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Title: An integrated knowledge translation project to develop, implement and evaluate a train-the-trainer program at a community rehabilitation program in Tamil Nadu, India

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ABSTRACT

Purpose

This project aimed to develop, implement and evaluate a train-the-trainer initiative for community rehabilitation workers and rehabilitation specialists within a community rehabilitation program for children with delayed development in Tamil Nadu, India.

Methods

Guided by the Knowledge to Action framework, non-governmental and academic partners collaboratively developed two two-day workshops for 1) rehabilitation specialists and 2) community rehabilitation workers (CRWs). Outcomes were evaluated using mixed methods, with pre and 2.5-months post surveys (59 participants) and three focus groups (17 participants) involving trainers and trainees (including rehabilitation specialists and CRWs).

Results

There were significant increases in the Community Rehabilitation Workers' self-perception of their capacity to assess comprehension, provide explanations, respond to questions, adjust teaching, motivate learners, communicate effectively, and provide feedback. Significant changes were noted for Rehabilitation Specialists in 5 of 7 domains, and for Rehabilitation Specialist Leads in 6 of 7 domains. Participants appreciated the interactive training style, and the use of immersive methods such as role play, though noted challenges when instructions were unclear or when they felt that material was more theoretical.

Conclusion

This collaboratively developed train-the-trainer project demonstrates the value of such an intervention, provides an example of how a tailored program can be developed, and suggests the importance of stakeholder-driven design processes.

Keywords: community health services, continuing education, India, knowledge translation, rehabilitation, training of trainers

Background

Community-based rehabilitation (CBR) is defined as “a strategy within general community development for the rehabilitation, equalization of opportunities and social inclusion of all people with disabilities” [1,p.2]. Over the past 40 years, it has emerged as an important approach to support persons with disabilities as they seek to meet their daily needs and develop their capabilities, particularly in settings where there are fewer institution-based programs.

Increasingly, CBR programs actively involve persons with disabilities and their families in guiding and implementing program activities [2]. The World Health Organization’s CBR Guidelines identify the importance of expanding the involvement of people with disabilities and their families as advocates, and as providers of peer and public education [2]. Many CBR programs also include initiatives that rely on lay community rehabilitation workers (CRWs), whether volunteers or paid employees, who do not have advanced training in rehabilitation yet receive on-the-job training related to their roles within the CBR program. Some CBR programs also involve rehabilitation specialists, such as physiotherapists and occupational therapists, who have completed professional training programs at the university level.

Due to the nature of the activities and the range of groups and individuals who are involved, many CBR projects integrate training activities as integral components of their programming [3]. Training activities in CBR are undertaken to build knowledge and skills for rehabilitation workers, which are ultimately mobilised to improve the quality of project activities and outcomes [2,4]. They may also include training on how to provide training to others, including persons with disabilities and their families, as well as to healthcare providers or other CBR workers. The joint position statement on CBR emphasizes that “CBR workers need to learn the skills used in training people with disabilities, and they need to learn how to provide this training in a competent manner” [1,p.26]. The importance of being able to provide effective training to others was reinforced by a study which identified education as among the core set of skills for health-related CBR, and a priority for CBR training [5].

Meeting CBR program training goals can be challenging [6]. For example, effective training activities may be more difficult due to a lack of pedagogical preparation amongst those who are responsible for offering the training, uncertainty regarding the alignment of training content to language levels and participant expectations, questions regarding the design of effective evaluations, the development or adaptation of culturally appropriate training programs, and how best to use technologies during training [7]. As evidenced by a recent scoping review, there have been multiple studies of the effectiveness of training in CBR programs [3]. However, to our

knowledge, no studies have examined train-the-trainer activities in CBR, and efforts to enhance trainers' capacities, including confidence in their ability to teach effectively (self-efficacy).

Context

Amar Seva Sangam is a non-profit, non-governmental organization in Tamil Nadu, India focusing on grass roots advocacy for persons with disabilities and providing direct programs for rehabilitation, education, and vocational and livelihood activities. Amar Seva Sangam services the Tirunelveli District (population 1.6 million) and provides direct services to 5,000 people of all ages with disabilities through both institution-based and CBR programs. There are other government and non-government hospitals and institutions that provide institution-based services, but Amar Seva Sangam is the only organization that provides CBR services in this district.

A major focus for Amar Seva Sangam is the CBR program for early intervention for children with delayed development. In this CBR program, entitled the 'Mobile Village Based Rehabilitation – Early Intervention', children aged 0 to 6 years and having various developmental disabilities (e.g. cerebral palsy, speech and communication delays, hearing impairment, Down's syndrome, intellectual disabilities, autism spectrum disorder, orthopedic disabilities, and global developmental delay) are assessed and provided with an individualized treatment plan. This plan includes goals and interventions developed by a team of Rehabilitation Specialists (Physiotherapists, Speech Trainers, Occupational Therapists, Special Educators). Assessment data and treatment plans are inputted into a digital application viewable to CRWs on their smart phones. CRWs, who are paid employees of Amar Seva Sangam, are responsible for implementing the treatment plan provided by the Rehabilitation Specialists as well as providing training and support for the child's family members. CRWs visit each child's home once per week and are supervised by Rehabilitation Specialists through regular text and phone communication, and monthly case review meetings. In addition to these weekly visits, the CRWs and rehabilitation specialists involved in a child's care conduct a joint visit to the child's home once per month. CRWs' and rehabilitation specialists' caseloads are 20-25 and 60-80 children per service provider respectively. CRWs' minimum qualification is a high school diploma, and specialists have post-secondary degrees or diplomas in their respective professions,.

