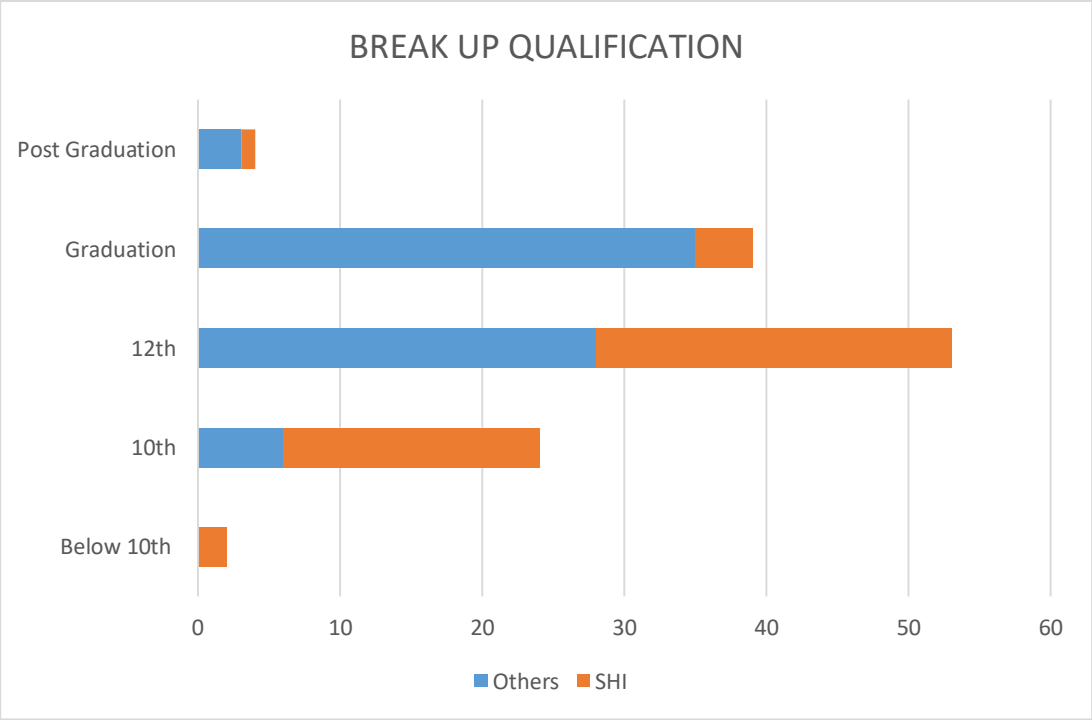




Since the SMART+ batches are not exclusively for the SHI, to identify the SHI, the level of hearing loss was enquired upon. 50 candidates responded to this and expressed that they are deaf, and are aware of the level of their hearing loss.



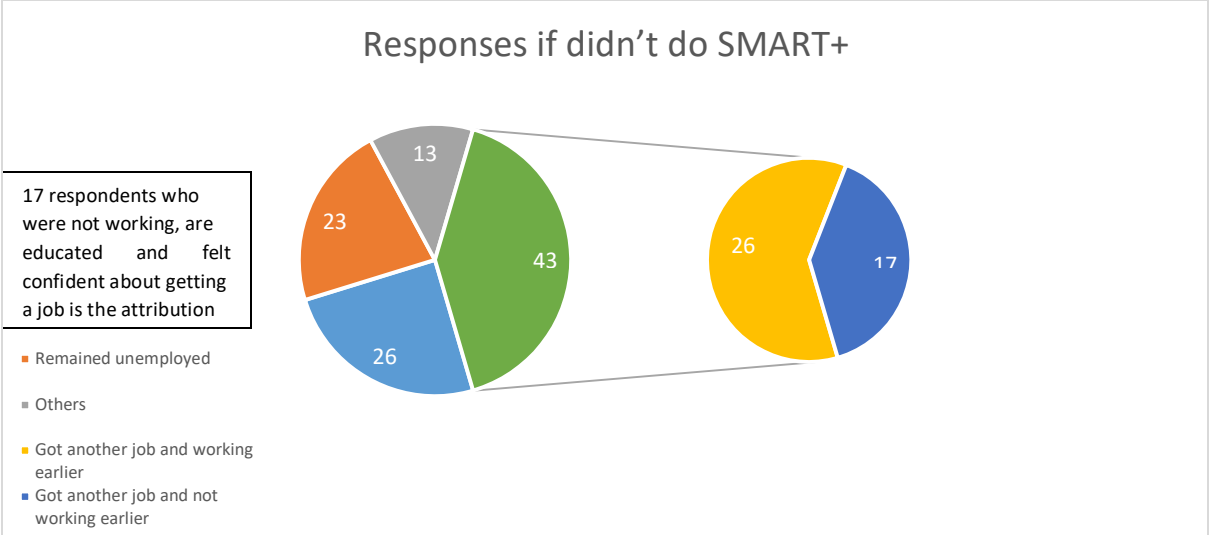
Of all the respondents, average qualification is 12th standard, followed by graduation. In case of SHI, most candidates are 10th or 12th pass.



