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COLLEGE OF NATURAL AND COMPUTATIONAL SCIENCES

SCHOOL OF INFORMATION SCIENCE

**FACTORS AFFECTING THE KNOWLEDGE SHARING
PRACTICES IN COOPERATIVE TRAINING: THE CASE OF
SOME SELECTED TVET COLLEGES AND
ASSOCIATED INDUSTRIES IN ADDIS ABABA**

By: GETACHEW ABERE

SEPT, 2021

ADDIS ABABA, ETHIOPIA



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A Thesis Submitted to Addis Ababa University in Partial Fulfillment of the
Requirement of the Degree of Master of Science in Information Science
(Information Systems Specialization)

By: **GETACHEW ABERE**

Advisor: **GETACHEW HAILE MARIAM (PhD)**

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Dedication

I dedicate this study to my beloved father **Abere Tena** for his vision, commitment and continuous support for educating us since childhood. It is so!!

Declaration

I declare that the thesis entitled “FACTORS AFFECTING THE KNOWLEDGE SHARING PRACTICES IN COOPERATIVE TRAINING: THE CASE OF SOME SELECTED TVET COLLEGES AND ASSOCIATED INDUSTRIES IN ADDIS ABABA” is a result of my own investigation except otherwise stated. I have conducted the study independently with the support and guidance of my advisor. Other sources are acknowledged by citing the stated references. The list of references is appended.

Signature: _____

GETACHEW ABERE

This thesis has been submitted for examination with my approval as university advisor.

Advisor’s Signature: _____

GETACHEW HAILE MARIAM (PhD)

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Getachew Abere
Sept, 2021
Addis Ababa, Ethiopia

Abstract

Knowledge sharing is a vital component of any organization to be competitive in contemporary world. It is a process that might take place across the organizations, departments, groups and individuals to bring an organizational competitiveness. Even though knowledge sharing has significant importance for organizational competitiveness, the knowledge sharing process may be very complex due to various factors. Hence, the purpose of this study was to examine factors that can affect the knowledge sharing practices in the cooperative training by taking some selected TVET Colleges and associated industries/enterprises, as a specific case, in Addis Ababa. In conducting the study, descriptive research design with mixed approach was employed. The populations of the study are included trainees, college and industry trainers of some selected TVET colleges and industries in Addis Ababa. Purposive sampling method, proportional stratified random sampling, and simple random sampling was applied to select the appropriate samples of the study. For the quantitative part of the study, data was collected using questionnaires and analyzed using SPSS. Also, for the qualitative part of the study, data was collected using key informant interview. Descriptive analysis namely percentage, mean and standard deviation; and inferential analysis namely Pearson correlation and multiple linear regression were employed. The study revealed that organizational factors (lack of strong awareness building, and leadership commitment and follow up for knowledge sharing practices) and technological factors related to absence of the appropriate resources and up-to-date ICT infrastructures were identified as having significant impact on knowledge sharing practices at inter-organizational level where as individual factors (motivation to share knowledge) slightly affect knowledge sharing practices in the cooperative training. The study recommended enhancing the knowledge sharing practices in cooperative training between TVET colleges and associated industries by establishing strong relationship as well as by creating awareness with the concerned stakeholders for the availability and utilization of appropriate technology to improve the delivery of knowledge sharing practices.

Keywords: Knowledge, Knowledge sharing practice, Cooperative training, TVET Colleges-Industries KS factors.

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List of Acronyms

CT- Cooperative Training

KM- Knowledge Management

KS- Knowledge Sharing

KSP- Knowledge Sharing Practices

ICT- Information Communication Technology

MoE- Ministry of Education

MoU- Memorandum of Understanding

TVET- Technical and Vocational Education and Training

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

As the world is moving towards a knowledge based economy, knowledge is being considered the main driver of the new economy as a factor of production together with capital, labor, and land. The success of economies in the future is going to be based on how companies or organizations share, acquire and use knowledge effectively (Bircham-Connolly, Corner and Bowden, 2005).

Also, Knowledge is regarded as an intangible asset that increases when shared (Halal, 2008), and has being the most important of the firm's resource (Alexander and Childe, 2012; Cao and Xiang, 2012). Based on these authors, knowledge is taken as a fundamental asset for organizations to achieve their goals and it acquires to be shared with in and across organizations.

Knowledge sharing as a fundamental priority of knowledge management, can be defined as an act through which, acquired information, knowledge, ideas, skills, and experiences are exchanged and shared among people, organizations and institutions (Newman & Conrad, 1999; Ikenwe and Igbinoia, 2015). Besides, Solek Borowska (2015) stated as knowledge sharing occurs when individuals in organizations are willing to assist and to learn from others in the development of new competencies.

According to the above authors, knowledge sharing in organizations such as colleges and universities is more desirable to connect mind with hand and an important factor for organizational success. In light of this, any organizations are expected to strategically cooperate with the purpose of sharing knowledge to enhance competitiveness.

Furthermore, the role of educational institutes have not limited in providing knowledge to students rather they have linked with industries to commercialize research findings, access complementary skills, and profit from active learning processes. Organizations, on the other hand, recognize educational institutes as important source of knowledge that increases competitiveness and innovation (Solek-Borowska, 2015).

In this regard, Ethiopian TVET agency has established a way of training called cooperative training as a mode of training delivery of technical and vocational education and training that combines training in industries and colleges based on a training plan collaboratively designed and implemented by industries and respective TVET institutions. According to MoE (2010), the term dual or cooperative training refers to the cooperation between two parties, TVET institutions and enterprises, whereby the former equips trainees with the basic competencies of general and occupation specific concepts and knowledge whereas the latter provides practical training so that trainees will ultimately acquire the necessary skills, knowledge and attitude in a desired occupation. Hence, an enterprise or a company is required to prepare training workshops, machinery, equipment, consumable materials as well as well-equipped trainers to deliver cooperative training properly (MoE, 2010). Then, colleges must also have the ability to follow up and demonstrate enhancement of student learning and development. Thus, educational institutions may find it beneficial to adopt knowledge sharing programs to improve their performances and outcomes.

As a result, this research was intended to assess the existing knowledge sharing practices and factors affecting the knowledge sharing practices in cooperative training between TVET colleges and associated industries in Addis Ababa.

1.2 Statement of the problem

Cooperative training system in Ethiopia is derived from the “dual training system” of Germany and, as stated above, it refers to mode of training delivery of technical and vocational education and training that combines training in enterprise and institution based on a training plan collaboratively designed and implemented by industries and respective TVET institutions. Under this system, the industries/companies and the TVET institutions share the responsibility of providing the trainee with the best possible job qualifications, the former essentially through practical training and the latter by securing an adequate level of specific, general and occupation-related basic competency (MoE, 2010). Also, the TVET strategy states that cooperative training leads to significantly better training outcomes, practical skills, work attitudes of the occupational requirements.

Hence, cooperative training demands the will and cooperation of stakeholders. A successful cooperative training, therefore, needs concern and harmonious relationship among stakeholders, mainly TVET institutions and enterprises/companies. To that effect, the training institution,

academic staffs, trainees as well as enterprises/companies have to have the necessary awareness about the rationale and the benefits of cooperative training for the sake of knowledge sharing. However, the Addis Ababa TVET agency trainees' development team report (2013) shows the practical training limitations in industrial /working environments which should not be considered in such a way that improve the training delivery as well as the trainees' performance expected from the cooperative training.

According to Chen et al., (2017) and Rast et al., (2012), knowledge which exist in different forms such as explicit and tacit knowledge need different mechanism for university and industry to share knowledge with each other. Here, inter-organizational group meetings, plenary meetings, panel debates, peer-review, joint research projects, internship experience, workshops, best practices, and many other activities are found important to share knowledge between them. As claimed by Tesfaye T. (2013), this is a peak time for higher education institutes to set up university-industry linkage and give attention to maintaining joint research. These would allow them to assess market need and focus on producing competent workforce and professional employers' need and even go beyond to equip graduate with entrepreneurial skills to be self-employing.

Also, Biruk F. (2014) stated that TVET systems should concentrate on promoting cultural change, creating an environment of sharing, and developing a cohesive management strategy.

The above literature indicates that collaboration for cooperative training between TVET colleges and the associated medium and large industrial sectors can play an important role in the field of knowledge sharing for their trainees. Moreover, for the trainees development in practical and theoretical aspects; convenience knowledge sharing techniques, ICT infrastructure, work shop equipment, and practical industrial working environments should be considered in such a way that improve the training delivery as well as their performance.

Learning is the process of acquiring knowledge, attitudes, or skills from study, instruction, or experience as learning outcomes (Miller & Findlay, 1996: 167). Learning outcomes are statements of what is expected that a student will be able to do as a result of a learning activity. As its name indicates, TVET programs are designed for the technical and vocational training purpose to train students in practical working environments in order to achieve skillful and productive human power for the industry. Ultimately the quality of the training is assured by national occupational

assessments. It is believed that the trainees' undergone with cooperative training shall be competent during the occupational assessment because they experienced the real competencies required in the occupational standard (MoE, 2010).

However, the Addis Ababa TVET agency trainees' development team report (2013) states that the training provided is embedded in class rooms rather than giving it practically in collaboration to the appropriate industry or working areas. Moreover, an industry attachment period implementation has faced a number of problems, mainly because of unwillingness and lack of cooperation of industries/enterprises as they were not consulted during the planning process. Also, in some industrial firms the trainees goes to apprenticeship programs are not involved practically, rather than observing the process.

Hence, TVET-Industry linkage knowledge sharing practices requires further studies so as to identify factors and its solution related to the training quality and to achieve competent and productive human power. Here, proper delivery of the cooperative training is a key to share the expected skill, knowledge and attitude for trainees.

Although there are local researches conducted by different authors related to knowledge sharing (for instance; Miskir, 2020; Fikru, 2018; Mesfin, 2018; Yared, 2016; Shibru, 2015; Biruk, 2014 etc.), none of them were intended to conduct their research on knowledge sharing practice at inter-organizational level and on academic institutions. From these researchers, Fikru (2018) raised research questions which focused on examining the existing university-industry knowledge sharing practices by taking College of Veterinary Medicine in Addis Ababa University as the specific institutional context in to consideration. Accordingly, in his study attempted to develop a model and answer the research questions from the university side only and left the rest (from the industry side) for future works. Also, Fikru (2018) suggested that the study was conducted at a single college and it is better to conduct further research in more colleges might help to have broader understanding of the existing knowledge sharing practices.

Consequently, the researcher has motivated to conduct the study on knowledge sharing practice at inter-organizational level and on academic institutions based on the limitations of aforementioned local researches described above.

Moreover, it is important to evaluate the knowledge sharing practices from both sides of the cooperative training (at inter-organizational level) since the training delivery demands the will and cooperation of the two parties involved in sharing knowledge (i.e., TVET colleges and industries).

Also, assessing the knowledge sharing practices in the TVET is taken as basic issue since MoE (2010) declared that the overall objective of the national TVET strategy is to create a competent, motivated, adaptable and innovative workforce in Ethiopia contributing to poverty reduction and social and economic development through facilitating demand-driven, high quality technical and vocational education and training, relevant to all sectors of the economy, at all levels and to all people.

As a result of it, this study was focused to assess the factors that affect the knowledge sharing practices in the existing cooperative training between the selected TVET colleges and associated industrial sectors in Addis Ababa. Based on the discussion presented above, the main research question, which will drive the research, is:

- What are the factors that affect the knowledge sharing practices in cooperative training between the selected TVET colleges and associated industries in Addis Ababa?

1.3. Objectives of the study

1.3.1 General Objective

The general objective of the study is to assess factors affecting the knowledge sharing practices in cooperative training between some selected TVET colleges and associated industries in Addis Ababa.

1.3.2 Specific Objectives

The specific objectives of the study are:

- To identify the factors that affect the knowledge sharing practices in cooperative training between TVET colleges and associated industries in Addis Ababa.
- To propose solutions for the challenges related to the existing knowledge sharing practices in cooperative training.
- To justify the existing knowledge sharing practices

1.4. Significance of the Study

This study is intended to evaluate factors that affect the knowledge sharing practices in the existing cooperative training delivery between TVET Colleges and associated industries in Addis Ababa. As a result, the study will have significance for TVET agency to see the connection between training institutes and concerned stakeholders in light of their challenge and performances in the dual training delivery which in turn will help the training institutes to give emphasis for knowledge sharing practices to enhance their trainees' performance.

Also, this study may add its contribution to the existing knowledge in the area and can give insights to researchers who will be interested to study further in knowledge sharing practices at inter-organizational level.

1.5. Scope of the Study

This study has focused to assess factors affecting the knowledge sharing practices in cooperative training between some selected TVET colleges and associated industries in Addis Ababa. Thus, the research was conducted on the selected government and private TVET colleges and those associated medium and large industrial sectors located in Addis Ababa. The study tries to identify the factors that affect the knowledge sharing practices in cooperative training on both parties (TVET colleges and associated industries) exhaustively. Here, the study population were involved the college trainers, trainees and industry trainers. The data are gathered from them taken as primary source and another source of data is from literature review related to the study area taken as secondary sources.

1.6. Operational Definitions

- TVET: is an abbreviation for 'Technical and Vocational Education and Training' which is the provision of technical and vocational education and training in any occupation based on the country's education and training policy.
- Cooperative Training: is mode of TVET provided in partnership between industries/enterprises and TVET institutions.
- Government TVET colleges: colleges owned by the government.
- Private TVET colleges: colleges owned by private.

- Industry: an enterprise where product, production and services are delivered.
- Associated industrial sectors: are those enterprises linked with different departments of TVET colleges for the cooperative training.
- College Trainee: an individual who participate in a TVET program so as to acquire the expected knowledge, skill and attitude.
- College Trainer: is an academic professional at any career structure, who engaged in a training activity.
- Industry Trainer: Any qualified enterprise staff member participating in cooperative training may act as a trainer for trainees.

1.7. Organization of the Paper

The study is organized into five chapters. Chapter one introduces the research background, research questions, and objectives of the study. It also includes the scope of the study and significance of the research.

Chapter two presents the literature review that provides an extensive background to the studied concepts, namely, knowledge, knowledge management, knowledge sharing and conceptual frameworks related to it, knowledge sharing practices and related works on it.

Chapter three is about the methodology employed in this study.

Chapter four provides detail on the data analysis process starting with quantitative data extracted from the questionnaires. Also, the interview findings are presented. Furthermore, this chapter compares and discusses the findings summarized with the current literature.

Finally, chapter five provides the summary of the key findings, conclusions, recommendations, and also suggestions for further study are given.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview of Knowledge and Knowledge Management

2.1.1 Knowledge

Over the years, diverse definitions of knowledge abounds. In light of this, Ikenwe and Igbinovia (2015) described knowledge as information that have been improved and a mixture of imaginations, insights, reading and experience. In other words, knowledge can be stated as the fact or condition of knowing something that has been gained and improved through experience.

According to, Liew (2007) knowledge defined as the (1) cognition or recognition (know what), (2) capacity to act or know-how and (3) understanding (know why) that is contained within the mind. This author further describes knowledge in the context of business as the purpose of knowledge is to create or increase value for the enterprise and make all its stakeholders to be competitive.

Knowledge has become the most important capital in the present age and hence the success to any organization lies in using it. Besides, Knowledge is an important source for value creation in organizations and needs to be managed carefully (Massa and Testa, 2009).

By reviewing previous literature, Fikru (2018) described knowledge as the intangible asset of organizations that can be reside in the minds of organizational employees, work procedures, organizational routines and knowledge artifacts at individual level, group level and organizational level both in tacit and explicit forms.

Also, Knowledge is regarded as an intangible asset that increases when shared (Halal, 2008), and has become the principal resource of organizations (Alexander & Childe, 2012; Cao & Xiang, 2012).

From the literature reviewed, for the purpose of this study, knowledge is defined as the basic and intangible organizational resource that should be managed, shared and used carefully to be successful at organizational level, group level and individual level both in explicit and tacit forms.

Knowledge can be divided into two main types: tacit and explicit. Tacit knowledge is intangible and is embedded in the professional experiences of learning, teaching, in practical and technical

academic skills. Explicit knowledge is the documented reports of the teaching outcomes or designs, research reports or theories, and teaching manuals and policies. These types of knowledge are considered to be a special kind of knowledge and represent the professional intellect (Quinn et al., 1996).

2.1.2 Knowledge Management

Knowledge management is the process through which organizations create value from their intellectual and knowledge based assets. Knowledge management is concerned with the process of identifying, acquiring, distributing and maintaining knowledge that is essential to the organization. Also, it is the systematic coordination of an organization employees, organizational structure, technology, and processes in order to add value through innovation and reuse. Regarding to this, Aziri, Veseli and Ibraimi (2013) claimed that knowledge management and organizational knowledge is dependent on human resources. Besides, Armstrong (2006) stated that people influence knowledge management by promoting an open culture that inspires knowledge sharing, promote a climate of trust and commitment, and develop policies and systems for knowledge management among others.

Knowledge management involves four key steps of creating/generating knowledge, representing/storing knowledge, accessing/using/re-using knowledge, and dissemination/transferring knowledge (Muhammad et al., 2011).

Knowledge creation/generation is the entry of new knowledge into the system and includes knowledge development, discovery and capture (Newman & Conrad, 1999). It deals with the practices of gathering or creation of new knowledge.

Knowledge codification means converting tacit knowledge to explicit knowledge in a usable form for the organizational members. This includes all activities that preserve knowledge and allow it to remain in the system once introduced and also includes those activities that maintain the viability of knowledge within the system (Newman & Conrad, 1999).

Knowledge Sharing (KS) is the flow of knowledge from one part to another. It includes activities such as communication, translation, conversion, filtering and rendering (Newman & Conrad, 1999). It is considered as the heart and the most important aspect of knowledge management.

According to Newman & Conrad (1999) and Muhammad et al. (2011), knowledge utilization is activities connected with application of knowledge to business processes. It is the practices of using stored knowledge of an organization to bring solutions to problems to reduce the knowledge gaps and inform decision making. The other equivalent term knowledge utilization is applied, access, use, reuse and implementation.

According to Kucza (2001) the purpose of KM is to provide a means of sharing knowledge, and all other processes are more or less enablers for this. The right knowledge has to be found, must be transferred and needs to be absorbed, i.e. brought into proper use.

As a result, many organizations adopt knowledge management (KM) to improve their performance. Thus, the aim of knowledge management is to continuously improve an organization's performance through the improvement and sharing of organizational knowledge throughout the organization.

The next section presents an outline of the concept of knowledge sharing and research studies that have conducted in higher education institutions and other companies. These issues have selected to clarify the logical foundation of this research.

2.2 Knowledge Sharing

At this section of the paper recent (or historically significant) research studies, company data, or industry reports that act as a basis for the proposed study will be stated.

Knowledge sharing as a fundamental priority of knowledge management and defined it as an act through which, acquired information, knowledge, ideas, skills, and experiences are exchanged and shared among people, organizations and institutions (Newman & Conrad, 1999; Ikenwe and Igbinovia, 2015).

Knowledge sharing is defined as the processes that involve exchanging knowledge between individuals and groups (Yu et al., 2010). Also, it is the provision of tasks, information and know-how to help and collaborate with others in order to solve problems, develop new ideas, or implement policies or procedures (Wang and Noe, 2010). Besides, according to Hari, Egbu, and Kumar (2005), knowledge sharing is the process or activity whereby the existing knowledge in an organization is transferred from those who hold it to those who may not have it, that is, the process of communicating both tacit and explicit knowledge. According to Mesfin, A. (2018) and Fikru M.

(2018), knowledge sharing is a process of exchanging both tacit and explicit knowledge between individuals, groups and organizations to solve problems, to generate new ideas, to implement policies or procedures or activities.

Knowledge sharing, from an academic view, is defined as "being aware of knowledge needs and making knowledge available to others by developing a technical and systematic infrastructure" (Kim and Ju, 2008). This means that knowledge can be shared through technology and an organized strategy within an organization. Regarding this, Kalling and Styhre (2003); Ford and Chan (2003), as quoted by Biruk (2014) stated that "Examples of knowledge sharing in organizations include interaction, cooperation, the distribution of texts on methods and practices that have been successful elsewhere, and solving problems through seeking assistance from other employees."

Becera Fernandez, (2010) defines Knowledge sharing as a process that may take place across individuals, groups, departments, and organizations. Similarly, Ayodele et al., (2016) stated that knowledge sharing as an activity through which knowledge is exchanged among people within an organization.

From these definitions, we can draw that knowledge sharing is a process or activity of exchanging both tacit and explicit knowledge between individuals, groups and organizations to solve problems, and to generate new ideas in a collaborative manner. Hence, we can conclude that KS can be carried out either within organization (between individuals and/or groups) or at inter-organizational level (between organizations).

2.3 Knowledge Sharing Conceptual Frameworks

Wang & Fu (2007) proposed a framework called Group Support System (GSS) based on knowledge sharing. This framework has three major parts: work groups, collaborative component and knowledge base. According to this framework, knowledge sharing occurs into three levels; which are individual level, group level and organization (groups) level as this model shows KS within an organization, which is intra-organization level.

In addition, Nemati-Anaraki & Nooshinfard (2014) developed a new and sophisticated model. According to these authors, knowledge sharing occurs at different levels that are horizontally within individuals, groups, and organizational levels where as vertically (among the levels). In other

words, knowledge sharing occurs between intra-organizational and inter-organizational levels. This model is presented as follow in figure 2.1.