The Mobile Village Based Rehabilitation – Early Intervention program includes multiple training activities. Specialists provide a 10-day training workshop for the CRWs every six months. Half of each day is dedicated to theory, and the other half to hands-on practical learning. During these sessions, CRWs learn how to perform the therapeutic interventions and activities that are prescribed by the different specialists. They also learn about the impairments experienced by the children who are part of the program, and about organizational protocols and policies. Educational methods include lectures, demonstrations, group discussions, case studies, and hands-on practice. One-on-one training occurs during monthly joint visits (CRW with Specialist) in children's homes, through case presentations by CRWs at a monthly team meeting, and via telecommunications between CRWs and specialists. Training is also an integral component of the rehabilitation interventions: both CRWs and Specialists educate children and families on an ongoing basis.

Given the limited rehabilitation resources currently available, and the resulting importance of CBR capacity strengthening in Tamil Nadu, it is critical that evidence-based and sustainable training programs are available. To this end, Amar Seva Sangam has collaborated with the non-profit organization, Handi-Care International based in Toronto, Canada, and a school of rehabilitation sciences at McGill University, a large research-intensive university in Montreal, Canada. Handi-Care International is a registered Canadian charity, dedicated to the rehabilitation, education, and empowerment of people with disability, both physical and intellectual, with a focus on economically underprivileged communities in India. McGill University's School of Physical and Occupational Therapy has collaborated with both parties for the training of its occupational and physical therapy students for the past 9 years, as well as two student-led research projects. The project described in this article was thus able to build upon these longstanding relationships.

Train-the-trainer program

The purpose of this new collaboration among Amar Seva Sangam, Handi-Care International and McGill University was to develop, implement and evaluate a tailored and evidence-informed train-the-trainer program within the context of the Mobile Village Based Rehabilitation - Early Intervention program. The focus of the train-the-trainer program was to enhance skills and knowledge among CRWs and Rehabilitation Specialists to provide effective teaching – either to other staff within the program (e.g. Rehabilitation Specialists to CRWs) or directly to children with delayed development and their families. In this article, we report on the process and outcomes of this collaboration, which led to the development of two two-day training workshops (one for CRWs and one for rehabilitation specialists), and then discuss how train-the-trainer programs could be adapted for other CBR contexts.

Approach

The train-the-trainer project was grounded in an integrated knowledge translation approach and used mixed methods to evaluate outcomes. Integrated Knowledge Translation is a stakeholder-centered approach that seeks to improve health outcomes by involving all relevant stakeholders throughout the research process. Integrated Knowledge Translation approaches consider the contributions of those involved in education, practice and continuing professional development as essential and interconnected components of best practices [8,9]. The Integrated Knowledge Translation approach used in this project was grounded in four important principles: 1) it elicited the partners' respective areas of expertise to develop a train-the-trainer program that was informed by the best available evidence from health professions education and CBR; 2) it was responsive to the needs of stakeholders. Team members were affiliated with Amar Seva Sangam, Handi-Care International and McGill University. Additional staff members at Amar Seva Sangam were engaged at multiple stages of the project. Amar Seva Sangam and Handi-Care International team members provided knowledge related to training needs, background of trainers and trainees, and the institutional, social and cultural context. McGill team members contributed expertise in health professions education; 3) it was designed with the goal that the program would be sustainable (e.g. by developing the capacities of Rehabilitation Specialist Leads at Amar Seva Sangam to independently lead future train-the-trainer workshops); and 4) it drew on multiple data sources (outlined in Table 1 and further described in the next section) [10].

Methods

Conceptual framework

To guide the study, we drew from the Knowledge to Action framework [11], a process framework designed to help move evidence into practice through the creation, dissemination and uptake of knowledge. While the structure of the Knowledge to Action framework has similarities with generic training design approaches, we have selected it for this project due to its structured approach to address elements such as barriers to knowledge use and careful tailoring of interventions to local context. The Knowledge to Action contains a knowledge creation component and an action cycle. We addressed four (in bold in table 1) of the seven steps included in the action cycle. Table 1 outlines the steps of the framework, and our goals, methods and deliverables at each step.

