

Disability Inclusion

insight series

Inclusion of Blind Youth in **Vocational Training**

Feeling is Believing!

Since 2014, Light for the World has been working with technical and vocational education and training (TVET) centres and employers in Rwanda, Kenya and Ethiopia to improve the inclusion of youth with disabilities in the trainings and ensuing employment. This programme is called EmployAble. Despite the success attained in the first three years of the program, youth with certain impairments were still left behind. One of these groups was completely blind youth.

Blind youth face considerable challenges when it comes to benefiting from vocational training; most course curricula and assessment systems are traditionally linked to visual experience; training environments often tend to be unfriendly and a majority of TVET trainers don't know how to adapt their training to include blind learners.

If these barriers remain unresolved, they will perpetuate the discrimination of blind learners as well as limit the prospect of them accessing mainstream TVET training and securing decent employment after.

The EmployAble team in Ethiopia decided to look for a solution: how could blind youth be included in TVET training?

The Innovation Lab approach

Barriers faced by blind youth in accessing vocational training are diverse and quite complex. There are many factors contributing to their exclusion that need to be addressed simultaneously to drive real change. This presents a very broad challenge that requires time and resources that are not always available – hence the need for an Innovation Lab.

The Ethiopian Center for Disability and Development (ECDD) and Light for the World organized a design sprint: five days where all involved stakeholders as well as blind youth came together to analyze the problem and try to design solutions.

The Challenge

How can blind youth be included in Technical and Vocational Education and Training?

Problem Analysis and Strategic Direction

Patterns of exclusion identified:

- inaccessible learning environments
- lack of technical expertise among TVET teachers on inclusion of blind youth in training
- inaccessible learning equipment and environments.

Prototyping

Electronics department: tactile electric circuit and electric voltage meter with sound.

Textile department: sewing machine with tactile safety features.

Hairdressing department: Braille timer for a hooded hair dryer.

Furniture and wood-work department: wood cutter machine with a braille display; accessible wood thickness machine

The Team

Light for the World: provided technical expertise on disability inclusion.

Ethiopian Centre for Disability and Development: Lead implementing partner of EmployAble in Ethiopia.

Ethiopian National Association for the Blind: provided useful resources on the target group.

University of Addis Ababa: has a special education department which brought in new knowledge.

Selected TVET centres: involving TVET teachers in the innovation process expanded the range of expertise and ideas.

Blind Youth: represented the target group and brought invaluable lived experience to the discussion.

Ideation/Brainstorming

Two possible solutions identified:

1. Mentoring programme for TVET teachers; coaching them on innovative ways to include blind youth in their classrooms.
2. Adaptations to essential equipment used in training in selected departments to allow independent use by blind students.

Testing and Upscaling

Teachers trained on Disability Inclusive Education and Training (DIET) and mobility orientation. Prototype for the accessible wood cutter machine selected for further developing, testing and upscaling.

Basic principles of the design-sprint methodology as applied in the design sprint

Outcomes of the design sprint in relation to tackling barriers faced by blind youth in TVET training

The design sprint built the capacity of the stakeholders involved; enabling them to consider root causes of the barriers faced by blind youth in accessing TVET training as well as identify key leverage points where solutions brought forward could result in a lasting impact.

The prototypes developed could solve a piece of the puzzle in the inclusion of blind youth in TVET training, however the design sprint achieved more than practical ideas; one of the biggest achievements realized were the outcomes from the process on the TVET centers and teachers.

1. Change in mindset of TVET teachers

One of the challenges identified during the problem analysis was that TVET teachers were negative towards the idea of teaching blind youth. Many of them could not fathom a blind learner successfully undergoing training in a skill in any of the departments in the TVET college. Despite their thinking, they were open to learning and participating in the design process. A challenge posed to them upon sharing the vision of the design sprint was to identify the existing barriers that would prevent blind youth from learning effectively in their respective departments and come up with solutions to counteract the identified barriers.

In small working groups, together with blind youth, the teachers were guided through a step by step barrier-solution analysis. Their creativity was triggered. In just a few hours, the teachers were able to suggest various solutions to barriers they identified.

What had previously seemed impossible was discovered to be achievable. By simply giving the teachers, together with blind students, room to think about possible solutions, they started changing their attitude. This mindset change has had a lasting impact on the teachers, who have since been fully engaged and ready to test out the inclusion of blind youth in their trainings.



