EJTEL

ISSN (Print): 2959-1783
ISSN (Online): 2959-1791

Volume 1 Number 2
May 2023

Ethiopian Journal of Teacher Education and Leadership

College of Education and Behavioural Studies
Addis Ababa University

Ethiopian Journal of Teacher Education and Leadership

Volume 1 Number 2

May 2023

Table of Content

Editorial

In his critical and thought provoking article published in the maiden issue of the Ethiopian Journal of Education, nearly six decades ago, Dr Aklilu Habte rightly pointed out that the question of the supply of teachers has three main aspects, namely, the recruitment and preparation of future teachers; the improvement of teachers now in service; and the retention of teachers in the profession. His study focused on the third aspect and highlighted issues that are still bedeviling the system of teacher education in Ethiopia. Dr Aklilu underscored that of all the components that go to make an educational system viable, functional, and productive, "nothing is as crucial as the provision and maintenance of a qualified and satisfied teaching force" and warned that there was an "appalling shortage of qualified teachers" in Ethiopia (Aklilu, 1967, p.27). Today, after fifty-seven years, we are talking about the same problem. In fact, the problem got even worse: there is a nationwide deficit in qualified teachers, not in thousands but perhaps hundreds of thousands!

The other problem highlighted by Dr Aklilu was what he called the "exodus from teaching". For those who think teaching was a respected and rewarding profession during the Imperial regime, his study presents another view aided by robust evidence. More surprisingly, Dr Aklilu argued that exodus of teachers was a problem that went even far back in history: "This is not a new problem; the Ministry of Education has been losing teachers for a long time now. Even fourteen years ago it was stated that of the 600 qualified teachers produced by one training college over a nine-year period fewer than 200 were still teaching in the classroom at the end of that period" (Aklilu, 1967, p.28). As early as 1960, teachers were "leaving the classrooms of the nation at a faster rate than ever before." Dr Aklilu's study also made a stark projection: "The trend is likely to continue; the overwhelming majority of the 1500 or so teachers and administrators in the 14 provinces with whom the writer discussed the problem frankly admitted that they intended to quit teaching as soon as they could get another job". One can make several observations based on this seminal work regarding the plight of the teaching profession in Ethiopia. First, one can easily notice that the practice of leaving the teaching profession in Ethiopia is as old as the profession itself. Second, the projection as to the rate of exodus was very accurate. Today, close to 90% of teachers who took part in our own study[1] clearly indicated that they would leave the profession if they got a better alternative.

On the question as to why teachers leave their profession, Dr Aklilu's study suggests that the "weightiest reason for teacher withdrawal, the one stated most often and at greatest length, is money". Apart from the low starting salary, the factors which seem to have aggravated the rate of 'wastage' in the elementary schools were the absence of regular salary increments; the lack of a salary scale to indicate the maximum to which the teacher may aspire; the meagreness and infrequency of increments; the lack of any provision for salary adjustment when teachers obtain higher qualifications; the preferential treatment given in the matter of salaries to teachers from Addis Ababa or from other favored or politically conscious areas; the lack of any apparent concern

[1] We are finalizing a study entitled "The Plight of the Teaching Profession in Ethiopia: From Unqualified Teachers to Teacher-less Classes". The results are expected to be shred in a number of modalities including public presentations, scholarly articles and as a book.

on the part of the Ministry officials about the future of teachers; and the despair of those who have served the Ministry for many years without advancement" (Aklilu, 1967, p.35). All this appears quite familiar. Doesn't it? Fifty seven years later, we are hearing the same voice. One can even say voices much louder and more desperate. As I write this editorial, there are cries from teachers in southern parts of Ethiopia that they get their salaries intermittently; and in some cases, salaries reach three months later. Stories abound about schoolteachers' being engaged in side-businesses including farming, animal husbandry and petty trade; and teacher educators engaged in teaching at primary schools (with a meagre wage per hour). The truth is that teachers and teacher educators keep on doing this until they get a better opportunity. When they get one, they would leave the profession, and, this way, the exodus would continue.

