Off to School VI Go: A Report on XRCVC's Inclusive Education Project

written by

Aparna Sachdev

for

Xavier's Resource Centre for the Visually Challenged

Executive Summary

This report on the XRCVC Inclusive Education Project for school students with visual impairment serves dual purposes: documentation and research presentation. The information is broadly divided into two parts: the first part documents XRCVC's Inclusive Education Project from 2014 to 2021. The second part presents data obtained from a qualitative study to determine the impact of each distinct intervention model and the findings thereof. This report is likely to be of interest and use to mainstream teachers and schools, special educators, organizations working for the blind, parents and allies of school-aged students with blindness, inclusive education researchers, and indeed all educationists wanting to be inclusive in their practice.

The XRCVC Inclusive Education Project: An Overview and Background

This chapter outlines the existing context within which the XRCVC Inclusive Education Project was conceived. The absence of a robust strategy to teach STEM subjects to students with visual impairment positioned these students at a disadvantage vis-a-vis their sighted counterparts regarding career opportunities. XRCVC's Inclusive Education Project started to address this observed lacuna but gradually broadened in scope to provide more holistic, sustained, and structured support to school-aged students. The chapter also documents the education project trajectory from its inception in 2014 to 2021—a comprehensive review of the impact of the two distinct intervention models and the various iterations thereof.

Research Overview

This chapter briefly dwells on the necessity of third-party research on the XRCVC Inclusive Education Project. After that, the scope of the study is laid out. The research aims to meet the objectives of documentation, evaluation, and recommendation. The structured interview was chosen as the research methodology for the study since it would yield subjective data on expressed attitudes towards inclusion and the XRCVC interventions that would be conducive to qualitative analysis. The purposive research sample was somewhat asymmetrical of necessity since the idea was to choose respondents in a way that ensured that all iterations of the two models would be addressed by some permutation/combination of the respondents.

Thirty-one participants were interviewed, of which 9 were students, 3 were special educators, 8 were parents, and 11 were school teachers. The analytical framework for this study is comparative and inference-based due in large part to the asymmetries of the sample. The findings of the study do not seek to be representative. Instead, the aim of the study is relevance. The results are presented separately for each stakeholder group, first in a tabulated summary and then in the form of a qualitative piece focusing on each iteration of the two models and then on generally expressed attitudes towards various facets of inclusion experienced by the stakeholder in question.

Students Speak

From the students' responses, it appears that students' age, gender, level of school intervention, and degree of self-advocacy, in addition to available parental support, emerge as critical determining factors to analyze how they perceive different aspects of their inclusive education experience. A table summarizes the students' reception of the various iterations of the two models. A qualitative piece presenting data on students' experience with the interventions and their perceived sense of inclusion

in their mainstream school follows the tabulated summary. The abovementioned determining factors are culled out of the presented data.

Parents speak

From the parent's responses, it appears that the following factors impact how parents experience and contribute to their children's inclusive school journey;

- their level of education,
- presence and degree of intervention in their children's schools,
- their ability to cope with their children's educational needs, and
- parental as well as self-advocacy by the child.

A table summarizes the parent's reception of the various iterations of the two models. A qualitative piece presenting data on the parent's experience with the interventions, their perceived sense of their child's inclusion, and their role as facilitators in the inclusion process follow the tabulated summary. The abovementioned determining factors are culled out of the presented data.

Teachers speak

From the teachers' responses, it appears that the following factors emerge as significant factors that impact how they view and implement inclusion in their classrooms;

- teacher's age,
- years of teaching experience,
- prior experience/interaction with persons with disabilities,
- the subject they teach, and
- the kinds of intervention they have had experience with, all.

A table summarizes the teacher's reception of the various iterations of the two models. The presentation of the collected data follows the tabulated summary, focusing on the teacher's experience with the interventions, their take on inclusion, and their role as facilitators of inclusion in their classrooms. The abovementioned determining factors and the data have been presented in more detail.

Special Educators Speak

From the special educator's responses, it appears that they unanimously find Model 2 (Xavier's Inclusive Education Support Program) to be definitively more streamlined and context-appropriate. This chapter provides a unique insight into the rationale behind the trajectory of the Inclusive Education Project.

It also focuses on how the differences between the Individualized Education Plan (IEP) system and the current Xavier's Inclusive Education Support Program (XIESP), namely differences in the degree of structure and in methodology, are the very factors that make the XIESP more suited to and sustainable in the Indian context.

A table summarizes the special educators' experiences as insiders to the various iterations of the two models. Data on the special educators' experience with the interventions, their opinions on how much the interventions fulfilled their intended purpose, and their role as facilitators of the inclusion process follows the tabulated summary.

Key Summary of Findings

This chapter presents a tabular summary of the cross-stakeholder responses to the various iterations of the two models. Furthermore, the factors that consistently impact more than one stakeholder group are identified and analysed. Three factors are identified: degree of school intervention, advocacy, and parental support. Considering these three factors in collectivity, it appears that stakeholder collaboration is at the heart of creating and sustaining a successful inclusive education experience for students and the other stakeholders involved.

The Way Forward

This chapter presents a tabulated representation of a provisional model, incorporating changes into the existing model suggested in this study by all the stakeholders: students with visual impairment (SwVI), their parents, teachers, and special educators. The following are some notable additions to the current model:

For teachers: Certified training workshop to be longer in duration than it is, especially for primary school teachers, with more time for Braille awareness. Also, conference calls should be scheduled to allow teachers to participate remotely to reduce the necessity of teachers teaching SwVI students to stay back after school hours.

For special educators: Systematically advocating with schools and training teachers to facilitate students' extracurricular inclusion. Additionally, special educators should work further on students' mobility skills to teach them correct and safe techniques to explore and independently navigate places of interest to them/orient them to the aforementioned places when practical.

Acknowledgements

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Chapter 1: Inclusive Education – the XRCVC Project: An Overview and Background

About XRCVC

The Xavier's Resource Centre for the Visually Challenged is a state-of-the-art support and advocacy centre working with persons with visual impairment. It was set up in 2003 as a department within St. Xavier's College – Autonomous, Mumbai, to facilitate the inclusion of students with visual impairment on campus. The XRCVC (in keeping with the college's Jesuit ethos of creating social impact in the larger community) has since broadened its scope and now works to facilitate the inclusion of persons with visual impairment across the city and the country. They provide direct training and support, work towards generating awareness, and proactively engage with advocacy initiatives. Some key focus areas include advocating for print access, educational access, training in independent living skills, and financial access.

Need for Getting Involved in Inclusive Education

Within the first few years of the XRCVC's work with SwVI of St. Xavier's College, it was increasingly becoming evident that the variety of tasks that SwVI required assistance with could be traced back to a few underlying causes. A disproportionately high number of these students were enrolled in Arts and Humanities courses and invariably had trouble with subjects such as Economics, Statistics etc., which called for some facility with the STEM subjects. Students also wanted to pursue Master degrees outside of the Social Sciences or prepare for competitive exams, which again highlighted lacunas in students' STEM education.

Lack of awareness and resources to render STEM subjects accessible to SwVI and lack of STEM specialists among special educators seemed to be at the root of the longstanding trend of SwVI, more often than not, dropping out of STEM subjects as early as possible in their schooling. It, therefore, appeared that any permanent solution to the problem of lack of necessary skills among the students would need to target younger (school) students at the point when they first begin to lag behind their sighted peers in STEM skills. And intervene to ensure that SwVI receive the support required to perform at par with their sighted counterparts in the STEM subjects. Herein started the XRCVC "Math-Science project", which soon evolved into the more holistic "Education project". The findings of the Math-Science project have been presented in a comprehensive report titled "Numbers and Reactions: A Report on Mathematics and Science Access for the Visually Challenged", published by XRCVC in 2013.

The XRCVC Education Project: A History

The XRCVC inclusive education project originated from the Math-Science project, as mentioned above, and within the space of a decade grew in scope to include training and advocacy initiatives for the various stakeholders involved: the school students with Disability, their parents, their teachers, and the school management. Students' needs predominantly guided the trajectory of the XRCVC inclusive education project. The interventions with other stakeholders were also instituted to streamline students' inclusive education experience. Students were, therefore, central to the trajectory of the project, and it would be helpful to keep that in mind for ease of understanding. This report divides the history of the inclusive education project into two distinct models (Model 1 and Model 2), which were conceptually different from each other.

Model 1: Variants of the Individualised Education Plan (IEP)

Model 1 was fundamentally individual in its ethos insofar as students were concerned. Skills were imparted to students individually, and students' individual needs (understood as different from other students) were pivotal to this model. The project began with an itinerant-teacher approach, and the first two iterations of the model followed that format. The third iteration was also individual in that students' training focused on the special skills needed for their specific grade levels at school. The interventions instituted for the parents in Model 1 were chosen and implemented to facilitate and complement the students' training. Interventions for teachers ran parallelly with the student and parent interventions but did not necessarily correlate with student or parent activities. In other words, no factors interlinked these two sets of interventions beyond the fact that the teachers' interventions were meant to facilitate the outcomes of the students' intervention.

The three iterations of the first model are as follows: home-based training, school-based training, and weekly XRCVC-based training. All of these are described in some detail below:

Home-based Training:

Stakeholders involved: students and special educators

Home-based training was XRCVC's first foray into providing systematic and sustained inclusive education support to SwVI. The first iteration of Model 1 primarily addressed the primary lacuna hitherto identified - unequal access to STEM education for SwVI. Filling this gap, it was believed, would remedy the problem and ensure that SwVI were as well equipped to pursue their academic interests as their sighted counterparts. Accordingly, special educators delivered home-based training to two young SwVI studying in inclusive schools. The training was largely Math-centric, wherein students were taught Nemeth (the standard code of Braille notation used for Math and Science) suitable to their grade level. Parts of the students' Math books were transliterated into Braille using MathType and Duxbury Braille Translation software (DBT) to ensure that the students could independently access their math textbooks and to concurrently also encourage Braille literacy. The latter mainly emerged as a matter of some concern.

Observations:

Special educators discovered students were not as fluent in literary Braille as their grade levels demanded. Additionally, there was a felt need for reinforcement of skills. Someone had to ensure that students were using the special skills they were taught for their classwork and homework and that they were doing the requisite amount of reading-writing and using their Braille textbooks. All of this contributed to the understanding that— merely providing STEM education in a vacuum was not enough. A more holistic approach would have to be adopted, wherein the skill set to be taught would need to be more comprehensive to address any lack of prerequisite skills. And more stakeholders would need to be included in the training effort to ensure proper reinforcement of skills at home and school.

School-based Training:

Stakeholders involved: students, special educators, parents, teachers, school management.

Drawing from the experience of implementing the previous iteration of the first model—this iteration focused on teaching students the following skills: Braille, Nemeth, Visual Concept Enrichment (VCE),

Activities of Daily Living (ADL), and study and organisation. Special educators conducted skill training twice a week at school after school hours, which was linked to the chapters being taught. XRCVC provided accessible books for all subjects (in Braille, since Braille was the advisable format of reading-writing for primary school students) to each student.

Individualised Education Plans (IEPs) were drawn up for both students to delegate teaching-learning among all stakeholders equally systematically. Different sections of the IEP listed skills that the stakeholders (school teachers, special educators, parents) were to teach and reinforce in their respective domains. In the context of the school teachers, a one-time "I for Inclusion" workshop was conducted to familiarise the teachers with the basics of teaching students with blindness/VI. This was done just before the teacher started teaching their first SwVI to ensure that the teacher knew how to make her classroom accessible to the student and to concurrently enable her to encourage students to bring their special skills into practise in class activities. Weekly topic lists were sought from the school teachers to synchronise special skill training with the topics being covered in class. Accessible Teaching and Learning Aids (TLAs) and Tactile Diagrams (TDs) were also made available to the school teachers in response to the weekly topic lists submitted. The special educators would sit in on some of the classes to assess whether students were using the special skills they were being taught and whether teachers were making teaching accessible to their SwVI. Both the student and the teacher received feedback because of this. The parents were also invited to a session on spatial math rules and Nemeth to ensure that they could reinforce these skills in their children at home for better learning outcomes.

Observations:

School teachers were in on the training the students received and had also received inclusive education training themselves. They could therefore ensure students' use of relevant special skills at school. They were also able to check their SwVI work (student's Braille content was transliterated into print by Braille-literate stakeholders for this purpose), and to set up realistic class expectations from them which in turn directly translated into better learning outcomes for the students. Being expected to perform at par with sighted students in class (with necessary supports in place), and to submit work on time for checking encouraged the students to put in regular effort.

In the context of the teachers, onetime contact (in the form of the "I for Inclusion" workshop) was not sufficient to ensure that learning was imbibed. It was felt that more sustained contact (in the form of in-service support) would be a better method of engagement. It was also realised that ADL and O&M as taught skills were significantly more family-dependent in terms of acquisition and subsequent practise. Hence, parental engagement would need to be further encouraged. As for the IEP process, it had ended up becoming far too procedural, with responsibilities invariably falling to XRCVC personnel. Twice-a-week school visits were also expensive, and school teachers' misconceptions about special educators being responsible for content as well as special skill training had to be addressed. It therefore appeared that the IEP process would need to be altered to a more informal review-based approach, and that training would be far better conducted at XRCVC once a week as opposed to being conducted biweekly at school.

Weekly XRCVC-based Training:

Stakeholders involved: students, special educators, parents, teachers, school management.

In this third iteration of Model 1 of the XRCVC Inclusive Education Project, day-long training sessions were conducted weekly at XRCVC on Saturdays. Students were taught the following skills: Braille,

Nemeth, Geometry, Study and Organisation (S&O), Orientation and Mobility (O&M), and Activities of Daily Living (ADL). Weekly training was linked to the chapters taught at the students' schools. Students were also provided Braille books for all their subjects.

In the context of the student's school, the following activities were undertaken:

- One certified "I for Inclusion" workshop and further in-service support exclusively for those teachers who taught students with blindness/VI.
- One conference call and one school visit per month by the special educators to keep communication channels between school teachers and special educators open for collaboration and troubleshooting.
- Lesson plans with details about how various facets of the material to be taught (reading and writing, graphics, and pictures, etc.) would be made accessible were sought from the teachers. Implementation reports were also requested, seeking information about the submitted lesson plans' implementation (in an accessible manner).

Parents were encouraged to sit in on the students' weekly training to ensure they were in on the techniques and special skills taught to the students. This was done to enable parents to reinforce the taught skills for the students at home. Additionally, beginning and end-of-year reviews were initiated with the parents to evaluate the student's progress per the set goals without a formal IEP.

Observations:

Since Math was done chapter-wise as part of the weekly training, special educators could assess that all Math (sans rough work, which required the Taylor Frame/mental Math) could be done using Nemeth. However, there was not much documentation on spatial Math, except for that published by the Texas School for the Blind and Visually Impaired (TSBVI). The usefulness of teaching S&O skills and teachers periodically checking students' work was again reinforced. While conducting training, special educators also observed an overlap in special skills between students, which suggested the possibility of structured special skills curriculums. This realisation, coupled with the observed inefficiency of the unstructured training format (driven exclusively by the student's pace or the teacher's discretion), gave rise to the idea of the level framework that was to become foundational to every iteration of the XRCVC inclusive education model henceforward.