ESTABLISHING IMPACT – In SROI, calculations are based on the concepts of deadweight, displacement, drop off and attribution. These are being lucidly defined hereafter.

Deadweight –What would have happened anyway. To calculate this, the trainees who have completed the training and have been placed were asked a question- what would they have done If they had not joined this course?

The responses received are as under:



The % of participants who were not working before enrolling into SMART+, were educated and felt confident about getting a job on their own were regarded as deadweight 13%(17/122)

Displacement – Sometimes a positive impact of one intervention may have a negative impact on another comparable intervention. However, this component is not relevant for all types of SROI. The

SMART+ training did not jeopardise any other training. Thus because of no relevant evidence of displacement of the outcomes for any other stakeholders, displacement is assumed to be zero.

Attribution – This accounts for changes that could have been brought about by other similar Interventions. It also considers the factors other than the intervention that can positively impact the beneficiary.

The respondents were asked if they knew of any other organisation that provides training and placement.

Q. Do you know of any other centres that give training and provide placement ?		
Options	Number	Percentage
1centre	41	34%
2-5 centres	20	16%
More than 5 centres	20	16%
None	41	34%
Grand Total	122	

66% of the respondents knew about a training and placement centre providing services similar to SMART+. The factors taken into consideration for attribution are % of trainees who know of such other centres, had worked before joining SMART+, acquired skills in addition to SMART+ and gave low ranking on a scale of 4 to SMART+. The attribution on the basis of this can be regardedas 16%.

Drop Off - Outcomes that last more than 1 year are accounted for in drop off. However, the benefit of the outcome reduces over the years. As per standard, the maximum that a training can benefit Is for 5 years.

In case of SMART+, the duration of training is only for 3 month and only basic employable skills are taught (since the language and Intellectual development of most SHI youth are low when they join), some reduction from the standard 5 years of benefit was necessary. But at the same time, a significant number of respondents (66%) felt that they their leanings from SMART+ would last them for a lifetime. To balance out both these factors, 4 years have been considered as appropriate for drop-off calculation.

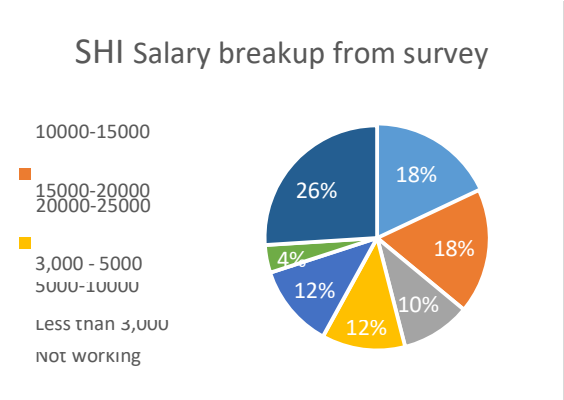
Values of components for SROI used for calculation can be seen as below -

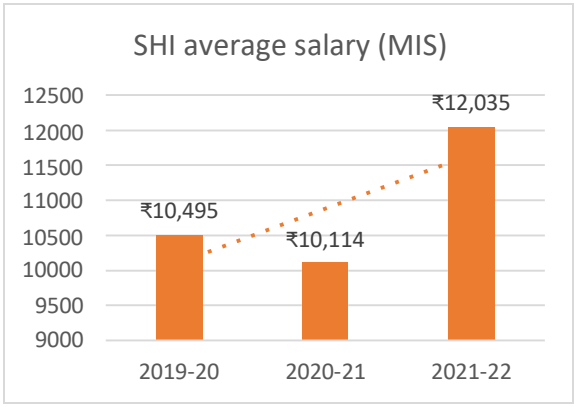
- Deadweight 13%
- Attribution 16%
- Displacement 0
- Drop off 25%

CALCULATION OF SROI

The SROI is a ratio of Net Present Value(NPV) of the outcomes divided by total investment.

