vision Empower

TWENTY TWENTY
A NEW FORESIGHT

VISION EMPOWER ANNUAL REPORT

2020 - 2021

Content

1. EXECUTIVE SUMMARY

Vision Empower (VE), incubated in 2017 at IIITB Innovation Center, Bangalore, seeks to make Science, Technology, Engineering and Mathematics (STEM) subjects accessible to students with visual impairment and thereby Empower them to achieve inclusive education and pursue STEM careers.

The broad approach of VE is to create accessible content for Science, Math and Computational Thinking (CT), create a well-researched approach to support teachers of students with visual impairment and innovate on technologies to assist students with visual impairment to achieve their educational and career goals.

After being incorporated in October 2017, the core team of three founding members focused on identifying the real challenges of students with visual impairments in studying Science and Mathematics in special schools for the visually impaired in Karnataka. Between 2017 and 2019, VE used the principles of participatory design along with the community and focused on research and design of pilot interventions to address this challenge in five schools for students in fifth grade.

In 2019, VE launched a new program on creating an accessible Computational Thinking curriculum for students with visual impairment (VICT), launched in partnership with Microsoft India. As part of organization development initiatives, internal Capacity Building programs were conducted for the VE team with the help of expert special educators for students with blindness. New partnerships were formalized with organizations such as Enability Foundation, Chennai and The Xavier's Resource Center for the Visually Challenged (XRCVC), Mumbai and Matruchhaya, Bangalore to collaboratively address the challenges identified. VE joined the consortium on accessible higher education, called the Inter University Alliance with IIT Kanpur, IIITB, Ashoka University, IITM, IIMB and St Xavier's College Mumbai. In collaboration with IIITB, I-STEM, Vision Aid and XRCVC, VE organized three editions of the Inclusive Hackathon at IIIT Bangalore in January since 2018, to develop awareness about the capabilities of

visually impaired programmers and provide the necessary accommodations. The technology research initiatives at VE focused on creating a refreshable Braille reader specifically for Indian children with blindness and an accessible learning management system for students and teachers.

By March 2020, the VE team grew to include 5 Program Executives, 4 Educational Co-ordinators and 1 Special Educator. The plan for 2020-2021 was to implement the solutions developed over the last 2 years for students of Grades 1 to 7 and their teachers in Karnataka, while continuing research on new initiatives. VE created an implementation plan to broad-base the pilot projects to cater to the needs of students in 4th, 5th and 6th grades in 10 schools across Karnataka with approval from the Directorate for the Welfare of Differently Abled and Senior Citizens, Government of Karnataka (DWDSC-KA). VE was given permission to expand the Pragya teacher training intervention to address the needs of teachers of these nine schools which received the newly designed Braille Science and Mathematics books. VE had created 22 accessible games for the Numeracy section of the Computational Thinking (CT) following the framework of Ludic Design for Accessibility. VE was also permitted to take VICT to all these schools for students of Grade 1 to Grade 4 and VE Educational Co-Ordinators were designated to work with their Math teachers.

The pandemic since March 2020 and the isolation that followed forced us to think differently and design new ways to execute our interventions. The entire team brainstormed on the possible activities and came up with innovative ways to continue with most of the interventions. To experiment with online teaching for students with visual impairment using the Teacher Instructions

Kits already created for teachers, VE reached out to middle school students of one school in Bangalore over group phone calls and began concept based teaching for Math and Science at the grade level. As part of this research, VE also used storytelling as a tool to understand the attention span, interest levels and appetite of children towards online education – a new concept for this community who were not regular users of digital devices. To keep students engaged during their long unwelcome vacation, activities were designed and refined with their valuable inputs over this pilot phase. This gave the team great insights on the new pedagogic processes to be followed for online teaching of students with visual impairment such as content development methods, resources to be used and duration of the lessons. These insights were then shared with the teachers. The VE Pragya teacher training had been designed to be a classroom intervention for teachers from special schools who are themselves visually impaired. The teachers now were debilitated by the lack of Digital Literacy. VE obtained special approval from the government of Karnataka to reach out to teachers through the Principals and conduct training. VE focused on first enabling the teachers to use the digital platforms. Audio tutorials were then created for teachers and distributed to them over YouTube followed by individual support calls. By October, about 28 teachers from these 10 schools were ready for the first online Pragya training on the Zoom platform.

Research activities on the VICT program were revisited and taken up with new rigor. The erstwhile plan for 2020-21 was to expand the program to 10 schools in the process and formalize the play plans across the required levels of complexity. With the early closure of schools, the focus was shifted to analysing the field observations that were already

collected over the last academic year to create structured play plans for each game which would be used to introduce the teacher to the CT syllabus such that the outcome of the games would align with the international standards of the pedagogy on Numeracy. Since the entire CT intervention was originally planned for the physical school set-up, it was necessary to convert the play plans to formats which could be executed on online platforms, if at all. Students were enlisted through partner networks from Mumbai, Kochi and Bangalore and the online Numeracy game sessions continued through the rest of the year. Further, this program has been enriched by adding newer games and activities based on inputs from Dr. Padmini T, an expert educator in the field of children's cognitive development.

By January 2020, the collaborative team of VE, Touchetech and IIITB had successfully created a compact refreshable Braille book reader for school-going children with visual impairment. In May 2020, the technology was licensed by the joint owners of the IP to a new company, Vembi Technologies, formed to manufacture the Hexis device and create the Antara content creation platform. VE in a partnership with Pratham Books launched a joint research on the possibility of making high quality children's literature available in Braille to the children with visual impairment.

Design and development of the VE Subodha accessible learning management platform has been completed by March 2021. The VE team has deployed Teacher Instruction Kits for Grade 1 to Grade 7 for Science and Mathematics for the Karnataka State Board. Accessible text book content for Science and Mathematics has also been created in Subodha for the same grades.

In 2020-21, as targeted, VE was able to create new collaborations with the state

governments of Tamil Nadu and Tripura to ensure that the benefits of the VE programs can be made available to students with blindness in other states as well. VE signed an MoU with the Samagra Shiksha Tripura to assist in the project on Inclusive Education for Tripura. In the first year, it is planned to deploy the VE solutions in the two special schools for the blind in Tripura. The first exercise was an Awareness Building workshop to identify Master Trainers from across the state. VE and XRCVC in collaboration with Samagra Shiksha Tripura (SST) conducted the first "I for Inclusion" training for 40 educators from the state. This three-day training from 2nd to 4th March 2021 marked the beginning of the partnership on Inclusive Education for students with blindness in the state. The engagements with SST will include provision of Braille books for Science and Mathematics for every student, Pragya teacher training, deployment of Subodha for teachers and students and supporting the deployment of Hexis through the Antara platform.

VE has also been given formal permission by the State Commissionerate for Persons with Disability, Tamil Nadu, to engage with three identified schools for the blind in the first year of operations and take the learning to all schools in the following year. The intervention will be conducted in collaboration with the National Institute for the Empowerment of Persons with Visual Disabilities (NIEPVD) for the Braille content.

The action research model of engagement adopted by VE has led to several publications from VE and joint research activities with IIIT Bangalore and Microsoft Research. (For more details, click here). The outcome of initial research at VE indicated that a collaborative approach was the need of the hour to address the "wicked" social issues such as inequity in education to persons with disabilities in India. The stakeholders in this ecosystem includes Research Labs, Academia and Policy makers along with the

community in a participatory approach to designing solutions. VE has joined Microsoft Research and IIITB as a founding member of the Center for Accessibility in the Global South (CAGS), hosted at IIT Bangalore, to foster a vibrant community of researchers and practitioners to engage in interactions leading to higher awareness and creation of usable solutions.

Through the year, with unrelenting efforts from the VE team, the trust has been able to raise funds to support the activities envisaged in 30 schools across India in FY 2021-22, of which 21 schools are in Karnataka, 3 in Tamil Nadu, 2 schools in Tripura and 2 each in Delhi and Gujarat.

To support the increase in activities, local field school coordinators have been hired and are being trained by VE experts through a detailed on-boarding training. VE has also engaged student interns from IIIT Bangalore on feasibility studies of interventions in new geographies and in the area of Computer Literacy. VE has been lucky to have the services of 94 volunteers, making the Ananda volunteer program a huge success in 2020-21. These volunteers have participated in translation activities, support during online training, creation of Teacher Instruction Kits and accessible content creation following the VE process and creation of Do-It-Yourself videos for teachers of students with visual impairment.

A huge round of applause to the whole VE team for keeping their spirits high through this turbulent year and giving their best to every project being executed at VE. This includes the hearty online celebration of the Foundation Day of VE on the 4th of October 2020, which marked completion of the third year of VE operations.

Truly, 2020 was not a year for perfect hindsight, as is common knowledge. It was a year of developing foresight and vision to empower the community.

Foundation Day Celebrations of Vision Empower: Celebrating 3 Years

2. DETAILED REPORT FOR FINANCIAL YEAR 2020-21

OPERATIONAL ASPECTS

LEARNING RESOURCES

VE provides students with visual impairment with accessible learning resources for Science and Math.

Accessible Braille books with tactile diagrams:

Science and Math books were reviewed to create accessible Braille books with tactile diagrams in collaboration with Matruchhaya. These are distributed to each child to enable them to read at grade appropriate levels. Tactile Diagrams, Models and Lab Equipment are distributed to the schools. These are usually procured from vendors or created specifically in collaboration with partners such as Enability Foundation, RLF or with the help of volunteers.