As for the teachers, the lesson plan and reports strategy were not received very well and led to delays in submissions and misunderstandings. However, teacher training and consistent contact ensured that teachers encouraged SwVI to be independent in class and had similar class expectations from their students with sight and without sight, both positively impacted learning outcomes for the students. On the parental side, engaging with the parents to a greater extent revealed that parents also needed emotional support. It became evident that establishing proper rapport with the parents and supporting them to facilitate their coping process was key to enlisting their full support as allies in their child's inclusive schooling journey.

Model 2: The Xavier's Inclusive Education Support Program (XIESP)

The second model, drawing from the learnings of the first three iterations, was characterised by a distinctly collective mode of functioning. Model 2 differed from Model 1 in that it sought to create uniformity and constancy in how interventions were carried out. In other words, it aimed to develop a robust, duplicatable structure that recognises individual differences and focuses on the student. Also, it should be more uniform and standardised in its inputs and outcomes.

Even if different special educators implemented it on a different set of VI students, the results would be constant enough to satisfy the model's objectives. This model strived to replicate the concept of graded curriculums to special skill training. The model laid out a framework of skills grouped into four levels (as explained in the section below) and a fixed implementation strategy for maximum effect. It was partly to make more efficient use of resources but also, and primarily, to be able to optimise the inclusive education project itself in such a way as to support more inclusive school students in the given (Indian) context. As in Model 1, interventions for teachers ran parallelly with the student and parent interventions but did not necessarily correlate with student or parent activities. In other words, no factors interlinked these two sets of interventions beyond the fact that the teachers' interventions were meant to facilitate the outcomes of the students' intervention. This iteration, termed the group-based level-wise training, is explained in detail below:

Group-based Level-wise Training:

Stakeholders involved: students, special educators, parents, teachers, school management.

This iteration of Model 2 inaugurated Xavier's Inclusive Education Support Program (XIESP), which established some fundamental frameworks and practises still in use today. Format selection was instituted as a preliminary process, details of which have been summarised in the section titled "The Format Selection Process: An Outline" in Annexure A. A four-level framework was devised to expedite and streamline training, wherein special skills were grouped according to grade levels. Students were similarly grouped into level-based batches (approximately three consecutive grade levels were grouped into one Level batch, i.e. Level 2 comprised of students from grades 1-3) to receive training in the abovementioned groups of special skills. The level-based training was first conducted weekly but soon transitioned into vacation batches. It freed up the students during weekends and meant that students only had to give up their vacations for training once every three years. The level-wise grouping of special skills with their corresponding grade levels is presented in Annexure B, titled "The Level Framework: An Overview." Essentially, the Level training prima-facie equipped students with the special skills that would be useful to them in the following three grades at school. It would prepare students to function independently in the mainstream classroom with as little direct classroom intervention as possible.

Since the activities were entirely computer-based, it was also possible to teach some skills (Graphing and Calculations, Math on Computer, etc.) online. Therefore, training for level 4 students was conducted partly online. Shortly after that, the pandemic necessitated a full-fledged shift to the online mode of functioning, and the students (a majority of whom were doing their level-4 training) were provided exclusively online vacation training. Orientation and Mobility (O&M) training had to be foregone for the time being because it was not possible to teach online.

Monthly follow-ups were conducted to ensure that the skills taught were successfully reinforced and used where applicable; and to address doubts, if any. Follow-ups primarily involved students

submitting their work for evaluation every month and the special educators checking and giving feedback on the submitted work. Follow-ups were carried out for one year post the skill training to ensure completion of work and remediation of errors and post the one-year mark (on student request) for remediation of mistakes alone. Accessible books (Braille for primary school students, eBooks for senior students) for all subjects were provided to all students.

The set of teacher interventions remained the same as in the previous iteration, with a few variations instituted in the matter of approach. The format of the lesson plans and implementation reports being sought from the teachers was changed to make these more comprehensive. The timeline for submission of the plans and reports was also changed from the traditional deadline format to a relatively flexible date range. However, these written reports were eventually abandoned in favour of verbal responses to a checklist which essentially sought the same information during the conference calls. For parents, the kind of intervention instituted remained the same as the previous model, wherein parents sat in on the students' training and were expected to reinforce the skills taught at home. Additionally, a training session focusing on how to work with visual questions was conducted for the parents since this seemed to be a topic that parents frequently required clarification on.

Observations:

It was observed that batch-and curriculum-based training did expedite and streamlined the process of special skill acquisition and reinforcement. Since the training was group-based, students were likely to influence and be influenced by other students to learn and perform to keep up with the group. It also appeared that follow-ups were crucial in proper skill learning and that a one-year follow-up period was optimum to ensure that the skill had been wholly imbibed. There were problems coordinating training timetables across different boards, and it was challenging to cope with schools using non-standard workbooks. In the latter context, the students sometimes had to request exemptions. The training took place on consecutive days during vacations so students could not squeeze in time for revision at home. Therefore, some time was set aside to revise what was being taught each day during the training session. The online training component and the complete shift to online training generated technical issues that consumed part of the training time to sort out. However, this also reinforced students' computer skills.

In the context of the school that had XRCVC intervention, the Informal IEP process (the review-based process initiated in the third model) worked well for all the stakeholders. For students who did not have school intervention, parental advocacy and self-advocacy produced good results. Teachers' response to the requested lesson plans and implementation reports was lukewarm, so long as the requested inputs had to be submitted in written formats. The process became exponentially easier and more cordial as this component was absorbed into the conference calls.

On a slightly different note, parental support emerged as a powerful determinant of the training program's success. Family challenges impacted students' ability to attend training, and lack of proper reinforcement of skills at home meant that those students lagged others in the same group and consequently slowed down the pace of the whole group. After a point, individual attention was called for since group instruction would not work as all students were not on the same page, so to say. The channels of communication between parents and special educators were well established by this point, which helped clarify doubts that the parents encountered during reinforcing special skill use at home.

Conceptual framework of interventions in each model:

Intervention Model	**Model 1: Home-based Training**	**Model 1: School-based Training**	**Model 1: Weekly XRCVC-based Training**	**Model 2: Group-based Level-wise Training**
Description of Mode of Operation	Students were provided individual STEM skill training at home	Students were provided individual biweekly special skill training at school, teachers were trained, and IEPs were drawn up for each student.	Day-long training were held at XRCVC every Saturday, training workshops for teachers were certified, and in-service support was provided to teachers.	Students were divided into levels based on grade level and were trained according to a structured curriculum of special skills. This took place during vacations every three years.
Engagement with Student	- Students learnt Nemeth, Abacus etc at home. - They were given homework and skill development was monitored during regular visits	- Students were taught Braille, Nemeth, VCE, ADL, and S&O. - They were incrementally provided chapters of their books for all subjects in Braille.	Same + geometry and O&M training.	- Students were taught skills listed in the Level framework. - They were provided Braille/e-copies of their school textbooks. - Monthly follow-ups were conducted for a year post skill training.
Engagement with School Management	School was in the know that the students are learning these skills. No formal engagement	IEPs were drawn up for each student and the school management were signatories to it.	School management was kept updated with student progress, and open channels of communication were ensured to facilitate convenient coordination between the school and XRCVC to organise annual training and facilitate other school visits.	Same.
Engagement with Teachers	N/A	- Onetime "I for Inclusion" workshop. - Weekly list of topics was sought	- Certified TOT + in-service for teachers teaching VI students.	- Certified training program, in-service support, and once a month school visit and con call.

Intervention Model	**Model 1: Home-based Training**	**Model 1: School-based Training**	**Model 1: Weekly XRCVC-based Training**	**Model 2: Group-based Level-wise Training**
		from teachers to synchronise special skills training accordingly. - TLAs and TDs corresponding to the topic list was given to teachers.	- Once a month school visit + once a month con call. - Lesson plans and implementation reports to be submitted by the teachers.	- TDs and TLAs provided on request.
Engagement with Parents	Parents were responsible for revision of concepts taught during training sessions	Parents were expected to sit in on training to learn by observation and accordingly reinforce skill learning at home. .	Same + beginning and end of year review process initiated with parents in the absence of formal IEP.	Same + one training session on visual questions.
Role of Special Educator	Teaching students the aforementioned skills. Liaising with the other stakeholders in the ways listed above.	Same	Same	Same

Chapter 2: Research Overview

Need for Research:

This research was undertaken to evaluate the efficacy of the four iterations under the two models of the XRCVC Inclusive Education Project from the following four stakeholder perspectives: SwVI, parents, teachers, and special educators. The intent was to perform a comparative study of the models relative to one another, for the purposes of culling out best practises that meet with satisfaction from the maximum number of participants. The evolution of the model has hitherto been guided primarily by necessity and feedback, in that one iteration's shortcomings became the other's agenda, and so on. It therefore seemed prudent to undertake a learning and review process from a third-party perspective to assess the reception of the various iterations of the model from multiple stakeholder perspectives. This report is likely to be of interest and use to mainstream teachers and schools, special educators, organisations working for the blind, parents and allies of school-age students with blindness, inclusive education researchers, and indeed all educationists wanting to be inclusive in their practise.

Positionality Statement:

I am a 25-year-old Indian woman with blindness currently working in the disability advocacy and assistive technology space. I grew up in a tier-III city and have always studied in mainstream schools without any systematic and formal intervention from organisations working for the blind. However, I have greatly benefited from guidance from mentors with blindness and parental and self-advocacy efforts, both of which helped put in place required accommodations for me in the absence of formal institutional support. I therefore locate my school experience somewhere in the gray area between the integrated and inclusive education systems. Consequently, I am personally and academically interested in educational interventions, and in how varying degrees of intervention affect different stakeholders' experiences of inclusion. Additionally, I see the integrated and inclusive systems not as binaries, but as a spectrum, with room for nuance, wherein people's experiences are not so neatly categorisable as one or the other. This fascination with the integration-inclusion spectrum and the role of intervention in helping situate and evaluate experiences (including my own) is what drew me to the XRCVC Inclusive Education research. Acknowledging my positionality as a person with disability in the mainstream education system would, I hope, help clarify the theoretical and ideological lens through which I evaluate and analyse experiential data in the study.

Research Scope:

The study aims to meet the following objectives:

1. **Documentation:**
   To document the evolution of the inclusive education models conceptualised by the XRCVC with their various iterations over the years, from 2014 till 2021.
2. **Evaluation:**
   To evaluate the efficacy of the different iterations of the two models by studying how they were received, at varied stages of their evolution, by the four major stakeholders involved in the program: SwVI, parents, teachers, and special educators.

3. **Recommendation of changes:**
   To cull out best practices and suggest changes to the model based on the data obtained in this process, the latter in the form of a provisional model.

The following activities were undertaken to work towards the set objectives:

1. **Background research:**
   A literature review was carried out, identifying relevant literature focusing on inclusive education interventions in the west and in India, research tools to assess inclusion, and various stakeholder perspectives on inclusive and integrated education practises. The XRCVC documentation on the Education project was invaluable in helping to situate the current model in the larger framework.
2. **Selection of methodology:**
   The interview method appeared to be an apt tool to yield the kinds of responses desired in order to perform the aforementioned assessment. Therefore, an interview schedule was designed, seeking responses pertaining to the stakeholders' own perception of how inclusion had worked out for them during various iterations of the two models, and also seeking their inputs on the specific strategies associated with the iterations with which they had experience.
3. **Conducting the interviews:**
   As mentioned previously, interviews were administered to 9 students with disabilities, their parent(s), the three XRCVC special educators, and 11 school teachers who had taught some of these 9 students and experienced either full or beginning-of-year XRCVC intervention during their teaching.

Research Methodology:

This research set out to collect qualitative data to evaluate perceived inclusion from various stakeholder perspectives. The idea was not to definitively claim that inclusion had or had not worked based on objectively measurable criteria. It must be acknowledged that inclusion is as much an attitudinal enterprise as it is an (infra)structural one. This makes it tricky and even somewhat impractical to pin down conclusive criteria against which inclusion can be measured.

The structured interview method was therefore judged to be suitable for the purposes of the study, both for the researcher and the interviewees. The data thus obtained would be subjective, qualitative and would yield information about interviewees' expressed attitudes towards inclusion in general and about the implemented strategies in particular. There is the matter of possible dissonance between expressed and actual attitudes, but that would necessitate objective psychometric testing, which is out of this study's scope. For the interviewees, it was felt, the interview format would be found convenient and also conducive to descriptive and nuanced responses. The interview guides for all four stakeholder groups can be found in Annexure C, D, E and F.

The interview schedule thus designed had three distinct components:

1. **Demographic information:** As the name suggests, this section sought relevant personal information about the respondent – name, age, timeline of engagement with the XRCVC's inclusive education program, etc.

2. **Experiences with and attitudes towards inclusive education:** This section posed a selection of questions aimed at eliciting expressed attitudes towards inclusion, information about perceived inclusion in various contexts (academic, extracurricular, etc in the case of all stakeholders besides teachers), and their overall beliefs about the functioning of the current inclusive education system that they were a part of. It was anticipated that responses to this section, when read in conjunction with the responses to the questions in Section 3, would help identify factors that impact inclusion in relatively constant ways.
3. **Feedback on XRCVC's strategies for inclusion:** This section sought feedback from each stakeholder about individual strategies implemented in the course of the four iterations of the model. Respondents' experiences with particular iterations were read against their responses in section 2, and patterns and trends were arrived at accordingly, where applicable.

Interviews with all respondents were conducted over the Zoom conferencing platform, transcripts for each interview were prepared, and responses were subsequently analysed and recorded as has been explained later in this chapter. Interviews were conducted in the audio-only format, in order to minimise the expectancy effect since the interviewer was a person with blindness, and the interviewer's positionality in the context of the current study could potentially have affected interviewee responses.

Research Sample:

The purposive research sample was rather asymmetrical of necessity, since the idea was to choose respondents in a way that ensured that all iterations of the two models would be addressed by some permutation/combination of the respondents. 31 participants were interviewed in total, of which there were 9 students, 3 special educators, 8 parents and 11 school teachers. All 9 students were studying in mainstream schools at the time of the interview, and 8 out of those had always studied in mainstream schools. 3 of the students had XRCVC intervention at school – 1 had only beginning-of-year intervention, and the other 2 had full intervention. In the case of one student, both parents were proactively involved in facilitating inclusion, therefore both were interviewed. Additionally, parents of two students were not available for interviews. 3 of the 11 teachers were from the school that received beginning-of-year intervention, and the other 8 were from the school with full intervention. All of the teachers in the sample taught in private schools. 36.3% of the school teachers taught STEM subjects, and one-third of the special educators were STEM specialists.

Only a small number of the total respondents in the sample (16.12%) had experienced all iterations of the two models. The following table presents a cross-section of the percentage of respondents who have experienced the various iterations of the model, divided by stakeholder positions.