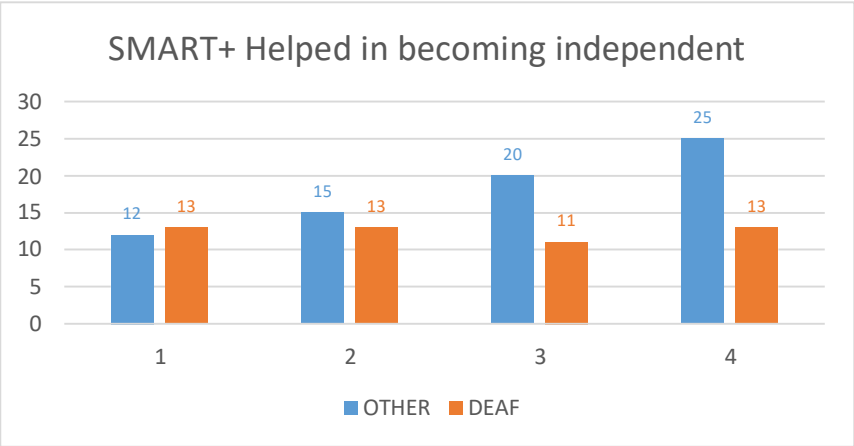
We used a ranking method to give financial proxies to the outcomes to calculate the NPV. The average salary was calculated by calculating an average from two sources of data viz. the salaries reported by the centres in the MIS and the salaries received through the survey.





The average of salaries from survey responses is Rs 9,425 and average salary as per MIS is Rs 10,784. Therefore, average salary for SROI calculation is taken as Rs 10,500.

For ranking of the outcomes, respondents were asked to rank the selected outcomes on a scale of 1-4, 1 being the lowest. The responses were as follows:



The responses for each of the outcomes were analysed and on the basis of average they were ranked for the calculation of the SROI.

RANKING OF OUTCOMES				
Rank	**Improved Employability**	**Improved communication skills**	**Increased happiness**	**Improved self confidence**
1	43	68	67	80
2	50	50	27	27
3	84	129	131	127
4	104	99	93	91
Total	281	346	318	325
RANK	**4**	**1**	**3**	**2**

For calculation of SROI, the value of the outcomes have been calculated using average salary as the financial proxy.

CALCULATION OF TOTAL SOCIAL VALUE OF OUTCOMES					
			2019	**2020**	**2021**
OUTCOMES	**RANK**	**FIN PROXY**	**VALUE**	**VALUE**	**VALUE**
Total Placed during the year			**244**	**251**	**135**
Improved communication skills	**4**	**10500**	**2562000**	**2635500**	**1417500**
Improved Employability	**1**	**2625**	**640500**	**658875**	**354375**
Improved self confidence	**3**	**7875**	**1921500**	**1976625**	**1063125**
Increased happiness	**2**	**5250**	**1281000**	**1317750**	**708750**
TOTAL VALUE			**64,05,000**	**65,88,750**	**35,43,750**
GRAND TOTAL					**1,65,37,500**

The outcome value has been reduced by attribution and dead weight to arrive at the SMART+ Social Outcome Value.

The dropoff of 25% has been applied on the impact value to calculate the impact value for year 1 to 4.

To arrive at NPV, outcome value of Year 1 has been discounted at a standard rate of 3% as widely accepted for SROI calculation.