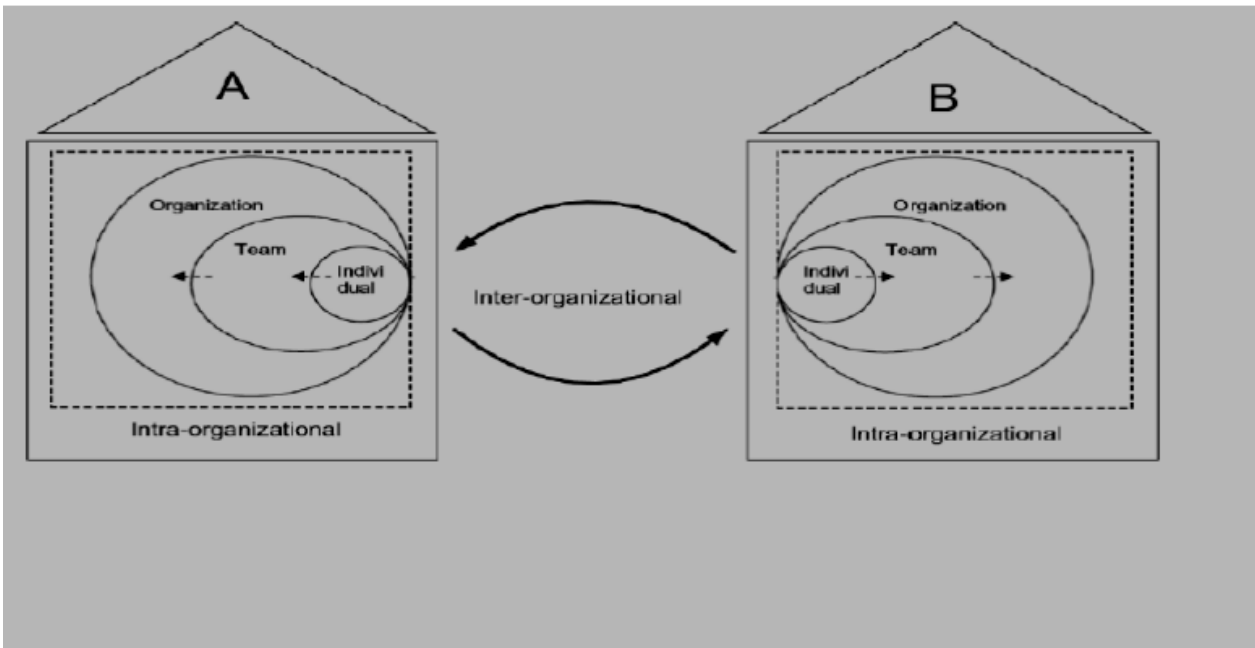


Fig. 2.1 Levels of Knowledge Sharing adopted from Nemati-Anaraki & Nooshinfarad, (2014)

Since academic knowledge can be transformed and shared in many ways and through many processes, this model is more descriptive for this research in order to assess the KS practices and processes at the inter-organizational level.

According to Muhammad et al., (2011), knowledge sharing refers to the practice of exchange of knowledge between sender and receiver of knowledge. There are other terms used equivalently i.e. disseminate and transfer. Sharing arises from individual's efforts to transfer knowledge to others within the organization. Its success depends on the recipient's ability and willingness to learn.

Kucza (2001) believes that knowledge sharing is initiated in order to find out whether knowledge that already exists in the system can be used. This covers both the searching for knowledge by a person who needs it (knowledge pull) and the feeding of knowledge to recipients who are known to be in need of it (Knowledge push).

Knowledge sharing is considered as a key enabler for knowledge management, and there are two aspects of knowledge sharing: the demand side and the supply side. Here, the demand side

addresses the behavior of knowledge sharing among employees and knowledge acquisition by the employer to improve organizational knowledge. Then, the supply side is concerned with motivating employees to share their knowledge and gain benefits to both, employees and the employer. (Mansingh, et al., 2009).

By knowledge sharing, managers can keep the individuals learning and encourage them to apply their knowledge to any application (Yang, 2007).

The professional intellect, such as academic knowledge, can be considered a special form of knowledge as Quinn et al., (1996) stated. According to their theoretical reasoning concerning professional work, the professional intellect of an organization operates on four levels. These are presented below:

Cognitive knowledge (know-what): the basic mastery of a discipline that professionals achieve through extensive training and certification.

Advanced skills (know-how): related to the ability to apply the rules of a discipline to complex real-world problems. This is the most widespread, value-creating level of professional skills.

System understanding (know-why): a deep knowledge of the web of cause and-effect relationships underlying a discipline, as expressed in a highly trained institution.

Self-motivated creativity (care-why): the will, motivation and adaptability for success. The care-why enables cognitive knowledge to be renewed and offers an understanding of the advanced skills and systems needed to compete in the rapidly changing knowledge context.

These four levels are embedded in the professional mind. However, the last one may be more strongly emphasized in the culture of the organization (Quinn et al. 1996). These levels and types of tacit and explicit knowledge are considered as they are more applicable to the higher education context of professional intellects (Biruk, 2014).

Furthermore, since academic knowledge can be transformed and shared in many ways and through many processes; both the level of knowledge, of Quinn et al., (1996) and Nonaka and Takeuchi's (1995) conversion mode of knowledge which is adapted by Biruk (2014) illustrates the academic type of knowledge sharing as presented below.

Socialization (tacit to tacit knowledge): the process of sharing cognitive knowledge (know-what) of the basic mastery of a discipline that professionals achieve through seminars, discussions, brainstorming, training and informal meetings between two or more professionals in the discipline or across disciplines.

Externalization (tacit to explicit): the process of sharing advanced skills (know-how) that offers the ability to transform the cognitive knowledge of academics into a codifying mode so that their experiences and skills are on paper or in an electronic format. This can then be shared through technological channels to create knowledge for others.

Combination (explicit-to-explicit): the process of understanding (know-why) the deep knowledge of a discipline. This involves combining explicit academic knowledge through a collection of telephone conversations, meetings and other forms of documentation relating to the discipline to create more complex knowledge which is then codified and stored to create new knowledge. Knowledge creation through the process of combination can be facilitated and shared by using information technology tools (Nonaka & Toyama, 2003).

Internalization (explicit-to-tacit): the process of self-motivated creativity (care-why). This can be seen as the will and motivation involved in acquiring relevant explicit knowledge from professionals in a discipline or from the organizational base. This may be by way of the academic libraries or through other relevant sources of knowledge in the organization and enables the creation of new tacit knowledge. Internalization is a process of transforming explicit knowledge to tacit knowledge through training programs, learning by doing, simulations and experiments (Nonaka and Konno, 1998).

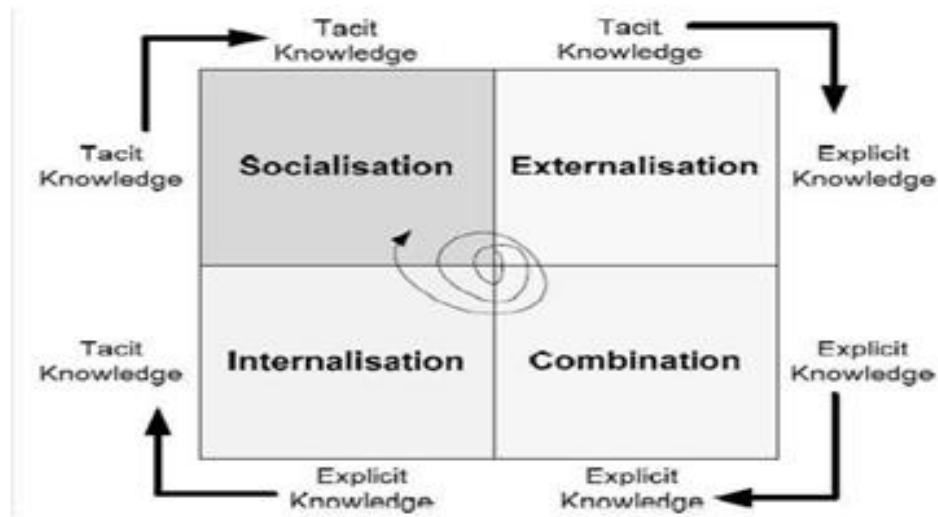


Fig. 2.2 Models of Knowledge Sharing (Nonaka, 1994)

2.4 Knowledge Sharing Practices and Techniques

Marshall and Smith (2009) declared that knowledge sharing practices need to be a part of everyday conversations as organizational learning depends on individual learning and sharing to enhance organizational capabilities (organizational processes and systems). This means that sharing only knowledge is not enough because people need to reflect their knowledge through behaviors and actions to enhance organizational learning.

In this regard, tacit and explicit knowledge sharing needs different mechanisms for university and industry. Thus, inter-organizational group meetings, peer-review, joint research projects, internship experience, plenary meetings, workshops, panel debates, best practices, and many others are found essential to share knowledge between industry and university (Chen, et al., 2017; Rast, et al., 2012).

As stated by Riege (2005) training programs, conferences, seminars, magazines, brochures, structured group works; even the technical tools and guidelines to share knowledge are included in the formal ways of knowledge sharing. However, informal ways of knowledge sharing as described by the author help individuals to develop friendship leading to build trust which in turn is significant for knowledge sharing.

Lau and Tsui (2009) emphasized that knowledge management and knowledge sharing tools such as search engines, Internet, intranets, and peer-to-peer knowledge tools help learners to learn anywhere and anytime within the learning environment. Such tools help learners to share their interests, information and knowledge. The following knowledge sharing practices are reported in the literature:

1) Communities of practice which refers to “groups of people who do some sort of work together (online or face-to-face) to help each other by sharing tips, ideas and best practices” (Ling et al., 2008, p. 129). Communities of practice provide group validation of knowledge; it is a useful technique because knowledge is likely to be time-relevant to their immediate knowledge needs (Sammour et al., 2008).

2) Knowledge networks refers to collaborative team members constitute a community network. Each member has a role as a node within the network. There are two modes of knowledge sharing: (a) Client-Server (C/S)-based knowledge sharing; and (b) Peer-to-Peer (P2P)-based knowledge sharing; in this type of networks, each member maintains his own knowledge in repositories from which knowledge can be shared with their colleagues (Zheng et al., 2010).

3) Also, a learning organization is “a place where employees excel at creating, acquiring, and transferring knowledge” (Garvin et al., 2008, p. 110). The main building blocks of learning organizations are supportive learning environment, concrete learning processes and practices, and leadership practices (Rijal, 2009). Based on that, a learning organization can be defined as “an environment that encourages participation and exchange of knowledge; providing the tools for that process and the creation, storage, and transfer of knowledge in an institutionalized process supported by the organization’s top management”.

Irani et al. (2009) highlighted the relationship between organizational learning and knowledge sharing, where organizational productivity and performance depend on the effectiveness of organizational knowledge across different units of an organization, within its individuals and teams. Organizational learning contributes to increased organizational knowledge and very often takes place via knowledge sharing across organizational boundaries (Nordtvedt et al., 2008).

Law and Ngai (2008) claimed that organizational learning often recommends that the basic storage of knowledge is the individual because the learning process needs a human mind to recognize

knowledge. So, organizational knowledge must be communicated easily, distributed and understood within all organizational levels (Abel, 2008). The ongoing learning and sharing of knowledge has made many innovative practices possible and enabled employees to resolve their problems (Nordtvedt et al., 2008).

Al-Ma'aitah's (2008) study on Jordanian hospitals explored the effect of using electronic collaborative media in knowledge sharing phases and found that electronic collaborative media plays an important role in achieving knowledge sharing; he recommended that organizations must take into consideration the new technology in order to achieve a higher level of knowledge sharing.

Another related work on 'knowledge sharing practices and the learning organization' conducted by Emad, et al., (2014) describes that management support is very important in facilitating knowledge sharing through its strategies, rules and procedures. Several policy concerns about knowledge sharing are very important (Al-Busaid et al., 2010).

Hence, Cross et al. (2001) proposed mapping knowledge flows across the various boundaries in an organization to yield critical insights into where management should target efforts to promote collaboration. Four relational qualities were found to promote effective knowledge sharing. Knowing what someone else knows (knowledge) is a precursor to seeking out a specific person when faced with a problem for which a solution is needed. However, knowing to whom to turn is only useful if one can gain access to that person in a timely manner. Access is influenced by the closeness of one's relationship as well as physical proximity, organizational design and use of collaborative technology. Once access is made available, knowledge can only be shared if the expert understands the problem as experienced by the person seeking assistance (engagement). At this point, the expert can shape his or her knowledge to help solve the problem at hand. Finally, the safety of the person seeking knowledge is of utmost concern. Being able to admit a lack of knowledge and seek out assistance results in creativity and learning.

Knowledge sharing tools are designed to make interactions between senders and receivers in order to facilitate sharing their experiences and engaging in problem solving (Sammour et al., 2008).

Generation of Knowledge Maps, as stated by Kucza (2011) helps to identify the current knowledge generators, holders and storage places, and knowledge map needs to be generated in such a way that shows these in a structured way. Depending on the scale of the defined scope, it might be necessary

to create several knowledge maps. There is no defined form for such a map. An organizational diagram might be a good starting point to identify knowledge holders and creation places, but is insufficient for reflecting who has what knowledge, as this is not predictable only upon titles and positions. So, there is a need to interview people about what they know and what they do if they have a problem in a specific area, e.g. whom they ask for advice, whereupon additional knowledge holders will be identified. Further documents and related matters such as a Document Management System (DMS) need to be considered in this.

As mentioned by Hailemichael, A. (2018) apprenticeship is regarded as a tool that can help industries to meet their manpower needs, because TVET balances that theoretical and practical knowledge required by industries. It demonstrates the link between school and the world of work by equipping trainees with detailed job skill in the workplace. At the same time, it helps to alter negative attitude towards a job and eventually equips trainees with skills. Also, Apprenticeship training is designed to facilitate the transfer of skills, knowledge and attitudes (Shaffe and kipp, 2013). In cooperative training, the trainees are expected to spend a certain part of their time in the training institute and most of the time in an enterprise that undertakes tasks related to their occupational training. As stated in the Ethiopian TVET strategy (Sept, 2002), TVET institutes provision to deliver the training as 30 % for theoretical and 70% for practical sessions.

2.5 Knowledge Sharing Occasions

As claimed by kucza (2001), knowledge sharing can often be done effectively by regular or event-triggered knowledge sharing occasions. 'Regular' means repeated at specific intervals while 'event-triggered' means at specific events like e.g. a project's end, coming up of a new technology etc. According to Kucza, even though sharing knowledge is a complex and difficult process, the right knowledge has to be found, must be transferred and needs to be absorbed, i.e. brought into proper use. Hence, there are two ways of how knowledge sharing is performed: the active pull of knowledge needed and the passive push. Knowledge pull includes all cases where the project members identify a need for knowledge. In light of this, the knowledge is searched for, retrieved if available, and then adopted. Knowledge can be pulled by either direct communication between people or by utilizing IT systems. The first possibility might be assisted by utilizing the knowledge map that shows the current knowledge generators, holders and storage places in a structured way, allowing identifying people inside the organization that have related knowledge. The transfer of the

knowledge then takes place to people known who need it using direct communication between both sides. Secondly, IT systems can provide great assistance in finding and retrieving knowledge; the knowledge map can also be kept in such a system allowing its computer assisted use. The second possibility is search for relevant knowledge in an electronically realized knowledge repository.

Almahamid and McAdams (2010) claimed that the individual learning process is most likely to be voluntary rather than compulsory, and the biggest challenge is increasing the willingness to learn new knowledge. Employee's decision to share or not, depends on several questions: "What to share? And with whom should I share? What are the real benefits for me to share? Do the employees with whom I share going to share their knowledge with me? Does sharing improve my knowledge and skills?"

The analysis of the current cultural situation in an organization needs to be determined to assess if the surroundings are suitable for knowledge to develop and flow, because otherwise any attempt to KM is likely to fail (Davenport and Prusak 1998). This means one should consider questions such as whether hoarding is seen as something good, whether admitting to have a problem is considered as weakness/incompetence, and whether the presentation of individual performance (bragging) is accepted. If a 'yes' is provided as an answer to any of these, there is obviously a need for changes in the environment, as it is not enough just to provide technology to share knowledge. Here, being able to admit a lack of knowledge and seek out assistance results in creativity and learning. Environmental changes for their part need careful planning and can be introduced only over time. Therefore, to ensure that the environment develops in such a way that KM is possible needs to be the first step when starting to manage knowledge.

This process must be considered both important and difficult. The influences of the cultural surroundings heavily influence communication (De Long, 1997). Furthermore, where culture does not guide an employee, his or her attitudes do (Kreie and Cronan 2000). Equally, there is no standardized procedure to evaluate or determine this culture. An initial descriptive evaluation can be achieved through interviewing, and watching the behavior of, relevant persons such as group leaders as well as project and division managers.

Furthermore, a supportive environment is the most critical factor for the success of KM projects since effective knowledge management cannot take place without extensive behavioral, cultural, and organizational change (Davenport and Prusak 1998).

According to Kucza (2001), improvement goals have to be defined to ensure that the development of all other activities is goal-oriented. Feedback-loops from the processes are very important to control whether and to what extent the goals are reached. The type of goals set in this process will depend on the type of organization and on the defined focus. Examples for KM related goals are: Increase the communication between project managers, foster the knowledge creation in a research and development unit, improve the hiring procedures to better match the organizational needs or enable to save the knowledge of retiring employees for the company.

It is important to determine how to control the processes and their capability of reaching the goals set for them. In addition to verbal feedback, measurement is a valuable approach to this. The metrics have to be properly taken into account in the ensuing steps to ensure they are measured. This can be achieved by integration to processes, these denoting e.g. short reports to be written after inter-project meetings, identifiers in discussion bases for closed discussions, or questionnaires with suitable fields at the end of each project.

Organizational success also depends on knowledge sharing strategy. According to Nemati-Anaraki & Nooshinfard (2014), five major points emerging from the review of knowledge sharing can be summarized as follows:

- (1) Information technology can enable both explicit knowledge and, to a lesser extent, tacit knowledge sharing;
- (2) Human interaction is the simplest approach to sharing knowledge within an organization;
- (3) Knowledge management strategies may be adapted to fit with organizational culture;
- (4) Motivation, such as monetary rewards, recognition, and praise, can persuade people to share knowledge; and
- (5) Trust is an important factor in enabling knowledge sharing.

2.6 Barriers to Knowledge Sharing

Knowledge sharing can be affected by a lot of factors. In light of this, various factors are identified by different researchers in their studies.

Nemati-Anaraki & Nooshinfard (2014) have identified individual, organizational and technological factors as basic factors for inter-organizational knowledge sharing practices. As stated by these authors, factors from an individual perspective include individual characteristics, intention, trust and relation, individual attitudes and scholarly communication and collaboration skills.

Therefore, to share knowledge effectively individuals should be willing to share their best practices, knowledge and experiences to others. Also, trust can assist the knowledge sharing delivery by increasing effective collaboration among organizations and individuals in an organization. Moreover, the authors described that positive attitudes of individuals for knowledge sharing depend on their expectations on the usefulness of their knowledge and trust that through knowledge sharing as they can improve relationships with others.

Similar studies conducted on knowledge sharing factors in educational organizations as identified by (Abdullah and Sulaiman, 2016; Riege, 2005) are individual, organizational and technology factors.

Regarding to Knowledge Sharing Motivation (KSM), the motivation of individual behavior must be considered because it is very important in the sharing process; there are different types of motivation related to knowledge sharing such as competition, reputation, ego, satisfaction, organizational climate and the economic motivation to gain personal utility (Yang and Wu, 2008). There are two types of motivation that may affect knowledge sharing: extrinsic motivation (individuals do something to gain or to avoid a negative external outcome), and intrinsic motivation (involves doing something according to the individual's interest and personal values). Examples for external motivators include rewards such as money and avoidance of punishment (Foss et al., 2009). Similarly, Ayalew et al., (2013) also propose a model to implement KS to the organization, where, sharing can be obstructed by various individual factors related to an attitude to share knowledge.

Hence, any intervention of money, infrastructure and technology will not make knowledge sharing effective, unless individual employees are motivated to share their knowledge as stated by Amar (2004), Nooshinfrad and Nemati-Anaraki (2014).

Based on Ipe (2003) knowledge sharing between individuals in an organization can be influenced by the culture of the work environment, nature of knowledge, motivation to share, opportunities to share, and with certain attributes that describe them. As stated by Riege (2005) the nature of knowledge indicates its explicit and tacit form. Also, the explicitness and tacitness of knowledge refers to how easy or difficult it is to articulate and codify the knowledge that needs to be. In this regard, Nonaka and Kong (2009) described that knowledge that can be codified and articulated can be documented and then transfer more easily than non codifiable knowledge.

Moreover, it is pertinent to consider the work of Disterer (2001) who stated the individual and social barriers to knowledge transfer. The individual factors include loss of knowledge power, poor revelation on knowledge sharing, uncertainty of the value of knowledge to be shared and lack of motivation, whereas, the social factors include lack of a common language to communicate knowledge and special language features like analogies and metaphors to externalize tacit knowledge hidden in individual mental models; conflict avoidance and some conservative habits; bureaucratic and administrative organizations with strict formal procedures, which prevent the transfer of knowledge and new ideas.

In this study, individual refers to the academic staffs and trainees in the college as well as experts from the industry.

With regard to the organizational factors, Nemati-Anaraki & Nooshinfard (2014) identified factors related to an organizational perspective like culture and organizational climate, motivation, reward and recognition, management leadership and support and organizational structure.

Also, Abdolshaha and Abdolshahb (2011) carried out a study on the barriers to the implementation of knowledge management in Iranian institutions and mention the findings as lack of proper information interchange among institutions, unawareness of senior managers about knowledge management concepts, lack of proper competition among institution for attracting customers, and lack of formation of knowledge management team could hinder its implementation in an institution.

Bartczak (2012) on identifying barriers to knowledge management in the United States military include leadership education and commitment, lack of resources, among others as barriers faced in KM implementation. Moreover, lack of monitoring or managing KM systems and focusing on an

individual rather than a team approach are also some barriers to the implementation of knowledge management as proposed by Dooley (2013).