<i>Steps of Knowledge to Action framework</i>	<i>Goal</i>	<i>Methods</i>	<i>Deliverables</i>
<i>1. Identify problem</i>	<i>To clarify current practices for CRW training and whether additional support was needed.</i>	<i>Previously conducted exploratory qualitative study on perceptions of CRW training practices [13]</i>	<i>Need identified for train-the-trainer program</i>
2. Adapt knowledge to local context	To develop a curriculum that is well aligned with the context and needs at Amar Seva Sangam	Web-conferences, email exchanges, and in-person meetings amongst project team members, and drawing on evidence-based models for train-the-trainer activities	Drafted first iteration of content, format and delivery model of the train-the-trainer curriculum
3. Assess barriers to knowledge use	To identify barriers and preferences that should be accounted for in curriculum design	Questionnaire on barriers to knowledge use and preferred teaching and learning approaches completed by Specialist Leads, Specialists and CRWs	Developed lists of barriers, and preferred teaching and learning approaches
4. Select, tailor and	To finalize the curriculum and	Further tailored the curriculum through web-conferences, email	Revised curriculum Implemented training

implement intervention	conduct the workshops	exchanges and in-person meetings. Implemented the Train the Trainer workshops at Amar Seva Sangam in January, 2019.	
<i>5. Monitor knowledge use</i>	<i>This step was not included due to time constraints and the project's timeline.</i>		
6. Evaluate outcomes of the KT intervention	To evaluate outcomes of the intervention	<ul style="list-style-type: none"> • Surveys: Pre and 2.5 months post intervention • 3 focus groups 	Finalized curriculum
<i>7. Sustain knowledge use</i>	<i>The project is designed to promote sustainability, however sustaining knowledge use will be assessed in later research</i>		

Table 1: Steps of the Knowledge to Action framework with goals, methods and deliverables. Steps in bold were conducted as part of the project, while steps in italics were not.

Steps 1 and 2: Problem identification and adapting knowledge to local context

The lack of formal training for rehabilitation specialists on how to teach CRWs and families and the consequent underutilization of evidence-based teaching strategies was identified through a prior research project [12]. The importance of further enhancing instruction with active teaching methods amongst Amar Seva Sangam staff was a key recommendation of this study. As a result of the recommendation, Amar Seva Sangam elected to work collaboratively with partners to develop a tailored train-the-trainer curriculum. The project team developed the content and format of the initial train-the-trainer curriculum. This work was mostly done via web-conferences and email exchanges, and further facilitated by the presence of one of the Amar Seva Sangam-based team members (RP) who spent one month in both Montreal and Toronto during this phase of the project.

An iterative approach was adopted to draft the curriculum, with McGill team members contributing evidence from educational research, and drawing on examples of other train-the-trainer programs, and Amar Seva Sangam and Handi-Care International team members tailoring the content to increase its relevance and better align it with the needs of Amar Seva Sangam staff, including integrating case examples encountered in the Mobile Village Based Rehabilitation – Early Intervention program and accounting for social and cultural considerations such as food, clothing, shelter, and social roles.

Step 3: Assessment of barriers to knowledge use

Design: We conducted a cross sectional descriptive study designed to assess potential barriers and to identify preferences for teaching and learning approaches.

Participants and Recruitment: A convenience sampling approach was used whereby all CRWs (n=32) and Specialists (n=32) employed in the program in October 2018 were invited to complete the questionnaire.

Instrument: We developed a brief descriptive questionnaire based on tools employed by team members in previous research projects [13]. It was revised by Amar Seva Sangam and Handi-Care International team members to make the questions clearer for participants and then translated to Tamil. The questionnaire was then pilot tested in early November, 2018 by an Amar Seva Sangam-based team member (RP) who provided feedback to improve clarity. The questionnaire included single answer (5-point Likert scale), multiple answer and ranking questions, and addressed topics such as four items about learning and applying work-related skills (e.g. “If you experience difficulties using a new work-related skill, what do you do?”), four items on educating family members (e.g. “Which teaching techniques do you find the most useful for teaching family members?”), and three items on educating CRWs which were answered only by Specialists (e.g. “What challenges do you face when you teach CRWs?”).

Data Collection and Analysis: Questionnaires were distributed at an Early Intervention program staff meeting in November, 2018 and were completed anonymously. We used descriptive statistics (percentages and frequencies) as follows: 1) For questions with single answers, we calculated the percentage of responses for each possible answer. 2) Frequency counts were used for questions requiring multiple answers (i.e. where) participants selected one or more possible choices. 3) For questions requiring ranking possible answers, we calculated the rank-sum of each possible answer. The preferred answer was assigned the maximal amount of points (equal to the number of possible answers); the second choice received one less point, etc. For example, if 7 choices needed to be ranked, then a participant’s first choice was given 7 points, the second choice 6 points, etc. We then added the points across participants to obtain the rank-sum score of each possible answer.

Step 4: Tailoring and implementation

Considering the identified barriers to knowledge use (i.e. the use of evidence-based teaching strategies), the team further revised the train-the-trainer curriculum through additional web-conference discussions and email exchanges, before it was implemented in late January 2019 and early February 2019. Two priority subjects for training were identified: Communication (verbal, non-verbal and listening techniques, and mindfulness and empathy); and Teaching and Learning (including feedback and teach-back methods). These topics were selected based on evidence from educational research, discussions of what was most relevant in the Amar Seva Sangam context, and what was judged to be feasible in a 2-day workshop. We incorporated active learning methods such as practicing with children and their family members, role play, simulations and participant questioning. These active learning methods were designed to facilitate the application of concepts learnt in the workshop directly into practice. The curriculum included two variations: one designed for Specialists and one for CRWs. We then translated the curricular materials into Tamil, including handbooks, workshop planning, and presentation slides. We also created Tamil-language videos to illustrate key ideas for each topic in the curriculum.