Detailed Teacher Instruction Kits (TIKs):

TIKs have been created for Maths and Science subjects for 1st to 7th grades. These consist of detailed explanation of concepts and various accessible activities using which the concepts could be taught to the visually impaired children. These are provided to teachers of Science and Math and these are distributed in Braille to the teachers with blindness or in print for the sighted teacher. These have also been uploaded on VE Subodha, which is an Accessible Learning Management System.

In 2020-21

- Grade 7 Science and Math Books were sent to the administration of 9 schools, one copy for each student, though the students are not in school. Maths and Science books for grades 4th, 5th and 6th were provided to the 9 schools during the academic year 2019-2020. Hence Maths and Science Braille Textbooks with Tactile diagrams embedded in them are available for Grades 4th, 5th, 6th and 7th and have been distributed across 9 schools in Karnataka.

- Science Tactile Diagram Books for 7 students of Grade 10 were procured to be used during the online hand-holding sessions by VE volunteers during the pandemic.

- Tactile Diagram Colouring Books were provided to 10 children from a school who had participated in the Torino pilot program for Computational Thinking.

- A total of 255 Teacher Instruction kits were made covering 1st-7th and 10th Maths and Science syllabus. These are available for all Teachers teaching visually impaired students across India through the Learning Management System - Subodha.

"

I am happy to say that Vision Empower has taught me the scientific method of teaching Maths and Science. Thanks to the team of Vision Empower.

**Ms. Manjula,
Math Teacher, Mathru School**

Vision Empower has not only helped in academics but also provided teaching materials like skeleton", science models etc. We are happy about it. Thank you very much.

**Ms. Shubha,
Science Teacher,
Mathru School**

- VE obtained approval from the Government of Karnataka to procure Tactile View Software was provided to the Mysore Government Braille Press and the staff was trained on usage of Tactile View by Matruchhaya experts.

- After comparing various resources available with XRCVC, Sugamya Pustakalaya, Saksham, Bookshare, and NAB, audiobooks for NCERT for Grades 7-12 were downloaded and distributed to schools and relevant books were shared with students of Grade 10 directly.

- Books for Grades 1-3 were evaluated and relevant resource samples were created.

- VE has created detailed Do it Yourself (DIY) instruction kits using which parents/school teachers can create tactile diagrams required for the visually impaired child in grades 1-7th.

- Audio Tutorials were created for students of Grades 7-9 to experiment with the content, duration and style of teaching during the pandemic. VE engaged with 6 students in Bangalore online for 3 months with over 40 group sessions. The knowledge was later passed on to the school teachers to start online classes for children.

- The Government of Tripura has approved the creation of books with tactile diagrams by the Braille Press at the Blind Boys Academy, Narendrapur, West Bengal.

- The Government of Tamil Nadu has approved the creation of Math and Science Books in collaboration with NIEPVD.

Primary Funders

Microsoft India

Wipro Foundation

Cycle Agarbatti Pvt. Ltd

Matruchhaya

The Canara Bank Welfare Association

Individual Donors

PRAGYA TEACHER TRAINING

VE conducts Teacher Training for Science and Math Teachers and helps them with the pedagogic methods and prepares them for class with children with blindness. There have been eight VE Pragya Teacher Trainings held thus far. Due to the pandemic all Pragya Training sessions were conducted online with the teachers.
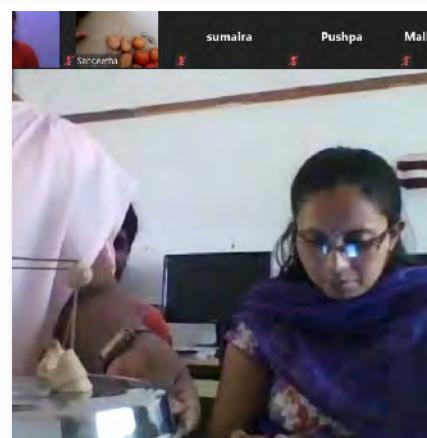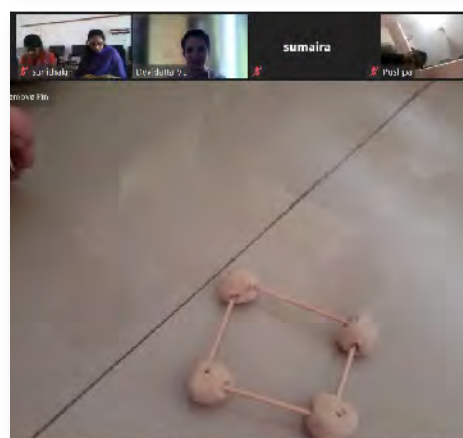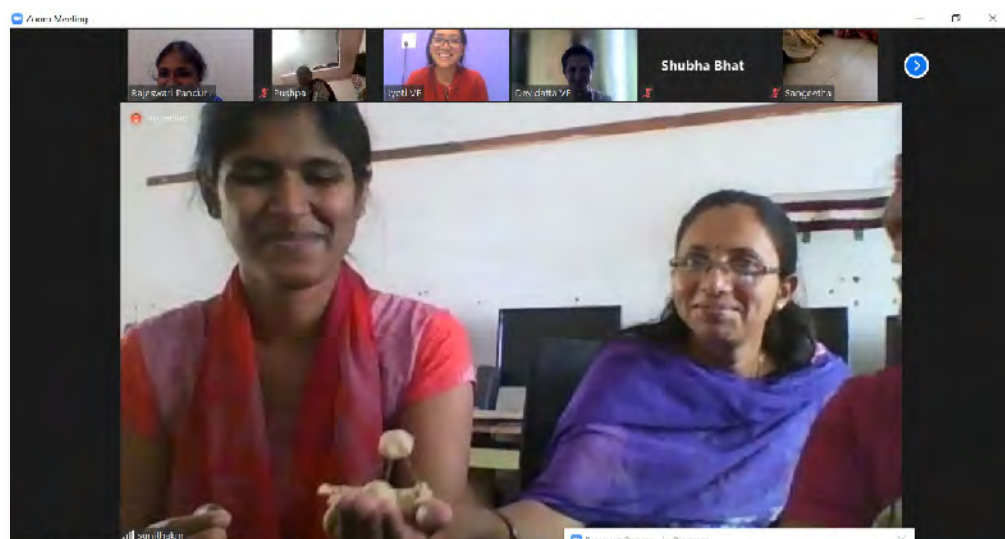
In 2020-21

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"On behalf of the teachers and students, I would like to thank Vision Empower for volunteering so generously during the past whole year. I sincerely appreciate your willingness to contribute your valuable time at Jyothi Seva School. The contributions made by the volunteers are like organizing activities, intellectual games, providing teaching aids, motivating the teachers and the students, training the teachers on digital literacy and sharing teaching ideas is of great help. As you know students, staff and parents at Jyothi Seva School for the Blind enjoy a warm caring community that fosters the highest standard in academic, social and emotional growth and the efforts of volunteers like you is vital. Thank you Vision Empower team and I wish that you continue the good work to make a better future especially for the visually impaired.Thank you once again and all the best for all your efforts."

Sister Anita Mary, Principal, Jyothi Seva School for the Blind

- VE began by conducting pilot group teacher training sessions for 9 teachers (6 Maths, 3 Science) across 8 schools from May 2020 to August 2020 to understand how online training should be conducted for teachers, given their constraints on availability, accessibility and knowledge of the usage of digital platforms. There were a total of 78 individual sessions held for these teachers. This provided us with the much needed research and experience of how online teacher training could be taught effectively online.

- Following this, VE obtained special approval from DWDSC, Govt of Karnataka to conduct online training for teachers.

- VE first trained the visually impaired teachers on the online meeting platforms.

- Once the teachers were familiar with the platforms, the 6th Edition of the 3 Day Online Pragya was conducted for teachers from 10 schools in Karnataka on 9th – 11th November, 2020 for 27 teachers, among them we had 14 teachers who were visually impaired attend the sessions. Parallel sessions were conducted in breakout rooms over Zoom.

- The 7th edition of VE Pragya Teacher Training was held from 2nd to 4th March for over 40 teachers from the inclusive schools in Tripura. VE and XRCVC in collaboration with Samagra Shiksha Tripura announced the first I for Inclusion Training for 40 educators from the state. This three day training marked the beginning of a year long partnership on Inclusive Education for students with blindness in the state.

- The 8th edition of VE Pragya Karnataka was conducted during April 2021. This was attended by 66 Teachers across 17 Schools for the blind across Karnataka. There were 34 Teachers who were visually impaired who attended the session, probably one of the largest Online Training sessions for visually impaired teachers.

Primary Funders

Microsoft India   Wipro Foundation

VICT – COMPUTATIONAL THINKING (CT) for VI PERSONS

VE creates an accessible CT curriculum for students with visual impairment based on the ACM CT curriculum from CS Pathshala in collaboration with IIITB and Microsoft, following a play-based approach. The research for the same is available on Ludic Design website as well as on the VE website.

In 2020-21

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"Nothing in words would be enough to appreciate and thank you and your team for the immense contribution you have been making in Aarav's life. The life skills and day to day living essentials you impart in Aarav are more valuable for him than his academics. The way you conduct your classes make the sessions impactful, fun filled, participative and joyous. Aarav eagerly looks forward to your sessions. We feel blessed to have an association with you and your organization. God bless you all and your initiatives."