TVET instructors working on modifying a wood cutter machine with blind youth

“I used to say it was impossible for a blind person to learn carpentry but from the design sprint, I learnt that nothing is impossible – you just have to think differently.”

Getnet Kore, instructor Furniture and Wood-work department, Nifas Silk Polytechnic College.

Make it Work!

Tips on facilitating mindset change around disability inclusion in an innovation lab

- Involve people with disabilities in the process right from start. It is quite difficult for those without disabilities to imagine what people with disabilities can or cannot do. Involving the target group can help dispel some myths and ensure that the ideas brought forward are tangible and impactful.
- Explain the challenge you are trying to solve, as well as your vision, and ensure that your stakeholders see themselves as a part of it. Generate an emotional commitment from them to see it through. This could be achieved through sharing personal stories of both the challenges that people with disabilities have faced and the successes that some of them have achieved despite the struggles.
- Show your stakeholders that it has been done before! Find examples of similar processes that have been done in different countries or sectors to show them that the idea is not far-fetched and is achievable with the right attitude.
- Following a step by step barrier-solution analysis as done in the design-sprint methodology will systematically facilitate the creative problem-solving process.

2. Solutions to address accessibility in training equipment

The majority of essential equipment used during training for many vocational skills require vision to operate safely. This means they cannot be used independently by blind students. Adaptation of the equipment is thus needed. We organized a co-creation session to develop viable prototypes of adapted equipment.

Divided into small working groups, teachers from four departments at Nifas Silk Polytechnic College selected one essential training equipment, and brainstormed adaptations to make it accessible to blind students. During this session, five prototypes were developed:

Tactile electric circuit:

The Electronics department designed a tactile electric circuit using Styrofoam, wires and paper that blind students would be able to feel and understand the fundamentals of electricity from. This is a contrast to the standard electric circuit which is traditionally drawn on paper.

An electric voltage meter with sound:

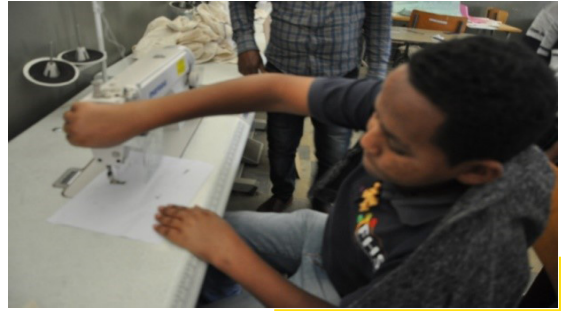
The Electronics department also designed an adaptation to a voltage meter. The traditional voltage meter, when connected parallel with a device, displays the voltage reading visually. This adaptation enables an audible reading in addition to the visual display.



A voltmeter with an added sound system

A tactile safety feature for a sewing machine:

The Garment and Textiles department came up with a tactile safety feature that notifies a blind user where their fingers are in relation to the sewing needle to prevent injuries.



Blind youth trying out the function of the tactile safety feature

A Braille timer for a hooded hair dryer:

The Hairdressing department came up with a Braille display that can enable a blind hairdresser to set the timer on the hooded hair dryer correctly and independently.



Hooded hair dryer with Braille numbering

A Braille display for a wood cutter machine:

The Furniture and Wood-work department came up with a Braille display that was added to the wood cutter machine to enable a blind user to adjust the thickness and shape of wood they intend to cut.



Blind youth tries to independently cut wood into a design with the modified wood cutter machine.



The pieces of wood successfully cut



An instructor assists the blind learner to assemble the wood pieces



Blind youth with the stool they prepared using the modified machine and with the support of the instructors

Nifas Silk Polytechnic College in Addis Ababa joined the EmployAble program in 2017 following a discussion with ECDD on taking on learners with disabilities in various courses offered by the TVET.

Before getting involved with the EmployAble program, the TVET had never recorded an admission from an individual with a disability and none of the staff had any experience teaching or interacting with learners with disabilities. Since 2016, the majority of both teaching and support staff have attended at least one disability awareness training covering Disability Inclusive Education Training, mobility orientation training and specific advice on including learners with different types of impairments in their trainings. In 2018, the TVET also gained a partnership with the German government to provide integrated vocational training for refugee and host communities – the first ever of its kind in Ethiopia.

Following an accessibility audit conducted by ECDD, the college has taken steps to address the accessibility challenges identified: over 6 ramps have been constructed to allow access to classrooms and workshops; paths connecting building blocks and departments have been paved and leveled to ease movement around the school premises particularly for people with visual and physical impairments; a sign language interpreter has been hired to aid communication among teachers and their learners with hearing impairments; and staff with disabilities have been hired in a few departments.