Table below shows the calculation of the Net Present Value of the Social Impact for SMART+

Year	Outcome Value	Year 1 Outcome Value*(100-Attribution-dead weight)	Year 2 Year 1 value less dropoff 25%	Year 3 Year 2 value less dropoff 25%	Year 4 Year 3 value less dropoff 25%	Total
2019	64,05,000	45,47,550	34,10,663	25,57,997	19,18,498	**1,24,34,707**
2020	65,88,750	46,78,013	31,18,363	20,78,888	15,59,166	**1,14,34,430**
2021	35,43,750	25,16,063	16,77,207	11,18,127	8,38,595	**61,49,992**
Total	**1,65,37,500**	**1,17,41,625**	**82,06,233**	**57,55,012**	**43,16,259**	**3,00,19,129**
NPV	Discounting rate 3%	1,13,99,636	77,35,162	52,66,651	38,34,940	**2,82,36,389**

SROI is a ratio of Total value of the social outcome and total cost of the intervention. Further centrewise breakup and the total amount is given in the table below.

TOTAL COST OF SMART+ PROGRAM FROM 2019-22

CENTRE	2019	2020	2021
Youth4Jobs, Chennai	**10,01,824**	**11,78,773**	**17,59,855**
Youth4Jobs, Kolkata	**20,20,034**	**12,49,922**	**19,58,149**
Helen Keller, Mumbai	**6,91,995**		**23,75,316**
Sujaya Foundation, Mumbai	**32,65,105**	**14,72,297**	**25,97,078**
TOTAL	**69,78,958**	**39,00,992**	**86,92,419**
GRAND TOTAL			**1,95,72,369**

Therefore, **SROI FOR THE SMART+ PROGRAM** FROM **2019-2022** IS **1.44**(2,82,36,389/1,95,72,369)

INTERPRETATION – SROI 1.44 means that for every rupee spent in SMART+ program a value of Rs 1.44 has been created around the intervention.

This clearly indicates that SMART+ which is a short duration employability training program for the disadvantaged SHI youth gives them a larger benefit than the money spent on them. It also shows how TMF is contributing to inclusion of deaf in the larger society.

Recommendations

The Impact study team closely followed and assessed TMF's SHI initiatives. They also drew upon their learnings from prior experience in working with many successful SHI young and experienced adults, and enablers to recommend the following -

Language development is the first and most important barrier for the SHI. It manifests itself in poor learning outcomes in school, poor bonding at home and society, and limited opportunity for employment. Thus language development is of paramount importance for the SHI. Some ways of ensuring it are early diagnosis and intervention, use of audiometric and speech therapies along with signs from the early stages.

Comprehension capacities need to be built through use of tactile methods, visual tools, props, experiments and experiential learning. Subject specific sign dictionaries can be accessed or developed wherever necessary. SHI teachers can be recruited for better learning. Every teacher must learn and use sign language. All these together could ensure language development of the SHI. Use of technology enabled resources could also help the SHI in communicating with the larger world. All of these in aggregate is likely to improve their life skills and diversify their employment/entrepreneurial opportunities.

Some specific recommendations, with regard to ARISE+ and SMART+ programmes are as follows–

1) Classes for parents can be held to teach them sign language, lip reading, speaking and tactile methods
2) All teachers need to learn sign language, lip reading, speaking and tactile methods
3) Schools to facilitate teachers with props, visual tools and give opportunities for experiential learning for SHI children
4) Vocational skills need to be developed from middle school onwards
5) Employer sensitisation programmes must ensure participation of senior leadership
6) SMART+ trainees can undergo a structured induction that includes expectation matching and goal setting.
7) SMART+ lessons must be imparted using visual tools
8) SMART+ lessons must include a variety of case study analysis
9) SMART+ could also include vocational skill building
10) SMART+ Sensitisation initiatives with employers could demonstrate how technology and introduction of buddy system in addition to use of interpreters can ease communication and improve inclusion
11) ARISE+ children must be bridged to join SMART+
12) Duration of SMART+ course should be increased from 3 to 6 months to ensure development of skills that enable the SHI to diversify their job opportunities
13) Use of apps like AVAZ, Signable, chatbots, captioning tools, reading of news from SHI news channels like ISH TV can be practised at ARISE+ and SMART+ centres.

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2/503 Jaypee CGHS Plot No.2 Sector 22, Dwarka New Delhi-110075

E: info@niiticonsulting.com, W: niiticonsulting.com