*Ms. Suvarna,
Aarav's Mother*

- The CT syllabus was mapped with the numeracy games being played with children and learning areas were identified with Key Learning Indicators (KLIs) for each Key Learning Area (KLA). A rubric was designed to measure the outcome of the games to provide insight to the parents and teachers as to what skill the child is gaining from each game.

- Play plans were created for 39 games on Numeracy concepts so far including 11 games to be played during online group sessions. The play plans have been designed to provide detailed instructions to parents, caregivers, and teachers, who can easily play the numeracy games with the VI students/children. Details about each play plan have been uploaded on the VE website.

- Detailed review of literature was conducted to understand the global standards for assessments, assessment methods for persons with disabilities, etc, which were then adapted to fit the play-based Ludic Design for Accessibility (LDA) framework.

- Cards designed for children with visual impairment were sent for production. The final acceptance testing was conducted and tactile card sets were shipped to children. VE would engage online with them and their parents on how to use them.

- A plan was created to ensure the VICT project can be taken to all regions of the country and impact many children with visual impairment in the country.

- VE conducted online pilot sessions to play CT games online with two batches of children in the age group (6-11) of grades K-4. One group having 6 children and the second having 7 children. Play sessions were conducted every week for an hour. There were a total of 72 Group Sessions and a total of 78 Individual sessions conducted during the year. All the sessions were conducted online.

Primary Funder

Microsoft India

DIGITAL LITERACY

VE creates tools to help students and teachers with visual impairment gain digital literacy skills to access information at par with sighted persons. This is especially important for teachers during the pandemic situation when schools are closed.

TOPIC 1: HOW TO DOWNLOAD ANY APP FROM PLAY STORE *(KANNADA)*

TOPIC 2 : GOOGLE MEET *(KANNADA)*

Introduction to Google Meet

Features of Google Meet – Part 1

Features of Google Meet – Part 2

TOPIC 3: BE MY EYES APP *(KANNADA)*

Introduction to Be My Eyes App

Creation of account and sign up

Settings of Be My Eyes app

In 2020-21

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"I heard all the 4 episodes of the Be My Eyes app, sent by you. I have downloaded the app. I felt very happy after listening to all the episodes. Was not able to understand the language settings in Episode 3, heard it one more time and got the clarity. I tried once and I enjoyed it because I love wearing matching stuff. I showed the saree and bangle , and the volunteer told me the correct colour.

Ms. Nagamani, Teacher, Rangarao Memorial School for the Blind

I am very happy, but I am not able to express my happiness. I am very thankful to Vidhya ma'am. She spent more than an hour on Google Meet explaining it to me with lots of patience. Thank you! With whatever you have taught I am learning to do it independently. Requesting you to teach many more things like this. Thank you very much!"

Ms. Manjula, Teacher, Rangarao Memorial School for the Blind.

- VE developed an accessible Story Reading app which will help children or adults to access reading material of their choice and requirement easily. The game and documentation, developed with the help of an IIT Kanpur student intern, was handed over to Microsoft Research for testing and acceptance.

- VE conducted Digital Literacy tutorials over phone and online. A series of 34 tutorial sessions were created for the teachers in Kannada and English and distributed over YouTube. The topics covered by the tutorials are:

  a) Downloading an App from the Play Store
  b) Updating Apps from the Play Store
  c) Purchasing Apps from the Play Store using the Google Play Recharge
  d) Functionalities and usage of Google Meet App
  e) Functionalities and usage of Be My Eyes App
  f) Functionalities and usage of Google TTS
  g) Functionalities and usage of Voice Dream Reader App

- School wise WhatsApp groups were created to support the teachers with all the required information. A digitally literate person with blindness was hired as a field executive to support the teachers at all times. A YouTube Channel was created to make it easy for teachers to access the audio tutorials.

- Apart from the Audio Tutorials, we have also conducted 5 Detailed Webinars on the functionality and usage of Gmail.

Primary Funder

Microsoft India

SUBODHA

Subodha is a web-based accessible Learning Management System created by VE to act as a repository of all the information required to address the needs of students and teachers with visual impairment. The platform will host all content developed by VE and its knowledge partners.
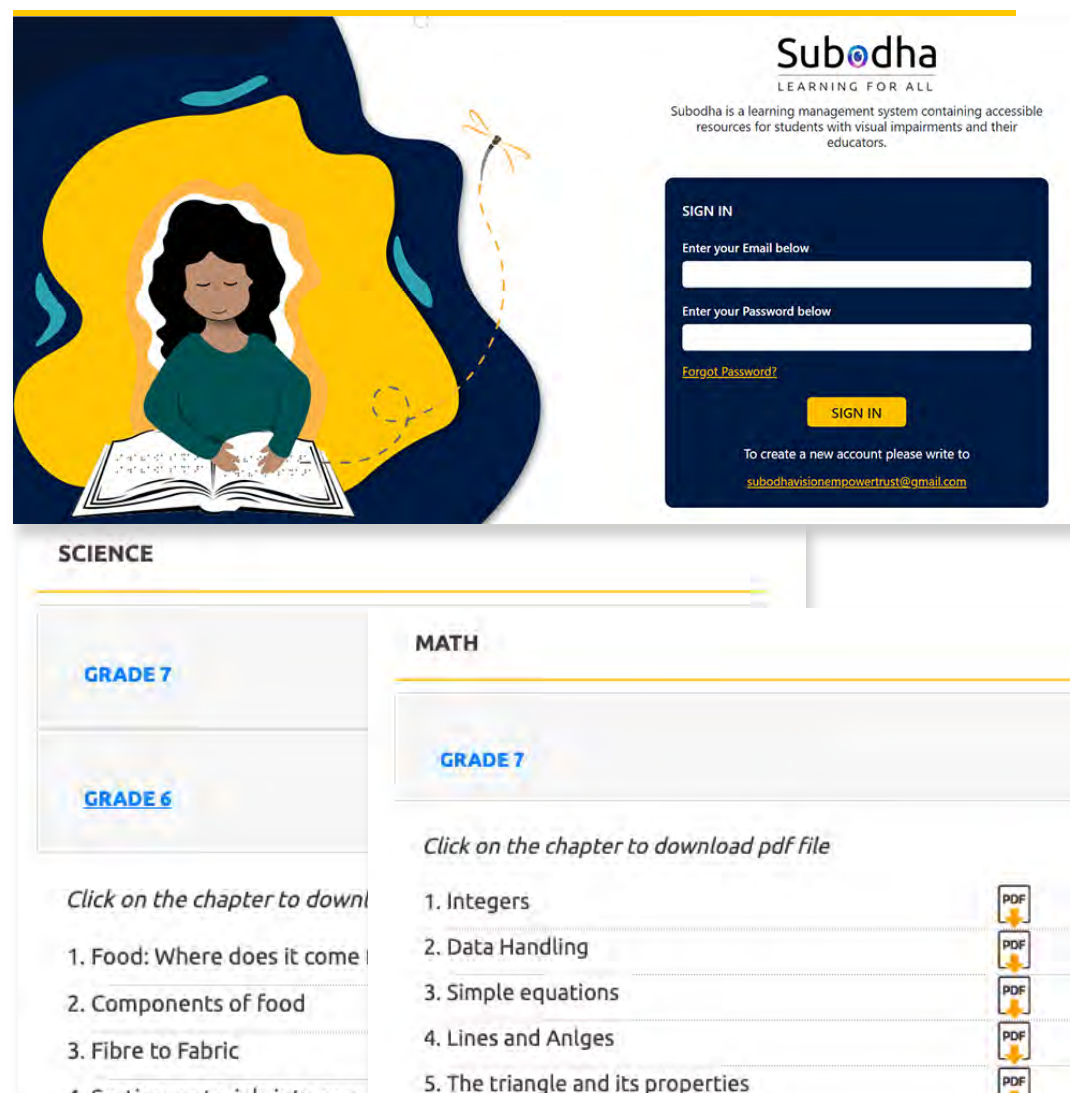
In 2020-21

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"Have attended 3 - 4 previous Pragya , out of all I liked this one more ,the main reason is Subodha. The morning session by Arathi on how to access Subodha was very useful. Yesterday's session on games was nice , requesting the team to send the materials."

Mr. Manjanna, Teacher, Government School for the Blind, Dawangere

- VE was able to design and develop the features of Subodha using the OpenEdX platform, following the Design principles of Accessibility.

- In the month of September 2020, we received the approval from DWDSC (Department for the Welfare of the Disabled and Senior Citizens) to introduce the CT curriculum across all schools in Karnataka and to roll out the Accessible Learning Management System Subodha across all Blind Schools in Karnataka. The VE Subodha platform is currently being populated with content for the teachers and students from VE and from other content partners such as XRCVC and the teacher training on Subodha is scheduled for April 2021.

- Over the course of the last two years, VE has developed content for STEM education for VI students and Teacher Instruction Kits (TIKs) for teachers for grades 1 – 7 following the Ludic Design Approach. This content has been uploaded on Subodha platform and will be provided to states for consumption.

- XRCVC resource materials have been planned to be uploaded on Subodha for students with visual impairment and teachers of visually impaired students.