Can anything be done to reverse this downhill spiral of the plight of teachers and degradation of teacher professionalism? I don't think we have an option other than doing something. Teacher exodus will have to be controlled, if not halted. If this process is allowed to continue unchecked, argues Dr Aklilu, then the Ministry of Education may well end up as the storehouse where other agencies shop for qualified and experienced "goods". The "goods" left are likely to be of doubtful quality" (Aklilu, 1967, p.33). I would like to join Dr. Aklilu in airing my concern, based on my own studies and three decades of firsthand observation as a teacher educator, that unless we take substantial and sustained steps to address the plight of teachers and their profession, Ethiopia could soon slide from the current state of a system crowded by unqualified and unprofessional teachers deep into a system with teacher-less classes. The Ethiopian Journal of Teacher Education and Leadership (EJTEL) is aimed at providing, among other things, evidence based solution to problems rocking the Ethiopian education landscape including exodus of the teaching force.

EJTEL aspires to change the educational landscape of the nation by making a significant contribution to improvement of quality of teacher education and educational leadership. The aim of the Journal is serving as a platform for professional dialogue and exchange of ideas on matters related to teacher education and leadership in Ethiopia and beyond. The Journal specifically strives to a) enhance research on teacher education and leadership by creating one more opportunity for publication of original research; b) serve as a venue for policy dialogue on teacher education and leadership through publication of critical reviews, communications and brief notes; c) improve the availability of local researches for the education sector so as to promote a culture of research informed praxis on issues pertaining to teacher education and leadership; and d) encourage graduate-level research by being a readily accessible outlet for graduate students whose programs require scholarly publication.

This volume presents research outputs on four areas. The first article by Fita Ayalew, entitled ***'Policy analysis on Ethiopian technical and vocational education and training program'*** assessed the extent to which the Ethiopian TVET Policy achieved its goal of delivering relevant and quality training. The study revealed that the sub-sector was not able to identify and instil quality and relevant skills sought by country's labor market owing mainly to shortage of qualified teachers, inadequate training facilities, shortage of industries for cooperative learning and poor coordination among the stakeholders. The study by Begna Ordofa and Ambissa Kenea, entitled ***'Teachers' sense of autonomy and their work motivation in selected secondary schools in Oromia Regional State',*** deals with an issue that has been bedeviling the Ethiopian education system since its inception as discussed in the forging paragraphs. This study, which examined the level of teachers' sense of autonomy and its association with their work motivation, indicated that the perceived level of teacher autonomy as measured along two dimensions (general autonomy and curriculum autonomy) seemed to be low; and teachers' sense of autonomy was associated

positively with their work motivation. The study also reported that, owing to external interference (e.g., imposed teaching approaches that ignore teachers' decisions and too many routine activities imposed on the teachers), teachers felt powerless and were not able to decide what they had to do at school.

The study by Tadesse Jaleta, entitled *'**The gap between indigenous ways of life and formal education among the Guji People in Southern Ethiopia'*** attempted to assess yet another issue hampering efforts to ensure quality education in Ethiopia. Children among indigenous people are involved in two disconnected social environments: the indigenous home context and the "modern" school environment. The study hence sought to examine children's perspectives about such a disconnection and its effects on their educational well-being. The paper argues that the gap between the indigenous ways of life and formal education created a sense of dis-entanglement among children thereby weakening children's learning efficacy. The paper by Kassa Michael and Mulugeta Atnafu, entitled *'**Affective and professional knowledge components: An assessment of their association and implication in primary school mathematics teacher education',*** takes a critical look at one of the issues related to teacher preparation, development and professional engagement. The paper specifically assessed the association between the knowledge dimensions and affective components of pre-service teachers. It was reported that the knowledge components of technological pedagogical content knowledge were significantly correlated among each other; and the affective component variables were also significantly correlated. Besides, the study indicates a strong association between knowledge and affective components.

