

Report on

**Instructional Design Training
for
Digital Scouts**

**Organized by ICT-ET
in Collaboration with EtHERNet-MoSHE and STEP-GIZ**

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Acknowledgement

“Gratitude is the hardest of emotion to express and often does not find adequate ways to convey the entire one feels.”

The first part of the Digital Scout program has been completed shortly. It has achieved two vital tasks, namely, the TtT and TVET E-Learning Content Development. The achievements have footprints of many individuals and institutions, whose contributions at various levels are remarkable. I feel that, this is time to take the opportunity to reflect and express sincere thanks and deep sense of indebtedness to all who contributed for the success of this program.

Special thanks and gratitude goes to Mr Yilkal Abate (ICT-ET) for the program initiative and coordination at all stages; and Mr Michael Asrat (STEP-GIZ) for his tireless efforts of coordination, following up the training and Digital TVET content development, participating in instructors-instruction designers’ meetings and recruitment of instructors from, polytechnic colleges. Dr. Zelalem Assefa and Miss Lensa Aberra (EtHERNet), Mr. Habrom G-Egiabher and Matiyas Teshome (TI) deserve tons of thanks for motivating digital scouts and hosting digital learning materials.

At last and utmost, I would like to express my sincere thanks to the Digital Scouts, who diligently worked including weekends, travelling to various place to meet instructors with risk of COVID-19 pandemic. The remarkable efforts of instructors from FI and polytechnic colleges and institutions earn big applause and thanks for providing contents, redesign digital development contents.

Acronyms

DSP	Digital Scout Program
EtHERNet	Ethiopian Higher Education and Research Network
ICT-ET	Association of Information and Communication Companies in Ethiopia
GIZ	Society for International Cooperation (Gesellschaft fuer international Zussamentarbeit)
LMS	Learning Management System
LU	Learning Unit (equivalent to Learning Module or Competence Unit)
MoSHE	Ministry of Science and Higher Education
SME	Subject Matter Experts
STEP	Sustainable Training and Education Programme
TI	Federal TVET Institute
TtT	Train-the-Trainer
TVET	Technical and Vocational Education and Training
TPC	TVET Polytechnic Colleges

Executive Summary

The Digital Scout program (DSP) is a partnership among EtHERNet- MoSHE, STEP-GIZ, and ITCT-ET as support to higher learning institutions to commence remote learning. The initiative ‘Digital Scout’ came along with the COVID-19 pandemic crisis management in Ethiopian Higher Education, particularly the urgent need to support Technical and Vocational Education and Training (TVET). To achieve its objectives, DSP, recruited and hired recent IT and Computer Science graduates as Digital Scout and senior Didactical Expert as trainer and advisor and it was hosted from May-September 2020 hosted by the MoSHE, at the EtHERNet. One of the major tasks was Website development for selected TVET polytechnic colleges and enriching the national digital library.

Training for Digital Scouts as prospective trainers has been designed at TtT. The initial intended outcomes of DSP have been redesigned as providing TtT as on-the-job training focussed on instructional design and content development. Efforts were made to design the TtT in four modules, i.e. Basics of E-Learning, Instructional Design, Learning Management System, Multimedia Design and Development, and Online Teaching and E-Facilitation. Time allocated for the training was in total 228 hours, where 152 hours were self-paced learning and 76 hours synchronous lecture-based sessions. Digital Scouts were also designing Websites for TVET polytechnic colleges and adjusting digital library hosted at the EtHERNet.

This was arranged as a collaborative digital learning materials development for TVET with TI and TPC. Moreover, an E-Learning Team was established a team digital learning materials development was undertaken. Accordingly, 26 instructors and 11 instructional designers (the Digital Scouts) have selected 24 TVET modules. Finally, 19 Modules from 10 TVET institutions and TVET Polytechnic colleges were completed, consisting of module outline, lecture captured, learning assessment and further reading materials. Fields of specialization were construction (6), manufacturing (5), ICT and Electronics (4) followed by Garment, Hotel and Hospitality and Maths, each 2 modules and Mechanics 1.

Learning experiences were understanding the need for ICT supported TVET and E-Learning development has been understood as an overdue assignment education institutions and development partners. Besides, digitization of teaching-learning materials for TVET and E-Learning program, as a new pedagogical approach. Challenges were, digitization of teaching-learning materials for TVET and E-Learning program The challenges of the DSP were its nature, i.e. a small project started as a mere support to MoSHE to facilitate remote learning during the COVID-19 pandemic. There was neither detailed project plan nor sufficient resources allocated. The partnership between project implementers was also not well defined.

Finally, the recommendation of the DSP is to continue with the capacity development scheme and seriously considering the learned experiences. Formulating potent E-Learning policy and strategy and integrating E-Learning into the teaching-learning system was also knowledge gained.

This report has been compiled with the intention to present and provide in a most detailed manner, with relevant crucial information and insights as to the steps taken in Digital Scout program (DSP) implementation at various stages.

1. Background

This report has been compiled with the intention of providing insight into and full information the learned experiences from Digital Scout program (DSP) implementation process at various stages. The initiative ‘Digital Scout’ came along with the COVID-19 pandemic crisis management in Ethiopian Higher Education, particularly the urgent need to support Technical and Vocational Education and Training (TVET). A concept note on “Ethiopian Education in the Times of Covid-19” particularly for TVET sector, prepared in April 2020 by the Ethio-German Sustainable Training and Education Programme (STEP) states that “Digital Scouts is an emergency learning initiative meant to provide support to teachers on how to use remote learning and online communication (e.g. email, social media channels) tools.” Specific objectives of the initiative were designed to provide support higher learning institutions related to technology and didactics issues to ensure the well function of remote learning.” Moreover, the intention was also to support Ministry of Science and Higher Education (MoSHE) in the process of digitizing teaching-learning materials that will be used for remote learning.

In order to achieve this goal, initiators of DSP recruited and hired recent IT and Computer Science graduates as Digital Scout and senior Didactical Expert as trainer and advisor. Accordingly, the DSP as ‘Remote Learning Support’ was commenced its operation end of May 2020 hosted by the MoSHE, at the EtHERNet. One of the major tasks was Website development for selected TVET polytechnic colleges and enriching the national digital library. The other major task was training Digital Scouts as prospective trainers to support remote learning. The ultimate intended outcomes were thus engaging Digital Scouts and Didactical Expert, altogether - establishing hotline, which will be contributions of STEP.

Based on these intended goals of the scanty and not explicit concept note for implementation, the Didactical Expert (senior advisor and training) further redesigned and reconfigured the DSP in consultation with ICT-ET and EtHERNet. Thus, the DSP structured to consist two major goals, i.e. Instructional Design and Content Development, as Train-the-Trainer and on-the-job training, and supporting TVET instructors to develop digital teaching-learning materials, so that TVET students will have digital learning materials to access remotely during the COVID-19 pandemic as well as post pandemic era.

The on-the-job training and digital learning materials development scheme were arranged in collaboration with the Federal TVET Institute (TI) and selected TVET Polytechnic Colleges (TPC). This was designed due to immense advantages, namely, gaining practical skills and competency capacity development for Digital Scouts and Instructors of TI and TPC; establishing institutional collaboration in E-Learning development. In addition, it is also an effort to institutionalize and sustain the Digital Scout program.