- The tutorials created under the VICT Project on Numeracy and Digital Literacy will be made available on this platform for wider dissemination.

- The platform was launched for the Teachers during the VE Pragya April 2021 session

Primary Funder

Microsoft India   Elektrobit

ANANDA

VE Volunteering program Ananda helps us to create solutions with support from volunteers from academia and industry.

In 2020-21

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Working on making the Class 10 Science TIKs was a really insightful and fun experience. Brainstorming and coming up with new creative ways to teach fundamental concepts gave me a fresh perspective on the syllabus and subject. It opened my eyes to how the current syllabus is built by the sighted - for the sighted and how we fall short in being able to teach children in a manner that they find accessible and engaging. It showed me how inclusivity and accessibility need to be a priority henceforth. Our mentors from the VE team were also very supportive and always pushed us to do our best when it came to generating activities

**Ms. Ananya,
Volunteer, PES College
3rd year Computer
Science**

VE has been lucky to enrol a large number of volunteers and volunteering organizations who have helped in various activities online:

- Project Sitara is a group of college students who helped in the creation of Science TIKs for Grade 10 and tutoring of students online. They were able to enlist volunteers (10), train with VE and work on the projects. The volunteers did a stellar job and conducted 102 tutoring sessions for the 10th grade visually impaired students online and created 16 Teacher Instruction Kits for all Science chapters in the 10th standard.

- LitByHumanity has provided volunteers (20) for Pragya training, translations from English to Kannada during training, translation of very essential Kannada books to English to help with activities and games and on translating audio tutorials from Kannada to English.

- Let'sTagOn has provided volunteers (4) for Kannada Translation, proofreading, Inclusive Hackathon assistance for webinars.

- KPIT engineers (6) assisted VE Educational Co-Ordinators with TIK content for Subodha and Kannada keyword lists.

- Christ College students (12) have worked on Tactile Diagram creation and DIY videos.

- Engineers (40) from Microsoft India attended a volunteer training session from VE and 4 are assisting in creation of tactile diagrams.

- Key Individual volunteers (2) have engaged with VE throughout the year to work on TIK review, mentorship on content and translations to Hindi.

Primary Funder

Microsoft India   Wipro Foundation

ANTARA-HEXIS

VE has planned to introduce a reading program to schools on the Antara-Hexis platform. Antara-Hexis comprises an ergonomically designed Electronic Braille Book reader Hexis and the Antara – An Accessible Content Management Platform. This platform will help students and their teachers with blindness to easily access the content and build the foundation for developing reading skills

In 2020-21

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"I want to congratulate the entire team at Vision Empower for completing three years. I have known most of you for at least two and a half years and I have been with you a part of your journey and it's been a pleasure and privilege getting to know so many of you. All of you are wonderful people and it's made our work much easier."

Mr. Paul D'Souza, Founder and CTO of Touchetech

- In collaboration with Pratham Books, VE will introduce non-textbook reading content to children at grade appropriate levels. VE will train teachers to ensure the device and platform is used to ease reading and develop good reading habits in children.

- Reading and Comprehension are the foundational skills required for Project VICT to succeed. Microsoft has funded 30 Hexis devices as a pilot for 21 schools in Karnataka.

Primary Funder

Microsoft India

Key Adaptations in 2020-21

The intervention model underwent many changes in the last year in the implementation mechanism due to the Covid situation.

1 Creation of Tactile Diagrams using Tactograph and Accessible Science Lab provisioning for schools started in 2019-20 were stalled in 2020-21 due to closure of the office spaces and schools.

2 Along with schools, the resource centres and production units such as Braille press also remained closed. This resulted in delay in delivery of books. VE completed the alt text creation and ensured training of Braille Press personnel online by resource persons from partner organizations.

3 Anubhav was discontinued in 2020-21 due to COVID19. The Anubhav summer camp model requires us to work with the children face to face to help us with ideas to create programs for the following academic year. This was not possible as the children were not in schools and VE was prepared to run Anubhav at the schools this year. So, we instead created other programs to engage with children directly to provide us the inputs we require. These are:

- Science and Math lessons over phone calls and Google meet
- Story-telling sessions over phone calls and Google meet
- Play sessions for Numeracy over Zoom Calls
- Introduction to Art
- Antara-Hexis programmes started with 3 students by delivering the device to their homes

4 VE associates all operated from home. VE repurposed the team's efforts and created pilot programs for online interventions for each project to maximize utilization of time and support the schools in their efforts to get back on their feet at the earliest. Intensive research led pilots were designed to lead to robust interventions which can be leveraged to create low-overhead distance learning engagements in the future.

5 The focus of the teacher training programs was modified to respond to the challenge faced by teachers, especially those with blindness, due to lack of Digital skills.

6 School visits were stalled due to the lockdown. So, the VICT program for students had to be reoriented to engage online to create Numeracy games for students with blindness and continue to meet the objectives, as per commitment.

7 VE focused secondary research, followed by networking with the community to include them in the process of creation of well-informed programs. Teachers could then emulate these, when they returned to school in June 2020.

NUMBER OF SCHOOLS/CENTRES; TEACHERS/STUDENTS/OTHER KEY STAKEHOLDERS WORKED CLOSELY/DIRECTLY IN THE YEAR 2020-21

OUTREACH SUMMARY		NUMBER	REMARKS
Schools	Number of Schools directly worked with	10	Regular interactions with Principal and faculty members of schools
	Number of schoolteachers directly engaged with on a regular, ongoing basis	28	Science and Math Teachers of Grade 1 to Grade 7 in Karnataka teaching in the 10 identified schools.
	Number of schoolteachers directly engaged through workshops/training	84	Pragya Online, Karnataka: 42 The same teachers were also engaged with WhatsApp groups per school and individual weekly calls. Awareness Development, Tripura: 40
	Number of children directly engaged with, in schools on a regular, ongoing basis	25	VE engaged with 7 students of Grade 10, 6 students of grades 7 and 12 students in grades 1-4 across schools, online.
Volunteers	Project Sitara	10	A group of college students who helped in the creation of Science TIKs for Grade 10 and tutoring of students online.
	LitByHumanity	20	Volunteers helped in the translation of Pragya trainings, essential books and audio tutorials from English to Kannada.
	Let'sTagOn	4	Volunteers helped in Kannada Translation, Proofreading, Inclusive Hackathon assistance for webinars.
	KPIT Engineers	6	Assisted VE Educational Co-Ordinators with TIK content for Subodha and Kannada keyword lists.
	Christ College	12	Students worked on Tactile Diagram creation and DIY videos.
	Microsoft Engineers	40	Attended a volunteer training session from VE and 4 are assisting in creation of tactile diagrams.
	Key Individuals	2	Engaged with VE throughout the year to work on TIK review, mentorship on content and translations to Hindi.
Engagements	One on One engagements	144	Daily calls with teachers and students by a VE field executive.
	Online	6	Educational Co-Ordinators worked with 6 teachers of Science and Math twice a week for 3 months to create the online training pilot.
Information Dissemination	Tutorials on Youtube	28	Teachers are viewing the tutorials at their own pace and reverting with queries during one-on-one sessions. 28 such teachers are being reached over phone calls.
	Online Webinars	42	Digital Literacy webinars are being conducted weekly for all teachers in Karnataka with blindness.

" TESTIMONIALS

"I am very happy to know that you are completing your three years of service in the disability sector in October, 2020. Congratulations! Your work indeed is amazing. An institution like Mathru needs the support of Vision Empower especially in learning the method of teaching Maths and Science in a more systematic way. Our teachers are happy and our kids are happy. As a founder & trustee, I too have been happy. Thanks to the team of Vision Empower for associating with Mathru. Not only have you taught our teachers and students, you also donated textbooks, teaching kits and we acknowledge it. I wish you all the best and once again congratulate the team of Vision Empower."

Ms. Gubbi R. Mukhta,
Founder & Trustee, Mathru School

"The Vision Empower is Empowering all of us in teaching Science and Maths. We are learning again and again how to teach the visually impaired children. The team is Empowering our visually impaired teachers also through the digital library. We are very thankful to Vision Empower and we wish all the best for the team."

Ms. Sathyashella,
Head Mistress, Ranga Rao Memorial School for Differently Abled

"I would like to convey my heartfelt gratitude to all of you for conducting a very useful training program for us. For the past two years I have been attending training programs arranged by you and every session of training is very different and knowledgeable. Especially this time classes of computational thinking and subodha are

very interesting. Once again I thank you all for your great effort. I also thank all those supporting you to bring changes in the life of differently abled people.

Thank you for conducting a very effective and informative online teachers training program for us. These kinds of programs really help us to gain much knowledge and to educate our children in the right way. We have received the certificates for three teachers who participated in the program."

Ms. Bhagyashree,
Teacher, Government School for the Blind Davangere

"Thank you Jyoti Ma'am for your class. I enjoyed your class and liked the Shopkeeper game."