We then selected six leaders amongst the Specialists (hereafter, Specialist Leads) who would lead the workshops and carry on the training program in the future. The Specialist Leads received the English and Tamil versions of the Training handbooks and resources (Power Point presentations, workshop planning materials) and we asked them to review the materials prior to the training sessions. Two team members (RP, CA) held meetings with the Specialist Leads to answer questions and discuss the curricular content in early January 2019. At the end of January, one McGill team member (AG) and the Handi-Care International team member (DK) travelled to Amar Seva Sangam for the roll out of the train-the-trainer program. Team members (CA, DK, AG) worked closely with the Specialist Leads for three days to prepare them to lead the workshops with the CRWs and Specialists, and to allow them to consolidate their knowledge of the curriculum and practice how to implement it using active teaching methods.

All Specialists and CRWs (workshop participants) received the Tamil version of the handbook one week before their workshop and were asked to read it in preparation for the training. Separate two-day workshops with tailored content were then held with Specialists and CRWs. The first workshop involved the version of the curriculum designed for Specialists. 31 Specialists took part in the training. It was taught by the Specialist Leads in Tamil with the support of the project team. The second workshop involved delivery of the curriculum tailored for CRWs. 33 CRWs took part in the training, and it was again led by the Specialist Leads with support of the project team. In addition, five of the Specialists assisted in the delivery of a small group learning activity involving parents and children from the Mobile Village Based Rehabilitation – Early Intervention program. Note that the number of participants for the workshops was different than for the knowledge barriers questionnaire due to changes in program staffing.

Monitoring of knowledge use (Knowledge to Action step 5) was not included in the project due to the timeline.

Step 6: Evaluation of outcomes of the KT intervention

The evaluation of the project outcomes used a convergent mixed methodology design [14]. The evaluation target addressed by the quantitative phase was confidence in one's ability to provide the teaching (i.e. teaching self-efficacy). Self-efficacy is an important construct (though not the only construct) given its relationship with intention to implement what has been learned [15,16]. The qualitative phase aimed to elicit perceptions regarding the usefulness and impact of the program.

Quantitative Phase:

Design: cross sectional pre-post design using a survey administered before and 2.5-months after the train-the-trainer program.

Participants and recruitment: Convenience sampling was used. All train-the-trainer program participants (i.e. all Specialists, Specialist Leads and CRWs) who participated in the train-the-trainer program were invited to complete the pre and post surveys.

Instrument: The instrument was designed to assess participants' self-efficacy (i.e. how they perceived their own effectiveness) in their roles as trainers. To create the measure, we modified the Ohio State Teaching Efficacy Scale [17] and used two of its three dimensions: efficacy for instructional strategies and efficacy for learner engagement. Our measure's 13 questions were scored on 4-point Likert scales ranging from "A bit" (1 point) to "Very much" (4 points). Six questions were designed for CRWs and Specialists teaching parents or children, and an additional seven questions were written for Specialists regarding teaching CRWs. The questions were focused on appreciation of one's efficacy in using methods to assess understanding, providing alternative explanations, responding to difficult questions, adjusting teaching, motivating learners and communicating with them. The instrument was translated to Tamil in December 2018 and reviewed by three team members for usability and interpretability.

Data collection: The pre-survey was distributed in hard copy format at the beginning of each workshop. Each survey was identified by a number in order to facilitate linking with the post-survey. The list of names and numbers was kept on a password protected computer. The post-survey was administered by hard copy 2.5 months later during staff meetings.

Analysis: We used descriptive statistics to summarize and characterize participants' responses. We used the Wilcoxon rank sum test, appropriate for ordinal data, to examine changes in self-efficacy for each component of instructional strategies and learner engagement before training and at follow-up.

Qualitative phase:

Design: We undertook a qualitative description [18] using focus groups [19] to learn about perceptions regarding the training (content and format), including applicability, uptake and impact

Participants: The first group included 5 CRWs, the second, 6 Specialists, and the third, 6 Specialist Leads. In total, 15 women and 2 men participated in the focus groups.

Recruitment: During the Specialist and CRW workshops, we explained that some workshop participants would be invited to participate in a focus group. Participants were then asked to write their name on a piece of paper and indicate "yes" or "no" whether they would be willing to take part in a focus group. Individuals who indicated their willingness to take part were later invited to join a focus group. For Specialists, we purposively recruited a diverse group of participants based on disciplinary background (e.g. physiotherapist, speech trainer, special educator). Convenience sampling was used to recruit CRWs and Specialist Leads.

Data collection: The focus groups were between 25 to 35 minutes in duration and were conducted in Tamil. They were facilitated by a McGill student who is fluent in Tamil and followed an interview guide. Each session was audio recorded, translated and transcribed.

Analysis:

We analyzed the focus group transcripts using constant comparative techniques [20]. First, transcripts were coded by applying labels for sections of text in response to the question 'what is

this about?’ Next, we created data display tables for each focus group that organized the responses to the questions in the interview guide. We then worked up from these tables to create an analytical structure of three themes and a narrative descriptive account.