2. The Program - Digital Scout

One of the driving force to commence on DSP is to tackle the COVID-19 pandemic crisis in the TVET institutions and polytechnic colleges. Due to schools and higher learning institution close down, it was difficult to continue with the teaching-learning remotely. One of the

inhibiting factors was absence of digital learning materials, internet connective, and lack of readiness and skill to manage effectively online learning. Therefore, there was an urgent need to initiate this program, so that the young graduates can facilitate remote teach-learning.

2.1. Objectives

Initially, the main goals of the DSP were:

- Setting up hotline at MOSHE/Ethernet
- Locating digital scouts to TVET institutions
- Digital scouts support partner institutions

However, the program objectives were refined as:

- Providing instructional design and content development TtT courses to Digital Scouts,
- Designing the TtT as on-the-job training
- Arranging collaborative digital learning materials development for TVET with TI and TPC
- Establishing digital learning materials development (E-Learning Team), mainly instructors (subject matter experts), instructional designers, and IT expert.
- Selecting learning modules and didactical design methods
- Developing learning materials and make them available for online teaching-learning.

2.2. Major Actors

The program attracted different actors at different levels with different roles. The ICT-ET took responsibility of coordination of the program implementation in collaboration with STEP-GIZ, EtHERNet-MoSHE. Beside, hosting Digital Scouts and providing space for the training, MoSHE-EtHERNet coordinated Website development for TPC and enriching digital library. Later, the TI and its instructors, entered into the collaboration. The program organization and networking of partnership is depicted in Figure 2.1.

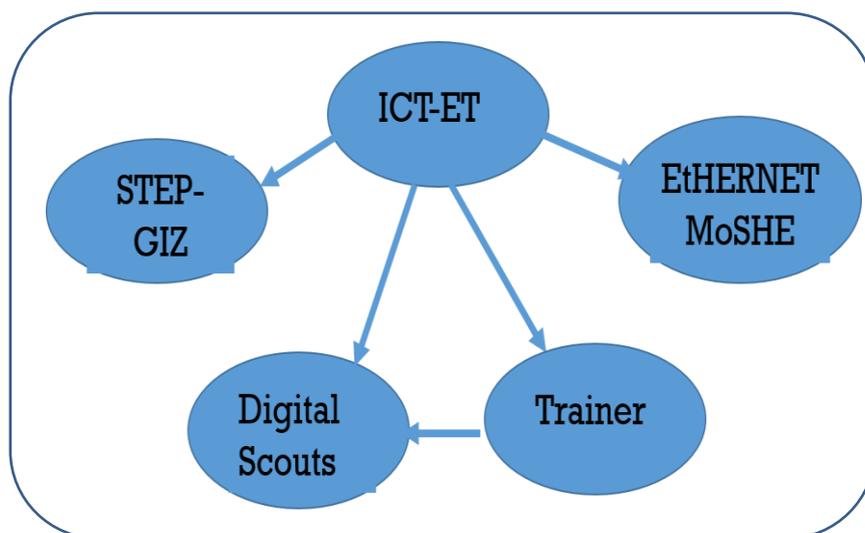


Figure 2.1. Program Organization

Details of the roles and responsibilities of each actor are summarized below in Table 2.1.

Table 2.1 Role and Responsibilities of Actors

Actors	Role and Responsibilities	Remarks
ICT-ET	Main program coordinator	
EtHERNet - MoSHE	Hosting Digital Scouts, coordinated Website design and hosting digital library	
STEP-GIZ	Supporting the program with financial and material resources	
TI	Recruiting instructors, assisting coordination of content development and hosting Digital Scout and digital learning materials	
Digital Scouts	Instructional designing and assisting instructors in content development, and developing Website for TVET polytechnic colleges.	
Instructors	Subject matter experts, providing content and working together with Digital Scouts in the digital content development process	
Trainer	Providing TtT for Digital Scouts and orientation/seminar to instructors as well as leading the content development and deployment	

2.3. Target Outcome

Based on the objectives and resources available, the intended outcomes of the DSP were devised as:

- Formation of skill and competency Digital Scouts
- Digital learning materials for TVET with which the TI and PTC can start teaching online
- Learning experience in instructional design, digital content development and online teaming.

There are also some derivative outcomes such as established institutional cooperation and public-private partnership.

2.4. Timeline and Deliverables

Major activities and deliverables for the TtT and digital content development for TVET were:

1. Redesigning the project concept and Developing Working Schedule
2. Preparing five Train-the-Trainer (TtT) Learning Units (Modules)
3. Organization and execution of on-the-Job-Training at the Federal TVET Institute (TI) and TVET Colleges
4. Recruiting instructors, as Subject Matter Experts (SME)
5. Identification and selection of TVET Modules for digitization

6. Organization of seminars and short training for instructor on didactical design
7. Coordination of digital E-Learning modules for TVET together with trainees and instructors
8. Configuring the Learning Management System (LMS) Moodle and uploading E-Learning modules in collaboration with TI

Details of the activities, deliverables (outcome), and responsible entity including the timeline are provided in Table II

Table 2.2: The TtT and Digital Content Development for TVET

Activities	Outcome	Responsibility	Timeline		
			July	August	September
1. Redesigning the project concept and Developing Working Schedule	New TtT Concept Working Schedule	Trainer			
2. MODULE I: Basics of E-Learning	Trainees comprehend Basics of E-Learning	Trainees and Trainer			
3. MODULE II: Instructional Design	Trainees are capable to design E-Learning Courses	Trainees and Trainer			
4. MODULE III: Learning Management System (LMS)	Trainees care able to administer LMS	Trainees and Trainer			
5. MODULE IV: Multimedia Design and Development	Trainees are capable to development multimedia elements	Trainees and Trainer			
6. MODULE V: Online Teaching and E-Facilitation	Trainees comprehend online teaching principles	Trainees and Trainer			
7. On-the-Job Training and arrangement with Federal TI and TVET Colleges	Agreement on-the-Job Training and collaboration in Digital TVET Content	Trainees, Trainer and TI			
8. Course selection	22 TVET Courses were identified from 9 institutions	Trainer, Instructors and STEP coordinator			
9. Trainees and Instructors orientation on Digital TVET Content	E-Learning team established	Trainer and Instructors Trainees,			
10. Seminar on course development tools selection	Module development and Learning Object templates: Lecture capturing tool	Trainees, Trainer and Instructors			
11. Supporting and follow up Content development	Prepared three templates and organised weekly virtual conferences.	Trainees, Trainer Instructors, and STEP coordinator			
12. Coordination of Content development	Support and motivation	Trainees, Trainer Instructors, and STEP coordinator			
13. Digital content development	Redesigned modules with structured Learning Objects	Trainees and Instructors			
14. Preparation of Lecture Slides and review	Lecture slides	Instructors and Trainees			

Table 2.2: The TtT and Digital Content Development for TVET (cont. ...)