Aarav,
Student

"I am really grateful to the teachers of Vision Empower Trust. I am seeing a lot of improvement in Ananya. Your sessions are well designed and tailor made for each child. The way Devidatta ma'am has explained to her numeric equations, my daughter has started loving math. I found my daughter has become more creative. We have played lots of card games in the lockdown. My daughter has made lovely friends online also. It's such a joy to see each child's progress. It's been our pleasure in learning something new every time with you. Thanks once again to each one of you. "

Ms. Neha Karnik,
Parent

"Working on Teacher Instruction Kits has n only expanded my creative skills in coming up with activities for the visually impaired students but has more importantly given me perspective on how the minutest of things (like the concept of light) would prove to be such a massive impediment to their education. This journey helped me grow immensely as a human being. VE made me realise that the true disability is in our teaching and not in the students; with the right methods we can educate anyone irrespective of their impairment. I am immensely grateful to VE for giving me this opportunity and I wholeheartedly thank them for being such a supportive team throughout the process"

Ms. Sruthy, Volunteer,
PES College 3rd year Computer Science

"Super, super! Heard all the tutorials. Was able to understand them well. Thank you so much."

Ms. Nagamani,
Teacher,
Rangarao Memorial School for the Blind

I wholeheartedly congratulate the Vision Empower and the entire VE team on their third year anniversary. Over these three years Vision Empower has not only created a positive impact on the visually challenged munity but also has opened the eyes of the institute students towards such social causes. This is due to the dedication and commitment of the founders of the Vision Empower - Ms. Supriya Dey, Ms. Vidhya Y and guided ably by Prof. Amit Prakash. Generally not-for-profit ventures focus on impact most of the time; unlike many such

entities, Vision Empower focuses on Research, Innovation, Go-to Market aspect, Publications. So this clearly is indicative of the vision of the founders and also the complementary skills present in the entire team. I sincerely salute them and their dedication, inspiration and motivation. I also feel truly blessed to have been associated with this initiative since its inception. Hearty Congratulations! and best wishes for the future."*

Ms. Ramesh Sundaraman,
CEO, IIIT Bangalore Innovation Centre

The mentors from the Vision Empower were understanding and compassionate, allowing us to appreciate the job we performed for them. They also motivated us to explore our strengths and skills, enabling us to lend a productive outcome for the organisation and society as a whole. Our experience with Vision Empower helped us evolve as finer individuals and build a unique perspective for ourselves. This in turn contributed to shaping our personal and professional skills. Vision Empower's commitment to provide accessible education to the visually challenged individuals portrays their sense of social responsibility and we are honoured to have volunteered for the organization.

Thank You
ce Learning Team
Christ (Deemed to be University)
Bangalore

EDUCATIONAL ASPECTS

UNDERSTANDING AND EXPERTISE OF DOMAIN

VE has deliberately invested time and effort on creating a steady increase in understanding and expertise on the needs of the community of students and teachers with visual impairment and their needs. All interventions from VE are led by secondary review of literature and research on the data collected during pilot interventions

- A core team of researchers has been put in place led by Supriya and the research outcomes have been published in various forums. (http://visionEmpowertrust.in/publications/) The core team is being expanded by adding more members based on their research interests and to help to build the knowledge base for the organization.

- The VE Educational Co-ordinators have gained significant knowledge by working closely with the VE Special Educator while designing the interventions for teachers and students over the last two years and from the direct interventions with students and teachers with visual impairment at schools. Creating Teacher Instruction Kits in collaboration with the XRCVC team has led to enriching the individual as well as collective knowledge of the team on the pedagogical accommodations that are required in each area.

- The VE Team has been trained by mentors in the field of Science and Math Education from experts at well-established organizations such as Pratham and on Special Education needs by XRCVC. Besides, to improve the expertise in the team, every co-ordinator attended webinars and training sessions conducted by experts in the field of Education individually based on their own learning needs.

- Daily stand-up calls since March 2020 have helped just in time clarification of doubts and removal of obstructions to work due to lack of expertise or experience. The presence of a Special Educator in the daily calls has been very beneficial in this regard.

- Besides, an Induction Program has been designed with the learning from the last three years for all new joiners to VE. The training material and processes have evolved and each Team Member is required to share their knowledge with the trainee.

- This year, Learning Goals and Aspirations has been added as a key objective for every employee in the Appraisal and these are discussed and noted during the goal setting sessions and individual goals are aligned with VE goals. Quarterly reviews with the HR have helped to take corrective action, when required.

- VE has also focused on working closely with experts in the field such as XRCVC and Pratham to ensure continuous improvement in educational expertise.

- Due to the pandemic, the team learnt to work in a distributed mode and maximize productivity by focusing on work practices such as good time management, timely communication, teamwork and risk management.

MONITORING AND EVALUATION

Principal Researchers and Investigators from Microsoft Research and IIIT Bangalore work closely and monitor the project on a periodic basis. They work closely with the project implementation team and provide guidance, mentorship and direction to the project.

The following processes are followed to ensure that all the VE interventions are relevant and fulfill the planned outcomes:

a. All projects executed by VE are tracked using a well defined process which includes documentation of requirements, design, implementation plan and regular observation records during implementation. This is followed by analysis and submission of reviewed project reports to all stakeholders.

b. Weekly milestones are set and monitored through Daily standup meetings (Online), Weekly Reports and Weekly status calls, to ensure that course corrections happen early in the project.

c. Weekly/Monthly Meetings are planned with the Microsoft Team and IIITB Team with Dr Manohar, the Microsoft team and the implementation partner teams for detailed analysis of the field work carried out and if any changes or course corrections are required. (These have been happening online, due to the pandemic)

d. Monthly Update Meetings planned with Prof Amit Prakash as he is responsible for reviewing the design of the program, monitoring the execution on a periodic basis, ensuring the expenditure is as per budget and funds are released in a time bound fashion as per signed joint research agreement to the implementation team

e. Quarterly Update meetings with the senior stakeholders at Microsoft which is chaired by the CSR India Head.

f. Every Quarter, detailed qualitative and quantitative reports are shared with the Microsoft team.

g. Funding organizations evaluate the projects they support using their individual CSR evaluation criteria. This includes communication with beneficiaries and quarterly/annual presentations at their CSR events.

IIIT Bangalore also being a Program Design Partner, the PI from IIITB, is responsible for reviewing the design of the program, monitoring the execution on a periodic basis, ensuring the expenditure is as per budget and funds are released in a time bound fashion as per signed joint research sub-grant agreement with VE.

1. The Finance and Admin department at the institute reviews the joint research proposals, audits the funds allocated and evaluates the budget utilization for the project.

2. The institute provides access to its network of intellectuals and subject matter experts whenever appropriate.

3. The institute has approved creation of a joint research center called the Center for Accessibility in the Global South along with Microsoft to foster meaningful research in the area of Disability Studies from the perspectives of the Global South.

ORGANISATIONAL ASPECTS

CAPACITY BUILDING WITHIN VE

VE has instituted systems and structures for systematic capacity building of teams. The following trainings/workshops were attended by team members and to enhance the core educational expertise within the team.

- Special Educator reviews happen during the daily stand-up calls to iron out gaps in knowledge regularly.

- Organization Development course from Wipro Foundation: Providing the larger perspective of the importance of organization development to the Execution and Operations team.

- I For Inclusion from XRCVC: New team members gained valuable insight into the learning capabilities of students with visual impairment.

- Lectures by Dr Padmini from Pratham Foundation: Guidance on the Pedagogical Frameworks for creating learning material for children in Grades 1 to 4. Continuous engagement and mentorship on the Early Childhood education program.

TEAM VISION EMPOWER

	NAME OF TRAINING COURSE	DETAILS OF THE TRAINING	TEAM MEMBERS ATTENDED THE TRAINING
1	**The LEGO Foundation in collaboration with APH**	What We Mean by Learning Through Play. The aim of The LEGO Foundation is to re-define play and re-imagine learning - but what does this mean exactly? What is Learning through Play, and why is play so special? What holistic skills do children develop when they play? This hands-on workshop will allow participants to reflect upon and discuss "what is play"? Through hands-on activities, participants will play and have fun whilst learning about the LEGO Foundation's Learning through Play approach, the five characteristics for playful experiences, as well as the holistic skills for lifelong learning, which are developed through play. This was an online workshop conducted on 26th June,2020 for one hour. Facilitator: Mette Hauch. Key learnings: What is Learning through Play, and why is play so special? What holistic skills do children develop when they play?	Aishwarya, Devidatta, Meghna, Nandini
2	**(XRCVC) In collaboration with IQAC**	Day-1: Challenges of Online Learning for SwD and Pedagogical Interventions & How to Make Accessible Online, Educational Content: Part 1

Day-2: How to Make Accessible Online Educational Content: Part 2 & Use of Assistive Technologies and Accessibility Features of online meeting rooms for building accessibility.