Intervention Model	**Model 1: Home-based Training**	**Model 1: School-based Training**	**Model 1: Weekly XRCVC-based Training**	**Model 2: Group-based Level-wise Training**
Students	11.11%	22.22%	44.44%	77.77%
Special educators	66.6%	66.6%	66.6%	100%
Parents	25%	37.5%	37.5%	87.5%
Teachers	n/a	18.18%	27.27%	63.63%

In the context of gender, the student sample is 44.4% female and 55.5% male. The teachers and special educators who were interviewed are all female, and all but one of the parents interviewed is female. The sample primarily consists of private school students, their parents and school teachers, although a small minority (22.2%) attend public schools/junior colleges.

Notes on the Sample:

1. Students: Contingent on the degree of intervention in schools, students can be variously situated as experiencing inclusive education, integrated education, or an indeterminate mix of both. Conclusively speaking, 44.4% of the students' school experience can be categorised as inclusive, and the experiences of 22.2% of the students in the sample align more closely with the integrated system. The other 33.3% of the students cannot be so neatly categorised into one system or another, but experience elements of both to varying degrees.
2. Teachers: In the context of the school intervention system, full intervention entailed everything in Model 2: the "I for Inclusion" workshop, inservice support, monthly school visits and monthly conference calls. Beginning-of-year intervention consisted only of the "I for Inclusion" workshop conducted once annually at the beginning of the school year.

Analysis and data-presentation framework:

As has already been mentioned, one of the primary objectives of the current study is to evaluate the efficacy of the four iterations of the XRCVC inclusive education model from various stakeholder perspectives. However, practical considerations and the asymmetries of the sample posed a few challenges. It was not possible to interview an equal number of respondents from each stakeholder category. For instance, interviewing teachers from schools who had had no engagement with XRCVC for the purposes of control group analysis was not possible. This was further complicated by the fact that there just was not uniformity in the number of respondents who had experience with each distinct model, which created asymmetries and made it difficult to implement conventional comparative frameworks for purposes of analysis. However, these asymmetries also enabled certain determining factors to emerge, that appeared to impact inclusion in consistent and significant ways.

Under these circumstances, the analytical framework for this study is both comparative and inferential. The findings of the study do not seek to be representative. Instead, relevance is all that this study aims for. The interview was designed specifically with the abovementioned context in mind, to enable the responses to items in section 2 and 3 to speak to each other, and by so doing bring out connections between the strategies implemented in various iterations, and satisfactory or unsatisfactory experiences of inclusion. With a few exceptions, most stakeholders had not experienced all the iterations of the model. Therefore, their history of XRCVC engagement (as reported in section 3 of the questionnaire) was read in conjunction with their reported experiences with various facets of inclusion (as reported in section 2), to allow for the drawing of inferences about the efficacy of the various strategies. For instance, there might be differences in the way that a student who had been part of all the iterations in Model 1 might perceive her inclusion experience, as compared to a student whose first experience of support had only been with the fourth iteration i.e. with Model 2. Allowing for individual differences, these reported variations provide valuable feedback on the differential impact of the four iterations by the stakeholders. Additionally, it appeared fruitful to also read the responses to the items in section 2 in isolation, as they provide a great deal of information about how stakeholders are experiencing inclusion in various facets of the school environment at present, as a result of the strategies implemented as a part of Model 2. This latter exercise also

provides useful information about personal and situational factors that appear to impact inclusion in constant ways.

Finding-presentation framework:

The findings of the study are first tabulated for convenience in the following chapters. The tables hold one stakeholder as a constant, and present concise data on the reception of the iterations of the two models, to enable a comparative understanding of the differential reception and impact of the iterations on the stakeholder in question. This is followed by descriptive, qualitative analytical pieces on each stakeholder's inclusion experience, which map the connections between the strategies implemented under the different iterations, and their impacts as gauged through stakeholder's perceived sense of inclusion as reported in section 2 of the interviews. This is then followed by a summary of key findings, comprising a tabulated account of the cross-stakeholder assessment of the two models, alongside a brief cross-stakeholder view of factors that appear to impact inclusion in relatively consistent ways. The report concludes by presenting a suggested provisional model, based on the findings from the research.

Chapter 3: Students Speak

From the students' responses, it appears that students' age, gender, level of school intervention, and degree of self-advocacy, in addition to available parental support emerge as important determining factors to analyze the ways in which they perceive different aspects of their inclusive education experience. The table below summarises the students' reception of the various iterations of the two models. A qualitative analysis of the students' experience with the interventions, and their perceived sense of inclusion in their mainstream school follows the tabulated summary, wherein the abovementioned determining factors are arrived at based on the data collected.

Intervention Model	**Model 1: Home-based Training**	**Model 1: School-based Training**	**Model 1: Weekly XRCVC-based Training**	**Model 2: Group-based Level-wise Training**
What worked	- This arrangement gave the student access to quality STEM-related special skill training at home.	- Students found both the after-school training and the class observations helpful and important, and felt that the latter was also useful for their teachers.	- Students believe they learned a lot from the Saturday training, and report liking how they encouraged self-exploration in the context of computer training.	- The training made students independent in various respects, both academically and otherwise. - The group-based learning method meant that students functioned like a support group, learning from and encouraging each other, and addressing each other's doubts. - Students whose teachers participated in the TOT workshops reported better independent study habits, presumably because their academic needs were more effectively met in class.

Intervention Model	**Model 1: Home-based Training**	**Model 1: School-based Training**	**Model 1: Weekly XRCVC-based Training**	**Model 2: Group-based Level-wise Training**
What did not work	- One-on-one teaching meant that learning was happening in isolation.	- Students initially found it a little scary to have the special educator observing classes, although they soon got used to it.	- Transit was long. - The training consumed half the weekend holiday when students' peers would all be free to do as they pleased. - Computer training was a bit rudimentary.	- Students strongly disliked giving up a significant chunk of their summer/Diwali break to travel to the centre early in the morning for training.
Key highlights	- The student expressed a preference for learning in the center, where interaction with peers and other special educators was possible.	- Students do not have very precise memories of this iteration since they were relatively young at the time.	- Students liked training better in the center, as compared to school-based training. - The presence of parental reinforcement for special skills + school intervention corelated highly with students' facility with and inclusion in the STEM subjects.	- Students liked that they encountered inaccessible material first at XRCVC where they could receive effective explanations before they encountered the same at school. - The independence fostered in students in terms of self-advocacy corelated highly with receiving better support from school teachers. Additionally, self-advocacy also corelated highly with more satisfying social relationships.

Home-based Training:

Only 11% of the students in the sample received home-based special skill training. Although the students found it helpful, having experienced the subsequent iterations in the model, they would have much preferred to go to XRCVC, meet all the teachers, and learn and socialise in that environment instead of learning skills on their own at home.

School-based Training:

The 22% students in the sample who experienced school-based training were very young at the time. Some students recall after-school training in the school premises but also admit they do not have very many memories of that. Others mostly recall the special educators observing their classes and how that was sort of scary at the time, although they also believed that that was important and helpful, both for them and for their teachers. The students also report having gone through the IEP process, although they do not remember anything significant in that context, presumably because it mostly involved the adult stakeholders.

Weekly XRCVC-based Training:

Two-thirds of the students who reported attending weekly training sessions at XRCVC on Saturdays found transit to be long and cumbersome, but otherwise gained quite a bit from the training. One-third of the students were unhappy at having to forego the two-day weekend since Saturday was a school holiday and their other peers would be free to do what they like on Saturdays when they themselves would be working. The remaining one-third found the computer training to be a bit rudimentary but also realised that that encouraged self-exploration, which was a good thing in the long run.

Group-based Level-wise Training:

Most students unambiguously say that they found the level-based training helpful, for various reasons. Some attribute their independence to these training, some liked the fact that they encountered inaccessible course material in XRCVC first where it could be properly addressed, which made it easier to understand at school. Still others found themselves equipped well enough to start working with non-specialist educators when the need arose, since they had a good grasp of alternative methods by the time, they completed level 4. Students also (and this is a frequently expressed idea) found working with other peers with visual impairment more stimulating - they could learn from each other's mistakes, see how others were tackling similar tasks and learn from and help each other, and generally encourage each other to do the work so training could happen according to schedule. Students express the opinion that they are not too fond of missing out on vacation year after year, however. A comparatively smaller number of students who expressed an opinion on this find this arrangement convenient because it does not disrupt the school routine.

All the students reported doing their level 4 (or some part of it) online, since a significant chunk of the training (graphing, LaTeX) was computer-based to begin with. Most students expressed the view that all the offline training they had previously experienced prepared them well to go completely virtual when the pandemic hit. A significant majority of the students found the online training helpful. Some even found it no different from offline training, except for mobility which had to be postponed because it could not be done virtually. A few students still preferred offline training, either because

they found the offline format more conducive to learning, or because they did not feel comfortable enough with technology at the time when the training was held.

In the context of the monthly follow-ups, all but one of the students had experience with the same once or more than once a month. Students generally had positive things to say about the practice, reporting that it was helpful in terms of making them aware of mistakes in their work, and that it was necessary, especially when they did schoolwork in Braille.

Aside from 33% of the students in the sample who reported not having regular online follow-ups (as they were not engaging with XRCVC on a regular basis at the time), all students had a positive experience with the online follow-ups and found them no different from offline ones. Some found it more convenient because transit was eliminated, others because it more effectively involved the practical application of skills that were learned. The idea that offline training prepared them for online functioning in general was once again expressed.

General attitudes towards inclusion:

Among students who had XRCVC intervention (to varying degrees) in school, there is a commonality in the kinds of things they report liking about their inclusive school experience. Academic accessibility appears to be more or less a given with intervention, so what students particularly report liking are feeling generally included in everyday school activities, extracurriculars, socialising. "Supportive teachers" and "helpful friends" are responses that show up more frequently in the case of students who haven't had school intervention, in addition to the independence that using a laptop at school brings them. This opens up avenues to look at the way students perceive (or do not perceive) reasonable accommodation, contingent on the kind of institutional support they have had from their schools. Among the things that students identify as working well in their inclusive school process, using the laptop and the ease and independence that comes with it occurs on almost every students' list, followed (slightly less frequently) by cooperative teachers, and the school's willingness to make accommodations when needed.

The younger students (grade 9 and below) focused primarily on (infra)structural barriers when asked about things they do not like in their inclusive school experience. Issues around mobility got flagged quite often, wherein students found navigation in the school premises difficult/inconvenient for various reasons, or when they weren't allowed to navigate independently with/without the cane, etc. Not being properly included in sports at school is another thing that the younger students reported being unsatisfied with. The older students talk more about coming up against attitudinal barriers: indirect instances of exclusion that they experienced (eg. Being seated on a chair and not being allowed to sit on the auditorium floor with their sighted peers for school functions), not being able to socially integrate as well as they would like, etc. Suggestions for improvements included the idea of a centralised system at the governmental level that would ensure accessible material (especially for STEM subjects) for students with disability, etc. Students did not generally volunteer suggestions, in most cases.

Academic inclusion:

Students who have both school intervention, and parental support and reinforcement of skills at home reported more positive experiences with the STEM subjects at school. Level-based STEM-related training from XRCVC, and aptitude and interest were understandably also determining factors in students' facility with STEM. Students who have not finished their level-based training through to the

end more frequently reported having difficulty with STEM subjects. Among these students, however, the students who expressed interest in and aptitude for STEM subjects still reportedly fair better, partly also because their interest impels them to seek out (and receive) unstructured training as per their requirements, outside of the level framework. Proper training, and availability of study material in accessible formats, then, appear to be necessary prerequisites to effective inclusion of students in STEM subjects.

One out of the two schools where intervention has happened have significant reservations around allowing students with blindness to participate in lab activities, despite the student being familiar with lab equipment and repeatedly self-advocating for it. Only one student (who has not had systematic school intervention) reported performing lab activities at school, with significant assistance from friends. No other students have reported full participation in lab activities, for various reasons – either the school does not get students to perform experiments at school, or the student was too young before the pandemic to have started lab activities and the subsequent remote education did not allow for the possibility of physical lab work.

Projects, practicals, and other mandatory submissions to the school seem to have become uniformly easier for all students after their transition to the laptop. Some students (regardless of whether they have had school intervention) found projects inaccessible, however, and they therefore asked for and received help from parents or friends to complete them. Alternatively, a small minority of students (11.1%) advocate with teachers for text-based variants on the projects given (looking up information and putting together a written piece) etc. This arrangement reportedly works well for them.

Extracurricular inclusion:

There seems to be a clear trend wherein inclusion in extracurricular activities is more proactively ensured and encouraged by the school where intervention has happened, sports notwithstanding in all cases but one. In schools without intervention, some students have still successfully negotiated to ensure that they get to participate in certain extracurriculars that they are interested in, but in other cases without school intervention, the school either does not make much of an effort to ensure inclusion, or the school doesn't have an established extracurricular program. Even in cases where extracurricular inclusion is consciously implemented, it is difficult to ensure complete inclusion in spontaneous situations like when students are engaged in unstructured play with the ball on the ground, for instance.

Social inclusion:

Students perceived social inclusion correlates moderately well with the degree of self-advocacy they engage in. Self-advocacy, with all that it entails (disability acceptance, confidence etc.) could well contribute to social acceptance and inclusion, since peers with disability may potentially take cues (on how to behave, how much to include) from observing the VI student advocate for inclusion, accessibility etc. for themselves. This is just a tentative proposition, however. Temperament, naturally, is another determining factor in perceived social inclusion. There is a broad spectrum of responses in this context, wherein 44% of the students reported having good friendships at school. Another 44% do not particularly feel socially included, and report that friendships are largely utilitarian in nature and not socially satisfying. The remaining 12% are neutral and report that socializing is okay, and that they can handle it.

Other competencies:

Orientation and mobility (O&M): There seem to be a gendered dimension to the matter of independent mobility, wherein girls are consistently less likely to want to, or be allowed to, make their way around school on their own. The tendency is to either want to walk around with the help of friends, or (in the case of school authorities) to engineer situations where the SwVI necessarily must walk with someone else because faculty and other staff have reservations. The latter invariably seems to happen in situations where the perceived vulnerability of the student is high (with girls and younger boys). Most students carry the cane to school, but only those who report being independently mobile report using it. This appears to be a two-way cause-and-effect relationship, wherein independent mobility and carrying the cane to school likely mutually reinforce each other.

Self-advocacy: Involvement of students in discussions regarding accessibility at school seems to go up as students grow older, as is also encouraged by XRCVC. Generally, the students who report being part of these discussions/engage in self-advocacy report more satisfaction with their degree of involvement. On the other hand, younger students express some indifference about being/not being part of these discussions, they do not mind so long as the job gets done. As students get older (9th standard and up), they consistently report wanting to be more involved (if they aren't involved much), or they are already taking over advocacy, both in situations of parental encouragement and in situations where parents aren't or can't be very involved for various reasons.

Independent study habits: Reported independent study habits outside of class appear to be linked to proper support from teachers at school. Students whose requirements aren't met by school teaching approach other organisations working for the blind like NAB and the Snehankit helpline for day-to-day support with academics. This is also true of situations where parents are not well versed in the use of assistive technology to be able to reinforce school teaching at home. In situations where school teaching is found satisfactory, students report being able to study the theory subjects mostly by themselves, requiring parental help only with diagrams, Math content, etc.