Activities	Outcome	Responsibility	Timeline		
			July	August	September
15. Live Lecture Capturing, editing	Audio-Video Lecture materials	Trainees and Instructors			
16. Module content integration	E-Learning Module, including lecture captured and assessment	Trainer, Trainees and Instructors			
17. Configuring LMS to upload digital Modules	Configured Moodle and TI server, uploaded modules	Trainer, Trainees and IT director, TI			
18. Testing and evaluating uploaded digital modules	Evaluation report	Trainer, Trainees and IT director, TI			
19. Organization of Closing reflective Video Conferencing	Reflection, testimony and the way forward	Trainer, Trainees and TI, STEP Coordinator			

3. Instructional Design and Content Development Training

3.1. Program Redesign

The DSP concept note was scanty concerned with implementation. Therefore, there was a need to redesign to achieve the most out of this compact program and resources available. The program implementation process is provided in figure 2.1.

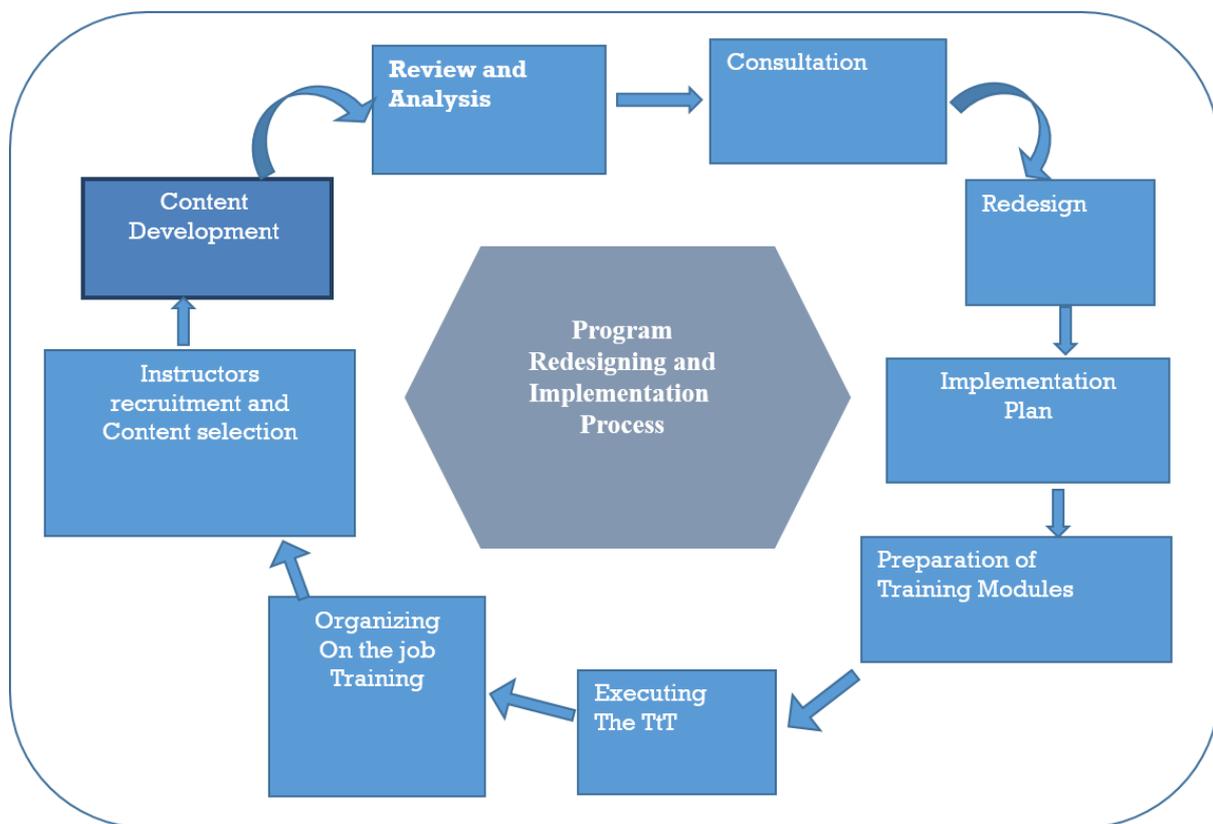


Figure 3.1. DSP Redesigning process

3.2. Training Modules for Train-the-Traineer

The TtT was organised into five modules (i.e. learning units). Each module has been given weights and specific time. The time allocation has been also categorized into lecture sessions and recommended trainees self-paced learning time. More weight was given to instructional design followed by multimedia development. Due to the IT background of training, more time was allocated for the didactical design, pedagogical approach, and education technology.

Table 3.1: Training Modules, description and time allocation

Module Name	Description	Time allocated (Duration, in Hours)		
		Lecture	Self-paced learning	Total
1. MODULE I: Basics of E-Learning	Introduction to technology-enhanced pedagogy, fundamentals of E-Learning	15	30	45
2. MODULE II: Instructional Design	Pedagogical approach, didactical design and education technology. Main focus was also analysing learners, selection pedagogical approach, structuring modules and designing modules for E-Learning.	25	50	75
3. MODULE III: Learning Management System (LMS)	Introduction of tools, facilitate online learning, configuring virtual learning room, virtual communication, personalize and collaborative learning. Besides, overview of LMS comparison, selection, configuration and course uploading were also discussed	12	24	36
4. MODULE IV: Multimedia Design and Development	Introducing to multimedia elements and use in digital learning, visualization and integration into E-Learning system	14	28	42
5. MODULE V: Online Teaching and E-Facilitation	This dealt with online teaching profession, scheduling, teaching, facilitating, assessing effective learning, supporting online learners	10	20	30
Total Hours		76	152	228

The teaching-learning workload allocation between self-paced learning and instructor-led lecture is summed up diagrammatically in figure 3.2.



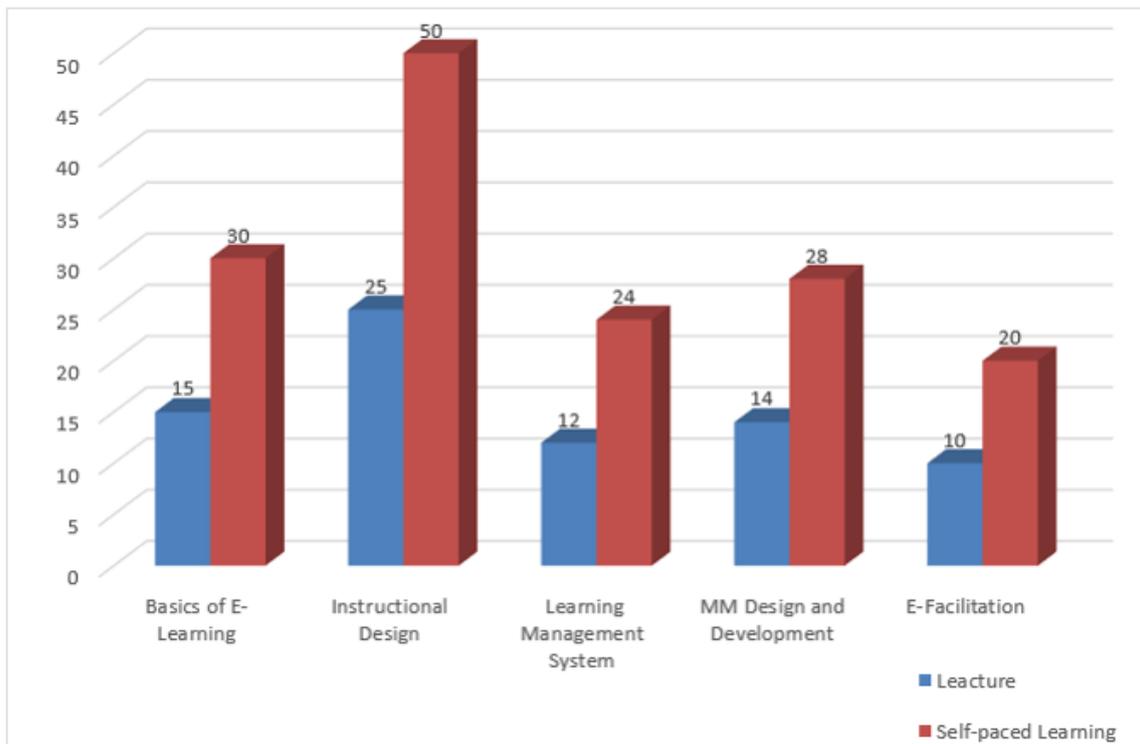


Figure 3.2: Teaching-learning workload and time allocation

3.3. Training and Activities

The training program was organized into three categories.