On what could be the major limitations to the implementations of knowledge management, Dzunic, Boljanovic and Subotic (2012) found out that respondents for their study indicated insufficient training, unwillingness of employees to share knowledge with other employees, too complex system, failure to recognize personal benefits that employees would have of sharing and managing knowledge and lack of trust among employees, respectively are major barriers to the introduction of knowledge management. Also, Ujwary-Gil (2017) in her study aimed at analyzing the barriers to knowledge management notes that lack of reward and motivation for seeking and sharing knowledge, unawareness of where the knowledge-base of the institution is, organizational culture promoting individual results to knowledge sharing, limited resource, are some factors that hinders knowledge sharing in organizations.

Frost (2012) gave some knowledge management casual failures which could be a barrier to the successful implementation of knowledge management include inadequate management support, improper planning, design, coordination, and evaluation, inadequate skill of knowledge managers and workers, problems with organizational culture, improper organizational structure, and lack of performance indicators and measurable benefits.

Also, KS factors can be from an information technology perspective like poor Information and communication technology (ICT) usage, lack of collaborative networking, geographical proximity, organizational proximity and technological proximity (Nemati-Anaraki & Nooshinfard, 2014).

Among the technology factors emphasized by Riege (2005) includes lack of technical support, lack of maintenance of integrated IT systems, people's unrealistic expectation on IT, lack of integration of IT systems processes, lack of compatibility between diverse IT systems processes, restriction due to mismatch between need requirements and IT system, lack of training for familiarization of IT systems and processes, and people's reluctance to use IT systems.

According to Ujwary-Gil (2017), unfriendly nature of technology system can affect the knowledge sharing activities in organizations.

To summarize, from the literature reviewed, the implementation of KS can be hindered by several reasons as seen above includes lack of or poor motivation and trust; Inadequate management support and/or management unawareness or unfamiliarity with the concept; poor knowledge sharing culture; poor management of people as well as knowledge-base, systems or tools and KS processes; lack of commitment from leaders; inadequate resources and unfavorable organizational culture, and unskilled personnel to use complex technologies.

2.7 Knowledge Sharing In Higher Education and Industry

Several research studies have explored the issue of culture and knowledge sharing in the business, corporate and governmental sectors. However, research which has explored this issue in relation to higher education institutions is limited (Dayson, 2004).

In higher education institutions, the knowledge sharing culture is not as such practiced and has not been bringing a good effect, as it possesses only certain activities like participating in a conference and other workshops (Mesfin, 2018).

The academic staff could be the most important representatives of their institution as they are responsible for the production, creation and distribution of knowledge (Maponya, 2005; Kim and Ju, 2008).

Academic staffs produce a huge amount of instructional material that are reserved by the academic themselves or reserved in their institutional libraries and their repositories concerning their particular subject or discipline. Course materials and the professional experience of staff can also result in producing a relevant and meaningful curriculum and effective teaching skills (Petrides and Nodine, 2003; Kim and Ju, 2008).

Furthermore, higher education institutes need to improve their teaching and research in order to satisfy the sponsors of their activities, as well as to attract potentially high-level students (Ngulube, 2005).

The other main goals of applying knowledge management and sharing strategies in higher education institutions is to increase the quality and efficiency of the learning processes, and of research and curriculum development (Kidwell et al., 2000; Petrides and Nodine, 2003; Biloslavo and

Trnavcevic, 2007). In order to achieve such goals, the implementation of knowledge management initiatives has become vital (Biloslavo and Trnavcevic, 2007).

One of the most important characteristics of any higher education institution is its tacit assets, such as its best practices, teaching procedures and rules. Maponya (2005) offered suggestions concerning how higher education institutions could foster knowledge sharing. These were as follows: Knowledge sharing should be grounded in the existing social interactions of the activities of the higher education institutions. It is important to bring academics together through regular seminar sessions, which can provide an opportunity for academics to share their teaching and learning experiences. Inter-department and inter-disciplinary collaboration should be established and a knowledge-sharing platform is essential. The institutional base must be made available to all members of the academic institution (Maponya, 2005). The suggestions that were presented by Maponya (2005) can be more effective if the management encourages and supports knowledge sharing in variety of ways, such as by adding knowledge sharing to the academic job description, and/or by creating incentives and rewards in every department for those who share their knowledge. Such initiatives would encourage academic staff to share by recognizing their inner motives (Biruk, 2014).

Regarding to this, in TVET colleges, cooperative training is a sub component of industry linkages that provide practical work experience and professional contacts to students with apprenticeship opportunities in their chosen vocation. Cooperative training is expected to play its role in improving the quality of the current Ethiopian TVET system. Any enterprise that can provide a working place to trainees, machines for training, tools, consumables, materials and which can also assign a training coordinator/supervisor can be a cooperative training partner. As far as occupational activities of the enterprise , in one way or another, if the activity of an enterprise have similarity with occupational training, any enterprise, large or small, can take part in cooperative training (MoE,2010).

However, there are also some issues to consider, as mentioned by Hailemichale (2018) in relation to the CT where many employers in the industry are afraid of accidents with students on the production site. Such activities may affect the objective of the cooperative training. Therefore, In addition, a training college and an industry should clarify and agree on safety issues in case an accident occurs during apprenticeships and each party's responsibility for the success of the dual training.

2.8 Related Works

Inter-organizational knowledge sharing is the process of mutual learning between organizations. This process can be considered as being composed of learning between individuals from different companies and of organizations (Chen et al., 2017). According to Lee (2001), inter-organizational knowledge sharing also refers to knowledge sharing activities or dissemination between the provider and receiver. It is one of the key driving forces required to streamline value chain activities and maximize operational benefits. The two or more organizations exchange the knowledge that each be deficient in but desired to gain through the collaboration. Inter-organizational knowledge sharing started from an individual level, and then escalated to the group and then organizational levels (Lertpittayapoom et al., 2007).

Miskir Solomon (2020) conducted a study that explore the existing knowledge sharing practice among academic staff in Federal TVET Institute and explore factors that affect knowledge sharing practices among academic staff. The research used a quantitative research methodology.

The result of his study revealed that academic staff in federal TVET often engaged in knowledge sharing practice through sharing teaching materials, participating in seminars and workshops, discussing projects with peers within and/or outside faculty, sharing research findings, and attending university/faculty meetings. However, the academic staff did not utilize publishing books, journals, or other academic materials, participating in symposiums and public lectures, attending training programs, and participating in Web/Video Conferences to share knowledge. His research concludes that the level of KS practices in the study organization is low. This is mainly attributed to the low awareness of the Institute's management about the value of knowledge as a strategic resource of the organization. The study also identified the most important factors affecting knowledge sharing practices among academic staff. ICT infrastructure, perceived cost, attitude, self-efficacy, and organizational rewards were the most influential factors for knowledge sharing practices. All factors jointly explain up to 29% of the total variance in knowledge sharing practice. However, additional factors should be explored to better improve the knowledge sharing practice in the study organization.

Shibru Kumissa (2015) also conducted a study to investigate inter-organizational knowledge sharing practices and the factors that influences inter-organizational knowledge sharing activities among the public sectors in Addis Ababa. He used mixed methodology to examine inter-

organizational knowledge sharing collaborations. His study is concerned with an inter-organizational knowledge sharing case study research for the case of Addis Ababa sector bureaus. The study investigates the public sector organization current knowledge sharing practices and the factors that influences inter-sector knowledge sharing for a case of Addis Ababa city Administration. According to this study, the factors that influence inter-organizational knowledge sharing are identified using a framework adopted from (Seyyedeh et al., 2009). In his model those factors are grouped as nature of knowledge, contextual and organizational factors. Contextual factors are the properties of the relationship that include factors such as trust, dependency, proximity, uncertainty, culture and shared values whereas organizational factors such as organizational intention to learn, absorptive capacity, ICT supports, age, size and geographical location of organizations indicate different characteristics of source and recipient organizations. On top of these cooperative activities will also provide an avenue for organizations to expand their professional networking. However, complexity of knowledge sharing can increase because when inter-organizational knowledge sharing occurs due to the fact that different organization possess different operational procedures, control mechanism, and work flows. Hence strong and sound policy will help to reduce the resistance if it ever exists (D. Lazer and M.C.Binz-Scharf, 2004). The result of Shibru (2015) study show that inter-organizational knowledge sharing among organizations were positively affected by the aforementioned organizational factors, contextual factors, and nature of knowledge. Organizational factors and contextual factors are the dominant factor that influences inter-organizational knowledge sharing activities.

Yared Bekele (2016) has assessed the enabling factors of knowledge sharing for entrepreneurs engaged in micro and small enterprise manufacturing by considering technology, individual, organization, extrinsic and intrinsic knowledge sharing factors. The research approach applied in this study was a quantitative and qualitative method to collect data. He develops a knowledge sharing model which consist of five knowledge sharing factors: technological, individual, organizational, extrinsic and intrinsic. The result of his study indicated that technology, individual, organization and intrinsic factors were the most critical one for knowledge sharing among entrepreneurs engaged in the manufacturing sector.

Rindha et al. (2013) had done research on inter-organizational knowledge sharing in Micro-small and medium scale Enterprise (MSMEs) at Indonesia using seven variables namely importance of external knowledge sharing, perception on the importance of knowledge area, area in which insufficient knowledge contributes to costly error or mistake, knowledge sharing activities, social network, constraints of inter-organizational knowledge sharing and effectiveness in leveraging knowledge sharing. Based on the study, organizations need channels to facilitate their knowledge exchange in the inter-organizational knowledge sharing activities. Therefore, the current situation and effectiveness of MSMEs' use of both social and electronic networks to facilitate knowledge exchange between organizations to be examined. The study identifies MSME's needs inter-organizational knowledge sharing from another perspective, and also demonstrates their current practices in the area. Therefore, acquiring external knowledge in MSMEs is an important and crucial issued to engage in some external organizational activities.

Grotenhuis and Weggeman (2002) distinguish between a “knowledge source” and a “knowledge receiver” in the knowledge sharing process from the benefits of intra-organization and inter-organizations point of view. The study found that sharing of valuable knowledge within and across the organization results in: avoids re-inventing the wheel, reducing redundant work, reduces the cost of inventions, creates knowledge with the help of experts and experienced individuals, provides the right direction to the dedicated intelligent people, and then makes them experts in the future, causes firms to inform universities to frame their research workers based on their needs; and solves problems at the primary stage which saves time, money, and man power (Parekh, 2009).

Tang (2008) investigates knowledge sharing at inter-organizational level. The study discovered that inter-organizational relation and overlook the fact that knowledge shared through formal systems like Knowledge sharing policy, performance measurement system, clear communication channel, Intranet technology, training, internet technology, flexible organizational structure and informal interaction or channels like face to face interaction, personal relationship, social event, and conducive working place. Thus, the process of knowledge sharing involves creation, transfer of knowledge through artifact such as communication among entities and different kinds of documentation.

Lertpittayapoom et al. (2007) study found that there is a knowledge sharing and learning at each level and among the individual, team, organizations, and inter-organization. The knowledge was

first gained by the individual level in the form of experience that is transferred to teams and other organizations. First individual gained knowledge from experience or practice. Then individual knowledge is shared to team members. After the team members discussed knowledge transferred to organization and finally to the inter-organizational level. The interesting observation from this study is that inter organization knowledge sharing could be observed from the knowledge that flow from one level to another level starting from individual, to group, to organization and finally across the organizations. The study identifies trust among the organization facilitates inter-organizational knowledge sharing. This study also identified the acquisition of knowledge by entity; knowledge also comes from the interaction among entities. That means interaction among individual, group, organizations and inter-organization can be the means for knowledge sharing and creations according to this study.

Beeby and Booth (2000) study identified that the effectiveness and efficiency of inter-organizational collaboration through knowledge sharing can be enhanced with the advancement of information technology. However, apart from the technological perspectives many researchers agreed that technological challenge is less complex when compared to the challenges in organizational and political aspects (Nonaka, 1994) as more complicated issues like trust, motivations, reciprocity, and involving policy need to be solved before implementing the technologies.

Minwalkulet, F., Assefa, T. (2018) study with title "Survey on Factors Affecting University-Industry Knowledge Sharing Practices", states that knowledge sharing as a process that may take place across individuals as well as groups, departments, and organizations to get organizational competitiveness. Although knowledge sharing has significant importance for organizational competitiveness, its process may be very complex due to different factors. The purpose of their study was to assess factors that affect university-industry knowledge sharing practices by taking Addis Ababa University College of Veterinary Medicine (AAU-CVM) as a specific case. A cross sectional study design was applied to conduct the study for six months and to select study participants simple random sampling technique was employed. The source population consists of academic staffs working in Addis Ababa University College of Veterinary Medicine.

Their study findings revealed that the presence of different factors that significantly affect the knowledge sharing practices between organizations. From the stated factors, those at individual

level includes: willingness to share, trust to share, motivation to share, awareness of KS as duties, and periodic plan for sharing knowledge. Besides, organizational level knowledge sharing factors include lack of budget to create, acquire and share knowledge, lack of regular plan, lack of knowledge sharing platform, and lack of motivational schemes. At technological dimension; lack of up-to-date ICT infrastructure, lack of appropriate KMS and lack of regularly updated website are mentioned.

Then, to fill these identified gaps the above researchers' recommended that to use up-to-date ICT infrastructure, implement appropriate KMS for knowledge sharing and to regularly update the website. Thus, organizations should try to maximize their advantage from the knowledge sharing practices by using different mechanisms. Also, to minimize the challenges mentioned, an organization should provide support by devising motivational schemes to share knowledge, regularity plan and by allocating reasonable budget for knowledge sharing and implement knowledge sharing platforms such as seminars, conferences and workshops regularly.

As claimed by the researchers, they have focused on examining the existing university-industry knowledge sharing practices by taking the College of Veterinary Medicine in to consideration. Accordingly, their study attempted to examine the factors that affect knowledge sharing practices from the college side and it is also important to study the knowledge sharing practices from both sides (including the industry side) in order to examine the knowledge sharing practice at inter-organizational level.

By taking the above reviewed literature into consideration, this research was conducted by involving samples from both organizations (from the college and the industry) in order to investigate factors related to the knowledge sharing practices at inter-organizational level.

2.9 Research Model and Hypotheses

Inter-organizational knowledge sharing can be considered as a strategic means to achieve competitive advantage in ever-changing business world (Cao & Zhang, 2011). Also, Santoro and Gopalakrishnan (2000) stated that higher education institutes often interact with industry in order to get opportunities for students and academic staffs to practical problems, access to industrial technical experts, and to seek employment opportunities to university graduates.

Although this have stated, many researchers identify factors that affect inter-organizational knowledge sharing practices and this research focus is on the assessment of the knowledge sharing practices from the two sides i.e., TVET colleges and industries. Therefore, from the review of literature, critical factors for inter-organizational knowledge sharing are identified as individual, organizational and technological factors (Abdullah & Sulaiman, 2016; Nooshinfrad and Nemati-Anaraki, 2014; Riege, 2005). From those many factors, the particular constructs that will be used in this study, along with their hypothesized relationships are described as follows.

2.9.1 Trust and KS

According to Nemati-Anaraki & Nooshinfard (2014) and Ujwary-Gil (2017) trust is an important factor in enabling knowledge sharing. It is generally believed that when there are trust-relationships, people are more willing to provide useful knowledge. Trust helps to reduce relationship ambiguity, thus, when a high level of trust exists, the industrial firms have more confidence about the college trainees' abilities and motives, and is more willing to share ideas, feelings and goals with the college (Lewis and weigert, 1985). Also, when trust exists, people are more willing to listen and absorb each other's knowledge and ideas (e.g., Andrews and Delahey, 2000). Similarly, Chen et al (2009) argue that trust is the pivotal construct in KS behavior. Therefore, from this review of literature, trust can be expected to positively predict KS.

Hypothesis 1(H1): The more trust exists between the stakeholder industries and TVET colleges, the greater the implementation of KS activities.

2.9.2 Communication barriers and KS

Knowledge sharing can be affected by a lot of factors, from an individual perspective, like individual characteristics, intention, trust and relation, individual attitudes and scholarly communication and collaboration skills. Human interaction is the simplest approach to sharing knowledge within an organization. Furthermore, knowledge sharing is a means and a process by which individuals and groups communicate their knowledge unconsciously or deliberately to their mutual benefit (Nemati-Anaraki & Nooshinfard, 2014). Weak ability of communication is another individual factor. Positive communication plays a key role in the dissemination of knowledge. Thus, communication ability can be expected to positively predict KS.

Hypothesis 2(H2): Minimizing communication barriers has a positive impact on knowledge sharing.

2.9.3 Motivation and KS

There are two types of motivation as originally described by Herzberg et al and restated by Abenet A. (2020). These are intrinsic and extrinsic motivation. Intrinsic motivators takes place when people feel that the work they do is intrinsically interesting, challenging and important and involves the exercise of responsibility (having control over one's own resources), autonomy or freedom to act, scope to use and develop skills and abilities and opportunities for advancement and growth whereas extrinsic motivators can have an immediate and powerful effect, but it will not necessarily last long. The intrinsic motivators, which are concerned with the notion of the "quality of working life" (a phrase promoted by advocates of the notion of intrinsic motivation but little used today), are likely to have a deeper and longer-term effect because they are inherent in individuals and not imposed from outside. But it should not be assumed that intrinsic motivation is good and extrinsic motivation is bad. They both have a part to play (Armstrong, 2007).

Regarding to Knowledge Sharing Motivation (KSM), the motivation of individual behavior must be considered because it is very important in the sharing process; there are different types of motivation related to knowledge sharing such as competition, reputation, ego, satisfaction, organizational climate and the economic motivation to gain personal utility (Yang and Wu, 2008). Here, extrinsic motivation refers to individuals do something to gain or to avoid a negative external outcome whereas intrinsic motivation involves doing something according to the individual's interest and personal values that includes willingness to share, respect others opinion, and trust others. Numerous studies argued that the presence of a reward system is critical for the success of knowledge sharing in an organization. Examples for external motivators include rewards such as monetary rewards, recognition, praise, and avoidance of punishment, can persuade people to share knowledge (Nemati-Anaraki & Nooshinfard, 2014; Foss et al., 2009). Dzunic, Boljanovic and Subotic (2012) found out that respondents for their study indicated insufficient training, unwillingness of employees to share knowledge with other employees, too complex system, failure to recognize personal benefits that employees would have of sharing and managing knowledge and lack of trust among employees, respectively are major barriers to the introduction of knowledge management. Thus, the following hypotheses are made:

Hypothesis 3(H3): There is significant and positive relationship between intrinsic motivators and KS.

Hypothesis 4(H4): There is significant and positive relationship between extrinsic motivators and KS.

2.9.4 Organizational support and Knowledge Sharing

According to Nooshinfrad and Nemati-Anaraki (2014), for the success of knowledge sharing practices organizational factors such as organizational structure, culture and organizational environment, motivations, management and leadership support, rewards and so on have great contribution. Management support, as one of the sub-factor of organizational factors identified by these authors, is also a better predictor of KS. Lin (2007) also examined the influence of organizational factors based on top management support and organizational rewards for knowledge sharing processes. Organizational factors, as claimed by Fikru (2018), includes providing promotion for KS or creating awareness that knowledge sharing is one of the organizational duties and also motivational schemes to share knowledge such as budget; regular plan for knowledge sharing, access to knowledge sharing platforms, implementation of policy or strategy. As mentioned by Hailemichale (2018) in relation to apprenticeship where students were forced to work overtime or assigned to non-relevant tasks or monotonous works. Furthermore, many employers are afraid of accidents with students on the production site. Such activities may affect the objectives of the cooperative training. Therefore, a training college should also follow up on a student's work conditions and practical contents in order to ensure that the apprenticeship was appropriately implemented. Also, the two participating organizations should be design and implemented common agendas for knowledge sharing using regular meetings, seminars, workshops and conferences which help to enhance the stakeholders' awareness. As well, Ujwary-Gil (2017) in her study mentioned the barriers to knowledge sharing that lack of reward and motivation for seeking and sharing knowledge, organizational culture promoting individual results to knowledge sharing, and limited resource are some factors that hinder knowledge sharing in organizations. According to Bartczak (2012), barriers to knowledge management include leadership commitment, and lack of resources, are barriers faced in KM implementation. Moreover, lack of monitoring or managing KM systems and focusing on an individual rather than a team approach are also some barriers to the implementation of knowledge management as proposed by Dooley (2013). As stated by Davenport

and Prusak (1998), a supportive environment is the most critical factor for the success of KM projects since effective knowledge management cannot take place without extensive behavioral, cultural, and organizational change. Based on it, the following hypotheses are driven:

Hypothesis 5(H5): Building KS awareness at inter organizational level have a positive impact on knowledge sharing practices.

Hypothesis 6(H6): The more flexible and change oriented leadership method to make decision for cooperative training, the greater implementation of knowledge sharing activities.

Hypothesis 7(H7): The strong managerial commitment to apply the strategy and purpose of cooperative training, the more KS practices.

Hypothesis 8(H8): Motivational schemes in organizations have a positive impact on KS practices.

2.9.5 ICT and KS

Knowledge sharing practices needs to be facilitated by providing various technological inputs and platforms. There are technology based factors that affect the knowledge sharing practices among which Riege (2005) highlighted lack of maintenance of integrated IT systems, lack of integration of IT systems and processes, people's unrealistic expectation on IT, lack of compatibility between diverse IT systems processes, mismatch between requirements and IT systems, people's reluctance to use IT systems and lack of training for familiarization of IT systems and lack of technical support for processes. Similarly, Ujwary-Gil (2017), unfriendly nature of technology system can affect the knowledge sharing activities in organizations. Thus, the following hypothesis is drawn:

Hypothesis 9(H9): The more provision of ICT infrastructures for cooperative training, the greater the practice of Knowledge sharing.

Hypothesis 10(H10): Utilization of appropriate technological services has positive effect on knowledge sharing.