Convergent analysis of qualitative and quantitative data

The quantitative and qualitative data were then compared to identify convergences, divergences and gaps [14]. Based on analysis of the focus groups and questionnaires, as well as informal feedback from leaders and participants in the training, the curriculum was revised in order to optimize its utility for Amar Seva Sangam in the future.

We did not assess how sustainability of knowledge use (Knowledge to Action step 7) due to the timeline of the project. This step will be pursued in future research that will examine the train-the-trainer program’s sustainability and how it evolves over time.

Ethical considerations

This study was approved by the Institutional Review Board of McGill University’s Faculty of Medicine and local ethics clearance was provided by the Research and Development Board of Kalasalingam Academy of Research and Education. All focus group participants signed an informed consent form and consent was sought at the outset of the questionnaires and surveys.

Results

The three empirical components (questionnaire on barriers to knowledge use and preferred ways of teaching and learning; pre- and post- survey on self-efficacy; and focus group discussions) of the project contributed to the development and refinement of the curriculum, and provided evidence regarding the program’s effectiveness.

Questionnaire: Barriers to Knowledge Use and Preferred Ways of Teaching and Learning

The CRWs ranked their preferred teaching methods when educating family members in the following order: having family members perform the skills and providing feedback (ranked sum score= 195), performing hands-on demonstration of a skill with family members watching (168), and demonstrating through use of audio-visual aids (147). By contrast, the Specialists found hands on demonstration with family observing (ranked sum score= 170), having family members perform the skills and providing feedback (160), and verbal explanation (155) to be the most useful teaching techniques when educating families.

The most common challenges (multiple choice question) confronted by Specialists when educating family members were adapting their teaching to different levels of understanding (18), convincing parents that the exercise will help their child (11), repeating what was already explained (9), and feeling rushed by family members (8). Similarly, convincing parents that the exercise would benefit the child (14), adapting teaching to different levels of understanding (13), and finding different ways of explaining something that was unclear (7) were reported as the most common challenges by CRWs.

In terms of learning work-related skills (ranked question), the three preferred learning methods, according to CRWs, were listening to podcasts or watching videos about the skill, listening about the skill in a classroom setting, and discussing the skill in a classroom setting. The Specialists preferred the same learning methods but in the following order: listening about the skill in a classroom setting, listening to podcasts or watching videos about the skill and discussing the skill in a classroom setting. All CRWs and all Specialists noted that they would apply newly learned skills in their work-related activities. Preferences for learning are presented in figure 1.

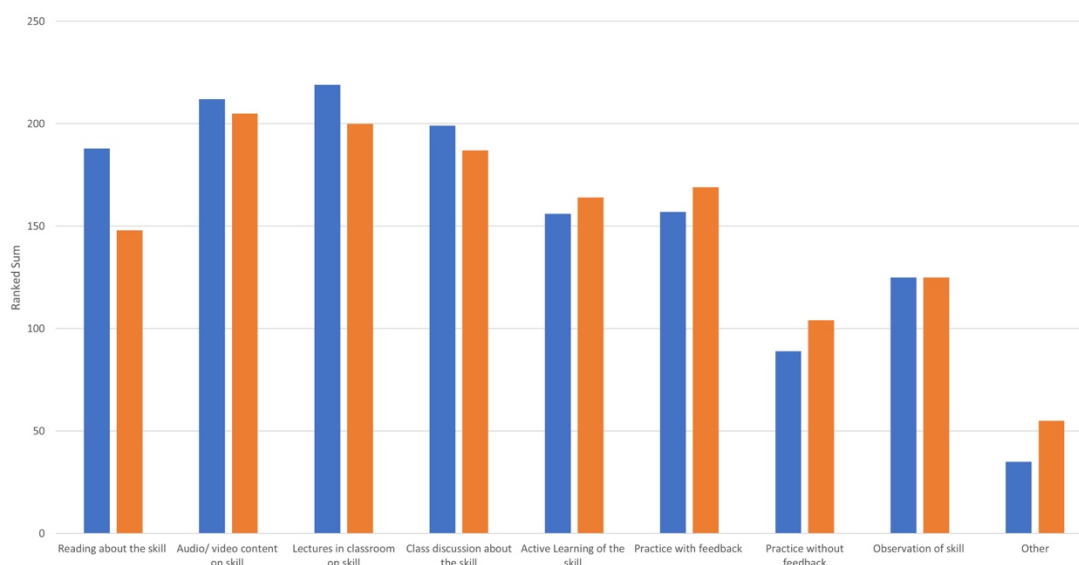


Figure 1: Ranked Sum of Preferred Learning Methods of Specialists and CRWs. For each response indicated on the x-axis, the left and right vertical bars indicate responses for Specialists and CRWs, respectively.

Pre-post surveys: Self-efficacy

CRWs

Of the 33 CRWs who participated in the workshop, 25 individuals completed both the pre and post survey. Figure 2 (below) shows the distribution of responses between the pre and post workshop surveys for the 28 CRWs who completed both surveys. The proportion of CRWs answering either '3' or '4' increased significantly from before to 2.5-months after the workshop (Wilcoxon signed rank; $Z: -4.00$ to -2.65 , $p < 0.05$) and highlights a significant change in the CRWs' self-efficacy to use a variety of ways to assess comprehension, provide alternative explanations, respond to difficult questions, adjust their teaching, motivate learners, communicate effectively, and provide feedback to the parents and children with whom they work.