- The first category for six weeks (July to mid-August) was presence sessions, i.e. lectures and class activities. Lectures and activities were provided on Monday, Wednesday, and Friday, mainly in July and August.
- In September trainees were engaged in
- Group Assignment (Project) Online Discussion

Table: 3.2: Activities - Coordination of TtT and digital content development for TVET

Activities	Outputs	Responsibility	Timeline		
			July	August	September
1. MODULE I: Basics of E-Learning	Trainees comprehend E-Learning Basics	Trainees and Trainer			
2. MODULE II: Instructional Design	Trainees Analyse and design E-Learning Courses	Trainees and Trainer			
3. MODULE III: Learning Management System	Trainees Analyse and design E-Learning Courses	Trainees and Trainer			
4. MODULE IV: Multimedia Design and Development	Trainees Analyse and design E-Learning Courses	Trainees and Trainer			

5. MODULE V: Online teaching and E-Facilitation	Trainees are exposed to online teaching and online facilitation of courses	Trainees and Trainer			
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3.4. Training Assessment

Assessment of effective learning was conducted in a continuous formative and summative assessment methodology. Lecture and online discussions were accompanied by short individual and group activities. Trainees were also working on group (collaborative) and individualized assignments. Assignments were regularly submitted, and presented in a plenum.

At last, trainees compiled training materials as a final project. The self-reflection on effective learning has been also captured by individual trainee E-Portfolios. The E-Portfolios consists of brief profile, reflection on TtT and personal learning, and show cases from digital content design and development for TVET E-Learning.

4. Digital Content Development for TVET

4.1. The Initiative

While redesigning the TtT curriculum, the trainer thought that TtT shall be practice-oriented as well as, at the end of the TtT program both trainees and hosting institution shall have outputs that can be further used as teaching-learning materials or used for further training. Therefore, one part of the TtT has been designed as content development for TVET institute and TVET Polytechnic colleges. This part of the TtT was hosted by the TI.

4.2. Establishment of E-Learning Development Team

One of the most important tasks and principles of quality and sustainable E-Learning development is establishment of E-Learning team from various profession and clearly distinct the area of competency. The vital step was organizing E-Learning Team consisting of

1. Subject Matter Experts (instructors)
2. Instructional designers
3. Multimedia Developers
4. IT experts and LMS administrators

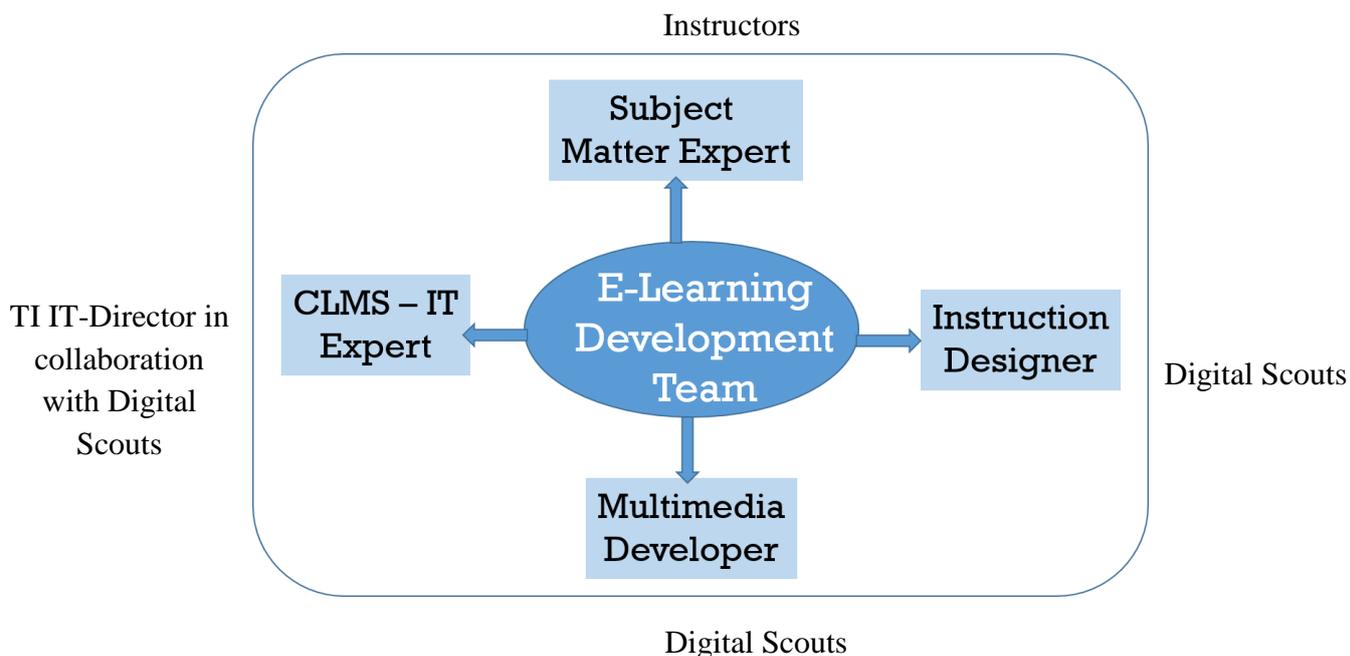


Figure 4.1. E-Learning Development Team

4.3. Content Development Arrangements and Process

After establishing E-Learning development team, the next step undertaken was to arrange the development process. Subsequently, the real roles in the development process have been identified and activities have been allocated to each team. Course selection has been undertaken upon prior discussion and agreement with instructors and TI. The selection criteria was:

- 1.) The focus was on vital technical course
- 2.) Modules were identified to which learning materials are available and instructors are volunteer to participate

The overall arrangement and coordination is summarized in table 4.1.

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Table 4.1: Content development arrangement and coordination

Activities	Facilitated by	Outcome
Instructors recruitment	TI, STEP	26 instructors were recruited
Orientation on course selection	Trainer	The project objective understood
Course selection	Trainer, Instructors	22 courses were identified
Training on preparation of E-Learning module	Trainer, Instructional Designers	Redesigned module
Establishing E-Learning Team	Trainer, Instructors, Instructional Designers	E-Learning Team

Preparation of didactical design templates	Didactical Expert / Trainer	Module design templates
Coordination of digital learning materials development	Instructors, Instructional Designers	Learning Module, Slides, learning evaluation materials
Live lecture capturing	Instructors, Instructional Designers	Digital Audio-Video learning materials
LMS configuration and Digital Learning materials uploading	Instructional Designers, IT system Admin	All digital learning materials were uploaded on the LMS

The digital content development process is also visualized in Figure 4.2.