To summarize, the below figure illustrates the conceptual framework of this study. Based on the research question, literature reviewed and presumed relationship between the above mentioned hypothesizes and the existing knowledge sharing practices in the cooperative training delivery between TVET colleges and associated industries, the conceptual framework for this study adapts

ten variables as stated above as independent variable and knowledge sharing practices as dependent variable. To meet the objectives of the study, the following research model was proposed.

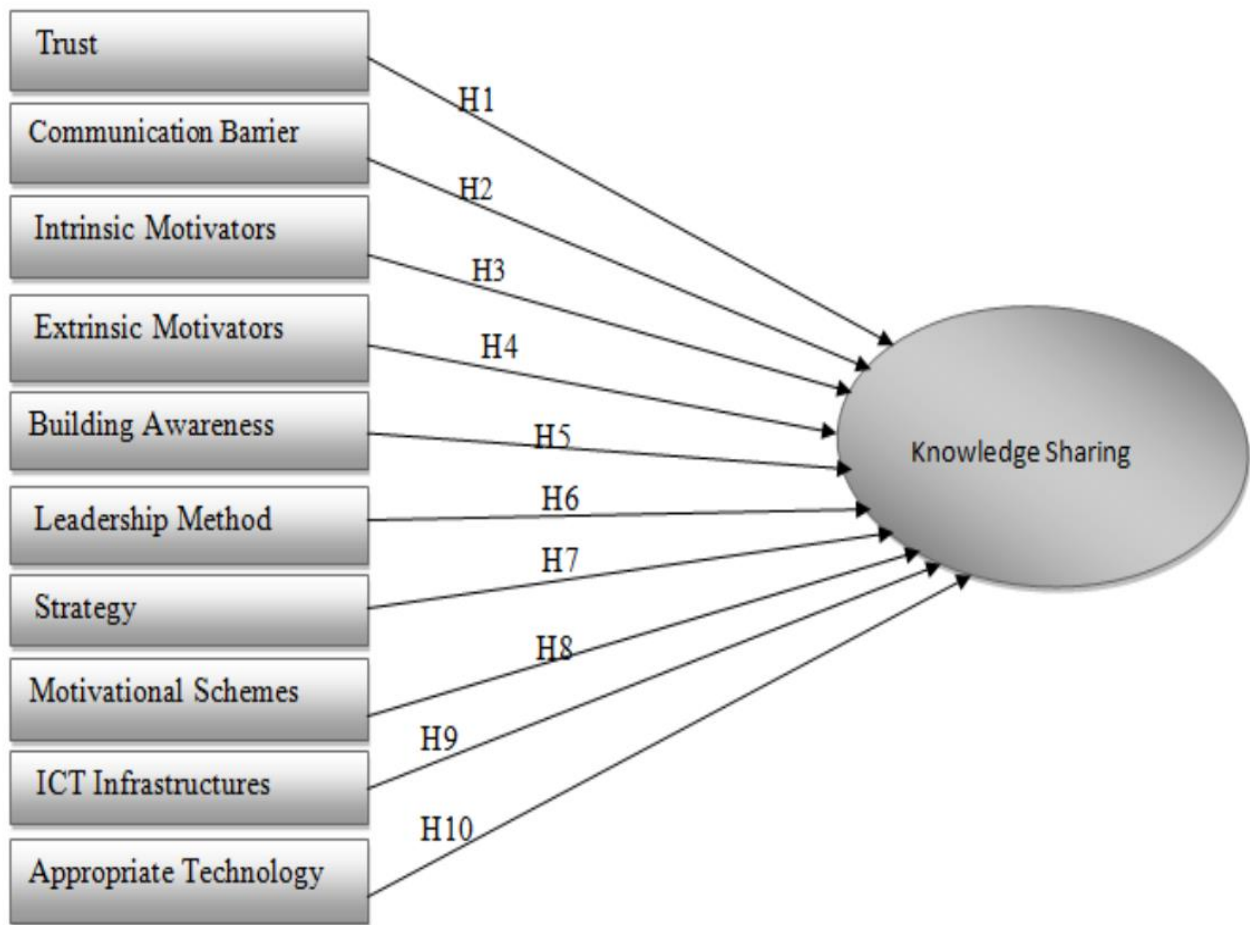


Fig. 2.3 The proposed Research Model

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

For the purpose of this study, mixed research approach (both quantitative and qualitative) was employed as this approach helps to triangulate the research findings. The study used quantitative research approach to quantify the problems by way of generating numerical data or data that can be transformed into usable statistics and answers the designed questions.

The qualitative research, on the other hand, helps the researcher to explore and better understand the complexity of a phenomenon and it is an effective model that occurs in a natural setting that permits the researcher to develop a level of detail from being highly involved in the actual experiences (Creswell, 2003).

This study assess the factors that affect knowledge sharing practices in cooperative training between some selected TVET colleges and associated industries in Addis Ababa. Thus, descriptive survey research design has employed to conduct the study.

In the next section study area, population, sampling technique and data collection methods are described.

3.2 Study Area

The geographic area of this study is in Addis Ababa, the capital city of Ethiopia, where the selected TVET colleges and the associated industrial sectors are located. TVET agency has established TVET colleges in all sub-cities of Addis Ababa. Among government and private TVET colleges in Addis Ababa, through purposive sampling techniques, Entoto Poly Technic College and Yeka Industrial college (from government colleges) and Universal Technology College and Micro link college (from private colleges) were selected from Arada, Gullele and Yeka sub city for this study due to its convenience to obtain data and minimize cost. To explore the factors that affect the existing knowledge sharing practices in the cooperative training, the research was conducted on both sides (TVET colleges and industry side) exhaustively.

3.3 Population

The target population is the total number of subjects targeted by the study or the group of elements to which the researcher wants to make inference (Mundia et al., 2015). In this study, the population elements are TVET trainees, College trainers and industry trainers who are involved in the cooperative training. Due to Corona virus pandemic, the total populations who are in the study area are reduced. Based on the data collected from four colleges human resource offices and training development deans; a total of 320 trainers are found. Of which 168 are trainers from colleges and 152 are trainers involved from industry.

3.4 Sample Size and Sampling Techniques

3.4.1 Sample Size

The sample size, for this study, is 178 respondents out of the 320 population available under the mentioned working units. The sample size was calculated using a formula called Slovin's formula (Israel, 1992).

$$n = \frac{N}{1 + (N * e^2)} \quad \text{where } n = \text{number of samples}$$

$N = \text{Total Population}$

$e = \text{Error tolerance - at desired level of confidence, take 0.05 at 95\% confidence level}$

$$n = \frac{320}{1 + (320 * (0.05)^2)} = 178$$

Table 3.1 Tabular view of samples taken

No.	Working unit	Number of target population	Sample size taken
1	TVET Trainers	168	93
2	Industry Trainers	152	85
Total		320	178

Source: based on data collected from college and industry HRM, 2021.

3.4.2 Sampling Techniques

For the purpose of this study, both probability and non-probability sampling techniques were employed. In this study, proportional stratified random sampling method from probability sampling technique has employed to select trainers from the target population. Under proportional stratified sampling, the population is divided into several sub-populations that are individually more homogeneous than the total population (the different sub-populations are called 'strata') and then items selected from each stratum proportionally to constitute a sample. As a result, samples are selected from the target population using proportional stratified sampling method since the trainers are classified as college and industry trainers which taken as strata and then samples are selected from each stratum proportionally. Therefore, from 320 target population, 168 were college trainers and 152 were industry trainers. For this study, the sample size was calculated using Slovin's formula and becomes 178. Accordingly, for the quantitative study, samples are taken from each stratum by calculating it proportionally, from 168 college trainers 93 are selected as sample and from 152 industry trainers 85 are taken as a sample. Here, for the qualitative study 8 trainees are taken from four colleges as interview respondent.

Besides, for the sake of achieving the objectives of this study, the investigator used simple random sampling method in order to contact the individual respondents. Through random sampling all trainers in the selected colleges and industries had an equal chance of being selected as a participant in the study. Therefore, 93 trainers in colleges and 85 trainers in industries with a total of 178 trainers were selected to distribute the questionnaires through lottery method. The lottery was prepared by taking list of the trainers from the selected colleges and industries HRM; where numbers were assigned to the names of the trainers, and written on the separate piece of papers and put in to the jar and well shaken. Here, to select respondents', from 168 college trainers 93 were picked randomly and also from 152 industry trainers 85 lotteries were picked from the jar where the names corresponding to the selected numbers were used as respondents of the questionnaire.

Also, in this study, non-probability sampling technique is used to select the organizations where the study was conducted and interview informants' from the selected organizations. As a result, the investigator used purposive sampling method which is a non-probability sampling technique, in order to select trainees for interview who have involved in the cooperative training and matured to give information on the existing knowledge sharing practices. Here, eight interview respondents

were selected, two of them selected from each college, as key informants purposefully. Besides, four TVET colleges were selected using purposive sampling technique since the selected TVET colleges have relatively long history of existence which enables to have huge accumulation of knowledge to be shared and an engagement in cooperative training which is a core area for knowledge sharing practices. As a result, among government and private TVET colleges in Addis Ababa; Entoto poly technic college and Yeka industrial college (from government colleges), and Universal technology college and Micro link college (from private colleges) were selected purposely due to its convenience to obtain data and the researcher's interest to investigate the trend of KS practices at the sampled colleges.

3.5 Sources for Data Collection

The sources of data, for this study, were both primary and secondary sources of information. Data from primary sources were gathered from sample population of trainers in colleges and industries through structured questionnaire and from trainees' interview. Secondary sources of data include both published and unpublished materials to draw related literature. The study has employed the following instruments and procedures to gather the required information.

3.6 Data Collection Instruments

I. Questionnaires

This study mainly used questionnaires to collect primary data as questionnaires are simple to administer and relatively inexpensive to analyze. Questionnaires were distributed personally by the researcher visiting all strata. The questionnaires were intended to inquire answers in the form of open-ended and close-ended questions. The open ended questions are designed to collect the suggestions, comments and recommendations from the respondents briefly, in a written form. The questionnaires had three sections. The first section (Part I) contains questions that helped to generate general information about respondents like sex, age, education level, department and work experience. The second section (Part II) addressed the specific information associated to the hypotheses drawn based on the research model and the third section (Part III) considered the relationship between the factors hypothesized and the knowledge sharing practices in the cooperative training.

Most of the questionnaires were adapted from previous researches conducted by Fikru, M. (2018) and Biruk, F. (2014). Some of the questionnaires were developed from reviewed literature based on the research questions. Five-point Likert scale was used to rate items in the questionnaires. According to Subedi (2016), Likert type data are commonly used to measure attitude providing a range of responses to a given question or statement. The questionnaires were prepared in English and distributed by the researcher himself. Here, the questionnaires developed were consulted and evaluated by relevant experts and pilot test was done in some respondents' who work in the study area to validate it.

II. Interview (*key informant interview*)

The semi-structured interview is used for this study because it enables the researcher to get specific information and also flexible to raise other information. In this case, the researcher produces interview guide (See Appendix) which means a list of questions or topics to be discussed and guarantee consistency of the collection of qualitative data.

Also, the original interview questions prepared in the English language translated into the Amharic language and back to English by a licensed official language translator for equivalency and the two versions were confirmed for meaning consistency.

3.7 Data Collection Procedures

3.7.1 Pilot Test of Research Instruments

According to Hassan et al. (2006), a pilot study is one of the important stages in a research project and is conducted to identify potential problem areas and deficiencies in the research instruments prior to implementation during the full study. Generally, 10–20% of the main sample size is a reasonable number for conducting a pilot study (Hazzi and Maldaon, 2015). Pilot study was conducted to ensure that the measurement instrument (questionnaire) was comprehensible and appropriate, and that the questions were well defined, clearly understood and presented in a consistent manner. Pilot test was undertaken prior to the main study by selecting 16 respondents (10% of the sample size) from the target population. The selected respondents for pilot test asked whether the study instrument(s), is asking the intended questions, whether the format is understandable and whether the selected tool is appropriate for the target population. Accordingly, identified weaknesses like ambiguity of sentences, statements discrepancy and incorrectness in the

flow were addressed before the questionnaire is actually administered to participants. But, the selected respondents for the pilot test were not again used in the main study.

To collect quantitative data, the prepared questionnaires were distributed to 178 trainers in colleges and industries via contacting in person. This way has an opportunity to explain to the respondents about the questionnaires if they have anything unclear. From the distributed 178 questionnaires 165 (92.7%) were appropriately filled and returned. Also, to collect qualitative data, 8 trainees are selected purposefully for interview from the four TVET colleges, and then interview data was collected by using audio recorder and translated it for further discussion.

3.8 Data Analysis

After the data collected through questionnaires, its completeness was verified, and encoded by using statistical software SPSS-V20 to statistically analyze the data collected and infer from the sample to the population.

Data analysis was performed using descriptive and inferential statistics. According to Boone, N.H and Boone, A.D. (2012), Likert scale data are analyzed at the interval measurement scale. Likert scale items are created by calculating a composite score (sum or mean) from four or more type Likert-type items; therefore, the composite score for Likert scales should be analyzed at the interval measurement scale. Descriptive statistics recommended for interval scale items include the mean for central tendency and standard deviations for variability. Additional data analysis procedures appropriate for interval scale items would include the Pearson's r , ANOVA, and regression procedures. Hence, multiple linear regressions were employed so as to predict statistical effect and relations between variables. The p -value is either < 0.05 or > 0.05 . If it is less than 0.05, then there is a statistical significant effect and correlations. If the p -value is greater than 0.05, then there is no statistically significant effect and correlations. On the other hand, the qualitative data were analyzed by using narration and description method.

3.8.1 Descriptive Statistical Analysis

Descriptive statistics was used to describe different characteristics. Frequencies and percentages were used to analyze general information about respondents, mean and standard deviation were used to describe aspects of the hypothesis drawn and knowledge sharing practices. The mean is preferred as it considers the precise score of each case. Thus, it incorporates more information than

the median which only states a scores relative position. The standard deviation on the other hand, was used to measure variation. The results were presented using tables accompanied with explanations.

3.8.2 Inferential Statistical Analysis

From Inferential statistical analysis, correlation and multiple linear regression analysis were used to determine the relationship between the independent variable (individual factors, organizational factors and technological factors) and dependent variable (knowledge sharing); and to test the effect of those factors on knowledge sharing practices respectively. The results were presented using tables. Every table was accompanied by result interpretation. Correlation and multiple linear regressions are explained below.

3.8.2.1 Correlation Analysis

Correlation may be defined as the degree of relationship existing between two or more variables (Koutsoyiannis, 1977). The correlation coefficient (r) is a measure of the degree of covariability of the variables. The value of the correlation coefficient may vary from -1 to +1. When r is positive, there exists a positive correlation between the variables. $r = +1$ implies that there is a perfect positive correlation between variables. When r is negative, there exists a negative correlation between the variables. $r = -1$ implies that there is a perfect negative correlation between variables. When r is zero, then the variables are uncorrelated. The closer the value of r is to one, the greater is the degree of covariability. On the other hand, the closer the value of r is to zero, the lesser is the degree of the covariability.

The quantity r , called the linear correlation coefficient, measures the strength and the direction of a linear relationship between two variables. The linear correlation coefficient is sometimes referred to as the Pearson product moment correlation coefficient in honor of its developer Karl Pearson (Samuel and Okey, 2015).

As statistical estimate, r is inevitably subject to some error and should be tested for its reliability by conducting some test of significance (Koutsoyiannis, 1977). While computing a correlation, the level of significance shall be set at 95% with alpha value of 0.05.

3.8.2.2 Multiple Regression Analysis

The multiple regression analysis was used to determine whether the hypothesis mentioned will influence the knowledge sharing practices in the cooperative training. The study takes the ten determinant factors as independent variables and the knowledge sharing practice as dependent variable in the regression model. The study used the following multiple regression equation model already formulated by Abenet A. (2020) to establish the statistical significance of the independent variables on the dependent variable.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \epsilon$$

Here, Y = Knowledge Sharing Practice

X₁ = Trust

X₂ = Communication Barriers

X₃ = Intrinsic Motivators

X₄ = Extrinsic Motivators

X₅ = Awareness Building

X₆ = Leadership method

X₇ = Strategy

X₈ = Motivational Schemes

X₉ = ICT Infrastructure

X₁₀ = Appropriate Technology

In the model, β_0 = Constant, and β_1 to β_{10} = Regression coefficients that represent the mean change in the dependent variable for one unit of change in the independent variable while holding other independent variables in the model constant and ϵ = Error term which captures the unexplained variation in the model.

3.9 Validity and Reliability

3.9.1 Validity

In this study, to maintain the validity of the instruments, most of the questionnaires were adopted from previous researches with modifications and some of the questionnaires were developed based on careful review of existing literature. In addition, pilot testing of questionnaires was conducted to obtain a feedback from the respondent on validity and responses were collected and questionnaires were adjusted subsequently.

3.9.2 Reliability

Cronbach alpha was computed and compared with the threshold value of 0.7. For this study, an overall value of 0.823 was obtained which implies that good level of internal consistency of research instruments.

Table 3.2 Cronbach's alpha reliability test

Reliability statistics	
Cronbach alpha	N of items
0.823	78

3.10 Ethical Consideration

This paper did not go under any form of bias or change, and the researcher respected the ethical code address issues such as honesty, objectivity, respect for intellectual property, social responsibility, confidentiality, non-discrimination etc.

CHAPTER FOUR

DATA ANALYSIS, REASEARCH FINDINGS AND DISCUSSION

4.1 Response Rate

Response rate is formally defined as the number of completed questionnaires divided by the number of eligible sample members (Frohlich, 2001). As a general rule of thumb, most reviewers look for a response rate $\geq 70\%$ (Rubenfeld, 2004). The quantitative data were collected through questionnaires administered to 165 trainers working in four TVET Colleges and many industries in Addis Ababa. The questionnaires were distributed for 178 trainers. Of which, 13 questionnaires were not returned back due to the difficulty to get respondents in their office. The qualitative data were also collected by using interview with 8 key informants from four TVET Colleges. Hence, the analysis of the data was based on 165 returned questionnaires and 8 interview responses. In general, the total number of questionnaires distributed was 178 and the returned questionnaires were 165 with a response rate of 92.7%. This percentage was considered sufficient for the study as it is higher than the general response rate rule of thumb.

4.2 Respondents' General Information

This section presents general information about respondents. The general information collected was on gender, age, level of education, department and work experience. Gender was assessed to understand the involvement of both genders in the study. Age was required to ensure the ability to understand and respond to the issues sought by the study. The level of education was important to imply that the respondents were well educated and had the ability to understand and respond to the issues sought by the study. Department was required to infer that the respondents were involved from different sectors to respond to the issues sought by the study. Work experience was important to ensure aspects of familiarity in cooperative training and experience of the respondents in matters of knowledge sharing practices. Those key demographic characteristics of respondents are presented in Table 4.1, as shown below.

Table 4.1 Respondents' profile

Respondents' profile	Classification	Frequency	Percent
Gender	Male	144	87.3
	Female	21	12.7
	Total	165	100
Age Group	23-27 years	76	46.1
	28-32 years	63	38.2
	33-37 years	20	12.1
	Above 38 years	6	3.6
Level of Education	Level 4	57	34.5
	Diploma	46	27.9
	First Degree	48	29.1
	Master's Degree	14	8.5
Experience	Less than 3 years	18	11
	3-10 years	123	74.5
	Above 10 years	24	14.5
Department	Hotel and Tourism	25	15.2
	Construction	23	14
	Accounting	21	12.7
	ICT	19	11.5
	Metal	14	8.5
	Textile & Garment	22	13.3
	Electronics	17	10.3
	Automotive	24	14.5

In this study, the highest percentages of respondents were male which comprises 87.3% of the respondents while females accounted for 12.7%. Majority of the respondents which counted 46.1% was within the age group of 23-27 years whereas 38.2 % of the respondents were within age group of 28-32 years. With regard to respondent' level of education, the majority of the trainers (34.5%) were level 4 holders followed by 27.9% of the respondents who had diploma in technical and

vocational education. As shown in the table above, the majority of the respondents (74.5%) had an experience of 3-10 years in cooperative training which revealed that most of the respondents had practiced for a considerable period of time which helps to give credible information relating to the study. With regard to academic departments, the study sought to involve respondents from eight departments that the trainers whether participated in relevant knowledge sharing practices in their department. Of the respondents, 15.2% were from hotel and tourism department while 14.5% of respondents were from automotive department.

4.3 Factors affecting the knowledge sharing practices in the cooperative training

The first objective of the study was to assess the factors that affect the knowledge sharing practices in the cooperative training. The respondents were asked to indicate their level of agreement on the provided items that are intended to measure individual knowledge sharing factors, organizational knowledge sharing factors and technological knowledge sharing factors in the cooperative training.

The analysis in this section follows descriptive approach by using the output from the SPSS V-20 statistical software to describe respondents' responses on the items provided.

A five-point Likert scale with 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree was used to rate the factors that affect the knowledge sharing practices in the cooperative training.

Analysis of the data was done using means and standard deviations. The means recorded were interpreted as follows: 1-1.49 = Strongly Disagree; 1.5-2.49 = Disagree; 2.5-3.49 = Neutral; 3.5-4.49 = Agree; 4.5-5.0 = Strongly Agree (Subedi, P.B., 2016).

4.3.1 Individual knowledge sharing factors

As Nooshinrad & Nemati-Anaraki, (2014) described the success of university-industry knowledge sharing depends on the individual knowledge sharing behavior which can be influenced by different factors. Hence, identifying this factors help to have a better knowledge sharing practices. In an attempt to investigate the main factors affecting knowledge sharing practices during cooperative training, the survey questionnaires for individual knowledge sharing factors were collected from trainers in both organizations as presented below.

4.3.1.1 Knowledge sharing factors related to 'trust'

The study sought to find out the state of trust for knowledge sharing practices in the cooperative training. Respondents' (college and industry trainers) response analysis on the 10-items to measure trust had shown in table 4.2.