Paved flat pathways to enable easy mobility for people with physical and visual impairments



Ramp constructed to enable access to classrooms and workshops

These efforts have started bearing fruit; the college enrolled 39 students with disabilities in 2019 with more learners from other TVET colleges transferring to the college as word continues to spread about their openness and willingness to taken on learners and staff with disabilities.

The Furniture department of the TVET college is currently taking lead with support from Addis Abba Science and Technology University (AASTU) to develop and test the accessible thickness machine prototype; an idea also born during the Innovation Lab. Another partnership with a private sector actor, Tom E-bike, has been gained to test and further develop electric bikes which learners with physical impairments can use to get around the college premises with more ease.



The electric bike developed in partnership with Tom E-bike

The college hopes to continue growing more confidence and expertise in disability inclusive TVET training and act as a role model to other TVETs in the country; motivating others through their actions and successes to take on disability inclusion within their own institutions.

Make it Work!

Tips on adapting instructional materials for the inclusion of blind learners

Generally, you do not have to alter the curriculum or standards when including blind learners: modification is in the presentation of material.

- Learners will often use touch to learn course material. Introduce materials important for a lesson/ skills training physically and allow ample time for the learners to get familiar with them. This process could happen over a period of lessons. Braille or electronic formats can be used for documents that require written text. If the information is not easily portrayed through words, a common adaptation is tactile presentation/drawings; using any readily available material such as heavy-weight paper, wood, plastic, thin metal or rubber.
- Verbal information can also be used for adaptations; use consistent terms and vocabulary to describe a procedure, object or a concept. Make comparisons in terms of size, texture and behaviors to objects and other things that the learner is already familiar with. Explain and label objects and materials in a systematic parts-to-whole sequence. Provide opportunities to explore and identify all of the parts and help learners develop a mental model of how the parts can combine to create a whole. Class notes can then be audiotaped or transcribed in Braille by the learner to be referenced later.
- Simple, minimal adaptations can go a long way in enabling a blind learner to develop a skill/ grasp lesson material. If adaptations are too detailed, they may take too long to develop and could appear cluttered to the learner. Involving the blind learner every step of the way will enable you to keep the adaptations simple and relevant.
- Safety is a primary concern for any practical learning course. However, because blind learners cannot easily identify potential hazards, special attention needs to be paid to the safety of the learner(s). Use of sound cues, Braille signs at identified danger points for equipments and the use of a sighted partner can assist in identifying safety concerns.

Conclusion

Inclusive vocational training is about ensuring that youth with disabilities have similar choices, access and opportunities as other young people, and that their needs and ambitions are taken into account rather than their impairments. During a design sprint involving both teachers and blind youth, we were able to change the attitude of teachers towards training blind students, as well as develop several adaptations to equipment that will enable blind youth to use them. This brings us one step closer to ensuring inclusion of blind youth in vocational training.

By bringing people together and asking them to think outside the box, it is now possible for blind youth to successfully learn a vocational skill of their choice!

For more information:

Disability Inclusion Lab- lab.light-for-the-world.org

Authors: Andera Delfyna

Judith Baart

Associated Publications: [Innovate for Inclusion](#)

[EmployAble Programme](#)

The Ethiopian Center for Disability and Development promotes and facilitates the inclusion of persons with disabilities and disability issues in mainstream service delivery and development programs in Ethiopia. ECDD leads the implementation of the EmployAble programme in Ethiopia in partnership with Cheshire Services Ethiopia. Addis Ababa Science and Technology University (AASTU) and Nifas Silk Polytechnic College are currently working with ECDD to further develop an accessible wood thickness machine; an idea born through the Innovation Lab process.



Light for the World has established the Disability Inclusion Lab as a space for NGOs, disabled people organisations, governments and businesses to come together to make disability inclusion work. Learn more about their work on lab.light-for-the-world.org.

The Disability Inclusion Insight Series is a series developed by Light for the World. The series shows different approaches taken by organisations on disability inclusion in economic empowerment, providing inspiration and practical support to development professionals in their endeavours to make disability inclusion happen within the designs of current and future programs.

This Insight Brief is funded by Light for the World and Liliane Fonds through the EmployAble programme. EmployAble is an initiative which works together with vocational training centres, informal skills providers and employers to improve accessibility and capacity for inclusive vocational training and inclusive work for youth with disabilities.