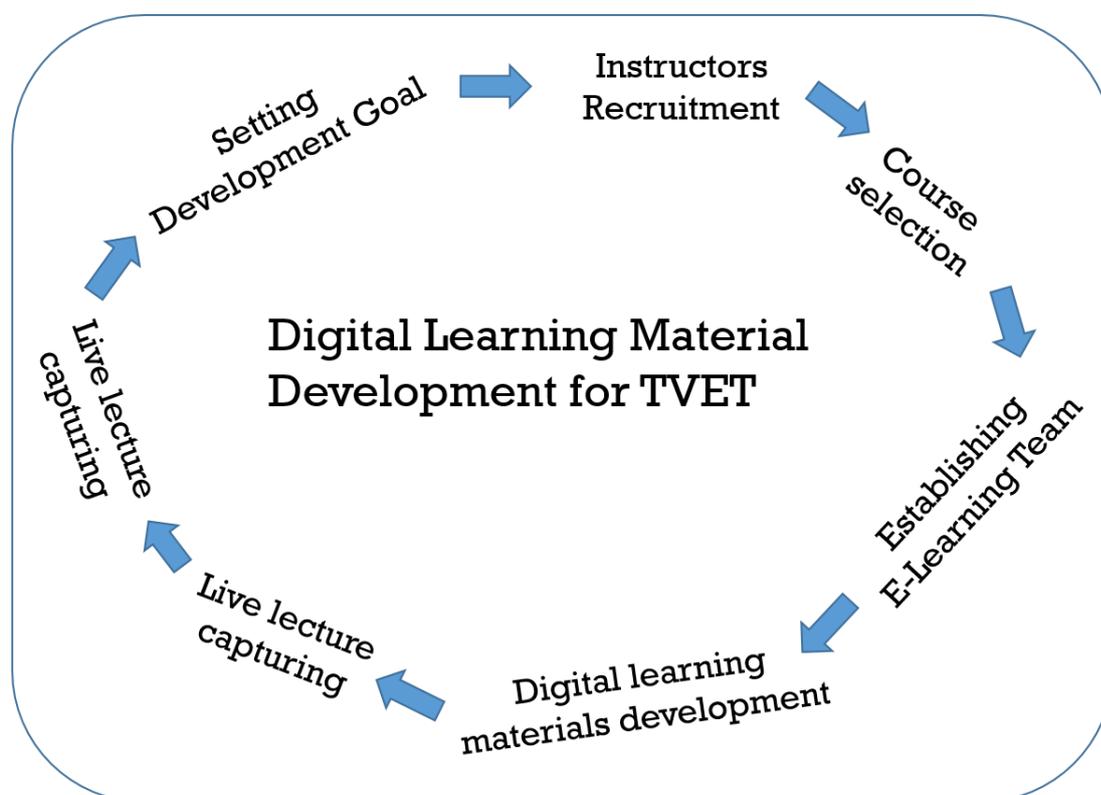


Figure 4.2. Digital Learning Materials Development Process and Arrangements

5. Live Lecture Capturing and Integration into LMS

One of the most important part of the content development process is live lecture capturing. Through lecture capturing, instructors can enrich the teaching-learning materials, which otherwise would have been difficult to provide comprehensive digital learning materials. Live lecture captured will give students more ample time to use the recording materials repeatedly online or offline. On the other hand, live lecture capturing can be equated with the fact-to-face lecture, mainly because the instructors' body language and explanatory gestures and equations can be captured. Increasing use of lecture capture technology and of the growing pedagogical

acceptance to effective virtual learning, particularly the potential impact that allowing students to revisit content post-lecture could have greater impact on teaching-learning.

The lecture capturing initiative scheme started with:

- Instructors prepared presentation slides, based on a template for visual communication and presentation was prepared by the trainer,
- Instructional designers and content developers (i.e. the Digital Scouts) were given assignment to identify, select, install and test a suitable and usable tool,
- At last, a short training has been provided to instructors how to start recording their lectures. The recorded materials were then edited and integrated into the digital learning materials repository.

The whole process of lecture capturing is summarized in Figure 5.1

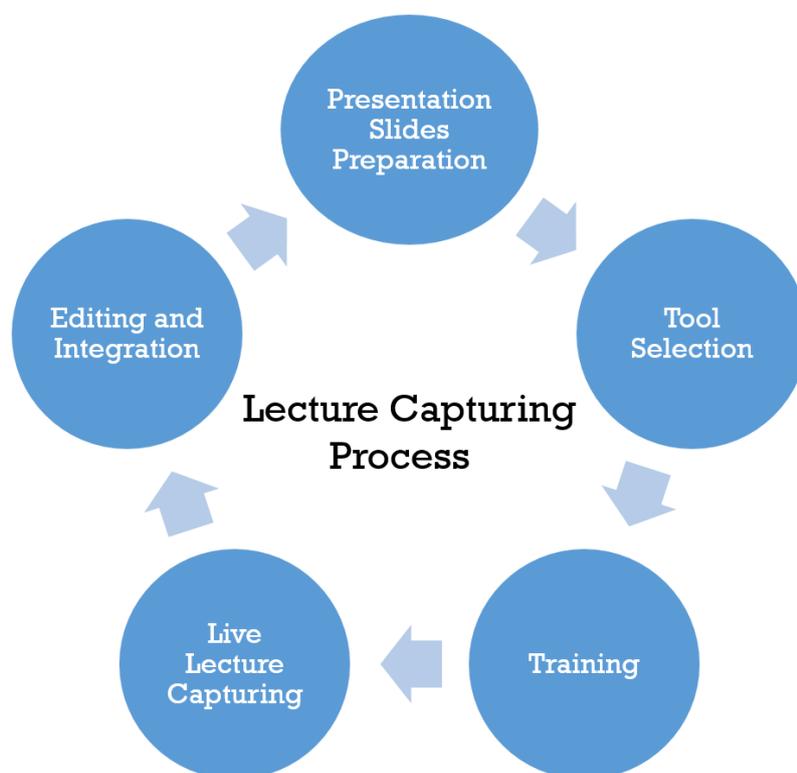


Figure 5.1. E-Learning Development Team

6. Program Outcome

Major results of the DSP are the achievements of the intended outcome, namely, training Digital Scours as trainer; instructional design and digital materials development skills; and learning materials developed for online teaching.

6.1. Employable Skill and Capacity Building

Vital outcomes of the DSP developing skills and competency of Digital Scouts so that they can support remote learning as initially planned and increased the employability chances of the Digital Scouts. Other benefits are also supporting TVET sector in tackling the schools close down due to COVID 19 pandemic as well as capacity building instructors and TVET institutions. The Benefits and outcomes are:

1. Train-the-Trainer

The DSP has achieved its planned objective of capacitating trainees as potential instruction design and digital learning materials development trainers fulfilling some of the requirements. Trainees accomplished basics of E-Learning, didactical and instructional design, digital, content development (including multimedia development) and E-Facilitation compact courses. Besides, trainees gained practical skills with coordinating content development, project assignments, and regular presentations. All these qualify Digital Scouts as junior E-Learning experts and TtT.