Table 4.2: Trainers' responses on knowledge sharing factors related to 'Trust'

1. Factors related to 'Trust'	N	Mean	Std. Dev
I have closer relationship with trainees which help to promote knowledge sharing.	165	4.57	.494
For the CT, the relationship between colleges and industries is strongly established.	165	2.38	.427
Enterprises allowed to practice well with machines during cooperative training	165	2.42	.465
I want to help trainees for the problems faced.	165	4.29	.473
I believe that the practices during cooperative training have positive impact for knowledge sharing.	165	4.43	.465
I have expected from trainees to have the required knowledge from the given cooperative training	165	3.27	.424
I have confidence with trainees to share knowledge during cooperative training.	165	3.18	.465
Most of the time, I'm conducting practices by forming the trainees in groups	165	4.49	.412
I'm too careful in dealing with the training.	165	3.46	.493
In my opinion, trainees have shared better knowledge from the cooperative training.	165	2.73	.415
		3.52	0.45

As shown from the above table, an overall mean and standard deviation of (M=3.52, SD=0.45) was recorded indicating that the respondents have agreed to the mentioned issues related to trust. As revealed from the table, enterprises allowed to practice well with machines during cooperative training was responded by trainers as they disagree with relatively lowest mean (M= 2.42) followed by 'for the cooperative training, the relationship between colleges and industries is strongly established' (M= 2.38). Also, they respond to the item saying 'in my opinion, trainees have shared

better knowledge from the cooperative training' as they disagree ($M=2.73$) and trainers respond to the question 'I have confidence with trainees to share knowledge during cooperative training' as they are neutral with mean and standard deviation of ($M=3.18$, $SD=0.465$). For the rest five items, the responses collected from TVET college trainers and industry trainers, shows that almost all the respondents have agreed to the mentioned issues related to trust with an overall means recorded in the table above interpreted as 3.5-4.49 as agree; and 4.5-5.0 as strongly agree.

Hence, we can conclude that for the item 'enterprises allowed to practice well with machines during cooperative training' as shown in the above table, trainers were not agreed which implies that in the industry there is a restricted access to machines to perform practically due to lack of adequate agreements. The above mean value of responses indicates that trainers in the study organizations are trusted to share their knowledge to their trainees.

The findings about trust and knowledge sharing practices in the cooperative training (as presented in table 4.2) agrees with the literature review that was presented in the second chapter of the study. According to Nemati-Anaraki & Nooshinfard (2014) and Ujwary-Gil (2017) trust is an important factor in enabling knowledge sharing. It is generally believed that when there are trust-relationships, people are more willing to provide useful knowledge.

4.3.1.2 Knowledge sharing factors related to 'communication barrier'

The study sought to reveal the state of communication barriers in the existing knowledge sharing practices in the cooperative training. The results are shown in table 4.3 as follows.

Table 4.3: Trainers' responses on knowledge sharing factors related to 'communication barriers'

2.Factors related to 'Communication Barriers'		N	Mean	Std. Dev
	I can easily ask questions to have better understanding.	165	3.33	.412
	I have positive interaction with trainees and other stakeholders.	165	2.76	.435
	I give counseling services for trainees based on their status in the cooperative training.	165	3.24	.429
	There is strong cooperation with others during cooperative training.	165	2.83	.634
	There is brainstorming sessions during cooperative training.	165	2.78	.419
	I can express my idea without any difficulty.	165	3.48	.572
	Feedback is given for trainees' performance in the training.	165	3.21	.456
			3.09	0.48

As shown from the above table, an overall mean and standard deviation of (M=3.09, SD= 0.48) has recorded indicates that the respondents response to the mentioned issues related to communication barriers is neutral. Hence, we can concluded that, as the findings show, in the cooperative training trainers have partially affected by communication barriers to share knowledge for their trainees.

To sum up, the findings about communication barriers and knowledge sharing practices in the cooperative training (as presented in table 4.3) agrees with the literature review that was presented in the second chapter of the study. Knowledge sharing is a means and a process by which individuals and groups communicate their knowledge unconsciously or deliberately to their mutual benefit (Nemati-Anaraki & Nooshinfard, 2014). Based on the findings, there is relatively positive communication in the cooperative training which plays a key role in the dissemination of knowledge.

4.3.1.3 Knowledge sharing factors related to ‘intrinsic motivators’

For the 9- items provided to measure intrinsic motivators, respondents’ (college and industry trainers) response were analyzed as shown in the table below.

Table 4.4: Trainers’ responses on knowledge sharing factors related to ‘intrinsic motivators’

3. Factors related to 'Intrinsic Motivators'		N	Mean	Std. Dev
	I am inspired to share knowledge for trainees.	165	4.14	.408
	I am motivated to show the required activities individually and/or in team.	165	4.10	.342
	I want to help and follow up trainees when they need my support.	165	3.77	.412
	I am satisfied by sharing what I know.	165	4.78	.422
	I am responsible to share knowledge in the cooperative training.	165	4.13	.421
	I have high internal motive to perform the tasks planned.	165	4.11	.386
	I am interested to participate actively.	165	4.19	.484
	I’m doing activities by identifying its value.	165	4.11	.384
	I am doing an activity in the cooperative training by my own sake.	165	2.86	.421
			4.02	0.41

According to the findings in the above table, an overall mean and standard deviation of (M=4.02, SD= 0.41) was recorded which indicates that the respondents have agreed to the mentioned issues related to intrinsic motivators. From the nine indicators to intrinsic motivators one which is ‘I am doing an activity in the cooperative training by my own sake’ mean value (M=2.86) shows that as they are partial. As the overall findings show, for the knowledge sharing in the cooperative training, trainers have not the problem of intrinsic motivator which affects the knowledge sharing practices.

4.3.1.4 Knowledge sharing factors related to ‘extrinsic motivators’

The study sought to reveal the state of extrinsic motivators in the existing knowledge sharing practices in the cooperative training. The results are shown in table 4.5 as follows.

Table 4.5 Trainers’ responses on knowledge sharing factors related to ‘extrinsic motivators’

4.Factors related to 'Extrinsic Motivators'		N	Mean	Std. Dev
I want an encouragement means to share knowledge to others.	165	2.84	.431	
There is high management support and follow up for practical sessions.	165	2.02	.321	
Institutional promotions help to improve knowledge sharing practices.	165	3.52	.348	
There is a reward system for those perform successfully in the cooperative training.	165	2.87	.454	
There is a punishment for those missing the cooperative training.	165	3.14	.453	
There are positive managerial practices to enhance the cooperative training.	165	2.73	.342	
The work environment has encouraged sharing knowledge easily.	165	3.29	.523	
There is fair approach which promote positive work attitude.	165	2.56	.342	
			2.87	0.40

According to the findings in the above table, an overall mean and standard deviation of (M=2.87, SD= 0.40) was recorded which indicates that the respondents have certain limitations to the mentioned issues related to extrinsic motivators. As the overall finding shows, for the existing knowledge sharing practices in the cooperative training, trainers’ response implies as they are neutral to extrinsic motivators which include rewards, institutional promotions and management support which helps to encourage them.

Generally, the descriptive analysis for individual factors indicate that knowledge sharing practices at inter-organizational level is relatively affected by extrinsic motivator (mean = 2.87, Std. Dev. =

.40) followed by communication barriers (mean = 3.09, Std. Dev. = .48), trust (mean = 3.52, Std. Dev. = .45) and intrinsic motivators (mean = 4.02, Std. Dev. = .41).

4.3.2 Organizational knowledge sharing factors

4.3.2.1 Knowledge sharing factors related to ‘awareness building’

For the 6- items provided to measure awareness building, respondents’ (college and industry trainers) responses were analyzed as shown in table 4.6 as follow.

Table 4.6: Trainers’ responses on knowledge sharing factors related to ‘awareness building’

	5.Factors related to 'Awareness building'	N	Mean	Std. Dev
	The cooperative training is given after memorandum of understanding is signed between stakeholders.	165	2.19	.341
	For the trainees and stakeholders detail orientation is given.	165	2.16	.435
	Seminars are conducted to create awareness on the objectives of the cooperative training for knowledge sharing.	165	2.17	.265
	I am attending conferences which involve all stakeholders.	165	1.45	.344
	There are regular meetings at inter-organizational level to review the performances of the cooperative training.	165	1.24	.533
	I am informed soon, if there is a change in the process of the cooperative training.	165	2.93	.532
			2.02	0.41

As shown from the above table, an overall mean and standard deviation of (M=2.02, SD= 0.41) was recorded which indicates (for mean value 1.5-2.49 = disagree) that the respondents have not agree to the mentioned issues related to awareness building. As the overall finding shows, for the existing knowledge sharing practices in the cooperative training, awareness building which include signing memorandum of understanding, giving detail orientation, conducting seminar and conferences have strongly affect the knowledge sharing practices in the cooperative training. From the six indicators, the only one mean value (M=1.24) for regular meetings at inter-organizational level to review the

performances of the cooperative training shows that as it is not performed in the regular basis to promote KSP.

As the overall findings show for the existing knowledge sharing practices in the cooperative training, stakeholders have the problem of awareness building. From their response for the given measures, we can conclude that the absence of awareness creation between the two organizations. As stated in the literature review, building strong awareness at inter-organizational level have a positive impact on knowledge sharing practices. In turn, it leads to accept the hypothesis mentioned in chapter two with that of weak awareness building at inter-organizational as highly affecting the existing knowledge sharing practices.

4.3.2.2 Knowledge sharing factors related to 'leadership method'

The study sought to find out the state of leadership method for knowledge sharing practices in the cooperative training. The responses from respondents were analyzed as shown below.

Table 4.7: Trainers' responses on knowledge sharing factors related to 'leadership method'

6.Factors related to 'Leadership Method'		N	Mean	Std. Dev
	The approaches the leaders follow to manage the processes during cooperative training is flexible.	165	1.79	.431
	There is high commitment for coordination between stakeholders to accomplish the cooperative training properly.	165	1.84	.413
	There is a joint plan for cooperative training to acquire, organize and share knowledge with enterprises.	165	2.71	.454
	There are better facilities/platforms for knowledge sharing (workshops, seminars, plenary meetings, etc.) with the industry on a regular basis.	165	1.78	.401
	Immediate solutions are given for problems and limitations faced during CT.	165	1.76	.412
	Guidelines are established for the cooperative training.	165	2.59	.454
	There is a follow up method for the actors of the CT to perform their role properly.	165	2.38	.433
			2.12	0.43

As shown from the above table, an overall mean and standard deviation of (M=2.12, SD= 0.43) was recorded which indicates (for mean value 1.5-2.49 = Disagree) that the respondents have disagreed to the mentioned indicators related to leadership method. As the overall finding shows, for the existing knowledge sharing practices in the cooperative training, trainers (from the college and industry) having the problem of leadership method. As stated in the hypothesis, for the greater implementation of knowledge sharing activities, flexible and change oriented leadership method can have a significant influence on the overall success of the practices for knowledge sharing. As a result of it, we can conclude that weak leadership method at inter-organizational as highly affecting the existing knowledge sharing practices.

4.3.2.3 Knowledge sharing factors related to 'strategy'

For the 5- items provided to measure the implementation of strategy in the cooperative training, respondents' (college and industry trainers) response were analyzed as shown in table 4.8 as follows.

Table 4.8: Trainers' responses on knowledge sharing factors related to 'Strategy'

7.Factors related to 'Strategy'	N	Mean	Std. Dev
The existing TVET strategy for cooperative training with the industry helps to promote knowledge sharing.	165	4.16	.315
The existing TVET strategy for cooperative training is implemented properly.	165	2.17	.570
I understand the purpose of TVET strategy for knowledge sharing.	165	3.53	.592
I implement the agreements of the cooperative training properly.	165	2.36	.494
I prepare periodic plan to acquire, organize and share knowledge depending on the context.	165	2.89	.413
		3.02	0.47

As shown from the above table, an overall mean and standard deviation of (M=3.02, SD= 0.47) was recorded which indicates (mean value of 2.5-3.49 = Neutral) that the respondents have not decided to the mentioned measures related to strategy. As the gathered data shows, the implementation of the existing TVET strategy in line with the cooperative training is low which can be affect the promotion of the knowledge sharing practices at the inter-organizational level.

4.3.2.4 Knowledge sharing factors related to 'motivational scheme'

The study sought to find out the state of motivational scheme for knowledge sharing practices in the cooperative training. The responses from respondents were analyzed as shown below in table 4.9 as follow.

Table 4.9: Trainers' responses on knowledge sharing factors related to 'Motivational Scheme'

8.Factors related to 'Motivational Scheme'	N	Mean	Std. Dev
Stakeholders support career development to encourage knowledge sharing.	165	3.48	.423
All the necessary materials and facilities are provided to encourage knowledge sharing with enterprises.	165	2.35	.354
There is specified budget dedicated to acquire, and share knowledge in cooperative training.	165	3.25	.412
There are promotions that help to improve knowledge sharing practices.	165	2.86	.317
We can use the entire proposed budget properly.	165	3.24	.451
		3.04	0.39

As shown from the above table, an overall mean and standard deviation of (M=3.04, SD= 0.39) was recorded which indicates (for mean value 2.5-3.49 = Neutral) that the respondents have being partial to the implementation of the mentioned indicators related to motivational scheme. As the overall finding shows, for the existing knowledge sharing practices in the cooperative training, trainers (in the college and industry) have been affected partly by motivational schemes delivery.

In general, the descriptive analysis described above stated that the existing KSP in the cooperative training is highly affected by almost all organizational factors except the contents of the strategy designed for it. Moreover, lack of strong awareness building and weak leadership methods are taken as the main reason for the low implementation of knowledge sharing practices in the cooperative training delivery at inter-organizational level.

4.3.3 Technological knowledge sharing factors

In an attempt to investigate the main factors affecting knowledge sharing practices in the cooperative training, some of the survey questionnaires were grouped in to technological factors. Accordingly, the following findings were obtained and presented in table 4.10 and table 4.11 for technological factors.

4.3.3.1 Knowledge sharing factors related to 'ICT Infrastructure'

Table 4.10: Trainers' responses on knowledge sharing factors related to 'ICT Infrastructure'

	9.Factors related to 'ICT Infrastructure'	N	Mean	Std. Deviation
	There is up-to-date ICT infrastructure that helps to share knowledge easily.	165	1.95	.467
	There is an access to the internet.	165	2.51	.465
	All the necessary materials are available in the workshops.	165	1.82	.321
	I can easily buy the needed materials by asking the concerned body.	165	2.47	.511
	There is a repository system which helps to share knowledge.	165	2.62	.417
			2.27	0.43

With regard to ICT infrastructure, an overall mean and standard deviation of (M=2.27, SD= 0.43) was recorded which indicates that almost all the respondents' level of agreement on the existing technology for knowledge sharing in the cooperative training labeled as they disagree. Lack of up-to-date ICT infrastructure and limited resources for workshops have limited the existing KSP in the cooperative training again.

4.3.3.2 Knowledge sharing factors related to ‘appropriate technology’

Table 4.11: Trainers’ responses on knowledge sharing factors related to ‘appropriate technology’

10.Factors related to 'Appropriate technology'		N	Mean	Std. Dev
Based on the contents of the instruction, the relevant resources are provided.		165	2.41	.423
All the tools are well functional.		165	2.35	.378
There is an access to use least cost tools.		165	2.51	.512
There is quick maintenance of machines failed during operation.		165	2.24	.422
Adequate training is given for familiarization of tools.		165	1.93	.436
Demonstrations are done using the required tools.		165	1.74	.313
			2.19	0.41

As shown in table 4.11, the study results revealed that for all the 6-items, respondents’ responses indicates that the lack of appropriate technology to deliver the KSP in the cooperative training.

In this regard, the mean responses (M=2.19) imply the range of disagreement. This result is supported by the findings of Nooshinfrad and Nemati-Anaraki (2014) and Riege, A. (2005). According to Nooshinfrad & Nemati-Anaraki (2014) the availability and usability of technologies have significant impact on the knowledge sharing practices.

With regard to technological factors, the hypothesis drawn are accepted and lack of up-to-date ICT infrastructures, lack of appropriate technology and tools were identified as technological factors that highly affect knowledge sharing practices in the cooperative training delivery. Here, as noted by Riege, A. (2005) most KS practices would be less effective without technology. The overall descriptive analysis result shows as technological factors affecting the KSP in cooperative training delivery.

4.4. Knowledge Sharing Practices in the cooperative training

The study sought to find out the state of knowledge sharing practices in the cooperative training in terms of the aforementioned issues. The responses from respondents were analyzed as shown below in table 4.12.

Table 4.12: Trainers' responses on items related to knowledge sharing practices

11.Items related to 'Knowledge Sharing Practices'		N	Mean	Std. Dev
I believe that the practices during cooperative training have positive impact for KS.		165	4.72	.263
I have positive interaction with trainees and other stakeholders.		165	2.84	.417
I am inspired to share knowledge for trainees.		165	4.28	.321
There is high management support and follow up for practical sessions.		165	2.25	.237
Seminars are conducted to aware the objectives of the cooperative training for KS.		165	2.52	.216
There is high commitment for coordination between stakeholders to accomplish the cooperative training properly.		165	1.87	.423
The existing TVET strategy for cooperative training is implemented properly.		165	2.19	.274
There are promotions that help to improve knowledge sharing practices.		165	2.95	.524
There is up-to-date ICT infrastructure that helps to share knowledge easily.		165	1.87	.565
There is immediate technical support to solve problems during practices.		165	2.19	.291
			2.76	0.35

In this regard, the study sought to identify the extent to which knowledge sharing practices affected by the factors drawn in the hypothesis.

Analysis of the data was done using means and standard deviations. The means recorded were interpreted as follows: 1-1.49 = Not at all; 1.5-2.49 = Small Extent; 2.5-3.49 = Moderate Extent; 3.5-4.49 = Great Extent; 4.5-5.0 = Very great extent.

As shown from the above table, an overall mean and standard deviation of (M=2.76, SD= 0.35) was recorded indicating that knowledge sharing practices affected by the proposed factors at a moderate extent. The responses related to 'there is high commitment for coordination between stakeholders to accomplish the cooperative training properly' and 'There is up-to-date ICT infrastructure that helps to share knowledge easily' showed that a low mean value of 1.87 which implies the small extent

given for the proper implementation of KSP in the cooperative training between the two organizations. This leads to justify that, as evidenced from the above tables; the existing KSP in cooperative training is highly affected by organizational and technological factors.

To summarize, the descriptive analysis showed that the existing KSP in cooperative training is highly affected by awareness building, leadership method, ICT infrastructure and appropriate technology as mentioned in the hypothesis drawn. It leads to give suggestions that the presence of weak interaction between TVET colleges and industries for the sake of knowledge sharing at inter-organizational level.

4.5 Relationship between factors (individual, organizational & technological) and KSP

In this section of data analysis, the study sought to examine the relationship between factors (individual, organizational & technological) and knowledge sharing practices in the cooperative training. Inferential statistical analysis, correlation and multiple linear regression analysis were used to examine the relationship between the independent variable (factors of individuals, organizational & technological) and dependent variable (knowledge sharing practices).

4.5.1 Correlation Analysis

The sign of the correlation coefficient determines whether the correlation is positive or negative. The magnitude of the correlation coefficient determines the strength of the correlation. The strength of correlation can be described using the guide that Evans (1996) suggests for the absolute value of r as cited in (Beldjazia and Alatou, 2016). If “ $r = 0.00-0.19$ - very weak, $r = 0.20-0.39$ - weak, $r = 0.40-0.59$ - moderate, $r = 0.60-0.79$ - strong and $r = 0.80-1.0$ - very strong”.

Pearson correlation coefficients were determined with the objective to obtain information about the relationships between the dependent and independent variables as presented in table 4.13.

Table 4.13: Correlation coefficients between dependent and independent variables

		KSP	Trust	Communication Barrier	Intrinsic Motivator	Extrinsic Motivator	Awareness building	Leadership Method	Strategy	Motivational scheme	ICT infra	Appropriate techno
KSP	Pearson Correlation	1										
	Sig. (2-tailed)											
	N	165										
Trust	Pearson Correlation	.425**	1									
	Sig. (2-tailed)	0.001										
	N	165	165									
Communication Barrier	Pearson Correlation	-0.681	-.452	1								
	Sig. (2-tailed)	0.387	0.111									
	N	165	165	165								
Intrinsic Motivator	Pearson Correlation	.455*	0.59	-0.19	1							

	Sig. (2-tailed)	0.046	.019*	-0.124								
	N	165	165	165	165							
Extrinsic Motivator	Pearson Correlation	.589**	.164*	-0.810**	.439**	1						
	Sig. (2-tailed)	.000	0.035	0.02	0.002							
	N	165	165	165	165	165						
Awareness building	Pearson Correlation	.759*	.168*	-0.621**	.848**	0.421	1					
	Sig. (2-tailed)	0.025	0.031	0.015	0.027	0.023						
	N	165	165	165	165	165	165					
Leadership Method	Pearson Correlation	.656**	0.014	-0.011	.166*	0.029**	.280**	1				
	Sig. (2-tailed)	.000	0.357	0.888	0.033	0	0					
	N	165	165	165	165	165	165	165				
Strategy	Pearson Correlation	0.054	0.125	-0.425	0.438*	.802**	0.051	.175*	1			
	Sig. (2-tailed)	0.258	0.096	0.065	0.025	0.009	0.518	0.025				
	N	165	165	165	165	165	165	165	165			
Motivational scheme	Pearson Correlation	0.419	0.127	-0.773	0.047	0.054	0.027	0.58**	0.425*	1		
	Sig. (2-tailed)	0.021	0.103	0.023	0.548	0.495	0.726	0.016	0.037			

	N	165	165	165	165	165	165	165	165	165		
ICT infra.	Pearson Correlation	.749**	0.488	-0.001	0.63**	0.434	0.62**	0.003	0.057	0.498	1	
	Sig. (2-tailed)	0.009	0.06	0.995	0.019	0.664	0.012	0.968	0.465	0.012		
	N	165	165	165	165	165	165	165	165	165	165	
Appropriate technology	Pearson Correlation	.639**	.614*	-0.043	0.084	0.4217*	0.646*	0.544**	.567*	0.027	.553*	1
	Sig. (2-tailed)	0.001	0.006	0.584	0.282	0.012	0.047	0.028	0.032	0.735	0.05	
	N	165	165	165	165	165	165	165	165	165	165	165
**. Correlation is significant at the 0.01 level (2-tailed).												
*. Correlation is significant at the 0.05 level (2-tailed).												