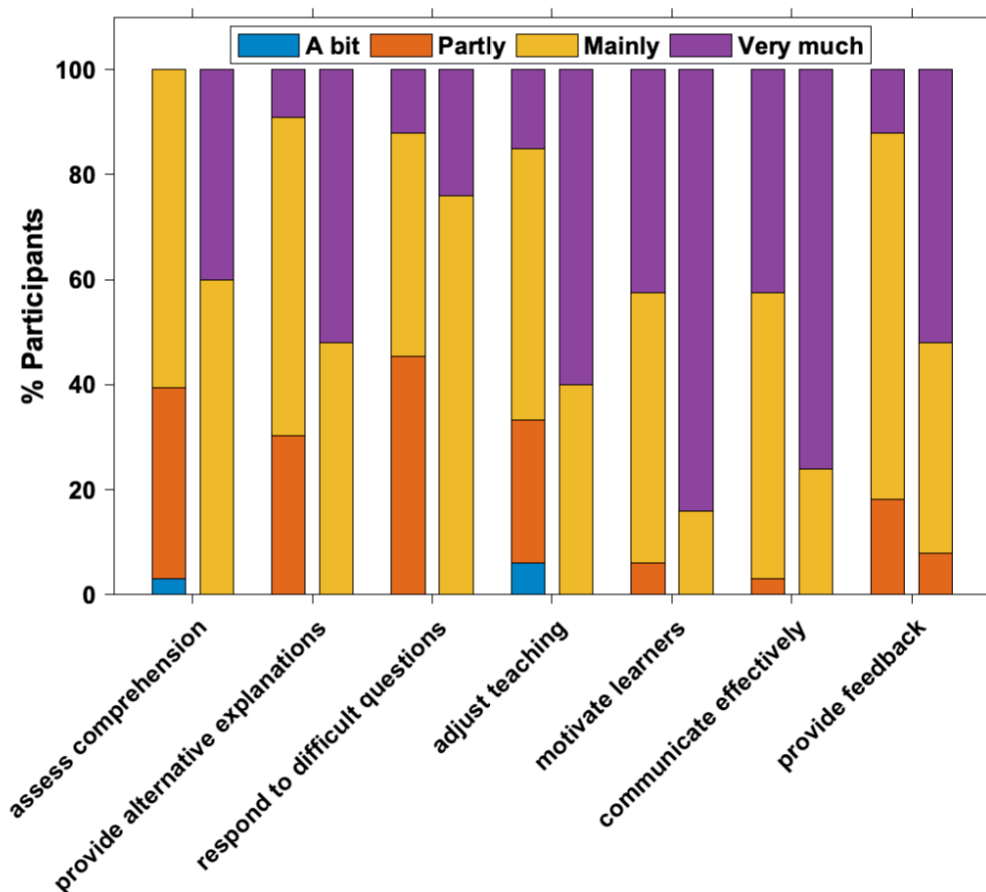


Figure 2: Distribution of survey answers by CRWs rating their self-efficacy for different domains of teaching. For each question indicated on the x-axis, the left and right vertical bars indicate answers to the pre and post workshop survey, respectively.

Specialists

28 of the 31 Specialists who participated in the workshop completed both pre and post surveys. The Wilcoxon Signed Rank Test indicated that significant improvements were recorded in all areas (Z : -3.00 to -2.07, $p < 0.05$) except for “perceived ability to communicate with parents” ($Z = -1.54$; $p = 0.12$) and “ability to give feedback to learners” (e.g. to CRWs) ($Z = -1.81$; $p = 0.07$).

Specialist Leads

All six Specialist Leads completed the pre and post surveys. Analysis of their responses showed that there were significant changes in self-efficacy in using a variety of ways to assess parental understanding of what has been explained ($Z = -2.24$, $p < 0.03$), being able to use alternate means to explain concepts ($Z = -2.00$, $p < 0.05$), responding to difficult questions from parents ($Z = -2.07$, $p < 0.04$), being able to communicate with families ($Z = -2.00$, $p < 0.05$), gauging learner comprehension ($Z = -2.00$, $p < 0.05$), and ability to motivate learners ($Z = -2.12$, $p < 0.03$).

Focus Groups: Perceptions of applicability, uptake and impact

We identified three key themes based on our analysis of the focus group discussions. These themes are discussed below and illustrated using selected verbatim quotations from participants.

Teaching is a key work responsibility

Teaching is a central component of the responsibilities of CRWs, Specialists and Specialist Leads, with CRWs describing it as an important facet of their daily work activities. All three groups described that while they learned about teaching during their preparatory training, they had “learned a lot more through experience.” In particular, they have had to learn how to adapt their approach to the needs of children with disabilities, and for the many parents who have little or no formal education. Specialists described using play to teach children in a “fun way” and that they seek to “teach parents to keep the kids engaged.” A CRW reported that they “teach parents” with “pictures and demonstrations” and sometimes “show them videos on [their] cellphones.”