2. Instruction Design and Development for TVET

The DSP has also provided instructors short seminars and assisted them to redesign and digitize their teaching modules. Moreover, the learning experiences range from working in an E-Learning development team to effectively using lecture capturing tools. This could be considered as a capacity building measure.

3. Institutionalizing Instruction Design and Development

The other vital effort with the DSP was to anchor the Instruction Design and Development at the Federal TVET institute (TI). The benefits of the outcomes for TI are

- Majority of the instructors who participated in the seminars on instructional design and content development for TVET were from the TI
- Instructors learned working with instructional designers and E-Learning team
- The TI IT directorate and the Digital Scouts configured Moodle LMS and uploaded digital courses i.e. obtained a workable LMS
- Digital learning materials developed are hosted at TI LMS and server which can be easily used for teaching-learning.

Therefore, the result of the DSP has achieved in providing capacity building tasks and the learning experience in instruction design and E-Learning module development for TVET institutions and instructors involved in content development was an important outcome of this TtT and the digital scout project in general.

6.2. Digital Teaching-Learning Modules

One vital contribution of this program is instructors have digitalized their teaching-learning modules. Out of 22 selected modules 19 have been completed and three of them are semi-processed.

The E-learning team agreed that the structured and didactically designed a module shall content contain:

1. Module extended Outline and highlight
2. Learning outcome/objectives
3. Learning Object / Unit of Competence
4. Learning evaluation
5. Audio-video lectures (live captured and embedding / referenced)
6. External materials

Modules redesigned and completed, i.e. consisting of all components of the learning module will be used for the teaching and learning practice of TVET institutions and instructors. They can be used online during COVID-19 pandemic and for post COVID-19. Accordingly, table 6.1 shows modules completed and uploaded on the TI LMS.

Table 6.1. TVET Module digitized and upload on the LMS of Federal TVET Institute

Module	Department	Institute/Polytechnic	Remarks
1. Install and Maintain Basic Pneumatic and Hydraulic System	Mechanics	Selam TI	
2. Fundamentals of Hydraulics	Water Works Construction	TI	
3. Preparation of Apitizers and Salads	Hotel and Hospitality	Misrak poltytechnic collage	
4. Basic Methods of cookery	Hotel and Hospitality	Misrak poltytechnic collage	
5. Producing Pattern Using Computer CAD System	Manufacturing	Bole and Goffa	
6. Basic Mathematics for natural Science	Maths	TI Kombolocha Satelite	
7. Applied Mathematics I	Maths	TI	
8. Surface Preparing for Plastering	Construction	Misrak poltytechnic collage	
9. Plumbing	Construction	TI	
10. Producing Pattern Using Computer CAD System	Garment	Bole industrial college	
11. Creating pattern applying advanced pattern making principles	Garment	Gofa industrial college	
12. Participate in Workplace Communication	: Electrical and Electronics	Tegbared Polytechnique College	
13. Design a Database	ICT	Misrak Polytechnique College	
14. Drawing	Manufacturing	Tegbare-id	No Lecture captured
15. Entrepreneurship Module design dev	Manufacturing	TI	No Lecture captured

16. Performing Routine Metal Arc Welding	Manufacturing	Misrak Poly Technic College	
17. : Identifying properties of metals	Manufacturing	Tegibareid Polytechnic College	
18. Database and IT Support Service	ICT	TI	
19. Fundamentals of programming I	ICT	Misraq	

On the other hand, three modules are considered as semi-processed, since the lecture capturing was not undertaken, and they have been not yet uploaded. These are summarized in table 6.2.

Table 6.2: TVET Module digitized and upload on the LMS of Federal TVET Institute

20. Fundamental Engineering Mechanics	Construction	TI Adigrat Poly Technic College Satellite	No Lecture captured
21. Educational psychology and Educational Measurement and Evaluation of learning	Construction	TI	
22. Educational psychology	Construction	TI	

A summary of modules developed by fields of specialization and by institutions are provided in figures 6.1. and 6.2. respectively.