Ms. Neha Trivedi, Project Consultant, XRCVC & Mr. Keshavan Nadar, Technical Consultant, XRCVC

Key Learnings: Various kinds of tips were given during the session to make the educational content accessible which the entire VE can bring into use for the student content development and in the Teacher Instruction kits | Aishwarya, Devidatta, Geetha, Jyoti, Meghna, Nandini, Sylvia |
3	**Vision-Aid**	Instructional Services for School-Age students who are blind or visually impaired: The Expanded Core Curriculum	Nandini, Sylvia
4	**FICCI Diversity and Inclusion Task Force**	Inclusive technologies for a post COVID world	Aishwarya
5	**Javed Abidi Foundation**	Know Your Rights (a set of webinars on law, policy, and research for persons with disabilities)	Aishwarya
6	**Rising Flames**	Online Consultation on Educational Experiences of Women with Disabilities	Aishwarya
7	**The DAISY Consortium**	Describing Images in Publications – Guidance, Best Practices and the Promise of Technology	Aishwarya
8	**The DAISY Consortium**	Easy access to books and articles through a smart speaker	Aishwarya
9	**The DAISY Consortium**	Making Math Accessible, One Step at a Time	Aishwarya
10	**Perkins School for the Blind**	Early Connections Virtual Conference 2020	Aishwarya
11	**Bookshare India and Enable India**	Daily Living Apps	Aishwarya

	NAME OF TRAINING COURSE	DETAILS OF THE TRAINING	TEAM MEMBERS ATTENDED THE TRAINING
12	**American Printing House for the Blind**	Life Changers: How accessibility laws, guidelines and awareness are changing lives	Aishwarya
13	**King's College London Disability+Intersectionality reading group and SOAS Crip Feminist reading group**	Criposium: A two-day virtual symposium on disability and intersectionality	Aishwarya
14	**Math and Movement**	Kinaesthetic Strategies to Improve Outcomes for the Classroom, Online, and Home Instruction - By Suzy Koontz conducted on 14th July 2020v Objective: To know the ways to make Math learning as interesting as possible through kinaesthetic strategies especially for lower primary children. Learning: We can adopt some of these strategies. Such as the number sense (keeping count) concept through body movements. Children learning through kinesthetics will be more effective in terms of learning as well as physical exercise and relation to their learning in real life.	Geetha
15	**The At Right Angles Team from Azimpremji University**	Conversations on Greatest Common Divisor conducted on 22nd July,2020. Objective: To know the ways to approach the concept of GCD and to make fundamentals strong with vivid examples and proofs. Learning: There were different approaches to the same concept word problem explanation and pictorial proof for GCD concept. For VI children, we can use both the ways either word problem explanation or tactile pictorial proof.	Geetha
16	**Heads' Net Webinar organised by The Teacher's Foundation (TTF)**	"Engaging with Empathy" with Jenny Mosley conducted on 7th August, 2020. A democratic and creative approach towards children where all children feel equally valued and learn to develop mutual respect, trust, empathy and understanding. A few tips shared in the workshop helps children and teachers to develop skills to listen and respond with empathy.	Devi, Jyoti, Aishwarya
17	**19th Wipro Education Partners' Forum**	Surviving to Flourish-Adaptations in times of COVID-19 conducted on 11 & 12 Dec-2020.	Supriya, Vidhya, Meghna
18	**Course on Coursera (online)**	Teaching Children with Visual Impairment: Creating Empowering Classrooms by Dr. Brian Watermeyer(1- month course). Identify ways to include children with visual impairment in the classroom. Recognize the benefits of teaching inclusively and apply curriculum differentiation strategies. Identify suitable learning & teaching support material, assessment adaptations, assistive technology devices for each child with visual impairment	Jyoti, Supriya (Certified)
19	**Global Development, Sustainability and Digitisation: Disability Imaginaries in the Global South**	Understanding Disability and Access in the Global South: Some post-Humanist Questions" Objective: Understanding of disability as an epistemology of disability studies coupled with assistive technologies by Prof. Anita Ghai	Devi,Jyoti, Meghna, Sylvia, Supriya

	NAME OF TRAINING COURSE	DETAILS OF THE TRAINING	TEAM MEMBERS ATTENDED THE TRAINING
20	**Centre for Accessibility in the Global South** **Webinar Series: R-CubeD**	A road-map to achieve accessibility involving universal design by Dipendra Manocha Director, Developing Countries Programme, The DAISY Consortium and Founder-Trustee, Saksham Trust	Devi, Meghna, Sylvia, Supriya
21	**Centre for Accessibility in the Global South** **Webinar Series: R-CubeD**	Global Development, Sustainability and Digitisation: Disability Imaginaries in the Global South by Karen Soldatic Associate Professor, School of Social Sciences & Institute Fellow, Institute for Culture and Society, Western Sydney University	Devi, Jyoti, Meghna, Sylvia, Supriya
22	**CAGS Winter School 2021**	Accessibility and Inclusion in Progressive Organizations	Meghna, Devi, Jyoti, Supriya

II. LEGAL

- VE was granted 12A registration in 2017-18 and 80G registration formalities from VE have been completed in December-2019. Due to the pandemic this has been delayed and not yet granted to VE throughout 2020-21.

- The FCRA registration process is in progress.

- A joint patent was filed by VE, Touchétech and IIIT-Bangalore for the Hexis-The braille book reader.

- VE has signed the license to transfer the intellectual property created for Hexis-The braille book reader to Vembi Technologies Pvt Limited, the product arm of VE at Zero licensing fees.

III. ORGANIZATION BUILDING

DEVELOPING A SHARED VISION AND POSITIVE CULTURE IN THE ORGANIZATION

The shared vision of the founding team to Empower visually impaired children through inclusive education reverberates with the entire team.

In 2020-21

1. Induction program designed to create an open environment of sharing and learning to overcome the initial lack of awareness in new joiners about the capabilities of persons with blindness. The program focuses on busting myths about the limitations due to this disability and its impact on the education and prospects of persons with blindness.

2. Regular updates and open communication in addition to daily stand up calls, formal weekly meetings and monthly updates to the entire team helps VE to keep everyone posted and collaboratively address new challenges and mitigate risks. During the pandemic, maintaining a cohesive team through the digital medium and collaboratively working to meet the team objectives has been possible due to the efforts of the leaders to remain connected with a dispersed team and encourage outreach to the community of beneficiaries.

3. Appraisal program designed to foster development of each individual as per their aspirations and career goals, and aligning these with the goals of the organization. This includes quarterly one on one chats with HR to address the individual challenges in their personal context.

4. Hands-on nature of involvement from leadership in all activities and respect for every team member's perspective and ideas has helped VE to retain the shared vision.

5. Appreciation of small successes and teamwork are encouraged and recognition of significant contributions through team announcements have helped.

6. The online Foundation Day Celebration to mark three years of VE was very well received by the team and the community. This was surely a step towards organization development as well.

7. During the Goal Setting for each individual team member, the Supervisor and team member jointly identify the learning areas required for personal growth and alignment with the VE objectives. These are noted and tracked. The appraisal cycle is annual, but monthly and quarterly reviews are held for each member.

8. Every Thursday of the week, the team conducts a knowledge sharing session where any one team member presents a topic relevant to our work. These sessions are often combined with sessions from external speakers or lectures organized by the Centre for Accessibility in the Global South of which VE is a member, for enhanced learning.

9. Regular field work is documented in daily observation reports, templates for which are created and reviewed at the beginning of the project. These reports are reviewed weekly. Also, a Master spreadsheet is maintained by the team of all VE projects. Each tab is for a project and a timeline based approach for all activities in the project is updated by the team members and reviewed in the monthly All Hands meet calls.

10. The Winter School was attended by some members of the VE team to help them to gain knowledge on "Accessibility and Inclusion in Progressive Organizations". (http://cagsiiitb.org/winterschool/)

    Attrition and growth in the core team:

    a. Two team members, Nandini Menon and Geetha R are exiting VE. Nandini is the special educator and she is moving on from a permanent position due to family commitments. Geetha is moving on to complete her B.Ed. and be part of the missionary work she has been associated with in her taluk. Both Nandini and Geetha will remain as voluntary contributors and provide the support VE needs from time to time. They will remain part of the VE School group and provide their advice and support whenever possible.

    b. Rajeswari is joining us on April 1 2021. She comes with a rich experience in early childhood education. She will be groomed and trained to be a special educator.

    c. Two school coordinators, Rajesh and Sudipta have joined and will be handling the activities to be conducted in schools at Karnataka and Tripura, respectively. Rajesh will be based at Mysore and Sudipta will be based at Agartala.

    d. Anshumaan Agrawal joined VE as the regional Manager-North.

    e. We will hire one associate at Chennai to engage with the 3 schools.

GOVERNANCE STRUCTURES

CAPACITY BUILDING WITHIN VE

The confirmed advisory committee of VE consists of Prof Amit Prakash (IIITB), Prof Damodaran Seshadri (IIMB, ISB), Prof Padmini T (Trustee, Pratham & Prof Emeritus, University of Mysore) and Mr Shiv Kumar Janardhan (Strategic Investor and former CEO of Essilor Group, India and South Asia).

In 2020-21, due to the pandemic, we could not formalize this process of meeting and review. The board of trustees meets once every month to review the projects and the budget and accounts.

The Income Tax Audits, 80G Registration and any financial compliances of VE have been outsourced to B P Rao and Co. VE follows standard processes as per Income Tax department of India for the TDS and PT payments of employees on a regular basis.

Since VE is incubated at IIITB, for all funding received by VE through joint research projects with IIITB, all VE project deliverables are audited by IIITB legal and finance teams. For all joint projects, VE submits quarterly reports to IIITB and raises invoices against milestones achieved as per project plan signed by Principal Investigators at IIITB and the funding corporate. IIITB audits all VE accounts annually.

VE follows strict process guidelines for content creation. This gated process monitored by domain experts and Special Educators ensures that all pedagogic material follows the required standards of quality.