Support from other stakeholders:

Teachers: There is a definite trend in teachers' consciously making the learning experience accessible to students as reported by the latter, in cases where teacher training has happened. Self-advocacy makes a great deal of difference in the absence of school intervention – and even then, students report that support is easier to come by in the context of Science than it is for Math. Lack of significant advocacy (by the student or the parent) in situations where teachers are untrained results in teachers not being particularly accommodative at school. The student then must seek support elsewhere (from organisations working for the blind, supplementary tuition classes), to meet daily academic needs.

Parents: Availability of parental support appears foundational to a good inclusive school experience. A majority of students (77.7%) report having robust parental support at home, generally in the context of making study material accessible, and coordinating with other stakeholders (teachers, XRCVC etc) when required. In the one instance where the parents haven't been able to provide academic support at home, the student's inclusive school experience has been reportedly rather lackluster.

Peers: 88.8% of the students in the sample reported the availability of support from their peers. On juxtaposing this with the data on perceived social inclusion mentioned above, the disparity that emerges between the number of students who seek and receive academic help from peers, and the number that feel socially included by their peers helps demonstrate to an extent students' perception of their friendships as largely utilitarian in nature.

Chapter 4: Parents Speak

From the parents' responses, it appears that parents' level of education, presence and degree of intervention in their children's schools, their ability to cope with their children's educational needs, and parental as well as self-advocacy by the child emerge as important determining factors that impact how parents experience and contribute to their children's inclusive school journey. The table below summarises the parents' reception of the various iterations of the two models. A qualitative analysis follows the tabulated summary, focusing on the parents' experience with the interventions, their perceived sense of their child's inclusion, and their own role as facilitators in the inclusion process. The abovementioned determining factors have been presented in more detail in the analysis.

Intervention Model	**Model 1: Home-based Trainings**	**Model 1: School-based Trainings**	**Model 1: Weekly XRCVC-based Trainings**	**Model 2: Group-based Level-wise Trainings**
What worked	- The parent believed that the Math intervention was crucial, and the sessions were fruitful. - Parents prefer this method when children are younger since they find traveling in Mumbai public transport difficult with a child with disability.	- Parents found this format helpful in their children's development, both in terms of skill learning and classroom conduct. - Teachers also benefited by learning how to conduct themselves with children with visual impairment and include them in class activities.	- Training were very systematic – a timetable for Saturdays was drawn up wherein different skills were allocated fixed periods of time. - Parents also report that these training taught them how to work with their children at home on their special skills. - All the resources the students might find useful was available on hand at the center. This also encouraged experimentation to find the best methods for teaching-learning.	- Students learned a variety of skills, academic as well as non-academic, that made them more independent. - Parents appreciated the monthly follow-ups because of special educators' attention to detail in making students aware of their mistakes. As a result of this, many students improved remarkably in their spellings. - Follow-ups also encouraged discipline and a feeling of accountability

Intervention Model	**Model 1: Home-based Trainings**	**Model 1: School-based Trainings**	**Model 1: Weekly XRCVC-based Trainings**	**Model 2: Group-based Level-wise Trainings**
				in their children. They had to complete assigned work on time and submit, before they would be taught further.
What didn't work	- Special educators couldn't carry all teaching aids/equipment while traveling to and from the student's house. Training were therefore felt to be limited in scope.	- Parents' memories of the IEP process appear to be uniformly imprecise, which suggests that the process wasn't necessarily comprehensible to all stakeholders equally. They do acknowledge that the meetings with all involved stakeholders were fruitful in hashing out a concrete plan of action for the children, however.	- This was found to be a relatively slow method of learning, as compared to the Level-based model wherein training were intensive. - Parents had to travel back and forth from the center with their children every Saturday, which sometimes posed logistical difficulties.	- For most people, transit was long, and travel-fatigue built up in the course of the vacation training. - The logistics of a time commitment of this magnitude was difficult on some parents and their children, especially those living in joint families. Parents unanimously felt that all of these challenges were worth it, though, in light of their children's rapid development and growing independence.

Intervention Model	**Model 1: Home-based Trainings**	**Model 1: School-based Trainings**	**Model 1: Weekly XRCVC-based Trainings**	**Model 2: Group-based Level-wise Trainings**
Key highlights	- Parents found the special educator's visits a comfort and a relief in their own coping process as well.	- Parents found this logistically more convenient since they didn't have to transport their children both ways for the training. Children only had to be picked up from school a little while after school got over.	- Parents benefited from the group setup of the weekly training as they observed different students performing the same tasks in multiple different ways that worked for them. Group-based activities also encouraged friendly competition and motivated students to complete their assigned work on time. - The beginning and end of year review was helpful since it laid out in concrete terms what special skills their children would be learning in the course of the coming months. The beginning-of-year meetings also ensured that parents had a hand in guiding their children's trajectory in the way of	- Parents expressed that these training lessened their own load, as students picked up skills and started doing more of their work independently. - They also found it easier to teach their children concepts after these training, since the children had gained the necessary conceptual base. - Parents still had concerns about their children's extracurricular inclusion, regardless of whether their children had intervention at school.

Intervention Model	Model 1: Home-based Trainings	Model 1: School-based Trainings	Model 1: Weekly XRCVC-based Trainings	Model 2: Group-based Level-wise Trainings
			format selection etc.	

Home-based Training:

25% of the parents in the sample had experienced the initial variant of the inclusive education model wherein students were trained in Nemeth and literary Braille at their homes. They reported finding this arrangement helpful and believed that it is easier on young children with disability to learn in an environment where they are already comfortable. This also precludes having to travel extensively by public transit with a young child with disability. These sessions were experienced as being fruitful in terms of the children's Math competencies. Additionally (and very importantly, according to the parents), these visits also provided them comfort and reassurance and helped allay their concerns about their children's schooling, at a time when they were just coming to terms with their child's blindness.

School-based Training:

37.5% of parents reported that special educators visited their children's school on a biweekly basis. Two-thirds of these parents believe that the visits were beneficial for both teachers and students – teachers learned ways to include children with blindness in school activities through discussions with special educators, and children learned adaptive behaviours and special skills because of these sessions. Additionally, parents believe that the IEP procedure enabled the teachers to make drawings, diagrams, question papers and other materials accessible to the children. One-third of the parents expressed the opinion that the IEP process was inconvenient for them at times, but that it was nevertheless perfectly effective. Parents' memories about the process are rather imprecise as concrete details go, but the general opinion is that it was moderately helpful.

Weekly XRCVC-based Training:

The same 37.5% of the parents who experienced the previous iteration report that their children attended weekly training at XRCVC wherein they also sat in. Parents talk about weekly training being very systematic and organised, and foundational to their children's skill development (the latter can be tentatively attributed to the children's formative ages at the time of the training, and/or the constancy of the training throughout the school year). Some parents also acknowledge that sitting in on these training was instrumental in equipping them with the skills to teach their children at home as required.

Parents also found the beginning and end of year reviews helpful in setting targets for skill learning and evaluating progress made. Furthermore, they received guidance and suggestions on what skills and formats to pursue, for example (Math in large print versus Math on the computer etc), that enabled them to understand the reasons behind what XRCVC was teaching their children and why.

Group-based Level-wise Training:

75% of the parents reported that their children received the level-based training from XRCVC. Parents unanimously found this helpful – one-third appreciated the wide variety of academic and non-academic skills taught to the children. A few others reported that the curriculum was rigorous and their children took a while to adapt. It ultimately prepared the children well, they felt, which made it easier for the parents and teachers to teach the child. A different one-third of the parents shared that their transit from home to the centre and back was very long, but simultaneously also acknowledge that it was well worth it to see their children making progress and becoming independent.

50% of the parents believed that these vacation training were much faster in imparting skills to children, and the daily practising that these training entailed made children progress more quickly in the skills they were learning. In the context of the former, the one parent who contrasted this with the weekly training mentioned previously believed that whereas weekly training allowed the children to work at their own pace over a longer period of time, this method was faster, if the child could keep up with the pace and practise on their own later. Parents also felt that the daily vacation training allowed teachers to evaluate the students progress better, as opposed to spacing the training out through the year, which would create a sense of discontinuity.

The pandemic necessitated a complete shift to online training. Below is a list of some prominent responses to the online training:

1. Travel fatigue was eliminated, so children did better in the online training as compared to the offline ones.
2. The online mode sometimes necessitated help from parents, and more explicit directions/descriptions from the special educators since hands-on demonstrations of the material being explained weren't possible.
3. The online training that the children had received prior to the pandemic (graphing, doing Math on computer, etc) prepared them well to transition smoothly to online education when it was necessitated.
4. Training sessions took place as expected, despite logistical, hardware or internet issues.
5. A few parents felt that offline training was better, whereas a few others felt that it made no difference whatsoever if children were working majorly on computer skills anyway.

General attitudes towards inclusion:

Parents invariably report liking the skills their children have gained over time (academic and otherwise), both from training and as a general consequence of growing up with support. Simultaneously, they express satisfaction with the way their children's school teachers and management have been accommodative. 75% of the parents expressed both these ideas together, citing them as being equally important in the process of inclusive education. 37.5% of the parents (who's children have had intervention at school) talk about school teachers as being trained and therefore equipped to provide appropriate support to their children. Another 37.5% (whose children have not had school intervention of any sort) talk about school support in terms of teachers being "cooperative", which very likely stems from their experiences doing parental advocacy with teachers and the management themselves, in the absence of professional intervention. A different but overlapping 50% express appreciation for the training and all-round support that they got from XRCVC that enabled their children to function well in the inclusive school environment. The following is a list

of commonly-expressed ideas about what parents believe is working well in the current inclusive education setup:

1. 50% of the parents listed more than one stakeholders' contributions as working well – the most common combination in this context is the XRCVC and the school working simultaneously to facilitate inclusion of children. This opinion cut across the school intervention divide.
2. An overlapping 50% of the parents shared that technology has drastically improved the process of inclusive education for their children. One parent believes that computer skills also help children keep up with their peers and not miss out on the digital world.
3. 75% of the parents appreciate the school for cooperating with and making accommodations for their children in various ways – by allowing them to bring their preferred assistive devices to school, by making required accommodations during exams etc.

On the flipside, difficulty with various aspects of Math is one commonality that emerges in the list of things that parents have concerns about with regard to their children's inclusive school process. The variety in the responses in this context can be attributed to children's individual preferences and aptitude (both for Math as a subject and for affiliated special skills). Some parents report that their children face difficulty keeping track of what they have written when transitioning from doing Math on the Brailler to doing it on the laptop. Other parents speak of Math becoming easier for both their child and their teachers after the transition to the laptop. Other responses include concerns about mobility and how to make children independent enough for them to travel where they need to on their own, and extracurricular inclusion at school. 37.5% of parents report that their child's inclusive school process is going well, and that they have no concerns as such. Interestingly, parents who have experienced the most robust interventions in their children's school are not among this number. On being asked for suggestions on possible improvements that could be made in the system, parents shared the following:

1. Educational boards should have a standardised disability accommodations policy in place, such that individual students or their allies shouldn't have to correspond extensively with the authorities to put their preferred accommodations in place for children's exams.
2. Teachers should be more verbally specific when they teach, which can be accomplished by ensuring the teachers are trained in how to work with students with disability.
3. Parents find it difficult to help their children study if they encounter doubts during holidays or after work hours, when XRCVC is unavailable for consultation. This is especially the case with parents who report not completely being able to meet their children's educational needs by themselves.
4. Children should be put in contact with mentors with blindness in different fields so they have an idea of what other people have done in their chosen careers, just as sighted children have mentors and examples to emulate in their vicinity.
5. Inclusivity and Accessibility should be made part of the criteria on which schools are ranked, to incentivise schools to develop better awareness and make efforts to include children with disability.
6. More work could be done on children's mobility, to teach them and reinforce correct and safe techniques for navigation until they become competent. Mobility should also be taught in places where students will be navigating, to be more effective.

Academic inclusion:

There was a wide spectrum of responses from parents about the academic preparedness of their children and their inclusion at school. School intervention as well as student training, when implemented simultaneously, elicited the most positive reported responses about academic inclusion. The amount of student training seems to be a stronger determining factor as compared to the degree of school intervention – the presence of self-advocacy and parental advocacy in addition to student skills (in the context of partial school intervention) reportedly suffices, but keeping up with class expectations especially in the STEM subjects appears to be difficult without proper skill training, even when school intervention is robust.

Among the parents who do not have intervention in their children's schools, academic inclusion is in some aspects not a given but is negotiated for through advocacy. 37.5% of the parents report having issues like the following:

1. The child had trouble understanding concepts in the online mode of schooling, the teachers weren't aware of the child's blindness, and teachers being new weren't even familiar with the pedagogical changes they needed to make to ensure that their class was accessible for the child.
2. Parents needed to talk to teachers at the beginning of each academic year to apprise them of the situation and request for accommodations. This is especially the case with Maths teachers, who needed a more comprehensive idea about the child's method of functioning (Braille or computer) and information about the required accommodations for Maths.
3. The child is cursorily included in class, but has to consistently advocate for themselves to be more functionally included in terms of knowing what the teacher is demonstrating/asking the teacher to read out what is written on the board etc.

Extracurricular inclusion:

Parents who have had intervention in their children's schools report more positive experiences of their children being included in extracurricular activities like music, art (through tactile drawings), dance (with teacher training), specific sports etc. In other cases, parents report that their children participate in elocution, recitation, PT, chess etc to different degrees, which is contingent on the school's willingness to work on inclusion beyond academics. Both sets of parents still feel, however, that extracurricular inclusion could be more robust than what it is now.

Social inclusion:

Parents' responses again reiterate part of the pattern seen in the students' responses, wherein both gender and degree of self-advocacy by the student appear to be factors that impact students' perceived social inclusion. Three-fourths of the parents of male children in the sample report that their children are fairly social and make friends easily whereas only one-third of the parents of female children report the same. Overall, most parents who have positive responses to share regarding social inclusion also report that their children self-advocate at school, suggesting that self-advocacy correlates moderately well with social inclusion, as mentioned and dwelt on in the previous chapter.

Parents' perception of children's O&M skills:

Parents' responses corroborate the gendered experience of independent mobility reported by the students, wherein girls are much less likely to want to, or be allowed to, independently navigate around the school premises. The latter is also experienced by the younger boys, as reported by their parents. Parents who shared that their children are independently mobile at school (overwhelmingly older boys) report that their children tend to forego using the cane at school once they are familiar enough with the layout.

Parents' competencies:

62.5% of the parents report having no problems at all coping with their children's educational needs at home. Among this number, 60% attribute their preparedness to the fact that they sat in on XRCVC training, and therefore know precisely how their children work and how they as parents can help. A different but overlapping 60% of them are graduates and the other 40% are postgraduates. The postgraduates all report being fairly competent with the technology their children use, the methods to make textbooks, diagrams and geometry accessible to their children, all of which they do at home when need be. These are also parents who's children have full intervention at school.