Module Development by Departments and Fields of Specialization

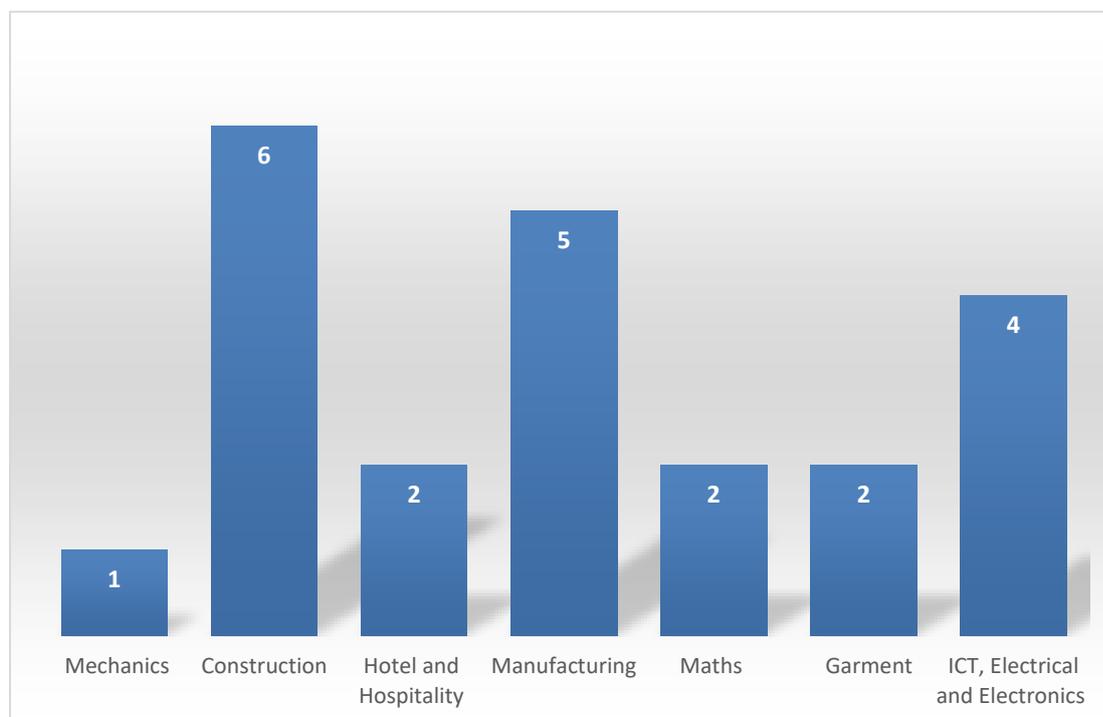


Figure 6.1: Module Development by Fields of Specialization

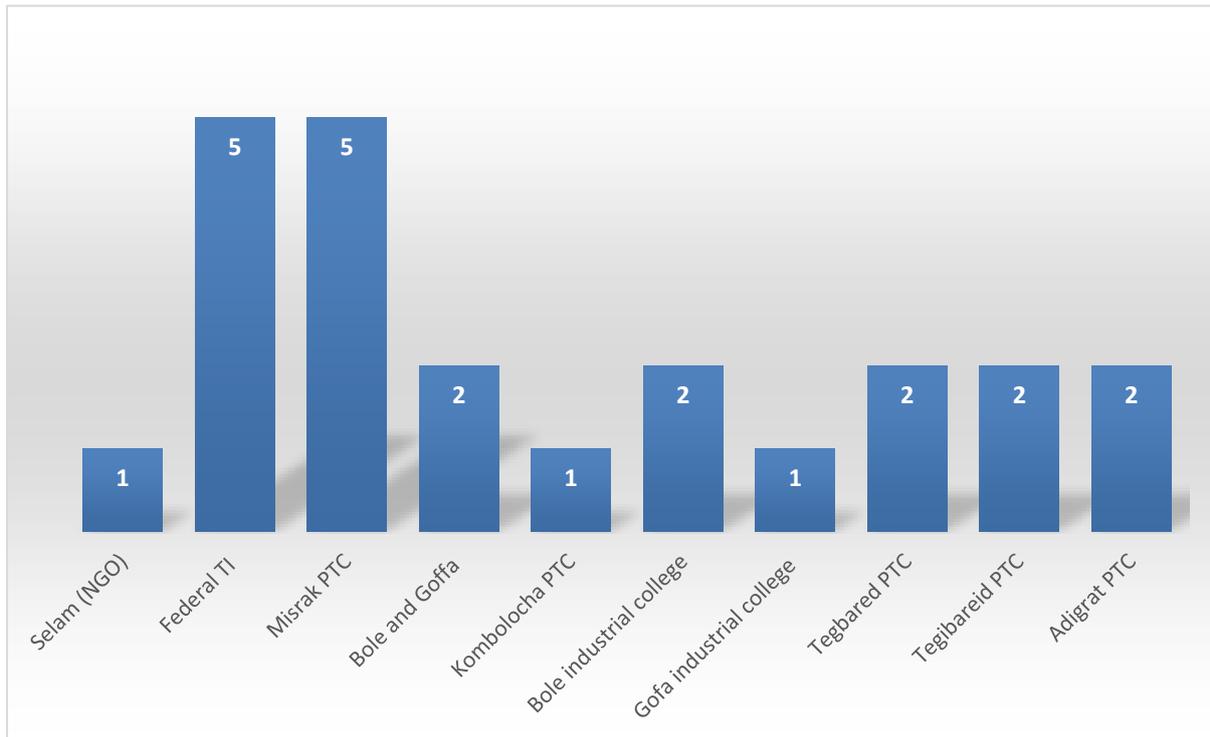


Figure 6.2. Module Development by Institutions

7. Challenges and Reflections on Learning Experiences

One of the main outcomes of the DSP was the learning experiences, especially in tackling the challenges. There were some challenges, which could be considered as learning experiences.

7.1. Challenges

The challenges of the DSP were its nature, i.e. a small project started as a mere support to MoSHE to facilitate remote learning during the COVID-19 pandemic. There was neither detailed project plan nor sufficient resources allocated. The partnership between project implementers was also not well defined.

Some of major challenges were:

1. **The concept** Digital Scout was not well conceptualized – what it shall fulfil. Therefore young graduates were engaged in several pieces of competitive programs, namely, Website design for TVET Polytechnic Colleges, meta data for digital library, instructional design and content development TtT and supporting the digital learning materials development for TVET
2. **Program coordination** and responsibilities were not well structured.
3. **Resources** allocated were solely for the Digital Scouts training and their engagement at EtHRENet. There were no support and honorarium for the instructors, which is common in TVET institutions. This has impact on the quality of the content delivered by instructors.

4. The *sustainability* of the program was not foreseen. The good efforts, experiences gained and resources developed will remain untapped when the project ends up.

7.2. Learning Experiences

Despite that the fact that the DSP program is small, planned in short period of time and fail to design its sustainability, it was vital program in terms of the overall outcome and especially the learning experiences. Some of the main learning experiences are:

1. The need for ICT supported TVET and E-Learning development has been understood as an overdue assignment education institutions and development partners.
2. Digitization of teaching-learning materials for TVET and E-Learning program
 - a. Require well thought strategy and allocation of sufficient resources.
 - b. Shall not be undermined
 - c. Needs continuous efforts.
 - d. Shall be designed collaboratively by all stakeholders and the implementation shall be well coordinated
3. E-Learning is a new pedagogical approach, it is not recycling the traditional education system and resources.
4. Training for instructors is vital in two ways, awareness to new pedagogy, didactical design, engage and empower them to transform the curriculum the used to.
5. Management shall be on-board. The advantage of the DSP was the support from the TI

7.3. Reflections

Regular discussions with Digital Scouts, Instructors and program stakeholders have helped to gather reflections. The reflection was mainly on the process and reflection on the outcome of the DSP. Reflections and testimonies from various stakeholders are summarize as follows.

1. Instructors

Many of the instructors have been invited by TI, TPC through STEP and by the trainer. It has been observed that it took some time understand the ultimate goal of the DSP. Some instructors were expecting a formal contractual agreement. It was through regular communication and interaction that instructors were volunteered to join the digital learning materials development team. Some of the reflections fetched from the regular discussions and closing session were:

“I have not expected that I learn so much in this short period of time. Now, I can continue revising my courses” Other instructors were underscore the importance of lecture capturing and the tool they were using for the digital content development. An instructor from Kombolcha reflected that he uses the lecture-capturing tool for his other courses.

Instructors from Misraq, Bole, Gofa, Wengate and Tegbare-id admired what they have learnt in this short period of time and thanked the organizers. “This was an eye opening.” Others were also expressing their concern on how they shall continue with the good effort started. “If it does not continue, it will be a pity. What has done until now is only a pilot. We expect that this shall be a national E-Learning for TVET project”

Some sincerely spoke from the dire resources for such vital program. “The assignment is challenging, needs time, Internet connectivity and training. You simply soaked us in a cold water”. We shall be taken well is the awareness it created and the need to do more.

2. Trainees

The Digital Scout team reflections were also vital in terms of collaborative digital teaching-learning material development. The first impression was how they can learn new things and associate to what they have already learned. “Education technology and didactical design were terminologies we have never heard and thought about considering as one career option for us.” However, many were overstretched with various tasks, sometimes difficult to accomplish within short period.

Digital Scouts were also enjoyed working with instructors. “We learned a lot from instructors. Out of curiosity and interest, we were going to their offices, arrange meetings in campus and out of campus, wherever convenient for instructors.” However some of them were difficult to communicate. “Some instructors; they do not respond, if you call them, send text message or Email them. Some of them tell us that they will not invest so much time without any formal agreement and payment.” Finally, the Digital Scouts were hoping that the program will be extended and they will develop their career development in E-Learning.

“It would have been important for us and TVET institutions, if the program could continue for about six months. When we acquire the required skill, the program came to end. Now we are looking preferably for a job related to E-Learning, in which our experience and training may not be enough for securing good job in the education sector.”