According to the correlation magnitude of Evans (1996), the result in the above table indicated that knowledge sharing practice (KSP) has statistically significant and strong positive relationship between awareness building ($r=0.759$, $p<0.05$), leadership method ($r=0.656$, $p<0.01$), ICT infrastructure ($r=0.749$, $p<0.01$), and with that of appropriate technology ($r=0.639$, $p<0.01$).

Also, it indicates the presence of moderate and positive relationship with significant correlation between knowledge sharing practices (KSP) and trust ($r=0.425$, $p<0.01$), extrinsic motivators ($r=0.589$, $p<0.01$), motivational scheme ($r=0.419$, $p<0.05$) and intrinsic motivators ($r=0.455$, $p<0.05$).

Generally, the above correlation analysis showed that the presence of a positive and statistically significant relationship between factors of (individuals, organizational & technological) and knowledge sharing practices in cooperative training given between the selected TVET colleges and corresponding industries in Addis Ababa. In turn, these findings are consistent with the reviewed literatures and hypotheses drawn in chapter two.

4.5.2 Regression Analysis

A multiple regression analysis was carried out to determine the influence of independent variables on the dependent variable. Multiple regressions also used to determine the overall fit (variance explained) of the model and the relative contribution of each of the predictors to the total variance explained.

According to Ballance (2004), the correct use of the multiple regression model requires that several critical assumptions be satisfied in order to apply the model and establish validity. Inferences and generalizations about the theory are only valid if the assumptions in an analysis have been tested and fulfilled.

Before carrying out multiple regression analysis, the researcher has checked the required assumptions that the data must meet to make the analysis reliable and valid. The following assumptions of multiple linear regressions were tested using SPSS.

1. Linearity assumption: Linearity defines the dependent variable as a linear function of the predictor (independent) variable (Balance, 2004). Linearity assumption was tested by producing

scatterplots of the relationship between each of independent variables and the dependent variable. By visually looking at the scatter plot produced by SPSS, the relationship between each independent variable and the dependent variable found to be linear.

2. Multicollinearity assumption: Multicollinearity is a statistical phenomenon in which there exists a perfect or exact relationship between the predictor variables. When there is a perfect or exact relationship between the predictor variables, it is difficult to come up with reliable estimates of their individual coefficients. It will result in incorrect conclusions about the relationship between outcome variable and predictor variables (Alibuhtto and Peiris, 2015). According to Reddy et al. (2013) the most widely applicable method of detecting the multicollinearity is Variance Inflation Factor and it is very accurate in determining the problem of multicollinearity. The common thumb rule is if any of the VIF values exceeds 5 or 10, it implies that the associated regression coefficients are poorly estimated because of multicollinearity.

Accordingly, collinearity diagnostics was conducted using SPSS and VIF values found to be less than the values stated in the rule of thumb which shows that multicollinearity was not a problem as shown in the output data of SPSS.

3. Normality assumption: Multiple regressions assume that variables have normal distributions. This means that errors are normally distributed, and that a plot of the values of the residuals will approximate a normal curve. Two common methods to check normality assumption include using a histogram (with a superimposed normal curve) and a Normal P-P Plot. It can be concluded that normality is guaranteed as the histogram generated is normally distributed and the P-P plot follows the diagonal reference line as shown below.

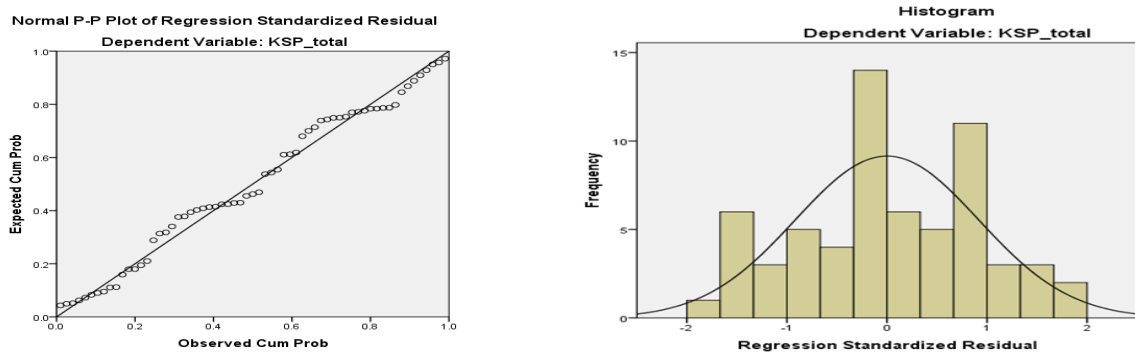


Fig 4.1 Normal p-p plot

4. Homoscedasticity assumption: The assumption of homoscedasticity refers to equal variance of errors across all levels of the independent variables. This means that errors are spread out consistently between the variables. This is evident when the variance around the regression line is the same for all values of the predictor variable. Homoscedasticity might be checked by visual examination of a plot of the standardized residuals by the regression standardized predicted value. Ideally, residuals are randomly scattered around zero (the horizontal line) providing even distribution. Heteroscedasticity is indicated when the scatter is not even; fan and butterfly shapes are common patterns of violation.

To assess homoscedasticity, the researcher created a scatterplot of standardized residuals versus standardized predicted values using SPSS and found that heteroscedasticity was not a major problem as shown in figure below.

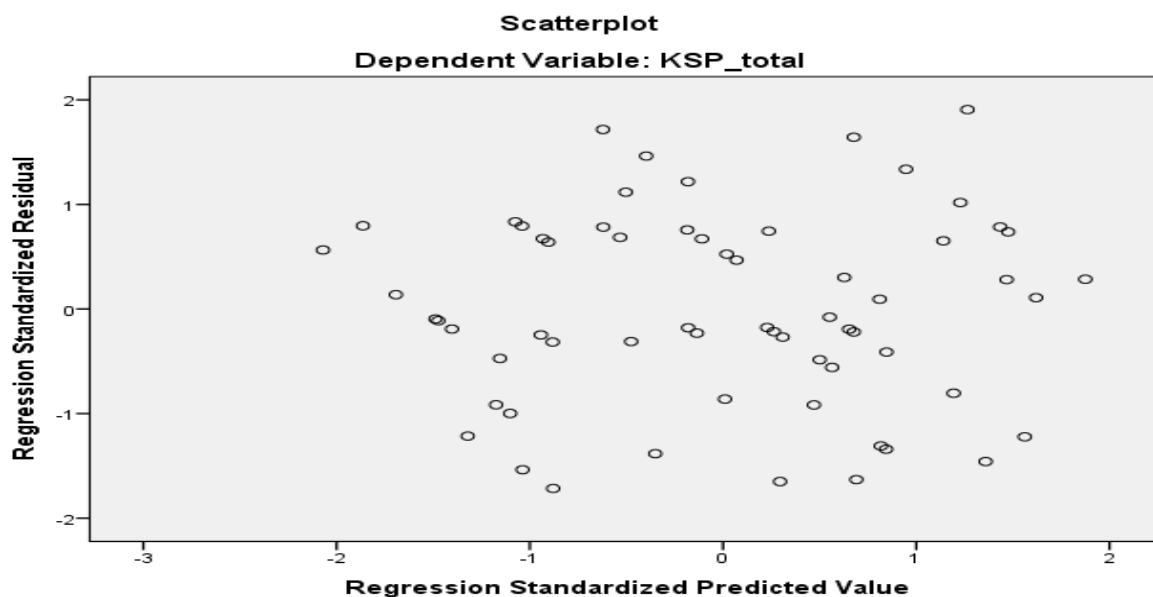


Fig 4.2 Scatterplot of standardized residuals versus standardized predicted values

After the data was checked for the above required multiple regression assumptions and confirmed that it has meet all these assumptions, which leads to multiple regression analysis was carried out to determine how well the regression model fits the data (model summary), independent variables statistically significantly predict the dependent variable (ANOVA) and statistical significance of each of the independent variables (regression coefficients).

4.6. Model Summary

As indicated in the below model summary table (table 4.14), the "R" column represents the value of R, the multiple correlation coefficient. R value of 0.851 indicates very strong correlation between KSP and the ten independent variables which shows a good level of prediction. The "R Square" column represents the R^2 value (also called the coefficient of determination), which is the proportion of variance in the dependent variable that can be explained by the independent variables.

As shown from the table, R^2 value of .725 indicates that 72.5% of the variation in the knowledge sharing practices in cooperative training of TVET colleges and associated industries which can be explained by the factors of individuals, organizational & information technology (independent variables included in the model).

Table 4.14: Model summary

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.851 ^a	.725	.724	.50151	2.138
a. Predictors: (Constant), Appropriate technology, Communication, Extrinsic Motivator, Leadership Method, ICT infrastructure, Motivational scheme, Trust, Strategy, Intrinsic motivation, Awareness building					
b. Dependent Variable: KSP					

As indicated in Table 4.14 the identified factors that affect knowledge sharing practices in the cooperative training can explain only 72.4% of the variations or changes of the mentioned predictors. This implies that about 27.6% of the variation/change is explained by other factors which need further research to identify those factors.

4.6.1 ANOVA Model Fit

The F-ratio in the below ANOVA table (table 4.15) tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically significantly predict the dependent variable, $F = 68.823$, $p < .001$ (i.e., the regression model is a good fit of the data). Here, the value of the sum of squares for regression is greater as compared to residual.

Table 4.15: ANOVA model fit

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	103.860	10	17.31	68.823	.000 ^b
	Residual	39.488	154	.252		
	Total	143.348	164			
a. Dependent Variable: KSP b. Predictors: (Constant), Appropriate technology, Communication, Extrinsic Motivator, Leadership Method, ICT infrastructure, Motivational scheme, Trust, Strategy, Intrinsic motivation, Awareness building						

4.6.2 Regression Coefficients

Table 4.16: Regression coefficients

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.111	.312		-.871	.385
Trust	.680	.123	.250	5.511	.052
Communication Barrier	.004	.107	-.002	.035	.972
Intrinsic Motivator	.046	.109	.217	.421	.675
Extrinsic Motivation_	.529	.051	.249	10.328	.054
Awareness building_	.586	.175	.720	.322	.002
Leadership Method	.855	.073	.615	-.072	.013
Strategy	.180	.207	.056	-.870	.386
Motivational scheme	.053	.084	.380	-.631	.045
ICT infrastructure	.617	.077	.513	.216	.003
Appropriate technology	.619	.088	.458	-.766	.000

a. Dependent Variable: KSP

Standardized Coefficients

The standardized coefficients are useful to know which of the different independent variables is more important. They are used in comparison of impact of any independent variable on the dependent variable. As indicated in regression coefficients table (table 4.16), awareness building had the highest standardized coefficient (.720) followed by leadership method (.615), ICT infrastructure (.513), and appropriate technology (.458). This revealed that awareness building had higher relative effect on knowledge sharing practices in the existing cooperative training. Leadership method, ICT infrastructure, appropriate technology, motivational scheme, trust, extrinsic motivation and extrinsic motivation ranked from two to eight respectively in their relative importance on knowledge sharing practices at the inter-organizational level.

As it can be seen from the regression coefficient table, the predictor variables of appropriate technology, awareness building, leadership method, ICT infrastructure and motivational scheme are statistically significant in predicting knowledge sharing practices in the cooperative training because all their p-values are less than alpha level of 0.05. However, the p-value for communication barrier (0.972), intrinsic motivation (0.675), extrinsic motivators (0.054), strategy (0.386) and trust (0.052) are greater than alpha level of 0.05, which indicates that they are not statistically significant which shows that changes in these variables are not associated with changes in the dependent variable (knowledge sharing practices at inter-organizational level). These clues to conclude that the applicability of knowledge sharing practices in the cooperative training is more determined by the active cooperation of stakeholders found at the inter-organizational level. But literatures showed in the second chapter of the study that those variables were important factors in determining the knowledge sharing practices.

Unstandardized Coefficients

Unstandardized coefficient denotes the change in the dependent variable with a unit change in the independent variable. But they are not comparable in terms of impact on the dependent variable. As stated in chapter three, the study used the following multiple regression equation model already used by Abenet A. (2020) to establish the statistical significance of the independent variables on the dependent variable.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \epsilon$$

Here, Y = Knowledge Sharing Practice

X1 = Trust

X2 = Communication Barriers

X3 = Intrinsic Motivators

X4 = Extrinsic Motivators

X5 = Awareness Building

X6 = Leadership method

X7 = Strategy

X8 = Motivational Schemes

X9 = ICT Infrastructure

X10 = Appropriate Technology

In the model, β_0 = Constant, β_1 to β_{10} = Regression coefficients that represent the mean change in the dependent variable for one unit of change in the independent variable while holding other independent variables in the model constant and ϵ = Error term which captures the unexplained variation in the model.

$$Y = .586X_5 + .855X_6 + .617X_9 + .619X_{10} + \epsilon$$

The beta coefficient of awareness building ($\beta_5 = .586$) shows that knowledge sharing practices in the cooperative training would be .586 when there is a unit change of awareness building at inter-organizational level. Similarly, a beta coefficient of .855 indicates that a unit changes in leadership method leads to a change in the knowledge sharing practices in cooperative training by .855. In addition, the Error term (ϵ) estimate was assumed to be zero.

Regression coefficient results shows that four out of the ten variables are statistically significant in predicting the knowledge sharing practices in cooperative training. The statistically significant variables are awareness building, leadership method, ICT infrastructure, and appropriate technology as evidenced by their P-values ($P < 0.05$). This indicates that an increase in these variables results in an increase in the knowledge sharing practices at inter-organizational level.

4.7 Interview Results

This section presents the analysis of data collected by using key informant interview as a method. Eight TVET trainees were selected purposefully from four colleges to give response for the interview questions related to the main objective of this study.

For the question raised by the researcher saying that what the current knowledge sharing practices during the cooperative training looks like in terms of its delivery process; the following answer was given by a drafting trainee from construction department. He mentioned that there is a schedule to take part in the cooperative training. Although this session is important for us to see the real work environment, there is a limitation of finding industries for some field of studies. As a result of it, we have tried to practice only in the campus. He also said:

“...even though the cooperative training is very important for us, the departments have left us to search industries by ourselves.”

The same question was responded by hotel and tourism trainees as follows:

“The cooperative training helps us to see practically what we learn in theory...But employees in the industries are not allowed us to practice in the expected areas. Rather we have given to do irrelevant works.”

The above same question was also forwarded for automotive technology trainees and they responded as the cooperative training is good and we have seen half part of it since there is limitation of tools in the workshops.

Another question provided for the interview respondents as they have gotten the desired knowledge from the cooperative training and most of the trainees responded as we have gotten knowledge from the current cooperative training. But there are some other individuals who mentioned as they have shared knowledge partially, that means they agree as they have not shared knowledge as planned.

For the same question raised above, two respondents provided their responses as they have not shared the desired knowledge from the cooperative training since at the mean time of taking the cooperative training corona virus pandemic is appeared and we have stopped. Also, at the time of

returning to colleges, the industries are not allowed for the cooperative training. Due to this, we have not got the desired knowledge from the cooperative training.

With regard to this, the respondents also said:

“...This problem leads to shortage of time to practice well in the company and to get what is expected from the industry.”

Questions were also provided to the interview respondents whether they have gotten adequate resources and management support that improve the knowledge sharing practices delivery. Hence, most of the trainees responded it as they have not gotten adequate support from both sides of organizations.

In relation to this, the responses of two respondents are presented as follows:

“In this case, we cannot say it is fulfilled. There is shortage of inputs for the training given. It is a duty for the college to facilitate the cooperative training as desired. Here, we have got the training provider or company by our effort.”

Interview respondents were also asked to identify factors that affect the knowledge sharing practices delivery from both sides i.e., from the side of TVET colleges and associated industries. In connection to this, the responses of two respondents are as follows:

“In the cooperative training delivery, it is common that trainees to look for where they practice in the industry. Fundamentally, it is the duties of the colleges to connect us with the industries by engaging companies and by signing agreements. This gap exposed the trainees to be tired and lose time to seek who accept them. ...From the industry side, there are some limitations to support us parallel to the course outlines. Sometimes, assigning us for another works, which is not the purpose of the cooperative training, is a big challenge for us.”

For the same question raised above, the responses of two respondents are as follows:

“From the college, there is lack of exact and complete information when and where we scheduled to practice. ...There is a shortage of materials in some industries, as well as

some employees are not voluntary to share their experience because of misunderstanding that we replace them.”

The other two interviewees replied for the above same question as follows:

“Sometimes, lack of functional machinery and tools are big issue for both sides. Also, it was challenging, for the first time, to relate what we learn in theory with the real work and frustration to communicate due being new comer for the staff of the industry.”

For the question would you tell me the appropriate solutions for the problems observed during the cooperative training delivery, two of the above respondents said that:

“The colleges’ academic deans and trainers should discuss for the lack of strong agreement with the industry. The solution for this problem is identifying industries where the trainees take the cooperative training based on the occupation and the given courses. Then, both organizations should prepare and sign a MoU before scheduling the trainees. Besides, for those taking the cooperative training, there should be an integrated and strong follow up method of the college and the industry trainers which should conducted on the regular basis. Moreover, the industry trainers should support the trainees responsibly by giving the practical training based on the course outlines and avoiding irrelevant workloads.”

The same question raised above raised for other two respondents and responded as follows:

“Our college should aware us about the cooperative training and inform us where we take it. Also, each department should introduce the facilitator in the industry in order to get the desired resources...the cooperative training should be given kindly and employees of the Industry should be aware that we are assigned for short period of training rather than replacing them.”

The other two respondents also stated that we have to discuss with our trainers to get functional tools and they also react with their leaders and stakeholders to fulfill the needed materials. For the difficulty of interaction, it needs our smooth communication and better integration for team works.

4.8 Discussions of Findings

The research question that is stated as:

- What are the factors that affect the knowledge sharing practices in cooperative training between the selected TVET colleges and associated industries in Addis Ababa?

Is revisited as follow with respect to the findings of the above quantitative and qualitative data analysis. The quantitative findings of this study, as presented above revealed that organizational (awareness building and leadership method), and technological factors (ICT infrastructure and appropriate technology) as major factors affecting the existing knowledge sharing practices in cooperative training between the selected TVET colleges and associated industries in Addis Ababa.

Hence, this study result is similar to Fikru (2018), findings with regard to organizational factors as majority of the respondents described that weak awareness creation and lack of management support; and in relation to technological factors lack of up-to-date ICT infrastructure and lack of appropriate technology were identified as major factors that affect the knowledge sharing practices in cooperative training. This result is supported by the study findings of Nooshinfrad and Nemati-Anaraki (2014) as the availability and usability of technologies have significant influence on knowledge sharing.

However, the findings of this research revealed that the individual knowledge sharing factors as not the most important factors that affect knowledge sharing practices at inter-organizational level; which is against the study findings of Fikru (2018) because of his study has conducted at one side of the organization (which can be taken as intra-organizational level) and this study give emphasis to assess knowledge sharing practices at inter-organizational level (from both sides of organizations).

Also, the qualitative findings of this study presented by narration method revealed big issues related to the existing knowledge sharing practices in cooperative training delivery between colleges and industries. As a result of it, the respondents' response show major challenges which helps to justify the existing knowledge sharing practices in cooperative training. Of which, the followings are mentioned.

- For the cooperative training session, the colleges have left the trainees to search industries by themselves. So, it was difficult to get access to practice in the industry.
- Lack of exact and adequate information is mentioned as limitation to participate in the cooperative training.
- Some industry employees' have not allowed practicing well with machines in the expected areas. Rather they have given to do irrelevant works.
- Due shortage of time and dysfunctional tools, the trainees have not shared knowledge as planned.
- With regard to access to resources and management support in the cooperative training, most of the respondents' responses show that the gap between colleges and corresponding industries to give the training by making agreements.
- Even though facilitating the cooperative training is the responsibility of the colleges, it is not performed in manner that makes the organizations accountable.

Therefore, the findings analyzed above indicates that the major factors that affect the knowledge sharing practices in cooperative training are absence of awareness building, weak management support, lack of using up-to-date ICT infrastructures and limitation to appropriate technology. These factors, in turn, explained in the literature review part of the study and are fit to the four variables identified by the quantitative analysis which presented in the research model.

For the research objective stated as to propose solutions for the challenges related to the existing knowledge sharing practices in the cooperative training; the interview respondents forwarded some solutions for the problems they face. From the proposed solutions, the following are included:

- Both organizations should prepare and sign strong agreement which includes accountability measures and for those taking the cooperative training; there should be an integrated and strong follow up method of the college and the industry trainers which should be conducted on the regular basis.
- There should be access to adequate information about the purpose of the cooperative training for knowledge sharing for the trainees and other concerned bodies.
- From both sides, there should be active management support and following up the cooperative training progress.

- Both parties should provide the resources needed and access to up to date technology

In general, for the knowledge sharing practices at inter-organizational level, this study identified strong management support, using up-to-date ICT infrastructures, access to appropriate technology, making repeated awareness building as solutions to support the trainees to share knowledge responsibly.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The study sought to assess the factors (related to individual, organizational and technological) affecting knowledge sharing practices in cooperative training between the TVET colleges and associated industries/enterprises. The three specific objectives of the study were to identify factors affecting the knowledge sharing practices in cooperative training, to propose solutions for the challenges related to knowledge sharing practices in the existing cooperative training and to justify the current KSP in cooperative training. This chapter provides the summary of findings with respect to the study objectives, conclusions and recommendations of the study as well as limitations and suggestions for future research.