Among the graduates, a few parents report being well-equipped in the ways described above, others do not create accessible material themselves but can work with existing material to reinforce and facilitate learning at home. The remaining 37.5% are either graduates or have completed high school, and they report being able to partially meet their children's educational needs by themselves. Two-thirds of this number have also supplemented their child's school education with tuition classes and assistance from other organisations working for the blind and/or volunteer like NAB or the Snehankit helpline.

Support from stakeholders:

Teachers: The presence and degree of intervention in school appears to directly impact how accommodative teachers are. Parents talk about their children's teachers as being "aware" in instances where there has been school intervention, wherein awareness encompasses knowing how and when to assist children, and know-how about children's modes of functioning in terms of special skills, to some extent. 62.5% of parents report that their children receive good support from their teachers, and among this number, 80% have school intervention in place. The other 20% have a team of councillors who are already equipped to accommodate students with disability.

The remaining 37.5% facilitate inclusion for their children through their own and the children's advocacy and report some variant of the idea that accommodation happens when they negotiate for it, and is not a given in all circumstances. Some parents have found teachers to be less supportive online since there is a communication gap, and they do not rightly understand what the student with blindness needs, while others feel that inclusion happens on the surface, in that teachers have the same expectations for their students with and without sight without accounting for the student blindness's modes of functioning/other logistical constraints.

School management: Parents unanimously report finding the management of their children's school cooperative and helpful, regardless of intervention. Some parents have had to negotiate for permissions to be granted (eg. Permission for the child to bring the laptop to school etc.), others have realised that the management is generally willing to accommodate so long as the school isn't

inconvenienced/asked to change their functioning in any significant way in the process. In the case of the two schools that have had intervention, the management has been prima facie willing to admit, accommodate and educate children with disability. But allowing for and accepting intervention from XRCVC was still a significant step, parents felt, even though intervention in this regard was in line with the management's core values.

Special educators: Parents expressed overwhelmingly positive opinions about the special educators, and about the stellar support that they and their children have received from them. Many parents (62.5%) attribute their children's development, current independence and general competence to the special educators at XRCVC. Commonly expressed opinions include, but are not limited to the following: the special educators' attention to minute details was highly appreciable, their approachability, and efficient and timely response to questions/problems was very helpful, their professionalism and systematic way of designing and conducting the training sets them apart from other organisations working for the blind, and parents feel that these unique qualities enabled their children to be trained in a way that facilitated their holistic development.

Chapter 5: Teachers Speak

From the teachers' responses, it appears that the teachers' age, years of teaching experience, prior experience/interaction with persons with disability, and the subject they teach, in addition to the kinds of intervention they have had experience with, all emerge as significant factors that impact how they view and implement inclusion in their classrooms. The table below summarises the teachers' reception of the various iterations of the two models. A qualitative analysis follows the tabulated summary, focusing on the teachers' experience with the interventions, their take on inclusion, and their own role as facilitators of inclusion in their classrooms. The abovementioned determining factors have been presented in more detail in the analysis.

Intervention Model	**Model 1: Home-based Trainings**	**Model 1: School-based Trainings**	**Model 1: Weekly XRCVC-based Trainings**	**Model 2: Group-based Level-wise Trainings**
What worked	N/A	- Teachers received concrete suggestions and ideas from visiting special educators on how to make their classroom more inclusive for VI students. - Teachers found this arrangement convenient as they could get their questions answered since special educators and teachers would hold meetings at the end of the school day.	- Teachers were provided inservice support, which involved special educators occasionally sitting in on classes to provide the teacher constructive criticism and individual feedback aimed at facilitating and streamlining the VI student's full inclusion in class. - Teachers report gaining confidence in the course of this process, as they figured out ways to adapt their teaching pedagogy to a disability-inclusive class.	- As teachers grew more confident and comfortable with the idea of including VI students in their classes (either through firsthand experience teaching VI students or by interacting with colleagues with firsthand experience), the special educators visiting school only once a month was felt to be a better strategy. - The monthly conference calls were felt to be a better substitute to the lesson plans and implementation reports, and teachers report that the calls were especially helpful for teachers teaching STEM

Intervention Model	**Model 1: Home-based Trainings**	**Model 1: School-based Trainings**	**Model 1: Weekly XRCVC-based Trainings**	**Model 2: Group-based Level-wise Trainings**
				subjects or those who were new to the inclusive education process.
What did not work	N/A	- Teachers found the IEP a confusing process, and their memories of the process are rather imprecise. The weekly meetings were perceived as more meaningful and helpful in comparison. - Although the primary teachers found the training workshops helpful, they wished that training could have been longer/recurrent, to enable them to develop a better understanding of things like Braille, since students were young at the time and teachers needed to make more proactive accommodations to ensure their inclusion in class.	- Teachers found the process of submitting regular lesson plans and implementation reports rather cumbersome. They felt that the same content being discussed on the conference calls would be a more efficacious method since teachers could benefit from listening to each others problems and solutions.	- Teachers found the scheduling of the conference calls inconvenient. They express the opinion that it is difficult to give their best in the conference call at the end of the school day when they are all drained and have long commutes ahead of them. - They also believe that conference calls, being virtual by definition, could be more flexibly conducted, and that teachers should not have to sit together in person in the school premises to participate in them.
Key highlights	N/A	- This enabled teachers and special educators to be on the same page with respect to the VI student, which made proper inclusion of the student easier.	- This arrangement made requesting for and receiving TLAs very convenient, not to mention that teachers got prompt and helpful suggestions on	- Inservice during the monthly school visits not only provided teachers inputs on academic matters, but special educators also flagged behavioural

Intervention Model	Model 1: Home-based Trainings	Model 1: School-based Trainings	Model 1: Weekly XRCVC-based Trainings	Model 2: Group-based Level-wise Trainings
		- This kind of frequent contact between the teachers and special educators made it easy for the teachers to gain access to a variety of accessible TLAs.	possible TLAs they could use after class observations. Teachers could put in requests in advance, and the TLAs would reach the school either with the student on Mondays after their XRCVC-based Saturday training or with the special educators visiting school to provide in-service.	issues to the teachers, like if students were trying to take advantage of the situation etc. Additionally, they suggested appropriate ways of responding to the situation.

School-based Training:

37% of the teachers from the school with full intervention experienced the biweekly school visits by special educators. All of them stated that the biweekly visits were productive, and two-thirds also mention that the special educator observing class to provide constructive feedback and suggestions to both the teacher and the VI student was a strategy that worked particularly well. Feedback and suggestions based on class observations, according to teachers, made teaching VI students easier and more effective. Another opinion expressed was that the teachers and special educators working together made things easier for the students. The school-based training was not implemented in the school with the beginning-of-year intervention.

Half of the teachers from the school with full intervention reported having experience with the Individualised Education Plan (IEP) implemented in this iteration of the model. Responses to this particular strategy were remarkably vague, even allowing for the long intervening time between the implementation of the IEP system and now. Most teachers didn't retain a clear-cut idea of what this entailed, and they consequently couldn't provide very focused feedback on it. However, teachers associate the IEP with planning for the entire term and putting in requests for accessible materials (embossed textbooks, tactile diagrams, etc.) to ensure that VI students have relevant study material on time, as their sighted counterparts do.

Weekly XRCVC-based Training:

All teachers in the sample attended the Inclusive education training organised by XRCVC, and they unanimously report finding the training especially helpful as it is scheduled right before they start teaching a VI student. On a slightly different note, 50% of the teachers in the sample from the school with full intervention report having experience with the lesson plans and

implementation reports introduced in this iteration of the model. Whilst most of them feel that they were broadly helpful in arranging necessary resources on time, one-fourth of the teachers felt that this same activity is carried out to better effect in the conference calls. It is helpful for all teachers, they believe, if every teacher's experience, and the consequent feedback is collectively discussed on the conference call, as opposed to teachers individually writing implementation reports. Teachers who have not written implementation reports have also heard about it from their colleagues who have, and frequently express the opinion that the current conference call system is preferable to the written reports.

Group-based Level-wise Training:

87% of the teachers from the school with full intervention had experience with the strategies implemented as part of this iteration. Different teachers emphasis different things that were accomplished through this: class observations yielded helpful pedagogical as well as behavioural suggestions, requests for materials could be made in person, troubleshooting and problem-solving could take place effectively, and communication was maintained well (especially after the implementation reports were discontinued), etc.

In the context of the monthly conference calls, one-fourth of the teachers mentioned that they found the calls logistically inconvenient, especially as the teachers had to stay back after school hours to participate in the call despite it being remote in nature. Some of them had long commutes ahead of them, because of which they found staying back inconvenient. The fatigue at the end of the school day also hinders full and energetic participation, some teachers felt. A common suggestion that came up in this regard is to try holding the calls remotely at another time, perhaps on Saturdays. Having said this, most teachers find the calls useful and interesting, since there is always something new to learn from listening to their colleagues' concerns/issues and the responses, suggestions and solutions that come up. A few teachers who have been teaching VI students for a while feel that the calls are not especially relevant to them, since they do not encounter problems very often.

General attitudes towards inclusion:

It appears that with very few exceptions, teachers who have had the least amount of prior interaction or experience with persons with disability before teaching their first VI student (45% in the current sample) have tended to develop comparatively more positive and nuanced ways of viewing inclusion. One major exception is a teacher who has been facilitating the inclusion of students with special educational needs (SEN) since before the XRCVC started engaging with the school. It then appears that experience with disability is a spectrum, wherein the two extremes ("no experience", and "significant experience") corelate better with positive attitudes towards inclusion, and that the middle of the spectrum that represents "some experience" is treacherous terrain, perhaps because superficial experience with disability can translate into incomplete information, that can potentially lead to misconceptions.

Teachers on the younger end of the age scale who experienced intervention near the beginning of their teaching careers tended to take a more expansive view of inclusive education, wherein the responsibility and impetus to make inclusion work is distributed more broadly amongst all stakeholders, rather than being the sole province of the student with disability and the stakeholders most closely affiliated with them. Aside from this, a majority of teachers made mention of, and held,

equal treatment and equality of opportunity as fundamental tenets of inclusive education. While a small minority of teachers (who taught primary school students and additionally had the longest general teaching experience) expressed their unwavering support towards making inclusive education work in their classrooms, they also spoke of the restrictions posed by inclusive education, and reported that acceptance had been a slow process for them. This trend could be variously attributed to one or more of the following:

1. The student with disability being relatively young might need more specialised attention or more significant pedagogical adaptations on the part of the teacher to enable full participation.
2. SwVI who were part of this study have worked with Braille all through primary school, which likely creates a reverse-access barrier for the teacher wherein she does not have instantaneous access to the student's work during class. This would necessitate the teacher to devise and institute workarounds, which can potentially be perceived as challenging/restrictive.
3. The teachers' longer work experience could translate into more required unlearning, or alternatively, this might mean that the teacher needs to put in more concerted effort to change her preferred pedagogy to make it more accessible.

A definite trend emerged in the matter of practicability of inclusive education, wherein Math and Science teachers, and primary school teachers reported more challenges and simultaneously more frequent communication with the XRCVC to seek suggestions on how to address those challenges. Teachers teaching languages or the Social Sciences unanimously reported that they found including students with visual impairment practical. They just needed to remember they had a SwVI in class, and that they had to be more verbally descriptive in their teaching.

A sizable percentage of teachers identified cooperation between the stakeholders as one of the things that are working well in the current inclusive education process. This was expressed in different ways – 36% talk about this directly, using words like "cooperation", "teamwork" etc. A larger percentage of teachers (54%) identify one or more stakeholders' contributions as vital to the process of inclusion. Half of the teachers in this group mention the constant presence of parental support as being an important factor, and two-thirds of the teachers point out that guidance and support from XRCVC was helpful, and that it enabled quick and efficient problem-solving. VI students being able to mingle well with their sighted peers was also flagged as one of the things working well, as was the matter of classmates without disability gaining perspective on the idea of diversity and learning to cooperate with their peers with disability. 18% of the teachers further identified technological support (accessible textbooks, screen readers) as being game-changers in the process of inclusive education.

The best part of having an inclusive schooling setup, according to54% of the teachers, is that students with disability get the opportunity to experience school the same way as other students do, and acquire necessary academic and social skills that would be useful in later life. A significant number of teachers who expressed this idea actually articulate it in reverse, by saying that inclusive education ensures that students with disability do not feel left out or deprived just because of their disability. Apart from this, 36% of teachers (there is slight overlap between these two groups) measure the pros of inclusion in more expansive terms, wherein they view inclusion as also being instrumental in inculcating (among peers without disability and teachers alike) the values of interdependence and coexistence, and an understanding of disability as diversity grounded in real-world experience. A different 18% of teachers reported that they felt no different operating in an inclusive setup.

With respect to the challenges reported while implementing inclusive education, 18% of the teachers found that VI students doing their reading and writing in class called for some synchronizing and troubleshooting. Getting students to locate something in their eBook, and the student taking down dictated notes in Braille took time, which would affect the pace of the class. On a slightly different note, one-third of the primary school teachers find teaching Math to VI students to be a challenge. Another 18% of teachers encountered challenges but were able to resolve them in a timely manner, either in consultation with the XRCVC (more often in the case of STEM teachers), or through DIY methods. 27% of the teachers also point out that the success of inclusive education is contingent on the right kind of support being available to the teachers, and if this is not the case, inclusive education is liable to collapse as a system. The remaining 27% of teachers report experiencing no challenges whatsoever. These are all teachers who teach language subjects and social sciences.

The following are suggestions for improvements in the current inclusive education system, as shared by the teachers:

1. The inclusion of VI students in extracurricular activities must be addressed, by making the activities themselves accessible in consultation with XRCVC, or by training the concerned teachers so that they can ensure that their curriculum is accessible. The matter of VI students' participation and inclusion in group projects could also be examined further to gain more insight into some teachers' reports of low student participation.
2. Attempts should be made to include VI students more effectively during educational field trips, and as much of the observational aspect of the trip as is possible should be made accessible to them by bringing in methods like touch-tourism, audio description etc. to educational spaces.
3. Teacher's report being wary of chastisement if they talk about problems or difficulties they encounter in class. Avenues could be explored to make problem-solving a more congenial process for everybody involved.
4. Attitudinal barriers are also identified as hindrances to the success of inclusive education. Holding longer training programs for teachers is one suggestion that was made by a few teachers in this context, and so was the idea of organizing general awareness programs that would benefit children with disability, their allies, and the society at large.
5. Teachers from the school with partial intervention consistently express the opinion that intervention in the form of providing accessible study material, teacher training etc. would be best if it were started as early as possible in the students' inclusive education journey.
6. Other suggestions were wider in scope, such as providing intervention to a larger number of schools and students, advocating for a concrete inclusive education policy that could be centrally implemented, etc.