Kedir Gebi's study, entitled, ***'Assessing the Implementation of Environmental and Sustainability Education'***, shows that the majority of the teacher educators in Robe College of Teacher Education had a positive attitude towards integration of environmental issues into their classroom teaching and practice. The study also indicates that there were teacher educators with a limited understanding of issues related to environment and sustainability. Based on the findings, the paper calls for further reorientation of the College curriculum to better address environmental and sustainability concerns, and planning and implementing events like seminars and short-term trainings for teacher educators on diverse areas of environment and sustainability. We should also note here that all the other researchers, as well, provided concrete recommendations based on their findings. I would, therefore, like to take this opportunity to urge educational policy makers, senior and junior researchers in the area and stakeholders at large to give due attention to the recommendations of the researchers; and do all they can to reverse the downhill spiral of the quality of education in Ethiopia.

Reference

Aklilu Habte (1967). Brain Drain in the Elementary School: Why Teachers Leave the Profession. The Ethiopian Journal of Education, Vol. 1 No. 1 (***1967***), pp.27-39

Aklilu Dalelo (Prof.)
Editor-in-Chief

Policy Analysis on Ethiopian Technical and Vocational Education and Training Program: Emphasis on Relevance and Quality

Fita Ayalew Dehnie (ayalewfita@gmail.com)
A Division Head at the FDRE TVT Institute and now a PhD Scholar at Dilla University

DOI: https://doi.org/10.20372/ejtel.v1i2.10159
Received: Oct 5, 2022; Revised: April 13/2023;
Accepted: December 5, 2023

Abstract:

The purpose of this article was to analyze the Ethiopian TVET Policy in delivering relevant and quality training. The study used a systematic review method on locally and internationally published literature. Local literatures used for the Study were policies, strategies, periodic reports, abstracts and plans that are officially available from stakeholders of the TVET sub-sector. Literatures from the internationally reputable journals were also used using online searching engines such as ERIC, SCOPUS, EBSCO and Google Scholar. Searching topics used for the online search were Education and Training, Technical and Vocational Education, Quality of Education and Training, Relevance of Education and Training, Quality of Vocational Education, Relevance of Vocational Education and Ethiopian Education and Training. The investigation has revealed that the sub-sector is challenged by the problems of identifying and instilling quality and relevant skills to the country's labor market demand. These problems were exacerbated by shortage of qualified teachers, inadequate training facilities, few industries for cooperative learning and poor coordination among the stakeholders. To alleviate the current problems associated with quality and relevance of TVET programs, there seems to be a need to strengthen the linkage between the TVET providers and industries. Stakeholders in the TVET sub-sector are also required to equip the training providers with adequate training facilities and provide trainings by competent trainers.

Keywords: Education and Training policy, TVET policy, Ethiopian TVET, vocational education, TVET policy analysis, Quality and relevance of vocational education

Background

The Ethiopian education system, at large, is associated with the Ethiopian Orthodox Church that has existed in the country for generations even before the coming of modern missionaries (Seyoum, 1996). The system was credited for the development of literature, art, music, and architecture (Messay, 2006). The Ethiopian Orthodox Church was the only education agency until the twentieth century for both the church's clergy and some civil leaders and members of the nobility. Although education began earlier, trades were despised and artisans were discriminated by the society (Mesfin, 2017). This bad perception towards the artisans had impacted the development of the country's indigenous skills and thereby led to a decline in the progress of the country's vocational education system. Those people who exhibited relevant skills faced discrimination for centuries. Though the contribution of religious education was unquestioned, its extent of integrating curriculum to indigenous knowledge is still doubtful (Wondemetegegn, 2016). The researcher was unable to find credible evidence that shows the standards and qualities of training during those times but the passing of those household utensils,

buildings and hand tools from generation to generation could be a testimony for quality of skill training at that time.

Ethiopian education system continued to be traditional and religious until the opening of Menelik II School in 1908 at Addis Ababa which marked the introduction of modern education to the country. Missionary schools were then opened in 1920s in Addis Ababa, Harar and Dire Dawa to teach religious, historical and academic subjects which also incorporated remarkable vocational curriculum but confined to skills of home keeping, handcraft, embroidery and agriculture (Mesfin, 2017). School activities were highly influenced by foreign curriculum.