3. TVET institutions

The TI which hosted the on-the-job training applaud the learning experience in establishing an E-Learning team, training for instructors, and Digital Scouts assistance in configuring the LMS. “This was an enlightenment and empowering out institutions. We would have not reached this level, i.e. digitizing modules and uploading on LMS, providing access to students. “We thank digital scouts and their trainer: This program is a capacity building or the TI.” The program has

been initialized and the institutional memory is visible. “Nevertheless, if we do not continue with similar effort, all the effort will remain abandoned.”

8. Summary and the Way Forward

The DSP, design as a crisis management to tackle the unexpected closing down of schools and higher learning institutions due to the COVID-19 pandemic, has become an eye opening not only for the pandemic period, but also to rethink the teaching-learning process and the role of ICT in TVET for the post-pandemic pedagogy of TVET. Although the program concept note has limited objective, i.e. supporting “remote learning support”, later it was redefined and extended to TtT and digital teaching-learning materials development. The learning experience and the outcome of this small and compact DSP can be considered as capacity building for the future E-Learning in TVET. Moreover, the practice-oriented instructional design and content development training and Digital Scouts help boasting the employability of these young graduates. In fact, Digital Scouts have become junior E-Learning Experts and prospective trainers.

8.1. Transferable Skills

The outcomes of the DSP are the transferable skills and learning experiences gained through tackling challenges and considering the reflections of stakeholders, mainly the instructors. Due to the limited scope of the DSP, major tasks focussed on skills and competence development. The most remarkable learning experiences and capacity building exercise. Gained learning experiences, considered as transferable skills are:

1. **Instructor:** the learning experiences and transferable skills that instructors retain and transfer to their peers are didactical design and lecture capturing.
2. **Instructional designers:** During this short time, TtT courses have been provided to instruction designers (the Digital Scouts). The training course was designed as TtT, has enabled Digital Scouts as junior E-Learning experts and prospective trainers for Instructional design, digital content development and lecture capturing. Trainees have also compiled training materials as project assignment to exercise. Besides, trainees have compiled self-reflective and individual learning E-Portfolio. The E-Portfolios consists of brief profile, reflection on TtT and personal learning, and show cases from digital content design and development for TVET E-Learning
3. **IT- Experts and LMS administrators:** Among the E-Learning team member is the IT-Expert who specifically administers the LMS. Although the LMS Moodle was installed at the TI, configurations, uploading course materials and effective use have been practiced with the DSP.

8.2. The way forward

The DSP can be seen, not only as a crisis management to the COVID-19 pandemic, but also as one of the capacity building program that can be also aligned with the ‘Digital Ethiopia 2020-

2030' recent strategic plan and the Education Roadmap, which give due emphasis to providing quality, equitable access and employable relevant skills. Against this background, the digitalization of the TVET system in Ethiopia shall become one of the focus areas of development plan, such as STEP III.

Experiences learned and transferable skills gained from the DSP are more than a pilot, from which institutions can reuse for long term and sustainable development. Major focus shall be;

1. Instructors capacity building, particularly on the new pedagogy of E-Learning system
2. Establishment of E-Learning development centre at national level, which can be replicated later to TVET and higher learning institutions.
3. Formulating potent E-Learning policy and strategy and integrating E-Learning into the teaching-learning system.
4. Establish solid partnership between higher education and industries in mobilizing practice oriented skill and knowledge for teaching-learning as well as implement the outcome of research and prototype development from TVET institutions.
5. The training shall be also extended to management and students.

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Appendices

Table A 1: Digital Modules by Fields of Specialization and Institutions

Course	Instructor	Institutions	InstDes	Status
1. Appetizer	1. Marksew Shiferaw	Misraq TVET	Bruck	Completed
2. Quality Standards			Bruck	
3. Digital Electronics	2. Messay Mengistie	TI, Tegnare Id	Surafael	Semi processed
4. Electrical Devices	3. Wondirad Behailu		Surafael	
5. Industrial Electrical Machines and Drives Servicing level II	4. Yitagess Rororissa		Rahel	Completed
6. Identifying Properties of Metals	5. Solomon Tsehaye	TI, Tegnare Id	Yedi	Completed
7. Drawing			Wengel	Completed
8. Performing routine arc welding	6. Eshetu Yirgu		Yedi	Completed
9. Construction Management	7. Selome Fantahun 8. Thoedros Ashenafi	Misraq, TI	Kalkidan	Completed
10. Quantity Survey		Misraq, TI	Kalkidan	Completed
11. Personal Computers	9. Alemseged Tesfaye 10. Solomon Gezahegn	Tegnare Id	Yafe	Completed
12. Basic Programming	11. Sisay Wayu 12. Mahlet Teklai	Misraq	Yafet	Completed
13. Designing DBS	13. Derese Teshome dereseteshome@gmail.com	TI	Rahel	Completed
14. Applied Maths	14. Mistre Sahlemariam 15. Tamrat Fekadu	TI	Frehiwot	Semi processed
15. Producing pattern using CAD system	16. Kassahun Gestie		Lidya	Completed

16. Produce simple Garments	17. Andebet Zewdu	Bole and Goffa	Lidya	Completed
17. Edu Psychology	18. Atnafu Yenalem 19. Temesgen Tadele	TI	Frehiwot	Semi processed
18. Fundamentals of Hydraulics	20. Daniel Getachew	TI,	Alpha	Completed
19. Install and Maintain Basic Pneumatic and Hydraulic System	21. Ermias Altaseb	Selam TVET Center, NGO	Alpha	Completed
20. Physics	22. Hintsa G. Selassie	TI	Wubit	Semi processed
21. Mathematics for Natural Sciences	23. Mitiku Teshager	TI		Completed
22. Construction Planning and Schedule	24. Hunde Taffa	Ambo	Frehiwot	Semi processed
23. Building Construction I			Wubit	Semi processed
24. Auto mechanics	25. Zeresenay Hailu	Adigrat	Wubit	Semi processed

Templates

TVET Module Design and Development Template

1. General Information

Module Code / Number			
Module Title			
Module Level			
Module authors(s)	Full name	Position / title	Contact address

Responsible for module teaching			
Module Category	Core/Mandatory		Elective
Maximum number of students per session			
Frequency of offer			
Year / Semester			
Duration			
Language			

2. Module Information

Description	
Learning Outcomes	
Prerequisites	
Content outline	Learning Unit 1
	Learning Unit 2
	Learning Unit 3
	Learning Unit 4
Learning & Teaching Methods	
Media	
References	

2 Mode of Delivery and Workload

Mode of Delivery	Online (%)	Face-to-face (%)	Total
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Sessions	Face-to-face lecture sessions (hours)	Online tutorial sessions (hours)	Self-paced learning (hours)	
Workload				

3 Assessment policy

Assessment	Continuous Assessment Type				
	Assignments		Project	Examination	Final Assessment
	Individual	Group			
Assessment Objective					
Assessment Instruction					
Assessment grading					

E-Learning Module Development for TVET

Status Report

Module Title: _____

Module Code: _____

Module Author: _____ **Institution:** _____ **Department:** _____

Instruction Designer: _____ **Date:** _____

Items	Availability Uploaded (yes/no)	Complete(y) Incomplete (state actual resource)	Tested on the LMS (yes/no)	Remarks
Structured and compiled as a module content				
Module Outline				
Learning outcome/objectives				
LO/Unit of Competence				
Learning evaluation				
Audio-video lectures (embedding / referenced)				
External materials				