Perceived impact of the XRCVC intervention:

Attitudinal impact: The impact of the XRCVC's intervention strategies seems to be widely experienced along two dimensions: attitudinal change towards disability In general and visual impairment in particular, and change in opinion brought about by training and recommended pedagogical techniques that help make inclusion practically applicable. While the former was reported by most teachers, the latter was frequently reported by STEM and primary teachers. What was fascinating was that the latter was also reported by all teachers (regardless of subject) from the school with only beginning-of-year intervention. attitudinal change is a slower, more gradual process enabled by constant engagement, and one possible explanation for this might be that the few days of teacher

training (which is the only intervention implemented by XRCVC in this particular school) likely didn't allow for adequate time to facilitate this process.

Awareness: All teachers in the sample know broadly about the special skills their students make use of in the classroom (eg. Screen readers on the laptop or Brailling on a Perkins-style Brailler). Primary school teachers, and STEM teachers in particular report keeping pace with the special skill landscape and with the support that their VI students receive in this context from XRCVC, presumably because both these situations involve more individual attention to the VI student. This is made easier if the teacher is familiar with the students' mode of functioning, as special skills go. Better familiarity with special skills, and individual attention to the VI student very likely also mutually reinforce each other.

Impact of "I for Inclusion" workshops: Most teachers found the inclusive education training helpful in terms of learning to deal with VI students in class, and learning to convey concepts and ideas in an accessible manner. The latter opinion was more often expressed by primary and STEM teachers, for whom explaining concepts entails a more proactive role for the teacher since verbal descriptions alone sometimes may not suffice. Interestingly, 45% of the teachers reported having gained more than just the skills to address VI students' academic needs – they talk about learning to see things from the student with blindness's perspective, understanding how to generally conduct oneself around people with blindness, and recognising that VI students aren't any different from other students. 9% of the teachers (who, it must be noted, are very familiar with students with disability through long engagement with them), express the view that the training were a little too general in nature, and suggest that training should have been more squarely (and exclusively) focused on addressing VI students' academic needs. 27% of the teachers expressed the opinion that the way the training have been carried out has been perfect and that they have no suggestions to make, as improvements go. What follows is a list of suggestions that the other teachers have made:

1. 18% of teachers suggest that accessibility and inclusion in the area of extracurricular activities also needs to be systematically addressed. As things stand, students often do not or aren't able to participate on equal terms with their sighted counterparts in activities like arts and crafts, sports, field trips, etc.
2. All primary school teachers who participated in the study expressed some variant of the idea that they would have liked more time to familiarise themselves with Braille. Teachers report that they sometimes find it difficult to work with VI students because they themselves aren't fluent with Braille.
3. 18% of the teachers feel that the duration of training should be longer than it currently is, since it is difficult to effectively grasp and assimilate the barrage of new information in one or two days.
4. Two-thirds of the teachers from the school with beginning-of-year intervention express the opinion that their experience with inclusive education could have been better if they had been trained in accessibility techniques much earlier, when they first started teaching VI students. Speaking more generally, they also believe that training at the primary level would have been mutually beneficial for teachers as well as students.
5. One teacher mentioned that it would have been helpful if the training had included information about provisions from the board for different subjects like alternate text-based questions in lieu of map work for the social sciences. A science teacher also suggested that training should additionally address inclusion of VI students in the science lab, and discuss assistive technology options that might be helpful in this context.

Teachers' class expectations from VI students:

63% of the teachers reported that they have the same expectations from their VI students in class as they do from their other nonstudents with disability. In the course of implementing the XRCVC inclusive education model, this has been seen to positively affect learning outcomes for VI students. There are no significant correlations between teachers' class expectations, the amount of intervention in schools, or indeed any other factors identified herein. Among the 63% teachers who have similar educational expectations from their VI and sighted students, 28% have a more nuanced understanding of this, wherein having the same expectations does not translate into perceived homogeneity. Instead, their expectations are contingent on the students' individual academic interests, and they employ different approaches that take cognizance of students' individual differences. An overlapping 27% of teachers in the sample additionally articulate the expectation that their students should perform in ways that ensure they keep up with the class – to speak up when they have doubts, or to read, write and comprehend at the same pace as other students. A different 18% of teachers consider VI students quicker or above other sighted students in class, and expect them to "do more and more", as one teacher puts it.

Chapter 6: Special Educators Speak

From the special educators' responses, it appears that they unanimously find Model 2 (the Xavier's Inclusive Education Support Program) to be definitively more streamlined and context appropriate. This chapter provides a unique insight into the rationale behind the trajectory of the Inclusive Education Project.

Intervention Model	**Model 1: Home-based Trainings**	**Model 1: School-based Trainings**	**Model 1: Weekly XRCVC-based Trainings**	**Model 2: Group-based Level-wise Trainings**
What worked	- This model introduced students to STEM-specific special skills. - Students received Brailled sections of their Math books, to encourage Braille reading-writing.	- Students were trained in STEM as well as non-STEM special skills during biweekly visits at school. - The IEP document gave the training a concrete structure, and ensured equal stakeholder participation by allocating responsibilities and areas of teaching (content, behaviour, special skills, etc) to all involved stakeholders. - The first training workshop familiarised teachers with the students' mode of functioning, which enabled them to encourage students' special skill	- Students coming to XRCVC weekly meant that XRCVC's entire library of materials (books, TDs, TLAs etc) was handy and convenient to draw from whenever needed. - Teachers submitting lesson plans and implementation reports was helpful since in the process they systematically worked out accessible teaching solutions on a weekly basis. - Travel on the part of special educators was eliminated.	- The level framework made this model more structured, consistent (in its inputs and outcomes), and duplicatable than it had been since the time of the IEP. - The implementation report format changed to a checklist, and it was then merged with the conference calls for teachers' convenience. The conference call method made it easy to ensure teachers' commitment as well.

Intervention Model	**Model 1: Home-based Trainings**	**Model 1: School-based Trainings**	**Model 1: Weekly XRCVC-based Trainings**	**Model 2: Group-based Level-wise Trainings**
		practise in class. - Teachers and parents being explained the rules of spatial Math for the blind helped in maintaining consistency in the stakeholders' modes of explaining concepts to students.		
What didn't work	- The special educator travelling to students' homes was resource-intensive. - Students didn't possess the prerequisite skills to make STEM-specific special skill training viable.	- The IEP process was extremely time-consuming, and its structured nature hindered efficiency. - The special educators travelling back and forth from students' school on a biweekly basis was resource-intensive. - Carrying TLAs back and forth from school was logistically challenging as well.	- Continuity was difficult to maintain, since there was always a week's time between training. - This was compounded if students missed out on sessions. - The lesson plans and implementation reports appeared to be a challenge to teachers, who found this arrangement inconvenient.	- Sessions were quite rigorous and exhaustive for both teachers and students. - The model could do with more documentation in terms of micro-structure. It is still personnel-dependent in its implementation, to an extent. - Students miss out on leisure time entirely during their vacations.
Key highlights	- This arrangement completely individualised training as	- This arrangement linked special skill training with the	- This arrangement was essentially individual in approach,	- This system made much more efficient use of material and human

Intervention Model	Model 1: Home-based Trainings	Model 1: School-based Trainings	Model 1: Weekly XRCVC-based Trainings	Model 2: Group-based Level-wise Trainings
	per the student's pace and degree of prior knowledge.	content being taught at school throughout the week, as a result of the IEP. This lent the training some structure, and bridged the gap between special skills and their practical application in the school/home environment.	despite their being a small group of students coming in for Saturday training. Students' special skills training would be determined by their grade level requirements i.e. different students might be taught different skills in the same training session. - Implementation of this system revealed that there was some overlap in special skills for students, which suggested the possibility of drawing up special skills curriculums for students.	resources since skills were grouped into a structured curriculum and students were grouped into levels. Group-based training enabled the project to extend support to a larger number of students.

Home-based Training:

As mentioned above, the home-based STEM special skill training was found to be unsuitable in the context of students' prior knowledge and needs at the time of the training, in addition to also posing a viability challenge for the special educators. It wasn't possible to teach STEM special skills in the absence of prerequisite skills like age-appropriate literary Braille proficiency,, and in the absence of accessible textbooks. 33% of the special educators in the sample have experience with this itinerant-teacher model of teaching, and they strongly believe that the lack of accessible Math textbooks and lack of age-appropriate background special skills at the time placed VI students at a disadvantage since they couldn't do the requisite amount of practising of sums as their peers. Lower-level Math (Math in primary school) is predominantly practise-based. Therefore, students' lack of facility with Braille as compared to their peers facility with pen and paper, and lack of accessible textbooks for independent

practise meant that students would keep underperforming in Math as long as both these factors weren't addressed, special educators believed.

School-based Training:

66% of the special educators in the sample had experience with this iteration of the model, wherein teachers visited students' school on a biweekly basis to impart STEM as well as non-STEM special skills. This training was more structured than the previous iteration, in that special skills were linked up with the content being taught to the student every week. Additionally, the IEP document being drawn up did provide much-needed structure and concreteness to the entire inclusive education process since it was a formalised document to which all stakeholders were signatories. This process sought accountability from all stakeholders involved; it demarcated every stakeholders' domains of responsibility. The "I for Inclusion" workshop definitely helped, all special educators agreed, as it ensured teachers' cooperation in reinforcing students' special skills in the classroom, and the fact that teachers learned something new in the process was a bonus,, as one special educator put it. However, special educators frequently travelling to and from school was expensive, and carrying TLAs to school for these visits only made things more difficult. In addition, the IEP system, originally designed with itinerant teachers in mind, didn't work so well with special educators who were all affiliated with a center, since too many members of staff were involved with providing support to a relatively small number of students. This translated into inefficient use of resources. The formal IEP was therefore discontinued, and a different system was called for.

Weekly XRCVC-based Training:

This iteration streamlined training insofar as venue and timings were concerned, since training were conducted on a weekly basis every Saturday at XRCVC. Special educators explained this model as a variation on the IEP structure, in that some essential aspects of the structure were retained minus the paperwork and formalisation. Special educators still individualised the training, contingent on the students' grade level, proficiency etc. On the school side, special educators introduced the lesson plans and implemented reports format for teachers, which would formally impel them to factor accessibility into their usual lesson plans, and to then report on how the accessibility additions had panned out.

However, this model introduced problems of continuity, since sessions were held once weekly. This would be compounded if students missed out on sessions. It was also unanimously felt, while doing individual training for a small group of students together, that there was a noticeable overlap in special skills, which suggested that it might be possible to design special skills curriculums for students of different grade levels.

Group-based level-wise Training:

66% of the special educators were part of the XRCVC inclusive education project during the transition from Model 1 (variants of the IEP system) to Model 2 (The Xavier's Inclusive Education Support Program). These special educators believe that the group-based level-wise training that characterised the XIESP bore striking conceptual resemblance to the IEP process in two significant ways: the XIESP is structured and individualistic in nature, and that its scope of functioning is holistic. It is individualistic in the context of the format selection process and the beginning and end of year reviews that happen with each individual student and parent, and it is structured since students and skills are systematically grouped into levels, with set goals, expectations, and implementation strategies (eg. Monthly follow-

ups). The XIESP is also holistic in scope, since the categories of special skills taught in the level framework are both academic (eg. Math on computer) and non-academic (eg. Activities of Daily Living).

Where the XIESP differs from the IEP process is in its degree of structure, and the methodology. The differences, as the special educators point out, can be attributed to the differences in context between the US (where the IEP system first originated) and India, as well as the differences in the kind of special education teachers facilitating the two models (itinerant teachers in the IEP system, and special educators affiliated with a center in the XIESP). In the context of the former, availability of quality human resources, as well as the presence of suitable infrastructure and material resources (and/or the avenues to source these in an affordable manner) set the Indian context apart from some countries in the Global North which have the wherewithal to sustain the IEP system. Therefore, the structure of the XIESP model has been custom-designed in order to cater to the Indian context and bridge the gaps mentioned above i.e. The group-based training help facilitate more efficient use of material and human resources, and also support more students in the process. 33% of the special educators also commented on the dynamic nature of the XIESP system, in contrast to the relatively fixed nature of the IEP system.

Application-wise, the structured nature of this model made it more consistent in terms of inputs and outcomes, and therefore more duplicatable and less personnel-dependent. 33% felt that the documentation should include even more micro-structural detail, since the program is still a little personnel dependent. Priorities in the context of student training and teacher intervention need to be clearly defined and not assumed, respondents believed.

The 66% of special educators in the sample who had implemented both Model 1 and Model 2 found training in Model 2 more optimised and streamlined. However, vacation training were experienced as quite rigorous and exhaustive, because of the way in which training were scheduled. 33% of the respondents also concurred with the students that vacations being completely consumed in training is a matter of concern. However, these respondents also point out that at the end of the day, whether one likes it or not, the VI student does put in more time and effort into learning special skills to be holistically included at school. In this process, VI students miss out on cultural and incidental learning that their sighted counterparts pick up on during their vacations. That is a double-bind that special educators have found difficult to negotiate.

Attitudes towards inclusion:

All special educators in the sample expressed optimistic and positive attitudes towards inclusion. Two-thirds of them identified two primary factors that contribute to making the experience a good one for all stakeholders involved: material and human resources. Inasmuch as material resources – accessible textbooks, tactile diagrams, assistive technologies etc facilitate the inclusion of a SwVI in a mainstream school, quality stakeholder support (especially special educator support) is crucial to a smooth inclusion experience for all, special educators felt. Material and human resources are also naturally contingent on location (rural and urban), which is another factor that determines how inclusive education projects get implemented.

On the matter of practicability, special educators unanimously agreed that inclusive education is absolutely practical to implement. They collectively identified two major barriers to inclusion in the current scenario: lack of training, and lack of information and awareness. One-third believed that both of these barriers need to be simultaneously addressed, to pave the way forward for inclusion to

happen. This approach is reflected in all but the first iteration of the two XRCVC inclusive education models, wherein interventions targeted training (for teachers, parents, and students), and information and awareness (formally for teachers, and jointly with the training, for parents and students).

Among the things special educators report liking about the inclusive education program, student training, with its affiliated connotations of fostering independence, is reported by all special educators in the sample. Some emphasised the collective nature of the training that allow for a more complete utilisation of the available material and human resources, others focus on the strategy of centring the student and their school experience by ensuring that support was provided in as unintrusive a manner as possible (e.g., vacation training were conducted so students didn't require special skill training during the school year and could participate on equal terms with their peers). Other responses in this context included interventions with teachers, and the availability of required material resources.

Conversely, in the context of possible improvements, two-thirds of the respondents spotlighted the scheduling aspect of the training as a matter that could do with some consideration. 50% of these respondents focused on the student, wherein the idea of students missing out on their vacations was of concern since it deprived the student of their leisure time, and the affiliated cultural and incidental learning that their sighted peers experienced as part and parcel of their vacation. The other 50% focused on scheduling as a matter of concern for the special educators, in that conducting three 2-hour back-to-back sessions 5 days a week for 40 days was intensive and exhaustive for the special educators. This was especially relevant in the case of non-STEM specialists since more than 50% of the material to be covered in the training is non-STEM in nature.