Strengths and challenges of the train-the-trainer program

Participants in all three focus groups reported that the train-the-trainer program was relevant to their work and accessible to them as learners. A CRW stated that they had “never attended a workshop like this before so it was very useful” and a Specialist particularly valued the dynamic nature of the training: “we interacted a lot”. At the start of the training, many participants seemed to have experienced anxiety. Specialists felt nervous to be students again: “we felt a little afraid, like we were always being put on the spot” while a CRW jokingly stated that they had an allergy to microphones. Asked who had been nervous, another CRW said “All of us! We work together, we speak but when we’re performing in front of everyone we were nervous at first, but that disappeared completely.” The gradual alleviation of nervousness was linked to the learning environment: “they also created a safe place and told us it was okay if we didn’t have the correct answers to questions.” A CRW reported that the instructors “took time to slowly explain the material and ask us questions.” Teaching methods that were particularly appreciated were role-play, use of videos and group discussions. For example, a CRW reported that role-play “really facilitated our learning” and enabled them “to see other perspectives and ideas and reflect on the variations from our ideas to theirs and open our minds to interesting solutions proposed by others.” There were mixed views about the value of providing preparatory reading in advance of the train-the-trainer sessions. Some stated that they had not read it or had difficulty understanding it, while a Specialist said that “giving us the booklet was a good strategy as it gave us an idea of what the training would focus on and it also helps to recall the information.” Challenges that were reported were technical issues related to audio and video recordings, uncertainty resulting from unclear instructions, and some topics where the participants felt that there was more theoretical content than necessary.

Putting learning into action

The focus groups took place 3-4 weeks after the training. Participants described that they had “already started to implement” the skills and knowledge they learned during the workshops. A central area of learning related to communication and feedback. Participants in all three groups described how they were more attentive to how they provided feedback, and sought to be more empathic in their communication. A CRW expressed that “every parent is different so we learned how to adapt our dialogue to different contexts” while a Specialist reported that if a parent said “something that is wrong, rather than immediately say they are wrong, we listen first and then educate them.” These approaches were also relevant in other settings. A Specialist Lead reported

that “constructive feedback was useful for me with one of my students who I’m supervising”, and another described a change in how they managed program staff who had unexplained absences from work: “now we analyze their situation and ask for their side of the story before coming to a decision.”

Participants in all groups described ways that the methods (e.g. debates and role plays) and format of the train-the-trainer program could be used to improve the twice-annual training program for CRWs that is led by the Specialists and Specialist Leads. For future train-the-trainer activities, it was suggested that there be even more practical learning opportunities relative to theoretical material. Participants also expressed the desire to learn about additional teaching methods (in addition to modalities such as role play, debate, group discussion).

Discussion

As has been reported in discussions about training in CBR programs, although contextualizing the form and content of training can enhance its relevance, training should also be based on the best available evidence in health professions education and CBR [3,4]. As we began developing our project, we looked at existing models of train-the-trainer programs, including the McGill team’s previous work in Haiti with the non-governmental organization Humanity and Inclusion and from the McGill Faculty of Medicine’s Faculty Development Program, and reviewed literature on health professions education. Consistent with an Integrated Knowledge Translation approach and given the situated and applied nature of this work, we then iteratively developed early drafts of the curriculum while relying on the Amar Seva Sangam and Handi-Care International team members’ expertise and experience to ensure alignment with the local needs and context.

An important feature that supported the project was the collaboration between non-governmental and academic partners that provided a foundation for developing the train-the-trainer program. These relationships were crucial for adopting the stakeholder-driven Integrated Knowledge Translation approach that was used to develop the train-the-trainer program. For this project, the team took steps to discuss expectations and agree upon the division of responsibilities. Communicating openly about these elements has been identified as important for successful global health partnerships [21]. This process emphasized the distinct areas of expertise of each of the partners, and acknowledged that these contributions were necessary for the project to succeed. Early discussions also addressed considerations related to communication and decision-making. However, we note that despite these discussions and efforts at clarification, there were topics that were still differently understood by team members. Different understandings also arose in the context of training. For example, it was only when the workshops were unfolding that team members realized they had different understandings about what constituted feedback in the context of teaching and learning. Geographic distances posed challenges and limited opportunities for in-person connecting and to bring the full team together. However, we benefited from the presence of one of the Amar Seva Sangam team members (RP) who spent one month in both Toronto and Montreal during the development phase of the project. A former McGill student (CA) was also present at Amar Seva Sangam as a volunteer occupational therapist and, along with the Handi-Care International team member who had extensive

experience at Amar Seva Sangam (DK), played an important bridging role amongst the partners. As a result of these features, the partnership was strengthened.

A key principle of Integrated Knowledge Translation approaches is that they promote more sustainable impact on practice due to the involvement of stakeholders. A major preoccupation in this project was to lay the groundwork for a program that will be sustained. The close involvement of Amar Seva Sangam team members and the integration of Specialist Leads as the teachers of the workshops are features that should contribute to the program's sustainability. One question that emerged, after the workshops were completed, was whether it would have been preferable to have additional Specialist Leads involved in the training, in order to promote continuity of the program over time. Having a larger number of trained leaders would widen the circle of expertise and promote greater sustainability even with turnover of staff. This is a feature that warrants attention in future train-the-trainer activities.