The role of HR and Administration:

- Processing and record keeping activities (maintaining employee personal details, storage etc).
- Payroll Administration: Tasks necessary to organise the Compensation of Employees, Pay policy etc.
- Creating and Implementing policies/processes to form an employee-supportive structure in the organisation.
- Compiling the HR Employee Handbook for the organisation.
- Operational role: Identification and implementation of needed programs like recruiting and selection, training personnel, administering compensation and benefits etc.
- Accounting and Financial role: Streamlining accounts, Bank accounts transfer from Canara Bank Offline to HDFC Online. Paycheck transfers, Employee reimbursements and maintaining records and bills, Travel bookings, paying off the monthly expenses of VE, purchases and materials procurement.

Annual reports for 2017-2018, 2018-2019 and 2019-20 have been created. The annual report for 2019-20 is published on the VE website.

FINANCIAL ASPECTS

DONORS	2018-19 (₹ Lakhs)	2019-20 (₹ Lakhs)	2020-21 (₹ Lakhs)
Microsoft India Pvt Ltd		50	66
Wipro Foundation Fellowships	2.4	5.8	7.2
Fidelity Business Services		13.1	
Elektrobit		1.2	6
Individual Donors	1.43	3.11	1.48

NON-COMMERCIAL PARTNERSHIPS

Government Parnerships

VE was provided with formal approval by the **Government of Karnataka** to deliver online training to all special schools for the blind in Karnataka on 10.9.2021

VE signed an MoU with the **Government of Tripura** to implement Inclusive Education in the state on 10.2.2021.

The **NIEPVD**, Dehradun gave permission to NIEPVD, Tamil Nadu to work on a collaborative project with VE beginning 15.3.2021.

The **Government of Tamil Nadu** gave approval to VE to engage with three schools as a pilot for the interventions in the state on 15.3.2021.

Non-Government Parnerships

MoU with Enability Foundation:
VE and Enability Foundation incubated at IIT Madras signed a three-year MoU on 6th of August 2019 to collaborate on creation of tactile diagrams using Tactograph, a product designed by Enability. The two teams will work on making more tactile diagrams available to visually impaired teachers and students for Science and Math. VE and Enability have jointly created an Experience Center for persons with disabilities at 28th A Cross, Geetha Colony, Jayanagar 4th Block.

MoU with XRCVC, Mumbai:
VE and XRCVC have signed a three-year MoU on 9th September 2019 to collaborate in providing online content on Subodha for all teacher training modules of XRCVC.

VE became a **member of the Inter University Alliance for Accessible Higher Education** along with IIITB, IITM, St. Xavier's College Mumbai, Ashoka University, IIMB and IITK.

VE and **University of Dayton, Ohio** have entered into a collaboration for students and Faculty to work on Assistive Technologies with inputs and mentorship from VE.

COMMUNICATIONS & OUTREACH

CAPACITY BUILDING WITHIN VE

Due to the pandemic, all events in 2020-21 were organized online. Monthly CAG Webinars were conducted in collaboration with IIITB and Microsoft Research

1. Empower talks in collaboration with IIITB, the host for Empower 2021

2. Foundation Day of Vision Empower: Celebrating 3 Years, 4th October 2020.

3. Winter School of the Center for Accessibility in the Global South, 7th January 2020.

4. Vidhya delivered a talk to 12th Grade Students at Ramakrishna Mission

5. 3-day Awareness Workshop for 50 Master trainers and officials at Tripura

6. Surviving to Flourish: Adaptations in the times of COVID 19 - Panel Discussion, Wipro Partner Forum 2020, 11-12th December 2020
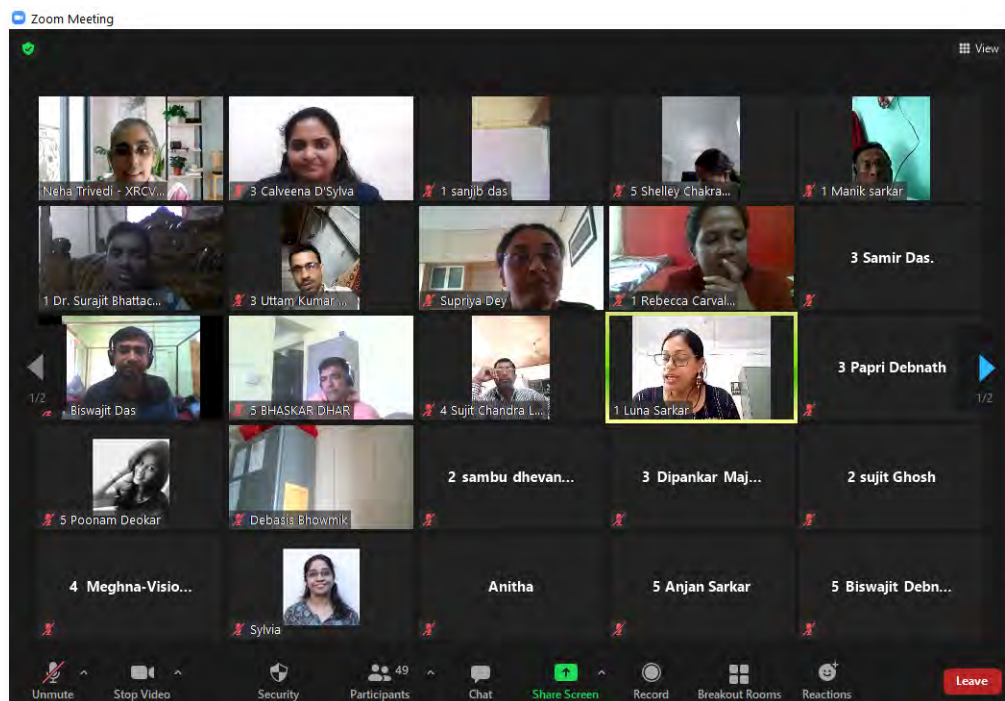
MEDIA COVERAGE

Case Study: Bridging digital divides: A framework for digital cooperation.
https://digitalfuturesociety.com/digital-cooperation%E2%80%AFto-bridge-digital-divides/

Roulette enables visually impaired people to draw tactile diagrams on any paper - Newz Hook, 29th September 2020.
https://newzhook.com/story/roulette-visually-impaired-tactile-diagrams-blind-low-vision-xrcvc-vision-Empower-touchetech-labs-assistive-tech-accessibility/

Nothing 'special' about these needs - thelifeofscience.com, 20th November 2020.
https://newzhook.com/story/roulette-visually-impaired-tactile-diagrams-blind-low-vision-xrcvc-vision-Empower-touchetech-labs-assistive-tech-accessibility/

Vidhya Y featured in thelifeofscience.com Calendar 2021 featuring Women, Transgender & Non-Binary Folks in Science, 1st February 2021.
https://newzhook.com/story/roulette-visually-impaired-tactile-diagrams-blind-low-vision-xrcvc-vision-Empower-touchetech-labs-assistive-tech-accessibility/

Vidhya Y wins the Special Women Achiever Award 2021 from Xiaomi India, 7th March 2021.
http://visionEmpowertrust.in/vidhya-y-wins-the-special-women-achiever-award-2021-from-xiaomi-india/

What Assistive Technologies can do to make STEM more inclusive, 12th March 2021.
https://science.thewire.in/the-sciences/what-assistive-technologies-can-do-to-make-stem-more-inclusive/

All for Play, Play for All: Ludic Design for Accessibility
http://www.ludeicdesign.org

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https://www.microsoft.com/en-us/research/uploads/prod/2021/01/Reimagining-Accessibility-and-Inclusion-in-K12_Making-Higher-Ed-in-CS-Accessible-Group-B.pdf

Addressing the new normal - COVID 19 response for visually impaired teachers in schools for the blind - Samuhik Paha, Wipro Foundation Newsletter, 23rd November 2020.
https://issuu.com/wiprofoundation/docs/samuhik_pahal_vol_1_issue_5

Assistive Technology Research and Disability Studies in the Global South: The Need for Synergy - ACM CHI Conference on Human Factors in Computing Systems
https://katta.mere.st/wp-content/uploads/2020/04/GhaiEtAl-CDWorkshop-CHI2020.pdf

ICTD 2020: Conceptual Learning through Accessible Play: Project Torino and Computational Thinking for Blind Children in India, 17th June 2020.
https://ictd2020.org/remote-attend/media/

" TESTIMONIALS

"Heartiest Congratulations to the entire Vision Empower team for such wonderful three years from the entire team at XRCVC and as we take this opportunity to congratulate you we also would like to thank you for the wonderful work that you all have done. VE for XRCVC has been a brilliant partner. They have infused the disability space with the much needed freshness and rigor that comes with the duality of research and practice. For us, collaborating with VE has been extremely fruitful and productive. We look forward to many many years of work together and we hope that many of the projects that we have taken together will see newer heights in the coming years. We hope to see Vision Empower grow from strength to strength every year. So wish you all the very very best and look forward to our continued work."

Ms. Neha Trivedi, Project Consultant, Xaviers Resource Centre for Visually Challenged (XRCVC)

"I would like to congratulate Supriya and the entire team of Vision Empower for having successfully completed three years of good work. We are proud and happy to have collaborated with you from the beginning. This has helped both of us to bring awareness amongst the teachers and the children to learn Maths and Science in school. Your systematic approach and the hard work of the team has triggered the interest and the effort of the teachers in motivating the children to learn Math and Science. Congratulations to you again and best wishes."