5.2 Summary of Findings

The study has attempted to explore detail information by taking the research objectives in to consideration. Data for the study was obtained through distribution of questionnaires to a predetermined sample of trainers (in the college and industry). A total of 178 questionnaires were distributed to respondents and 165 returned with an overall value of Cronbach alpha ($\alpha = 0.823$) was obtained which implies that an overall internal consistency test of research instruments was found in “good” reliability range.

In relation to the general information of respondents, 87.3% of the respondents were male while 12.3% were females. The majority of respondents who are trainers in both organizations counted 46% (76) were within the age group of 23-27 years while the majority of the trainers (34.5%) were level 4 graduates followed by 29.1% of the respondents who had first degree. In addition, respondents were involved from eight departments (Hotel and tourism, Construction, Accounting, ICT, Metal, Textile & Garment, Electronics, and Automotive) to gather more information to the issues sought by the study. The majority of the respondents had an experience of 2 years and above participation in the cooperative training which revealed that majority of the respondents had practiced for a considerable period of time which helps to give credible information relating to the study.

The first objective of the study was to evaluate the factors (individual, organizational and technological) that affect the knowledge sharing practices in the cooperative training between the TVET colleges and associated industries/enterprises. Through the descriptive statistical analysis, an overall mean score was computed for each independent variable (related to individual, organizational and technological factors). The study revealed that, from the proposed organizational knowledge sharing factors, awareness building with an overall mean and standard deviation of (M=2.02, SD= 0.41) was relatively affect highly the knowledge sharing practices in cooperative training followed by leadership method (M=2.12, SD= 0.43) Besides, from the proposed technological knowledge sharing factors, appropriate technology (M=2.19, SD= 0.41) followed by ICT infrastructure (2.27, SD= 0.43) were relatively affect highly the knowledge sharing practices in cooperative training. The study also discovered that from the proposed individual knowledge sharing factors, extrinsic motivators with an overall mean and standard deviation of (M=2.87, SD= 0.40) was to some extent affect the knowledge sharing practices in cooperative training.

In the study, the relationship between the factors (individual, organizational and technological) and the knowledge sharing practices in cooperative training were examined. Pearson correlation coefficients were determined to obtain information about the relationships between the dependent (knowledge sharing practices) and independent variables (constructs related to individual, organizational and technological factors).

The study revealed knowledge sharing practice (KSP) has statistically significant and strong positive relationship between awareness building ($r=0.759$, $p<0.05$), leadership method ($r=0.656$, $p<0.01$), ICT infrastructure ($r=0.749$, $p<0.01$), and with that of appropriate technology ($r=0.639$, $p<0.01$). Also, the result indicated that the presence of moderate and positive relationship with significant correlation between knowledge sharing practices (KSP) and trust ($r=0.425$, $p<0.01$), extrinsic motivators ($r=0.589$, $p<0.01$), motivational schemes ($r=0.419$, $p<0.05$) and intrinsic motivators ($r=0.455$, $p<0.05$).

Multiple regression analysis is used to determine whether the independent variables will influence the dependent variable. R square value from the regression model summary ($R^2 = .725$) indicated that 72.5% of the variation in the knowledge sharing practices during cooperative training can be explained by the factors mentioned (independent variables included in the

model). The ANOVA test result revealed that the independent variables statistically and significantly predict the dependent variable ($F = 68.823$, $p < .01$) which refers to the regression model is a good fit of the data. As it can be seen from the regression coefficient table in chapter four, the predictor variables of appropriate technology, awareness building, leadership method, ICT infrastructure and motivational scheme are statistically significant in predicting knowledge sharing practices in cooperative training because all their p-values are less than alpha level of 0.05. However, the p-value for communication barrier (0.972), intrinsic motivation (0.675), extrinsic motivators (0.054), strategy (0.386) and trust (0.052) are greater than alpha level of 0.05, which indicates that they are not statistically significant which shows that changes in these variables are not associated with changes in the dependent variable (knowledge sharing practices at inter-organizational level). But literatures showed in the second chapter of the study that those variables ($p > 0.05$) were important factors in determining the knowledge sharing practices in cooperative training (at the inter-organizational level). These clues to conclude that the applicability of knowledge sharing practices in the cooperative training is more determined by the active cooperation of stakeholders involved from the two parties.

5.3 Conclusions

This study has focused on the investigation of factors affecting the knowledge sharing practices in cooperative training delivery between TVET colleges and associated industries (KS at inter-organizational level). For the purpose of this study, data were collected and analyzed using mixed approach so as to address the following particular and relevant conclusions.

Based on the findings presented in previous sections, the study drawn the following conclusions. From the descriptive statistical analysis result, regarding to the factors (individual, organizational and technological) affecting knowledge sharing practices in the existing cooperative training between the TVET colleges and associated industries/enterprises, the study concluded that:

- Leadership method and awareness building have identified from organizational factors that relatively highly affect the existing knowledge sharing practices in cooperative training delivery (KS at inter-organizational level).
- ICT infrastructure and appropriate technology have identified from technological factors that relatively highly affect the existing knowledge sharing practices.

- Also, extrinsic motivators have identified from the proposed four individual factors that moderately affect the existing knowledge sharing practices.

Therefore, from the hypothesized ten variables leadership method, awareness building, ICT infrastructure and appropriate technology have significant impact on the existing knowledge sharing practices in cooperative training delivery.

With regard to the relationship between the hypothesized factors (issues related to individual, organizational and technology) and knowledge sharing practices, the study concluded that there is a positive and significant strong relationship between independent variables namely; leadership method, awareness building, ICT infrastructure, and appropriate technology with the dependent variable (knowledge sharing practices) for inter-organizational level KS.

In relation to the predicting power of independent variables, the study concluded that:

- The independent variables of organizational factors (leadership method and awareness building) and technological factors (ICT infrastructure and appropriate technology) are statistically significant in predicting knowledge sharing practices in cooperative training.

Therefore, the study findings of this research show that from the ten hypothesized variables, four factors are highly affecting KS at inter-organizational level. Of which, those mentioned from the college side include weak awareness creation and leadership method (Lack of signing MoU, regular meeting, performance review, commitment to follow up etc.) as major factors where as the main issues related to the industry side includes lack of adequate and up to date technology infrastructure and appropriate technology for KS. Moreover, the study confirmed that organizational and technological factors had strong positive relationship with KSP at the inter-organizational level.

To summarize, this study has conducted theoretically by reviewing many literature and practically by identifying ten variables, collecting data, and then by analyzing it the above mentioned results are found. Also, it differ from others research by its contextual and conceptual framework where it focuses on KSP at inter-organizational level by taking TVET-industry cooperative training as study area. Besides, most of the studies conducted on knowledge sharing uses quantitative research method which is not appropriate to understand the complex

phenomena of knowledge sharing. This research will also contribute the understanding of knowledge sharing by applying a mixed research approach (both quantitative and qualitative research method) which is appropriate to triangulate and understand complex social constructs.

5.4 Recommendations

As knowledge becomes a valuable resource and asset for today's organizations, it brings competitive advantage if it is created, acquired, shared and applied properly. However, there are different factors that affect the knowledge sharing practices between organizations. Accordingly, organizations should try to maximize their advantage from knowledge sharing by using different mechanisms. Based on the above findings, the study therefore, recommends the following.

As the findings of this study indicated that in the existing cooperative training, the knowledge sharing practices have been affected by the factors related to absence of awareness building, lack of ICT infrastructure, lack of appropriate technology, weak leadership method, lack of motivational scheme and extrinsic motivators.

Therefore, based on the above results, the study recommends:

- TVET colleges to give priority to create awareness with the associated industries since it help to excel the interaction with the stakeholders for knowledge sharing practices. Here, the two organizations, first of all, should be sign MoU, and then seminars, regular meetings, conferences; progress reports should also be conducted.
- Both organizations (the industry and TVET colleges) should enhance the leadership methods to become committed to follow up the KSP progress. In this case, leaders from both organizations should apply collaborative plans, accountability measures, institutional promotions, continuous progress review and follow up the knowledge sharing practices in cooperative training.
- Also, there should be up to date and adequate provision of ICT infrastructure as well as appropriate technology for the cooperative training delivery because if the trainees have access to the required resources and properly practiced, then they can significantly share knowledge and improve their performance.

5.5 Limitations and suggestions for future research

There are limitations in this study which are left for future research. The study focused on ten variables affecting the knowledge sharing practices at the inter-organizational level (in the TVET colleges-industry cooperative training). Hence, it is possible to conduct further studies considering other types of issues related to knowledge sharing practices which help to provide greater reliability to research findings in the study area.

Also, at the meantime of conducting this research, Covid-19 which is pandemic disease has been appeared, due to this, the total populations who are in the study area are reduced and it was difficult to collect data using interview as a method. Consequently, the researcher forced to lose that precious time to conduct the research as per the schedule expected.

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Appendixes

Appendix-A: Questionnaires to be filled by College Trainers and Industry Trainers

Addis Ababa University College of Natural and Computational Sciences

School of Information Science

Survey Instruments

(Questionnaires to be filled by college trainers and industry trainers)

Dear Participants,

I am a graduate student at Addis Ababa University School of Information science and Systems and I am conducting a study on “Factors affecting the knowledge sharing practices in the cooperative training: The case of some selected TVET colleges and associated Industries in Addis Ababa.” The purpose of the questionnaire is to collect primary data to conduct the study for the partial fulfillment of Master of Science in Information System.

The researcher will not use the data for any other purposes than the intended aim of the research. Also, your responses will be kept confidential and individual respondents will not be identified in any part of the research. For the success of this study, your response is very important and I kindly request you to read carefully all the questions provided and give your genuine answers based on your awareness in the present knowledge sharing practices in the cooperative training.

Thanks in advance for your cooperation!

General Instruction

- Please do not write your name or address on the questionnaire.
- Please put a tick (✓) mark in the appropriate box of your answer.
- Contact address: if you have any question please contact me through telephone:

09-47-56-49-95

Part I: Respondents' profile

1. Your college name: _____

2. Your Gender

M	F

3. Your age: _____ years

4. Your Level of Education:

Level 1-4	Certificate	Diploma	Degree	Masters

5. Your Academic Status/Rank:

Level A	Level B	Level C	Others, if any please specify

6. The department you are working on: _____

7. Your experience in higher institution(s) _____ years

8. Your experience in giving cooperative training in the enterprise(s) _____ years/____ month

Part II. Factors Affecting TVET-Industry Knowledge sharing practices

A) The following items are intended to measure individual knowledge sharing factors.

Please put a tick (✓) mark on the appropriate box to indicate your level of agreement.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
R. No	1. your 'Trust' in the delivery of the cooperative training					
1.1	I have closer relationship with trainees which help to promote knowledge sharing.					
1.2	For the CT, the relationship between colleges and industries is strongly established.					
1.3	Enterprises allowed to practice well with machines during cooperative training.					
1.4	I want to help trainees for the problems faced.					
1.5	I believe that the practices during cooperative training have positive impact for knowledge sharing.					
1.6	I have expected from trainees to have the required knowledge from the given cooperative training.					
1.7	I have confidence with trainees to share knowledge during cooperative training.					
1.8	Most of the time, I'm conducting practices by forming the trainees in groups.					
1.9	I'm too careful in dealing with the training.					

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.10	In my opinion, trainees have shared better knowledge from the cooperative training.					
	2. Factors related to ‘Communication Barrier’					
2.1	I can easily ask questions to have better understanding.					
2.2	I have positive interaction with trainees and other stakeholders.					
2.3	I give counseling services for trainees based on their status in the cooperative training.					
2.4	There is strong cooperation with others during cooperative training.					
2.5	There is brainstorming sessions during cooperative training.					
2.6	I can express my idea without any difficulty.					
2.7	Feedbacks are given for trainee’s performance in the training.					
	3. Factors related to ‘Intrinsic Motivators’					
3.1	I am inspired to share knowledge for trainees.					

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3.2	I am motivated to show the required activities individually and/or in team.					
3.3	I want to help and follow up trainees when they need my support.					
3.4	I am satisfied by sharing what I know.					
3.5	I am responsible to share knowledge in the cooperative training.					
3.6	I have high internal motive to perform the tasks planned.					
3.7	I am interested to participate actively.					
3.8	I'm doing activities by identifying its value.					
3.9	I am doing an activity in the cooperative training by my own sake.					
	4. Factors related to 'Extrinsic Motivators'					
4.1	I want an encouragement means to share knowledge to others.					
4.2	There is high management support and follow up for practical sessions.					
4.3	Institutional promotions help to improve					

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	knowledge sharing practices.					
4.4	There is a reward system for those perform successfully in the cooperative training.					
4.5	There is a punishment for those missing the cooperative training.					
4.6	There are positive managerial practices to enhance the cooperative training.					
4.7	The work environment has encouraged sharing knowledge easily.					
4.8	There is fair approach which promote positive work attitude.					

Please specify if there are any other **individual factors** that affect the TVET- Industry knowledge sharing practices in cooperative training:

B) The following items are intended to measure **organizational** knowledge sharing factors.

Please put a tick (✓) mark on the appropriate box to indicate your level of agreement.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	5. Factors related to ‘Awareness Building’					
5.1	The cooperative training is given after memorandum of understanding is signed between stakeholders.					
5.2	For the trainees and stakeholders detail orientation is given.					
5.3	Seminars are conducted to create awareness on the objectives of the cooperative training for knowledge sharing.					
5.4	I am attending conferences which involve all stakeholders.					
5.5	There are regular meetings at inter-organizational level to review the performances of the cooperative training.					
5.6	I am informed soon, if there is a change					

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	in the process of the cooperative training.					
	6. Factors related to ‘Leadership Method’					
6.1	The approaches the leaders follow to manage the processes during cooperative training is flexible.					
6.2	There is high commitment for coordination between stakeholders to accomplish the cooperative training properly.					
6.3	There is a joint plan for cooperative training to acquire, organize and share knowledge with enterprises.					
6.4	There are better facilities/platforms for knowledge sharing (workshops, seminars, plenary meetings, etc.) with the industry on a regular basis.					
6.5	Immediate solutions are given for problems and limitations faced during CT.					

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
6.6	Guidelines are established for the cooperative training.					
6.7	There is a follow up method for the actors of the CT to perform their role properly.					
	7. Factors related to the ‘Strategy’					
7.1	The existing TVET strategy for cooperative training with the industry helps to promote knowledge sharing.					
7.2	The existing TVET strategy for cooperative training is implemented properly.					
7.3	I understand the purpose of TVET strategy for knowledge sharing.					
7.4	I implement the agreements of the cooperative training properly.					
7.5	I prepare periodic plan to acquire, organize and share knowledge depending on the context.					
	8. Factors related to ‘Motivational Schemes’					
8.1	Stakeholders support career development to encourage knowledge					

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	sharing.					
8.2	All the necessary materials and facilities are provided to encourage knowledge sharing with enterprises.					
8.3	There is specified budget dedicated to acquire, and share knowledge in cooperative training.					
8.4	There are promotions that help to improve knowledge sharing practices.					
8.5	We can use the entire proposed budget properly.					

Please specify if there are any other **organizational factors** that affect the TVET- Industry knowledge sharing practices in cooperative training:

: _____

C) The following items are intended to measure Technological knowledge sharing factors.

Please put a tick (√) mark on the appropriate box to indicate your level of agreement.

	9. Factors related to ‘ICT Infrastructures’	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
9.1	There is up-to-date ICT infrastructure that helps to share knowledge easily.					
9.2	There is an access to the internet.					
9.3	All the necessary materials are available in the workshops.					
9.4	I can easily buy the needed materials by asking the concerned body.					
9.5	There is a repository system which helps to share knowledge.					
	10. Factors related to ‘Appropriate Technology’					
10.1	Based on the contents of the instruction, the relevant resources are provided.					
10.2	All the tools are well functional.					
10.3	There is an access to use least cost tools.					
10.4	There is quick maintenance of machines failed during operation.					
10.5	Adequate training is given for familiarization of tools.					
10.6	Demonstrations are done using the required tools.					

Please specify if there are any other **technological factors** that affect the TVET- Industry knowledge sharing practices in cooperative training:

Part III: Knowledge Sharing practices in cooperative trainings

Instruction: The following items are intended to measure TVET- Industry knowledge sharing practices during the cooperative training. Please put a tick (√) mark on the appropriate box to indicate your level of agreement.

R. No	Knowledge Sharing practices	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I believe that the practices during cooperative training have positive impact for knowledge sharing.					
2	I have positive interaction with trainees and other stakeholders.					
3	I am inspired to share knowledge for trainees.					
4	There is high management support and follow up for practical sessions.					
5	Seminars are conducted to aware the objectives of the cooperative training for knowledge sharing.					
6	There is high commitment for coordination between stakeholders to accomplish the cooperative training					

	properly.					
7	The existing TVET strategy for cooperative training is implemented properly.					
8	There are promotions that help to improve knowledge sharing practices.					
9	There is up-to-date ICT infrastructure that helps to share knowledge easily.					
10	There is immediate technical support to solve problems during practices.					