It is intended that new staff hired at Amar Seva Sangam will participate in future train-the-trainer workshops. It may also be beneficial to have periodic 'top-up' training for others who participated in the program. Such continuing professional development sessions could function to reinforce learning around how to teach, and to integrate new methods and content in order to expand participants' capacities as trainers. Several Specialist Leads who participated in the train-the-trainer program are also responsible for Amar Seva Sangam's bi-annual CRW training sessions. They report that they are applying skills and knowledge learned during the train-the-trainer program, and are emulating aspects of the workshop design and methods used (e.g. prioritizing small group interactive learning activities over didactic lectures).

We utilized several concepts and principles from health professions education literature while designing the training. Interactive plenary presentations and review of core content areas using videos and role plays [22] were implemented with the goal of increasing active learner engagement. The use of active teaching methods (e.g. debate, role play) during the workshops was especially appreciated by the participants in all three focus groups. This finding is consistent with research that indicates that engaging learners through interaction and building on their experience and prior knowledge are effective methods to enhance learning [23]. This is also the case for other train-the-trainer programs. In a study of a train-the-trainer program in Haiti, Yu et al report that combining didactic training with practical applications and active learning approaches enhanced capacity building and contributed to empowering program participants to take on more leadership roles in health education in their communities [24].

Another approach that was privileged in the program's design was to help learners understand how the information was relevant to their work by using and eliciting examples from their practice. Doing so helped anchor theoretical principles to real life examples and thus demonstrated their relevance and applicability in practice. With the use of methods such as small group learning activities that involved parents and their children with disabilities, we further increased the authenticity of the learning examples and supported learners to transfer new learning to practice. This activity was highly appreciated by participants in the focus groups. This approach may also have contributed to CRWs' and Rehabilitation Specialists' capacities to adapt what they learned through the workshops to their own practice, including adjusting their approach to the needs of different learners [25].

Interestingly, more active forms of learning were not ranked amongst the top three learning methods preferred by the CRWs and Specialists when this was asked as part of the knowledge barriers/ preferences for teaching and learning questionnaire prior to the training. Instead, they identified listening to podcasts or watching videos, listening about the skill in a classroom setting or discussing the skill in a classroom setting. This disjuncture may reflect the fact that active learning approaches were less familiar to the participants prior to the training since these methods are not commonly used in the setting. Cultural specificity should be a key consideration in the design and implementation of innovative educational interventions particularly when these are grounded in a variety of instructional principles with which participants may be less familiar.

Participants in the focus groups expressed an interest to have additional time to practice skills and stated their preference for practical over theoretical training, while one of their critiques of the curriculum relating to sections that had more theoretical content. These viewpoints are consistent with findings from the prior research conducted at Amar Seva Sangam [12].

By incorporating an evaluation component to this project, we were able to assess the curriculum and its impact on self-efficacy, as well as participants' perceptions of applicability, uptake and impact. Doing so is consistent with the emphasis that is being placed to develop empirical research in contexts of CBR [2,26]. We chose to wait 2.5 months to repeat the survey in order to gain an appreciation of the durability of any change, however we did not formally monitor knowledge use over time (step 5 of the Knowledge to Action cycle). The focus groups allowed us to probe in more detail how participants experienced the training. This combination of data sources provided a more comprehensive portrait of the training and its outcomes. We took steps to build evidence of validity (e.g. piloting, expert reviewing) of the measure that we created for the pre-post survey which required significant adaptation of the Ohio State Teaching Efficacy Scale in order to increase its pertinence and applicability in this training context. However, a formal process of instrument validation was not possible due to time and resource constraints. The evaluation methods that we selected (self-efficacy surveys and focus groups) rely on self-report. This represents a limitation of the study in that we did not assess change in knowledge or actual practice among participants. Service users (children with delayed development and their families) were not involved in the curriculum development, though they did participate in one of the workshop activities. Assessing perceptions and acceptability of the training methods for service users would be a valuable line of inquiry in future research on this program, or for the evaluation of other train-the-trainer initiatives.

One of the challenges we encountered was related to language, a consideration that has been identified in other train-the-trainer programs based on international collaboration [24]. We developed the curricular material first in English, and subsequently translated it into Tamil. This process was necessary due to the team members' language abilities. This approach limited the ability of some of the Specialist Leads to participate earlier in the development phase. In retrospect, it would have been preferable for these individuals to be more involved in the development phase in order to improve the program's content based on their input, provide them with greater familiarity with the curricular materials thus enhancing their ability to lead workshop activities, and enable them to gain experience developing curricular materials (e.g. how to design a case study or role play activity).

Conclusion

Education is a key component of many CBR programs. The capacity to provide effective training to others is recognized as a key skillset for CBR workers [5] and critical for the success of CBR programs [2]. The contribution of the current paper is to describe the process of collaboratively developing, implementing and evaluating a tailored train-the-trainer program in a village-based CBR program in India. It also provides evidence for the effectiveness of this approach for increasing self-efficacy amongst participants, and points to the value of using active learning and teaching methods. An open question for the train-the-trainer program remains how sustainable it will be over time. We intend to assess longer-term outcomes in future research. The program at Amar Seva Sangam represents an instructive example of how a tailored train-the-trainer program can be created within a CBR program.

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