Special educators in the school scenario:

In the context of involvement in students' schools, 66% of the special educators in the sample had experience advocating with teachers and school authorities and providing inservice support. All of these special educators concurred that the methodology of the school interventions was to be as unobtrusive in their practise as possible – conducting teacher training over the vacation, carrying out class observations without disturbing the class dynamic, etc. "The idea was for the special eds to make themselves redundant (as quickly as possible), and take themselves out of the picture", as one special educator put it. All training, information and awareness was provided to school authorities outside of school hours, or at least outside of the classroom, if the former proved logistically difficult. The priority was to make the students' inclusive experience as interference-free, seamless, and as equivalent to their sighted counterparts as was possible. The XRCVC's approach in this context was different from the shadow-teacher/resource room model widely followed in the west and increasingly even here in India.

Special educators' experiences with requesting accommodations in students' schools have been largely positive – 66% of the special educators report some variation of the idea that schools' willingness to accommodate is a logical extension of their willingness to engage with the VI students' needs and with XRCVC in the first place. In terms of willingness for engagement, two-thirds of the special educators agree that a top-down approach certainly helps i.e. the school management's attitudes towards inclusive education largely determine the teachers' willingness to engage and accommodate. Hence, according to special educators, it is generally easy to request for and receive accommodations from schools that have consented to engaged with XRCVC in terms of teacher training etc. 33% of the special educators emphasise the idea that accommodations eventually have to be self-advocated for, and that self-advocacy by the students is the most sure-fire way to ensure accommodations happen.

The current context:

Commenting on the adequacy of the resources available for inclusive education, special educators unanimously agreed that although it is possible to make inclusion work with the currently-available resources, it is an obvious and known fact that there just aren't enough dedicated material and human resources to make full-fledged inclusion happen. Resources for the education of VI students would admittedly cater to a minority market, as one special educator pointed out, but the current trend of hands-on learning/multisensory learning can also serve the VI student market if products are designed in line with UDL (universal design for learning) principles. Additionally, we as a country also confront a human resource crunch in the context of quality special educators. Talking about necessary resources for inclusive education, 33% of the respondents shared that skilled Braille-to-print transcriptionists who were also proficient with higher-level Math symbols would be a great addition to available resources. Apart from that, special educators shared that the following resources/preconditions needed to necessarily be available, for full-fledged inclusion to happen:

1. Accessible versions of all necessary educational material, equivalent to that enjoyed by the VI students' sighted peers.
2. Students' proficiency in special skills.
3. Adequate awareness in the students' environment.

Academic inclusion:

Special educators agreed that students are academically included in their schools. In the context of the students who had full intervention in their school, inclusion was also ensured by the special educators doing advocacy and awareness with teaching and non-teaching staff. 33% of the special educators shared that students haven't done lab activities at school as such, since a lot of them went into the higher grades when the pandemic hit. On the flipside, this is not an inclusion issue, since none of the students' peers have done lab activities either. On a slightly different note, another special educator shared that inclusion happens even without significant intervention, but the stakeholders need guidance since there often are disparities between what the VI student needs, and what the student's teachers/peers think the student needs. It optimises the VI students' inclusion experience if there is adequate awareness in the students' environment.

Extracurricular inclusion:

Special educators believe that students are generally included in extracurricular activities, but that the degree of inclusion corelates moderately well with the degree of intervention in students' schools. The school with full intervention, for example, works to include the VI students in their cultural and sports events. The extracurricular teachers of the school have been a part of the "I for Inclusion" workshop. However, training extracurricular teachers has been a challenge because the school outsources their extracurricular teachers, which means that teachers who receive training do not work at the same school on a permanent basis. Other schools (ones with beginning-of-year intervention) have also ensured the inclusion of VI students in their extracurricular activities.

Social inclusion:

66% of the special educators hold that personality, upbringing, family environment, etc are determining factors that guide students' social trajectories, beyond disability. Special educators did discuss socialising and social skills (eg. being an equal party in friendships, versus being a part of

utilitarian friendships etc) with the students. But like a group of sighted students' social trajectories, there are myriad differences between VI students social habits/preferences as well, as special educators shared.

Independence skills:

All special educators believe that the students were well equipped to navigate their school environment, for the most part. All students had received O&M training, and 66% of the special educators expressed the opinion that students did eventually make use of their O&M skills as they grew older, in most cases after a period of uncertainty. Even before the O&M training, students did negotiate mobility around their school, either independently as they grew familiar with the surroundings, or by being escorted by friends/non-teaching staff to wherever they wanted to go. Small awareness sessions with non-teaching staff also eased independent mobility for students, as they would then be allowed to navigate the school premises by themselves.

Chapter 7: Key Summary of Findings

Intervention Model	Model 1: Home-based Trainings	Model 1: School-based Trainings	Model 1: Weekly XRCVC-based Trainings	Model 2: Group-based Level-wise Trainings
Students	- Students learned STEM-specific skills in isolation. - However, they much preferred to receive training in the center where interaction with other special educators and peers was possible.	- Students found the interventions in this iteration equally helpful for themselves and for their teachers.	- Students liked training better in the center, and the parental reinforcement of skills and school intervention that were part of this iteration corelated highly with students' academic inclusion at school. - Students didn't like consistently missing out on half of their weekend holiday, however.	- Students associated independence, encouragement from working in a group setting, and feeling better prepared for school teaching after going through the level-based training with this arrangement. - The self-advocacy skills that they developed as part of the training also corelated well with receiving better support from teachers, and experiencing more satisfying social relationships. - Students disliked giving up their vacations for training, however.
Parents	- Parents believed Math intervention was crucial, and found this arrangemen	- Parents found this arrangement helpful in the development of their children, both in terms of skill learning and	- Parents found Saturday training very systematic, and through observation also learned how to work with their children on their	- Parents appreciated their children's growing independence as a result of the training, and found the monthly follow-

Intervention Model	**Model 1: Home-based Trainings**	**Model 1: School-based Trainings**	**Model 1: Weekly XRCVC-based Trainings**	**Model 2: Group-based Level-wise Trainings**
	t a help in their own coping process as well. - However, they felt that home-based training precluded access to TLAs etc for their children.	classroom conduct (the latter was applicable to their teachers as well). - However, parents couldn't comprehend all facets of the IEP process.	special skills at home. - However, in retrospect they found the weekly training rather slow in comparison with the vacation training, and reported that the weekly transit and time commitment was sometimes a challenge.	ups helpful as they inculcated discipline and accountability in their children. - They also felt that their workload lessened as a consequence of the children's growing independence. - Logistical difficulties around the time commitment persisted, but were considered surmountable by the parents.
Teachers	- n/a	- Teachers found weekly meetings and feedback from class observations more helpful than the IEP process, which they report not being able to completely grasp. - This arrangement was found helpful since they and the special educators were on the same page about the VI	- Teachers found the inservice support and constructive feedback from the special educators helpful, and expressed that the process of requesting for and receiving TLAs and TDs was easier in this arrangement. - However, they found the lesson plans and implementation reports cumbersome to work with.	- Secondary school teachers found the monthly school visit format convenient as they gained more experience and as the students gained in self-advocacy skills. - They also found the conference calls better than the lesson plans and implementation report method. - However, they felt that the calls could be

Intervention Model	Model 1: Home-based Trainings	Model 1: School-based Trainings	Model 1: Weekly XRCVC-based Trainings	Model 2: Group-based Level-wise Trainings
		students' education.		more conveniently scheduled.
Special educators	- Special educators discovered that it wasn't possible to teach STEM-specific special skills in the absence of prerequisite special skills. This arrangement also highlighted the importance of reading-writing for education.	- This arrangement linked special skill training with the content being taught at school throughout the week, the IEP system allocated responsibilities to each stakeholder, and this resulted in the reinforcement of students' special skills at school and at home. - However, the IEP was a time-consuming process and was not necessarily context-suitable.	- This system was logistically convenient, but still time-and resource-intensive, and essentially individual in nature. - The lesson plans and implementation reports that were part of the school intervention in this iteration formally impelled teachers to factor accessibility into their lesson plans and periodically assess its implementation.	- This system made much more efficient use of material and human resources since skills were grouped into a structured curriculum and students were grouped into levels. Group-based training enabled the project to extend support to a larger number of students. - The conference call format also ensured teachers' commitment to inclusion in a more congenial way.

Factors Affecting Inclusion: A Cross-stakeholder View

From the data collected from section 2 of the inclusive education questionnaire, a pattern emerges wherein the presence/absence of certain factors, structural or attitudinal, appear to impact the inclusive education experience of a majority of participants in each stakeholder group in consistent ways. In other words, certain factors seem to be experienced as important determining forces collectively by members of each stakeholder group. Among these, there are factors that are flagged on more than one stakeholder group's responses. It is these factors that need to be dwelt upon, to perhaps help determine priorities for successive interventions. The following is a list of such factors:

1. **Degree of school intervention:** Reading students' responses as a collective, having full XRCVC intervention in schools corelates highly with academic inclusion in the STEM subjects, inclusion in extracurricular activities, and reported teacher support. Parents' responses

corroborate and reinforce these corelations. Teachers' data maintains that school intervention should ideally be started as soon as the student starts school, and as early in the teachers' teaching career as possible for best results. Special educators' responses also highlight school intervention as a factor in academic and extracurricular inclusion, which aligns with the parents' and students' responses.

2. **Advocacy:** Drawing from the students' responses, self-advocacy by the students appears to corelate well with reported teacher support, as well as reported satisfactory social relationships at school. Students who engage in self-advocacy more often report satisfaction with their degree of involvement in facilitating inclusion for themselves at school. The parents' responses suggest that parental and student-driven advocacy (in the presence of proper special skill training) is a more important factor in facilitating inclusion than school intervention by the XRCVC. Inclusion of students in various activities (academics, extracurriculars etc) can be, and in fact is, often successfully facilitated through advocacy (parental as well as self-advocacy by the student), in the absence of formal school intervention.
3. A small minority of teacher responses suggest that the student advocating for themselves would make a difference in how well teachers can extend required support to the student. Special educators' responses also place emphasis on self-advocacy by the student and parent, the former more so since that is, according to them, the most sure-fire way to get required accommodations put in place.
4. **Parental support:** The students' responses suggest that parental support corelates highly with academic and STEM-subject inclusion, in the same way that school intervention does. Parental support and advocacy also corelate with reported teacher support (in the absence of school intervention), such that the minority of students who report scarcity of parental support also report scarcity of teacher support at school, resulting in a situation that calls for supplementary academic support outside of school and home. Students report requiring less parental support in situations where teacher support at school is present. The parents' responses seem to suggest that in situations where inclusion is enabled for children solely by parental and student-driven advocacy, a process of prioritisation often follows, wherein parents tend to advocate for students' inclusion in activities considered central to the school experience – academics, most often, and frequently must abandon advocacy for activities conventionally considered peripheral (extracurriculars, independent mobility, etc). A significant percentage of teachers identify parental support as instrumental in enabling the inclusive education process for students with disability. Parental support is fundamental to the proper special skill acquisition and inclusion experience of students, the special educators firmly believe, and this reflects in the evolution of the XRCVC inclusive education project wherein parents have consistently been tasked with reinforcing their children's special skills, as a part of almost every iteration of the two models.

Considering the abovementioned three factors in a collectivity, it therefore appears that stakeholder collaboration is at the heart of creating and sustaining a successful inclusive education experience for students, as well as for the other stakeholders involved. Additionally, it appears that these three factors also directly speak to the two major barriers to inclusive education identified by the special educators: lack of training, and lack of information and awareness. In the Indian context characterised by lack of human and material resources, the latter barrier of information and awareness (which is the progenitor of stakeholder support) is exponentially easier to address than the former. This study presents two data points that are relevant in this regard. The first is in the context of STEM-specific training, wherein data suggests that proper training in the absence of systematic organisational

intervention yields better reported outcomes than lack of training in the presence of full school intervention. The other data point suggests that students' access to training without proper stakeholder support and advocacy (i.e. parental support, and teachers' cooperation at school) also results in a lacklustre inclusion experience. The data obtained in this study is insufficient to perform a robust comparative analysis on the two factors - namely, training and resources, and stakeholder support and general confidence, and the relative impacts of the presence and absence of either or both in stakeholders' perceived sense of inclusion. Further implementation-focused research on this would be a truly useful path of enquiry, which could help guide the trajectory of the inclusive education effort in India in a way that is context-suitable.

Chapter 8: The Way Forward

The XRCVC inclusive education project has always been primarily necessity-and feedback-driven, as mentioned before, in that each iteration's shortcomings have translated into the next iteration's agendas. Therefore, the current iteration is, as a result of continuous evolution, well-nigh streamlined from all stakeholder perspectives. The following is a tabulated representation of a provisional model, incorporating changes suggested in the course of this study by all the stakeholders: VI students, their parents, teachers, and the special educators.

Intervention Model	**Model 2: Group-based Level-wise Training**
Description of Mode of Operation	Students to be divided into distinct batches of levels based on the level framework and trained according to a structured curriculum of special skills. The vacation training to be scheduled in a way as to ensure that training does not happen in consecutive years for any student.
Engagement with Student	- Students to be taught skills listed in the Level framework. - To be provided Braille/e-copies of their school textbooks. - Monthly follow-ups to be conducted for a year post skill training. -
Engagement with Teachers	- Certified training workshop to be longer in duration than it currently is, especially for primary school teachers, with more time set out for Braille awareness. - Inservice support and once a month school visit. - TDs and TLAs to be provided on request. - Con calls to be scheduled in a way to allow teachers to participate remotely.
Engagement with Parents	- Parents expected to sit in on training to learn by observation and accordingly reinforce skill learning at home. - Beginning and end of year review meetings to be conducted with parents.
Role of special educator	- Teaching students the aforementioned skills. - Liaising with the other stakeholders in the ways listed above. - Systematically advocating with schools and training teachers to facilitate students' extracurricular inclusion. - Working further on students' mobility to teach them correct and safe techniques to enable them to explore and independently navigate places of interest to them/orienting them to the aforementioned places, when practical.

Like any other human-centred model, the XRCVC inclusive education model is also a product of the social, professional, and technological context that it inhabits, and therefore can never be considered complete in and of itself. The model needs to be constantly aware of and respond to changing contexts and realities, and it has been doing just that by consistently demonstrating adaptability and willingness to change with changing circumstances/knowledge systems.

I have a question if you have answer to from the data which perhaps can be added if you have some data on it – Do we have anything that shows that absence of the actual training at student level but good school teachers, parents and advocacy will ensure inclusion? I mean between the two sets of

things – access to resources and training v/s teacher parent and self-confidence what is more crucial for inclusion?

This is the question that came to my mind when I read your way forward chapter. This is also an interesting question from perspective of India – where there are lack of training resources and if one must take a historical angle to comparison where training and resources were nothing and yet we have cases of successful inclusion from the past. If you have some data on this, you can add it. Or you can also add it as a question for further inquiry for future research.