Please specify if there are any other factors that affect the TVET- Industry knowledge sharing practices in cooperative training:

~~~~~*Thank you for your unreserved cooperation*~~~~~

## **Appendix-B: Interview Questions for Trainees of the Sampled TVET Colleges**

### **Addis Ababa University College of Natural and Computational Sciences**

#### **School of Information Science**

#### **Interview Instruments to assess the knowledge sharing practices in the cooperative training**

***(For trainees)***

Dear Participants,

The interview instruments are designed to collect primary data to conduct the study for the partial fulfillment of Master of Science in Information System at Addis Ababa University. The purpose of this study is to identify factors affecting the knowledge sharing practices in the cooperative training between TVET colleges and associated industries in Addis Ababa.

The researcher will not use the data for other purposes than the intended aim of the research. Also, your responses will be kept confidential and individual participants will not be identified in any part of the research. For the success of this study, your responses are very important and give your genuine answers based on your awareness in the present knowledge sharing practices in the cooperative training.

Thanks in advance for your cooperation!

1. What the current knowledge sharing practices in the cooperative training looks like in terms of its delivery process?
2. Have you got the desired knowledge from the cooperative training?
3. If your response to question No. 2 is No, What was the problem?
4. Is there adequate resources and management support that improve the knowledge sharing practices delivery?
5. What challenges have you observed from the side of TVET Colleges and associated industries for knowledge sharing practices in the cooperative training?
6. Would you tell me the appropriate solutions for the problems mentioned in question no. 5?



**በአዲስ አበባ ዩንቨርሲቲ የተፈጥሮና ቀመር ሳይንስ ኮሌጅ**

**በኢንፎርሜሽን ሳይንስና ሲስተም ት/ቤት**

**በትብብር ስልጠና ሂደት ያለውን የዕውቀትና ልምድ መጋራት ለመዳሰስ የተዘጋጁ የቃለ-መጠይቅ ጥያቄዎች**

**(ለስልጣኞች የቀረበ)**

ውድ የዚህ ጥናትና ምርምር ተግባራዊነት:-

ይህ መጠይቅ የተዘጋጀው በአዲስ አበባ ዩንቨርሲቲ በኢንፎርሜሽን ሳይንስና ሲስተም ት/ቤት የማስተርስ ዲግሪ ማሟያ የሚሆን መረጃ ለመስጠት ነው። የጥናቱ ዓላማም የማስልጠኛ ኮሌጆችና ኢንዱስትሪዎች በትብብር ስልጠና ወቅት፤ ለሰልጣኞች እውቀትና ልምድን ለማካፈል በሚሰሩት ስራ ላይ ተዕዕኖ የሚያደርጉ ጉዳዮችን ለመለየት ነው።

እርስዎ የሚሠጡት ምላሽ ሚስጥራዊነት የተጠበቀ ሲሆን የመጠይቁ መረጃዎች ከጥናቱ ውጪ ለሌላ ማንኛውም ተግባር አይውሉም። አሁን ላይ ባለው የትብብር ስልጠና ሂደት፤ የእርስዎ እይታን መሠረት በማድረግ ለቃለ መጠይቁ የሚሠጡት ትክክለኛ ምላሽ ለጥናቱ ውጤት ከፍተኛ ጠቀሜታ አለው።

ስለትብብርዎ በጣም አመሠግናለሁ !

1. በአሁኑ ጊዜ እየተሰጠ ባለው የትብብር ስልጠና ላይ ዕውቀትና ልምድን የመጋራት ሂደቱ ምን ይመስላል ?
2. ከትብብር ስልጠናው የሚጠበቅባችሁት ዕውቀት፣ አማኝታችኋልን?
3. በተቁ 2 ለቀረበው ጥያቄ ምላሽዎ አላገኝንም ከሆነ ያላገኙበት ምክንያት ምንድነው?
4. በስልጠናው ሂደት በቂ የሆነ የግብዓት አቅርቦትና የአመራር ድጋፍ አለ ወይ?
5. በትብብር ስልጠናው ወቅት ዕውቀትና ልምድን በመጋራት ሂደት ላይ፤ በኮሌጁ በኩልና በኢንዱስትሪው በኩል ተዕዕኖ ያላቸውን ጉዳዮች በብረዝሩልኝ?
6. በተቁ 5 ለጠቀሷቸው ችግሮች ተገቢ የሚሉባቸው መፈትሔዎች ምን ምን ናቸው?

  
Ebrahim Haji Badi  
G/MANAGER  
ኢብራሂም ሃጂ ባዲ  
የና ስራ ከስሪያጅ

May 21, 2021

## Annex: List of industries which conducted the cooperative training



### Yeka Industrial College

List of Industries/companies for cooperative training in 2020/21

| R. No | Department           | Industries/companies                                                                                                                                                                                                                                                            | Remark |
|-------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1     | GMFA                 | <ul style="list-style-type: none"> <li>➤ Kality Metal products factory</li> <li>➤ Metal Industry Development institute</li> <li>➤ FDRE Metals and Engineering corp.</li> <li>➤ Waliya steel factory</li> </ul>                                                                  |        |
| 2     | Hotel and Tourism    | <ul style="list-style-type: none"> <li>➤ Sarem Int. hotel</li> <li>➤ Ethiopia Hotel</li> <li>➤ Semen Hotel</li> <li>➤ Ramada Addis</li> <li>➤ Culture and Tourism center</li> <li>➤ Ethiopian Adventures Tour Operators</li> <li>➤ Ethiopian adventures Travel agent</li> </ul> |        |
| 3     | Construction         | <ul style="list-style-type: none"> <li>➤ Yeka sub city W/2 construction office</li> <li>➤ Addis Ababa City construction Bureau</li> <li>➤ Ministry of urban development and construction</li> </ul>                                                                             |        |
| 4     | Business and Finance | <ul style="list-style-type: none"> <li>➤ Commercial Bank of Ethiopia</li> <li>➤ Addis bidir &amp; kuteba Yeka branch</li> <li>➤ Ethiopian Revenues &amp; Customs Authority</li> <li>➤ Yeka sub city w/2 finance office</li> </ul>                                               |        |
| 5     | ICT                  | <ul style="list-style-type: none"> <li>➤ Yeka sub city w/2 ICT development</li> <li>➤ Ge'ez printing house</li> <li>➤ BM IT solution</li> </ul>                                                                                                                                 |        |
| 6     | Electronics          | <ul style="list-style-type: none"> <li>➤ Ethiopian electronics plc.</li> <li>➤ GB electrical workshop</li> <li>➤ Ghion electronics maintenance</li> </ul>                                                                                                                       |        |
| 7     | Textile and garment  | <ul style="list-style-type: none"> <li>➤ Yirgalem Addis textile factory</li> <li>➤ Libo garment plc.</li> <li>➤ Ambassador garment plc.</li> <li>➤ Akaki textile factory</li> </ul>                                                                                             |        |





እንጦጦ ፖሊ ቴክኒክ ኮሌጅ

ENTOTO POLY TECHNIC COLLEGE

የትብብር ስልጠና የሚሰጡ ነባር ኢንዱስትሪዎች/ካምፓሪዎች ዝርዝር በየዘርፉ

| ተ / ቁ | የድረጅቱ ስም                      | የተሰማራበት የስራ ዘርፍ | የባለቤትነት ሁኔታ | የውል ስምምነት የተፈራረሙ | ክፍለ ከተማ |
|-------|-------------------------------|-----------------|-------------|------------------|---------|
| 1     | ውሀ ስራዎች ዲዛይንና ቁጥጥር ድረጅት       | ኮንስትራክሽን        | የመንግስት      | የተፈራረሙ           | ቦሌ      |
| 2     | አዲስ አበባ ከተማ መንገዶች ባለስልጣን      | ኮንስትራክሽን        | የመንግስት      | >>               | ን/ስልክ   |
| 3     | ኮንስትራክሽን ዲዛይን አ/ማህበር          | ኮንስትራክሽን        | የግል         | >>               | ቂርቆስ    |
| 4     | ተገጣጣሚ ህንፃ አካላት ማምረቻ ድረጅት      | ኮንስትራክሽን        | የመንግስት      | ያልተፈራረሙ          | ቃሊቲ     |
| 5     | ሀያት የቤት ስራ ድረጅት አ/ማህበር        | ኮንስትራክሽን        | የግል         | >>               | ቂርቆስ    |
| 6     | ሻርኔሮ ኮንስትራክሽን                 | ኮንስትራክሽን        | የግል         | >>               | ቂርቆስ    |
| 7     | ትራንስፖርት ኮንስትራክሽን ኃ/የተ/የግ/ማህ   | ኮንስትራክሽን        | የመንግስት      | >>               | ቂርቆስ    |
| 8     | ሰንሻይን ኮንስትራክሽን ዲዛይን አ/ማህበር    | ኮንስትራክሽን        | የግል         | >>               | ቂርቆስ    |
| 9     | ተክለብርሃን አምባዬ ኮንስትራክሽን         | ኮንስትራክሽን        | የግል         | >>               | ቦሌ      |
| 10    | ከተማ ልማትና ኮንስትራክሽን ሚኒስቴር       | ኮንስትራክሽን        | የመንግስት      | የተፈራረሙ           | ቂርቆስ    |
| 11    | ዲዛይንና ግንባታ ቢሮ                 | ኮንስትራክሽን        | የመንግስት      | >>               | ቂርቆስ    |
| 12    | የቃሊቲ የኮንስትራክሽን ዕቃዎች ማምረቻ ፋብሪካ | ኮንስትራክሽን        | የመንግስት      | >>               | ቃሊቲ     |
| 13    | የኢትዮጵያ መንገዶች ባለስልጣን           | ኮንስትራክሽን        | የመንግስት      | ያልተፈራረሙ          | ቂርቆስ    |
| 14    | ሰሜን ሆቴል                       | ሆቴል             | የግል         | >>               | ጉለሌ     |
| 15    | ሆቴልና ቱሪዝም ስራ ማሰልጠኛ ማዕከል       | ሆቴል             | የመንግስት      | >>               | ቂርቆስ    |
| 16    | ግሎባል ሆቴል                      | ሆቴልና ቱሪዝም       | የግል         | >>               | ቦሌ      |



|    |                                     |         |        |         |         |
|----|-------------------------------------|---------|--------|---------|---------|
| 17 | ሀራምቤ ሆቴል ትሬዲንግ ኃ/የተ/የግልማህበር         | ሆቴል     | የግለ    | የተፈራረሙ  | ቂርቆስ    |
| 18 | አዶት ቲና ሆቴል ኃ/የተ/የግል/ ማህበር           | ሆቴልቱሪዝም | የግል    | >>      | በሌ      |
| 19 | ኬዜድ ሆቴል                             | ሆቴልቱሪዝም | የግል    | >>      | በሌ      |
| 20 | ጁፒተር አለም አቀፍ ሆቴል                    | ሆቴል     | የግል    | ያልተፈራረሙ | በሌ      |
| 21 | ብሄራዊ ሆቴል                            | ሆቴልቱሪዝም | የግል    | >>      | ቂርቆስ    |
| 22 | ጽግሽት ሆቴል                            | ሆቴል     | የግል    | >>      | አራዳ     |
| 23 | እምቢልታ ሆቴል                           | ሆቴል     | የግል    | >>      | አዲስ ከተማ |
| 24 | አውራሪስ ሆቴል                           | ሆቴል     | የግል    | ያልተፈራረሙ | በሌ      |
| 25 | ሆቴል ዲአፍሪቃ                           | ሆቴል     | የግል    | >>      | ልደታ     |
| 26 | አክሱም ሆቴሎች ኃ/የተ/የግል ማህበር             | ሆቴል     | የግል    | >>      | የካ      |
| 27 | ጊዩን ሆቴሎች ድርጅት                       | ሆቴል     | የመንግስት | >>      | ቂርቆስ    |
| 28 | ዋቢ ሸበሌ ሆቴል አ/ማህበር                   | ሆቴል     | የግል    | የተፈራረሙ  | ቂርቆስ    |
| 29 | ሐርመኒ ሆቴል                            | ሆቴል     | የግል    | >>      | በሌ      |
| 30 | የኢትዮጵያ ቱሪስት ንግድ ስራ ድርጅት             | ቱሪዝም    | የመንግስት | >>      | ሜክሲኮ    |
| 31 | ሬይስ ኢንጂነሪንግ                         | ብረታ ብረት | የግል    | ያልተፈራረሙ | ቃሊቲ     |
| 32 | ብረታብረትና ኢንጂነሪንግ ኮርፖሬሽን              | ብረታ ብረት | የመንግስት | >>      | ቂርቆስ    |
| 33 | ኢትዮ ቆርኪና ጣሳ ማምረቻ ኢንዱስትሪ /አ/ማህበር     | ብረታ ብረት | የመንግስት | >>      | ቃሊቲ     |
| 34 | በሎጂስቲክ ዋና መምሪያ የከበድ ተሽከርካሪ ዕደሳ ማዕከል | ብረታ ብረት | የመንግስት | >>      | ጉለሌ     |
| 35 | ጋቴ ፕሮሜታል ኢንጂነሪንግ ኃ/የተ/የግ/ማህበር       | ብረታ ብረት | የግል    | >>      | ንፋስ ስልክ |
| 36 | ኢትዩጵያ አየር መንገድ                      | ብረታ ብረት | የመንግስት | የተፈራረሙ  | በሌ      |
| 37 | አቃቂ ቤዚክ ሜታል ኢንዱስትሪ                  | ብረታ ብረት | የመንግስት | ያልተፈራረሙ | አቃቂ     |
| 38 | የእርሻ መሰሪያዎች የቴክኒክ አገልግሎት አ/ ማህ      | ብረታ ብረት | የመንግስት | >>      | ቃሊቲ     |
| 39 | የኢትዩጵያ ብረታ ብረት ማቀለጫ ፋብሪካ            | ብረታ ብረት | የመንግስት | >>      | ቃሊቲ     |
| 40 | ምርታማነት ማሻሻያ                         | ብረታ ብረት | የመንግስት | >>      | ልደታ     |



|    |                                 |                 |        |         |       |
|----|---------------------------------|-----------------|--------|---------|-------|
| 41 | ከተቤ ብረታ ብረት ፋብሪካ                | ብረታ ብረት         | የመንግስት | የተፈራረሙ  | የካ    |
| 42 | አዕምሮ ሞተር ወርክ ሾፕና ኢንጅነሪንግ        | የብረት ስራ         | የግል    | >>      | ሲኤምሲ  |
| 43 | አዕምሮ ሞተር ወርክ ሾፕና ኢንጅነሪንግ        | የብረት ስራ         | የግል    | >>      | ሲኤምሲ  |
| 44 | ቃሊቲ ብረታ ብረት                     | ብረታ ብረት         | የመንግስት | ያልተፈራረሙ | አ/ቃሊቲ |
| 45 | ንጋት መካኒካል ኢንጅነሪንግ               | ብረታ ብረት         | የመንግስት | >>      | የካ    |
| 46 | ሳልሻቶ ሪጂ.ቪታና ቤተሰቡ ኃ/የተ/የግል ማህበር  | እንጨት ስራ         | የግል    | >>      | ን/ስልክ |
| 47 | የትምህርት መሳሪያዎች ማምረቻና ማከፋፈያ ድርጅት  | እንጨት ሥራ         | የመንግስት | >>      | በሌ    |
| 48 | ዋሪት ሙሉ ጥላ ኢንተርናሽናል              | እንጨት ሥራ         | የግል    | >>      | የካ    |
| 49 | የናታን ቢቲ ኃ/የተ/የግል ማህበር           | ፈርኒቸር           | የግል    | >>      | አራዳ   |
| 50 | አዲስ የቤትና የቢሮ ዕቃዎች ስራ ድርጅት       | ፈርኒቸር           |        | >>      | አራዳ   |
| 51 | ዋንዛ ፈርኒቸር ኢንዱስትሪ                | ፈርኒቸር           | የግል    | የተፈራረሙ  | ጉለሌ   |
| 52 | ኢትዮ-ጃፓን የቴክኒክ ማህበር              | አውቶሞቲቭ          | የግል    | ያልተፈራረሙ | ቂርቆስ  |
| 53 | የኢትዮጵያ አየር መንገድ                 | ብረታ ብረትና አውቶሞቲቭ | የመንግስት | >>      | በሌ    |
| 54 | ጄኔራል ሞተርስ ኃ/የተ/የግል ማህበር         | አውቶሞቲቭ          | የግል    | >>      | አራዳ   |
| 55 | አባይ ቴክኒክና ንግድ አ/ማህበር            | አውቶሞቲቭ          | የግል    | የተፈራረሙ  | ቂርቆስ  |
| 56 | ዋልያ አገር አቋራጭ አገልግሎት ድርጅት        | አውቶሞቲቭ          | የግል    | የተፈራረሙ  | ልደታ   |
| 57 | ማራቶን ሞተርስ ኢንጅነሪንግ ኃ/የተ/የግል ማህበር | አውቶሞቲቭ          | የግል    | የተፈራረሙ  | በሌ    |
| 58 | አፍሪካን ሌክስ                       | አውቶሞቲቭ          | የግል    | >>      | አራዳ   |
| 59 | አንበሳ የከተማ አውቶብስ አገልግሎት ድርጅት     | አውቶሞቲቭ          | የመንግስት | >>      | በሌ    |
| 60 | አልትሜት ሞተርስ ኩባንያ                 | አውቶሞቲቭ          | የግል    | >>      | አራዳ   |
| 61 | ግሎሪስ ኃ/የተ/የግል ኩባንያ              | ኤሌክትሮኒክስ        | የግል    | ያልተፈራረሙ | ጉለሌ   |
| 62 | አሜዳድ                            | ኤሌክትሮኒክስ        | የግል    | >>      | በሌ    |
| 63 | ቪንቪኑቲ ወንድማማቾች ኃ/የተ/የግል ማህበር     | ኤሌክትሮኒክስ        | የግል    | >>      | ቂርቆስ  |
| 64 | ማይበብ ማኒፋክቸሪንግ ሃ/የት/የግ/ማህበር      | ኤሌክትሮኒክስ        | የግል    | >>      | ገርጂ   |
| 65 | ዩኒቨርሲቲ ኤሌክትሮኒክስ ኃ/የተ/የግ/ማህበር    | ኤሌክትሮኒክስ        | የግል    | >>      | አ/ከተማ |



|    |                                   |         |        |         |             |
|----|-----------------------------------|---------|--------|---------|-------------|
| 66 | ንጋት የመካኒካል ምህንድስና አ/ማህበር          | ጥገና     | የግል    | የተፈራረሙ  | አራዳ         |
| 67 | ረጂ ሳሙናና ዲተርጀንት አ/ማህበር             | ኤሌክትሪክ  | የግል    | >>      | ኮልሬ<br>ቀራንዮ |
| 68 | ፋፋ ምግብ አ/ማህበር                     | ኤሌክትሪክ  | የግል    | >>      | ቃሊቲ         |
| 69 | አዲስ አበባ ጠርሙስና ብርጭቆ አ/ማህበር         | ኤሌክትሪክ  | የግል    | ያልተፈራረሙ | ቂርቆስ        |
| 70 | የኢትዮጵያ ኤሌክትሪክ ኃይል ኮርፖሬሽን          | ኤሌክትሪክ  | የመንግስት | >>      | አራዳ         |
| 71 | የኢትዮጵያ ፕላስቲክና ኢንዱስትሪ              | ኤሌክትሪክ  | የመንግስት | >>      | ቦሌ          |
| 72 | ፋለም የልብስ ስፊት ድርጅት                 | ጋርመንት   | የግል    | >>      | ቦሌ          |
| 73 | ዞንግ ኢትዮጵያ ጨርቃ ጨርቅ ፋብሪካ            | ቴክኖሎጂ   | የግል    | >>      | ጉለሌ         |
| 74 | የጨርቃ ጨርቅ ኢንዱስትሪ ልማት ኢንቨስትመንት      | ጨርቃጨርቅ  | የመንግስት | ያልተፈራረሙ | ቃሊቲ         |
| 75 | ቢ.ኤም ኢትዮጵያ ልብስ ስፊት ጨርቃ ጨርቅ አ/ማህበር | ልብስ ስፊት | የግል    | >>      | ንፋስ<br>ስልክ  |
| 76 | የኒቲ ልብስ ስፊት ፋብሪካ                  | ስፊት     |        | >>      | አራዳ         |
| 77 | ኤስኤ ልብስ ስፊት                       | ልብስ ስፊት | የግል    | >>      | ጉ/ወረዳ<br>3  |
| 78 | ሀብር ልብስ ስፊት                       | ልብስ ስፊት | የግል    | >>      | ጉ/ወረዳ<br>3  |
| 79 | በሽርና ኑረዲን ልብስ ስፊት                 | ልብስ ስፊት | የግል    | ያልተፈራረሙ | አራዳ         |
| 80 | ኤስኤ ልብስ ስፊት                       | ልብስ ስፊት | የግል    | >>      | አራዳ         |
| 81 | ሀብር ልብስ ስፊት                       | ልብስ ስፊት | የግል    | >>      | አራዳ         |
| 82 | መገርሳና ዋከኔ ልብስ ስፊት                 | ልብስ ስፊት | የግል    | >>      | አራዳ         |
| 83 | ብርሀኑና አንዱ አለም ልብስ ስፊት             | ልብስ ስፊት | የግል    | >>      | አራዳ         |





# UNIVERSAL COLLEGE OF TECHNOLOGY 2013E.C.

## Companies/Industries Cooperative Training Providers

| S.N | Occupation                                                                                                                                                                                                                | Companies/Industries                                                                                                                                                                                                                                                                                                    | Remark |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1   | Accounting                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                         |        |
|     | <ul style="list-style-type: none"> <li>Basic clerical works (level I)</li> <li>Basic account works(level II)</li> <li>Account &amp; budget service(level III)</li> <li>Account &amp; budget support (level IV)</li> </ul> | <ul style="list-style-type: none"> <li>ብርሀንና ሰላም ማተሚያ ድርጅት</li> <li>የኢ.ፌ.ዴ.ሪ ንግድ ሚኒስቴር</li> <li>አራዳ ክ/ከተማ ፕላኒንግ ሰርቪስ</li> <li>የኢ.ፌ.ዴ.ሪ ኢንዱስትሪ ሚኒስቴር</li> <li>የኢ.ፌ.ዴ.ሪ አካባቢ ደንና የአየር ንብረት ለውጥ ሚኒስቴር</li> <li>አዲስ አበባ ከተማ ት/ቢሮ</li> <li>የኢ.ፌ.ዴ.ሪ ት/ሚኒስቴር</li> <li>አራዳ ክ/ከተማ/ኢ/ፌ/ደ/ቤት</li> <li>አራዳ ክ/ከ ፕ/አ/ጽ/ቤት</li> </ul> |        |
| 2   | Information communication technology                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                         |        |
|     | <ul style="list-style-type: none"> <li>ICT (level I- IV)</li> </ul>                                                                                                                                                       | <ul style="list-style-type: none"> <li>ብርሀንና ሰላም ማተሚያ ድርጅት</li> <li>የኢ.ፌ.ዴ.ሪ ንግድ ሚኒስቴር</li> <li>አራዳ ክ/ከተማ ፕላኒንግ ሰርቪስ</li> <li>የኢ.ፌ.ዴ.ሪ ኢንዱስትሪ ሚኒስቴር</li> <li>የኢ.ፌ.ዴ.ሪ አካባቢ ደንና የአየር ንብረት ለውጥ ሚኒስቴር</li> <li>አዲስ አበባ ከተማ ት/ቢሮ</li> <li>የኢ.ፌ.ዴ.ሪ ት/ሚኒስቴር</li> </ul>                                                       |        |
| 3   | Automotive                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                         |        |
|     | <ul style="list-style-type: none"> <li>Automotive (level I- IV)</li> </ul>                                                                                                                                                | <ul style="list-style-type: none"> <li>አንበሳ የከተማ አውቶብስ ድርጅት</li> <li>ኒያላ ሞተርስ</li> <li>ሞ.አ.ን.ኮ</li> <li>ኮሚቴ ትራንስፖርት ድርጅት</li> <li>በአማን ጠቅላላ የመኪና ጥገና</li> </ul>                                                                                                                                                         |        |
| 4   | Spatial information system                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                         |        |
|     | <ul style="list-style-type: none"> <li>Surveying &amp; Drafting (level II)</li> </ul>                                                                                                                                     | <ul style="list-style-type: none"> <li>አራዳ ክ/ከተማ ፕላኒንግ ሰርቪስ</li> <li>የኢ.ፌ.ዴ.ሪ አካባቢ ደንና የአየር ንብረት ለውጥ ሚኒስቴር</li> <li>የኢ.ፌ.ዴ.ሪ ኢንዱስትሪ ሚኒስቴር</li> </ul>                                                                                                                                                                    |        |
| 5   | Surveying                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                         |        |
|     | <ul style="list-style-type: none"> <li>Surveying (level III- IV)</li> </ul>                                                                                                                                               |                                                                                                                                                                                                                                                                                                                         |        |
| 6   | Drafting                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                         |        |
|     | <ul style="list-style-type: none"> <li>Drafting (level III- IV)</li> </ul>                                                                                                                                                |                                                                                                                                                                                                                                                                                                                         |        |





Microlink I.T. College

List of Industries/companies for cooperative training

| Name of Industries/companies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Sector/occupation     | Academic year |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|
| <ul style="list-style-type: none"> <li>➤ Commercial Bank of Ethiopia</li> <li>➤ Cooperative Bank of Oromiya</li> <li>➤ Addis bidir &amp; kuteba Arada branch</li> <li>➤ Ethiopian Revenues &amp; Customs Authority</li> <li>➤ Arada sub city w/2 finance office</li> <li>➤ MA authorized accountant</li> <li>➤ Tikur Abay shoes S co.</li> <li>➤ Z customs clearing plc.</li> <li>➤ Union Bank share company</li> <li>➤ Awash Int. Bank</li> <li>➤ Ethiopian industrial inputs development enterprise</li> </ul> | Business Cand Finance | 2020/21       |
| <ul style="list-style-type: none"> <li>➤ Arada sub city w/2 ICT development</li> <li>➤ Birhanena selam printing house</li> <li>➤ Brothers IT solution</li> <li>➤ 2t Internet café'</li> <li>➤ Degol computer training institute</li> <li>➤ Wondosen internet service</li> <li>➤ Arada sub city w2 communication affairs</li> <li>➤ Addis Ababa ICT Agency</li> </ul>                                                                                                                                             | ICT                   | 2020/21       |