All the efforts of opening schools and enrolling trainees to vocational stream were halted during five years of Italian invasion that amounted to the summarily execution of educated and groomed Ethiopians and expulsion of missionaries (Adejumobi, 2007). Besides, all the schools were subsequently converted into military and concentration camps. Consequently, Emperor Hailesellassie himself was exiled to Europe for five years following the dismantling of all the country's national institutions and control of the agricultural, industrial and commercial services. Ministry of Education was later established in 1942, after the return of the Emperor. Though few in number, the Government opened vocational schools in the 1940s and 1960s. As noted by Asgedom (1998), in 1962, the Government converted some of the existing secondary schools into Comprehensive Secondary Schools where both academic and vocational education and training fields were taught. However, since most of the schools were influenced by curriculum and experts from abroad, the Ethiopian education system started losing its indigenousness.

Craft works, that were neglected professions, were skills possessed by certain groups of society in certain areas. Their products included essential household utensils like pot, knife, axe, cloth, hat, shoes, and so forth. Although their outputs were used by the whole community, they were given little attention until the 1970s. Different regimes enacted different policy measures to improve the perception towards these craft skills and bring them to the formal training agenda. More recently, a survey conducted by the African Union on 18 African nations' TVET programs, excluding Ethiopia, revealed the prevalence of poor perception of TVET, gender stereotype, poor instructor training, and poor linkages between vocational education and general education, vocational education with formal and non-formal TVET, and TVET to the labor market (Geressu, 2017). These results are in agreement with the findings reported in 2009 by the Ministry of Education on the sub-sector (MOE, 2010).

The 1994 Education and Training Policy, being the first major framework for the system's reform and transformation, gave due attention to the sub-sector (Kedir & Geleta, 2017). The Policy's significant contributions include drastic increase in the number of vocational centers and enrolled trainees in formal, informal and non-formal education, which paved employment opportunities for many.

The Education Sector Development Program V (2015/16 - 2019/20), (MOE, 2015a) proposes to improve educational quality, relevance, efficiency and equity, and expand access to education through the establishment of the Ethiopian National Qualifications Framework (ENQF). Technical and vocational education was used as a means to improve the low perception. The newly developed Education Development Roadmap (2018-30), (MOE, 2018) also incorporates vocational education and training which was initially introduced with an objective of improving the attitudes toward skilled manual work. Thus, it encourages to convince young people to seek engagement in vocational sectors rather than the white-collar jobs that are increasingly in short supply. It also encourages them to stay in the rural areas where they could contribute to the economy by participating in agriculture.

This Article explores the current education and training programs of Ethiopia by focusing on the quality and relevance of TVET by way of sticking to the procedures that follow. First, it attempts to portray the Ethiopian Education and Training Policy in general and the TVET strategy in particular. Second, it discusses the current quality of vocational education by reviewing local and international publications. The relevance of the skills being provided in the TVET programs is discussed in the literature review section of the paper. The detailed discussions of the three sections provide accomplishable pieces of evidence for the researcher to recommend for stakeholders, government and policy makers.

Statement of the problem

The sixth Education Sector Development Plan, 2021-24, indicates that the current Ethiopian Government envisions a knowledge-based society that adapts and uses new technologies to solve the current and future problems of the country through the provision of quality and relevant TVET training programs (MOE, 2021). By recognizing its significant role in the country's economy, the Government has taken different measures to mobilize financial and human resources to improve access, quality and relevance of TVET programs. According to the then Ministry of Science and Higher Education (MOSHE), there was at least one TVET center in every corner of the country in 2019 and yet there were many being under construction (MOSHE, 2019). The expansion program is a meaningful effort to meet the policy objectives of access and equal opportunities for the society. However, graduates from the sector are still tolling up the unemployed part of the population while the industries are running short of skilled manpower. This is an indication that the TVET is not providing relevant skills to the needs of the labor market. In support of this, Befekadu (2022) found skill mismatch between what employers demand and what the TVET providers train.