Ms. Vani Lakshman, Mentor at Matruchhaya - Canara Bank Welfare Association

"On behalf of Canara Bank Welfare Association, I would like to congratulate all the members of the Vision Empower team on the occasion of completion of three years of service in Empowering the visually impaired students. We take immense pride in having worked with a dedicated and hardworking team in enhancing the knowledge of visually impaired students. Once again I wish the entire team for your selfless service and good luck for your future endeavors."

Ms. Sumangala Angadi, Manager, Matruchhaya - Canara Bank Welfare Association

"Would really like to thank the whole team for the effort in carrying out the sessions, the sessions were very unique, and the teachers have never attended any training like this so far. The sessions were very relevant. Thanks to the whole team for the session "

Ms Anitha Rao, Principal, Maheshwari School For the Blind, Belgaum

"Training sessions were well conducted "

Mr Jinnappa Y Thakkai, Teacher, Maheshwari School For the Blind, Belgaum

"The team taught us well in all the 3 days. Please send the documents mentioned."

Mr Shankar Y Mutagekar, Teacher, Maheshwari School For the Blind, Belgaum

"Very happy with the sessions. The team helped us in giving ideas on how to teach children. The team conducted the sessions with lots of patience , that's a take away for me. Can Vision Empower help us with RCI points."

Mr Mahesh, Teacher, Ambubai School for Blind Girls, Gulbarga

"Liked all the 3 days of training. It would be great if an offline training can be provided for Algebra. Requesting you send a certificate for attending the sessions. The team handled all the 3 day sessions with lots of patience. Taking so much effort in explaining in English and translating in kannada."

Ms Shilpa, Teacher, Maheshwari School For the Blind, Belgaum

"Very nice training. Had lots of network issues , thank you so much for understanding and helping me out to join the breakout rooms. "

Ms Smitha P Teacher, Maheshwari School For the Blind, Belgaum

"Want to give some clarification on RCI certification. We teachers are attending some irrelevant training to get the points. VE's training are related to VI and it is very relevant for us , that's the reason teachers are asking about RCI"

Ms Anurin Teacher, Rangarao Memorial School, Mysore

"I am a High School teacher , I had no idea how to teach small children , from this training session I have got some ideas. It helped me to improve myself a lot. Thanks to the team from our school team."

Ms Padma Teacher, Deepam Academy

"Training was very useful. Continue the training to help teachers. Thanks for conducting the session."

Ms Manjula Teacher, Mathru Educational Trust For The Blind, Bangalore

"Sessions were very creative and interesting. Lot of effort from the team. Thank you."

Ms Divya Teacher, Roman And Catherine Lobo School For Blind, Mangalore.

3. OUTCOME OF OUR WORK

The key outcomes from VE activities in 2020-21 may be summarised as follows:

Inclusion

- **Accessibility in Educational Content:**

  Making STEM and Computational Thinking accessible for visually impaired school students across the country. According to the 2011 Census of India, among the visually impaired in the 5-19 age group, only 68% were in school, and 20.4% had never attended school. Few visually impaired students who attend school do not continue with science and mathematics beyond the seventh grade. As a result, there are hardly any among the visually impaired who opt for STEM related professions, thereby losing out, for instance, on joining India's relatively well-paying information technology (IT) industry.

- **Inclusive Pedagogical Processes for the Classroom:**

  The program will bring about positive changes in the methods of teaching and create a cohort of well-informed teachers of STEM subjects for students with visual impairment.

- **Inclusive and Accessible Digital Literacy Programs:**

  The program also will bring about a paradigm shift in the methods of acquiring Digital Literacy skills by teachers with visual impairment.

- **Access to Inclusive Games and Play in the Teaching Learning Process:**

  The program will create novel ways of play and use these methods to educate children with visual impairment on foundational skills and life skills.

Partnership

- Government approvals for implementation of VE initiatives across special schools for the blind in 3 States, Karnataka, Tamilnadu and Tripura.

- Collaboration with other actors such as XRCVC, Saksham and RLF on joint interventions.

- VE has joined Microsoft Research and IIITB as a founding member of the Center for Accessibility in the Global South (CAGS), hosted at IIT Bangalore, to foster a vibrant community of researchers and practitioners to engage in interactions leading to higher awareness and creation of usable solutions

- VE has collaborated with multiple volunteering organizations/colleges/individuals this year. We have had close to 100 volunteers who have been able to contribute significantly to the VE initiatives. This has ensured that more individuals and organisations are aware of the problem statement, has also ensured that the positive energy of the many young volunteers are channeled in the right direction during the pandemic.

Curriculum

- Detailed Play Plans for playing the Numeracy games with teachers/caregivers. (Grades K-7)

- Based on the Play Plans, the detailed CT Curriculum for grades K -7 will be published.

Beneficiaries

VE initiatives works with children with visual impairment and their teachers at schools and creates an inclusive eco system which Empowers them to pursue education and careers at par with sighted persons.

- To Empower children with visual impairment, acquire foundational knowledge of numeracy and digital Literacy at par with their sighted peers.

- Developing an accessible curriculum which can start getting used in Grades 1-7 of the identified 30 schools for the visually impaired in 5 states with appropriate pedagogical tools/games provided on digital and non-digital platforms.

- Development of numeracy skills at the age-appropriate level, as per ACM CT curriculum.

- Better sensitization of the school managements and improvement in teacher capacities to deliver the aforesaid curriculum.

- Clear understanding of Digital Literacy needs and absorption level among teachers with blindness.

- Creating a cohort of teachers with visual impairment empowered to use the digital platform for their day-to-day requirements both at personal and at work.

4. FUTURE PLANS: APRIL 2021 – MARCH 2022

State Pilots

4 new states, Delhi, Tamilnadu, Tripura and Gujarat have been identified to carry out the existing VE interventions. The program will be done across 30 schools across the 5 states, including the existing state, Karnataka.

Planned Activities

12. Plans beyond 2022 are to consolidate the interventions and attempt to cover all schools in these states while starting pilot programs in all other states with approval from the state

11. A research project will be executed on Early Childhood Education for children with visual impairment and their caregivers.

10. VE will execute a research project to create a pilot course on Tactile Drawing for students with visual impairment.

8. VE will respond to the needs of the state of Tripura on technology for inclusive education for students with visual impairment and will implement the proposal submitted to the government as per directives from the state government.

9. VE will provide support to schools in Karnataka, Tamil Nadu and Tripura to deploy the Hexis Braille reader with the Antara platform.

6. VE will deploy Subodha in all schools for the blind engaged with, and train the teachers to use the platform.

7. VE will gather data from the deployments on usage and requirements to finalize the model for scaling up the Subodha platform across the country.

4. VE will deploy the Subodha LMS platform in all the 30 schools.

5. VE will create online accessible textbook content on Subodha for Science and Math for Grades 1 to 7 following the Karnataka State Board curriculum.

2. VE will provide tactile diagrams and models required by schools to teach Science and Mathematics for Grades 4 to 7 in all schools identified in these states.

3. VE will run the Computational Thinking curriculum in 30 schools using the Ludic Design Approach. This will include Numeracy, Digital Literacy and teacher training on the pedagogical tools developed jointly for the same.

1. VE will supply Science and Mathematics Braille books for all students of Grades 4, 5, 6 and 7 in 30 schools for the blind in Karnataka, Tamil Nadu, Tripura and Gujarat as per the number of schools we engage with.

5. SUSTAINABILITY OF VISION EMPOWER

As we scale our interventions to new states and to many more schools, it's critical to have a sustainable roadmap to ensure the VE mission is implemented in every special school for the blind across India.

Funding from State Governments:

VE intends to work closely with the Department of Disability/Social Welfare and Department of Education in state governments in the states where the interventions are carried out. In the period of 2017-2019, VE has created a good working relationship with the DWDSC, Government of Karnataka and obtained approval for all VE interventions pan Karnataka. We have also signed an MoU with the Government of Tripura to implement the VE interventions in the state. The government has agreed to absorb part of the costs of implementation. VE will create intervention proposals for other states on the same lines.

School Support:

VE has created a strong network and goodwill with the schools where interventions are being conducted in Karnataka. Many of the schools are privately funded. Based on the positive impact of the interventions among the teachers and students, some of the schools may be able to directly mobilize the required resources and funds for the implementation of the project at their schools.

Partner Network Support:

VE has also invested significant time and effort in creating a partner network in the states where Year 3 (2021-22) interventions are being carried out. The partners are selected based on common objectives and understanding of each other's processes and complementary activities. We look forward to mutually leveraging experience and outreach network to co-create the solutions at the schools for both students and teachers. The well trusted partners may directly receive grants from any corporate and the VE team would be happy to guide and support our partners through a collaborative process of implementation.

Formation of a Consortium of CSR funders:

VE will identify and enlist corporates with alignment to the vision of the organization and create a consortium of such corporates this year. Going forward this consortium will be the main source of funding for the organization.

80G and FCRA:

VE has successfully completed three years and has filed for 80G exemption through B P Rao and Co. for donations and is expecting to receive the clearance from the IT department soon. The FCRA application is in progress. VE is in possession of the last 3-year financial audited statements and can be produced to any corporate that would require it for funding purposes.

Existing CSR Donations, Individual Donations, and Grants:

VE has been able to mobilize some resources for critical projects through other donors and grants in the last 2 years, which may be further leveraged going forward. This includes smaller CSR donations from some corporates, grants through IIITB and some individual donations.

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