Annexures

Annexure A: The format selection process: an outline

The format selection process, although naturally carried out from the start, was however formalised as part of the fourth model. Generally, primary school students are advised to work with hardcopy Braille, and secondary and high school students with more digital methods (like the laptop with screen reader/refreshable Braille display). The format selection process is especially relevant to students with low vision since visual ability further nuances the students' viable choices. The process is summarised below:

1. **Reading and Writing non-STEM subjects:**
   - **1.1. For primary school students (up to grade 6):**
     It is recommended that students start learning to read and write in Braille - the latter with a classic Braille slate, or with a Perkins-style Brailler where feasible. Braille, as a concrete medium that the student with visual impairment can touch and directly experience, helps to teach, and reinforce fundamental concepts such as spellings, punctuation, the arrangement of letters into words and of words into sentences, text layouts (e.g., paragraph breaks), formatting (e.g., bulleted lists, bold text), etc to younger students.
     Students in this age bracket grasp concepts more easily when they are concretely communicated. Communicating the same concept more abstractly (in the absence of direct sensory experience of the concept being talked about) is generally more apt to succeed as students get older. For instance, while explaining a bulleted list to a primary school student, having a sample list in Braille helps illustrate what is being communicated whereas with an older student, talking in hypotheticals, explaining the concept and formatted structure of a bulleted list in the absence of such a list that the student can physically experience can be sufficient.
   - **1.2. For secondary school students and higher:**
     It is advisable for students to transition doing all their subjects on the computer once they have finished primary school. Depending on their level of vision, and their degree of relative proficiency and comfort with Braille/synthetic speech, they can work with any combination of the following technologies: refreshable Braille display, screen reader, and screen magnifier. The student must be proficient in English before this transition can be undertaken. This arrangement enables the student to function in almost the same way as their sighted peers, from typing notes in class, to submitting a digital copy/printout of their work to the teacher, and so on.
2. **Reading and Writing STEM Subjects:**
   - **2.1. For primary school students:**
     At this stage, it is recommended that the student write Math content in Nemeth Braille, preferably on a Brailler. This enables the student to work out spatial Math. As spatial Math requires the student to be aware of the placement of digits relative to one another, the Brailler is recommended since the student can read what they write at the same time as they are writing. Rough work can be done on the Taylor frame if the student is learning spatial Math, or on the abacus if that is not the case.
   - **2.2. For secondary school students and higher:**
     After students' transition doing their non-STEM subjects on the computer and get comfortable using it, they shift on to doing STEM subjects on computer with screen reader. This is to ensure that they have had enough practice of using computer and have acquired

good typing speed to match the STEM writing requirements. As to write STEM subjects students have to use typesetting language like LaTeX/Unicode which might being too complex to get used to without having enough computer knowledge and practice.

3. **Lab skills:**

   Students with visual impairment often do not get an exposure to science laboratories because of the absence of sight. They are taught lab skills to learn how to make use of other senses along with sighted assistance while working in a laboratory.

4. **Diagrams and Images**:

   4.1. Studying diagrams and images:

   Students with visual impairments must be given real life experiences where possible. This can involve taking students to the zoo, science centres, botanical gardens, museums, etc. When these real-life experiences are not possible, the students can be shown models for the same. Models also help persons with visual impairments see structures as whole. Here, students should be informed about real-life sizes and real texture for comparison. These experiences help persons gain context and build background knowledge. These models are called teaching-learning aids. When a model as such is not available, a tactile diagram with raised lines and various textures for different elements of the diagram. All labels on the diagram written in both large print sighted text and Braille. All visuals in reading materials (textbook, workbooks, or reference books) are given an image description, also called alt-text (alternate text). Decorative images in these materials are simply ignored. To an older student, the alt-text suffices to understand photographs, drawings, paintings, cartoons, and comic strips. To study a diagram, however – chemistry elements, illustrations with labels, Venn diagrams, flowcharts, tree diagrams, bar graphs, geometric figures, etc. – the student with visual impairment must be given a teaching-learning aid, or a diagram, as representation of the same.

   4.2. Drawing diagrams:

   In situations where students are asked to draw diagrams, the student with visual impairment may require a substitute textual question. Diagram-related questions are substituted with an alternate question, which is reframed in such a way as to ensure that students with visual impairment are tested on the same bit of knowledge as their sighted counterparts, with the only difference being one of modality. Where the sighted students demonstrate their knowledge by drawing diagrams/pictorial representations, students with visual impairment demonstrate the same through textual answers to the alternate question or answering the drawing-based question with the help of a writer and tactile diagrams or opt for concessions and being granted proportionate marks for the same. Major educational boards in India already follow the question-substitution practice.

5. **Maps:**

   Tactile maps can be created by thermoforming, by the Picture in a Flash (PIAF) technique, or maps can be handmade, using thread, 3D outliners, etc so the SwVI can study them. Students can locate and mark places on the map using bindis, and label them either using pre- cut sticker labels, sonic labellers, or with the help of the scribe who can hand-write on the map as directed by the student.

6. **Graphs:**

   6.1. Studying graphs:

   Using similar methods used for studying diagrams and images.

   6.2. Plotting graphs

   6.2.1. Hard copy:

   Students can work on tactile graph paper, and construct graphs using Wikki Stix. Labelling can be done using pre-cut Braille sticker labels/scribe, as mentioned above.

6.2.2. Soft copy

Students can use hardware talking graphing calculator (TI-84 Plus) and Desmos graphing calculator online for plotting and studying plotted graphs.

7. Independence:

7.1. Orientation and Mobility (O&M) and Activities of Daily Living (ADL):

It is advisable to teach SwVI the techniques for safe and independent mobility using the white cane. Students also benefit from training in activities of daily living (ADL), which consists of training in everyday skills that their sighted peers tend to pick up via visual observation (e.g., tying shoelaces, slicing fruit).

7.2. Study and Organisation (S&O):

It is recommended that students be trained in methods to maintain and present their work independently and neatly, since different modes of reading-writing that the student employs (Braille, large print, or digital) might need different organisational and/or presentation techniques that may not be immediately obvious to the student.

Annexure B: The Level Framework: An Overview

As mentioned in the report, the Level framework divided students into four levels based on grade level, and categorised special skills into these levels. In other words, students' grade levels determine which special skills they needed to learn, as these would dovetail with and complement the content teaching that would parallelly happen at school. For ease of understanding, the table below presents the Level framework in detail:

	Level 1(Nursery, Jr and Sr KG)	**Level 2 (Std 1,2,3)**	**Level 3 (Std 4,5,6)**	**Level 4 (Std 7,8,9,10)**
Braille	Y	Y	Y	N
Computers: Screen Readers/Magnifiers	Y	Y	Y	Y
Taylor Frame	Y	Y	N	N
Nemeth	Y	Y	Y	N
Abacus	N	Y	Y	Y
LaTex	N	N	N	Y
ASCII	N	N	Y	Y
Geometry Skills	Y	Y	Y	Y
Visual Concept Enrichment	Y	Y	Y	Y
Activities of Daily Living (Includes AT)	Y	Y	Y	Y
Orientation & Mobility	Y	Y	Y	Y
Lab Skills	N	N	Y	Y
English Language Skills	Y	Y	Y	Y
Life Skills	N	N	Y	Y
Study & Organisational Skills	N	Y	Y	Y

Annexure C: The XRCVC Inclusive Education Project - Interview Guide for students

Section 1

Name:

Age:

Gender:

Class:

School:

(How many years have you been in this particular school?)

Type and extent of disability:

Section 2

1. Have you always studied in an inclusive (regular) school?
   - When did you first consult XRCVC in your inclusive school journey?
2. Has the kind of support you receive from XRCVC changed in any way since you started?
3. Can you tell me about the parts of your inclusive school experience that you really like?
   - What are the things that you do not like so much.
4. Do you feel properly prepared for and included in: (why/why not)
   - Academic activities in school: stem, lab skills, general schoolwork, projects (individual and group)
   - Orientation and Mobility
   - Extracurriculars
   - Social situations
5. When your parents, special educators, school teachers and the management (or some combination of these) have discussions about ways to make different parts of your school experience accessible to you, how often are you a part of these discussions?
   - Are you satisfied with however much you are included in these discussions, or would you like to be less or more included.
6. How well would you say your school teachers respond to your needs? If you are having difficulty understanding a concept like a diagram for example, do they try to come up with different ways to explain the concept to you i.e., verbal descriptions, hands-on demonstration, using TDs, etc?
7. Could you tell me about your parents' role in your inclusive education process?
8. How about studying outside of class hours. Is it something you do completely independently?
   - Do your family or friends assist you in the ways you need when necessary?
9. Could you tell me three things about the current inclusive education process that work well according to you?
   - Now, can you talk about three things that could be improved?

Section 3

I have a list of activities and strategies for inclusion that have been implemented over the years by XRCVC. We'll go through each of them, and you can let me know which you've had experience with and how well they work in your opinion.

- Home-based special skill training
- Twice a week school visits by teachers from XRCVC
- Formal IEP: When your parents, teachers from XRCVC, school teachers and principal met together at the beginning of term to figure out goals and strategies.
- Once a week training at XRCVC on Saturdays when your parents sat in
- Level-based curriculum with other peers with visual impairment at XRCVC
- Monthly follow-ups: at XRCVC once every month when you got feedback on the work you submitted.
- Batch-wise training during summer and Diwali vacations at XRCVC
- Online batch-wise training during vacations
- Online follow-ups
- Do you have any other comments/suggestions you'd like to share?

Annexure D: The XRCVC Inclusive Education Project - Interview Guide for Parents

Section 1

Name:

Age:

Gender:

Educational qualifications:

Occupation:

Nature and extent of child's disability, congenital/acquired:

Section 2

1. When did you first consult XRCVC in your child's inclusive schooling journey?
   - Can you talk about the initial experience of receiving support?
2. Has the kind of support you receive from XRCVC changed in any way since you started?
3. What part of your child's inclusive schooling experience do you particularly like/are satisfied with?
4. What are the things you are not happy with/have concerns about?
5. In your opinion, is your child properly equipped for and included in:
6. Academic activities in school: stem, lab skills, general schoolwork, projects (individual and group), etc.
7. Orientation and Mobility
8. Extracurriculars
9. Social situations
10. How well would you say you cope with your child's educational needs outside of class?
11. Would you say that the school teachers adequately address your child's educational needs?

12. Does the management of the school cooperate to make the school more inclusive for your child?
13. How about the special educators at XRCVC? Do they facilitate accessibility for and inclusion of your child in the ways that work for him/her?
14. Do you believe that you have the support that you need from your family, friends, and general social group?
15. Could you tell me three things about the current inclusive education process that work well according to you?
    - Now, can you talk about three things that could be improved?

Section 3

I have a list of activities and strategies for inclusion that have been implemented over the years by XRCVC. We will go through each of them, and you can let me know which you've had experience with and how well they work in your opinion.

- Home-based special skill training
- Twice a week school visits by teachers from XRCVC
- Formal IEP: When you, the teachers from XRCVC, school teachers and the school management met together at the beginning of term to figure out goals, strategies and learning outcomes
- Once a week training at XRCVC on Saturdays when you sat in
- Beginning and end of year review with special educators from XRCVC
- Level-based curriculum with peers with visual impairment at XRCVC
- Monthly follow-ups: at XRCVC once every month when your child got feedback on the work they submitted.
- Batch-wise training during summer and Diwali vacations at XRCVC
- Online batch-wise training during vacations when you demonstrated physical skills to your child
- Online follow-ups
- Do you have any other comments/suggestions that you would like to share?

Annexure E: The XRCVC Inclusive Education Project - Interview Guide for Teachers

Section 1

Name:

Age:

Gender:

Educational qualifications:

Years of teaching experience:

Subjects you teach:

Classes you teach:

Average class size:

Section 2

1. What do you think about the idea of inclusive education in India?
- How practical have you found it so far, as a teacher teaching in a disability-inclusive classroom?
- Has your experience with XRCVC influenced your opinion?
2. What year did you first have an interaction with XRCVC?
3. When did you first have a student with visual impairment/disability in your class?
- Could you tell me a little about your initial experience?
- Have you had any significant interaction with a person with disability prior to this?
4. Can you talk a bit about your class expectations from your students with visual impairment?
5. How much would you say you know about the kind of support from special educators your students with visual impairment receive outside of class?
6. Could you talk about the inclusive education training that you have received so far? What did you think of it?
- Do you have any suggestions in this context?
7. What would you say is the best part of having an inclusive classroom?
- Conversely, what are the challenges you have experienced in running an inclusive classroom?
8. Could you tell me three things about the current inclusive education process that work well according to you?
- Now, can you talk about three things that could be improved?

Section 3

I have a list of activities and strategies for inclusion that have been implemented over the years by XRCVC. We'll go through each of them, and you can let me know which you've had experience with and how well they work in your opinion.

- Biweekly meetings with special educators at school.
- Individualised Education Plans (IEPs)
- Annual "I for Inclusion" training workshops
- Inservice support (how frequent, how long)
- School visits by special educators once a month
- Monthly conference calls
- Lesson plans and implementation reports (format)
- Do you have any comments/suggestions you would like to share?

Annexure F: The XRCVC Inclusive Education Project - Interview Guide for Special Educators

Section 1

Name:

Age:

Gender:

Educational qualifications:

Years of teaching experience:

Special skills you teach:

Section 2

1. As a special educator, what do you think of the idea of inclusive education in India?
- How practical have you found it to be?
2. Classroom teaching is generally taken to be an individual enterprise. Could you talk about your experiences with training, providing in-service support and generally working with teachers to make their classroom inclusive for your students with disability?
- This might have made the teaching process more collaborative than individualistic. How was this received?
3. Do you think we have adequate resources (material or otherwise) for inclusion to be successful?
- Is there anything you can think of (software licences, resource rooms at school, etc) that would make a significant difference for the better?
4. Do you think schools make adequate accommodations to make your students' inclusive education experience a good one?
- How has your experience with requesting accommodations at school been? Does the process get easier with time (personally as you grow more experienced, and while working with the same school authorities – do they grow more accepting with time)?
5. Could you talk about the major differences between the conventional IEP system widely followed in the west and the XRCVC model?
- In what ways would you say the XRCVC model is more relevant in and applicable to the Indian context?
6. Do you believe your students are well-equipped for and included in: (why/why not)
    - Academic activities in school: stem, lab skills, general schoolwork, projects (individual and group), etc.
    - Orientation and Mobility
    - Extracurriculars
    - Social situations
7. How well would you say your formal special education training equipped you to deal with the ground realities of educating persons with disability in India?
8. Could you tell me three things about the current inclusive education process that work well according to you?
    - Now, can you talk about three things that could be improved?

Section 3

I have a list of activities and strategies for inclusion that have been implemented over the years by XRCVC. We will go through each of them, and you can let me know which you have had experience with and how well they work in your opinion.

- Home-based special skill training
- Biweekly school visits
- Formal IEP
- Annual "I for Inclusion" workshops
- Inservice (how frequent, how long)
- School visits once a month
- Monthly conference calls
- Lesson plans and implementation reports (formal/informal)

- Once a week training at XRCVC on Saturdays
- Beginning and end of year review meetings with parents
- Level-based curriculum at XRCVC
- Monthly follow-ups with checking of work and feedback
- Batch-wise training during summer and Diwali vacations at XRCVC
- Online batch-wise training during vacations
- Online follow-ups
- Are there any other suggestions/comments you would like to share?