The TVET system strives for social inclusion by increasing overall access to relevant formal, non-formal and informal learning opportunities by all target groups, while ensuring equality of access. The equitable and proportionate distribution of the sub-sector was not convoyed with relieving the hitches that determine quality of training (MOE, 2018). The challenge gets even deeper for TVET providers in the rural and remote areas of the country. The previous neglect of people without relevant schooling, school drop-outs, people living in the rural areas, persons with special needs and people who are already in work will have to be overcome. To this end

this Study analyzed the Education and Training Policy implemented since 1994 (MOE, 1994) in delivering relevant and quality training.

A national labor force survey, conducted by the Central Statistics Agency, shows that 79.8 per cent of the population were economically active that can be turned for immediate employment by providing relevant skills training (CSA, 2011). On the other hand, the report from the Federal TVET Agency which was published by the Ministry of Science and Higher Education (MOSHE, 2019/20) indicates graduates from the TVET programs especially from the remote and rural areas did not continue their employment in the skill areas they have acquired in the colleges or they have registered for other occupational areas to be trained in similar colleges or universities. This is an indication that the skills the graduates acquired from the TVET providers are not demanded by the employers around those areas despite the strategy's promise to gear training towards local and national development corridors (MOE, 2008). Occupational areas that are relevant to the local economic context could have created better job opportunities. Not surprisingly, most employment opportunities are created in agricultural sector in rural areas (ILO, 2022) but most of the TVET institutions provide training in occupational areas other than agriculture.

The TVET program in Ethiopia employs the dual training system where the quality of the vocational training is influenced by the availability of industries in which students cooperatively learn. The dual training system is aimed to enhance students' learning and create industry attachment for future employment. A report by the Federal TVET Agency which is published by the Ministry of Science and Higher Education (MOSHE, 2018) indicates that the leadership in the industry has negative perception to accept trainees for dual training. Consequently, only a few of those trainees get the opportunity for employment in those companies. There is limited participation in TVET curriculum development by the industry representatives (ILO, 2022) and there is limited interaction between TVET institutions and factories (Yamada et al., 2018). Shortage of qualified teachers and machineries are the other problems indicated in the report. Unless the sub-sector is assisted by donors and the industry at large, it would be difficult for all the TVET providers to possess sufficient training facilities (ILO, 2022).

The researcher found only few studies conducted on Ethiopian Technical and Vocational Education and Training system with a focus on quality and relevance. Those studies concluded the system is challenged by quality and relevance (Befekadu, 2022; ILO, 2022; Mohamed, 2020; Mesfin & Neikerk, 2019; MOSHE, 2019; MOE, 2018; Wondemetegegn, 2016). Moreover, the Education Development Roadmap reports the existence of poor quality and non-relevance of occupational skills in the TVET system, it mainly praises the development of occupational standards from which the curriculum was driven and the accessibility of TVET institutions to ensure equal distribution across the country rather than analyzing the causes and showing future directions for improvement.

Perception towards TVET determines the effectiveness of the sub-sector. However, as Krötz and Deutscher (2021) noted, it remains controversial how student perception influences

achievement of the programs. Moreover, Akareem and Hossain (2016) and Mason et al., (2018) concluded that the perception of students towards the schooling system, in general, heavily affected the academic achievement of learners. In this sense, the perception towards TVET by learners, parents and community remains poor with a slight improvement in the last three decades (Befekadu, 2022).

Quality of TVET delivery is a factor of all the inputting and processing activities that includes availability of sufficient training materials, qualified trainers, effective workplace learning scheme and relevant curriculum that reflects the socio-economic status of the country (ILO, 2022; Mesfin, 2017; MOSHE, 2019). Those articles which labeled the TVET system as struggling with the challenges of perception, quality and relevance did not articulate the causes of the problems and the way forward. This article, thus, attempts to fill this gap by assuming the persistence of these problems in the past three decades by attributing to the system's failure in equipping itself with sufficient training inputs, effective TVET delivery with special emphasis on dual training system and involvement of stakeholders to improve perception towards TVET and ensure relevance of skills.

Methodology

The study was conducted to analyze the current Technical and Vocational Education and Training Policy implementation in the context of quality and relevance with a glimpse on its historical development in Ethiopia. The study uses a systematic review where previous works were collected and analyzed. Systematic review method was employed because the researcher found it convenient to portray real challenges of the TVET by integrating publications from the TVET sub-sector such as reports and abstracts with those conducted by researchers. The study design has passed through the processes of: (i) development of inclusion and exclusion criteria, (ii) selection of literature, and (iii) analysis of data and narrative synthesis.

Literature Review

Generally, there were two categories of literature: local and international. Locally categorized literature is that published and issued under the authority of TVET stakeholders such as the Ministerial offices at the federal and regional levels. These include policy, strategy, system and abstract documents made official by the concerned offices. Selection of data (studies) was started with manual listing down of key concepts. Education, Technical and Vocational Education and Training were identified as the major topics of the literature search. The topics were further cascaded to form quality of TVET, relevance of TVET, Ethiopian TVET program, etc. Top literature searching databases such as SCOPUS, PubMed, PsycNet, CCSE, Google Scholar, Eric, Springer and EBSCO were selected as sources of the publications.

Inclusion criteria

Of the available local literature only those documents pertinent to the Education, labor, and employment were selected for the review. Moreover, only those documents issued in the past five years were used for topical and update purposes. However, policy and strategic documents

are dated from 1994. The author used those documents that are officially released by their organization for reliability of the information (Figure 1).

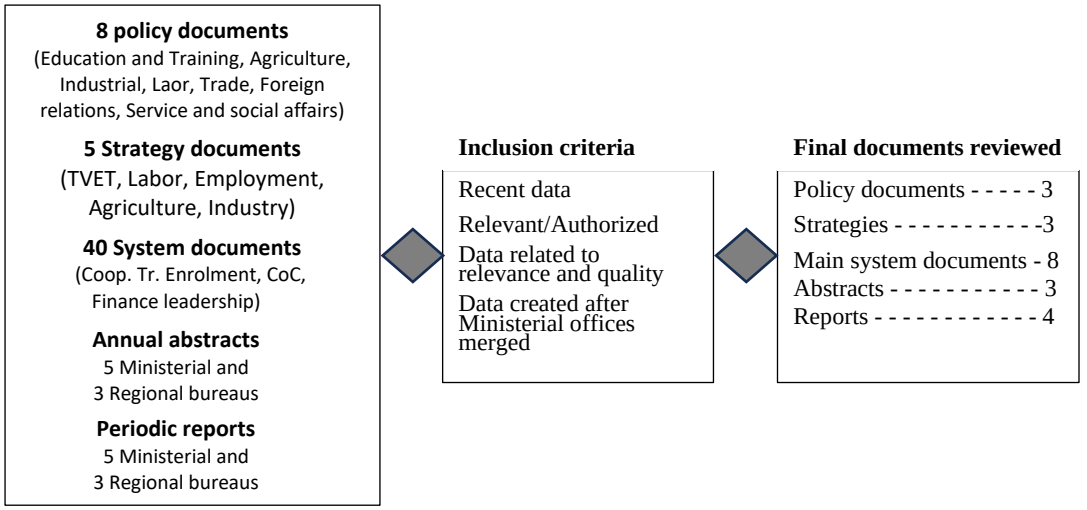


Figure 1: *Local literature search diagram*

Literatures from the international sources were searched based on the searching titles of the authors. Articles and other publications conducted on education, TVET, quality of TVET, relevance of TVET, labour and employment were included in the list of search. Keywords used for the search were vocational education, quality of education, quality vocational training, relevant vocational training, formal and non-formal education and Ethiopian education. Publications on theory of education and vocational training were included without publication year limitation for the conceptual framework. All publications included were written in English language (Figure. 2).

The author reviewed the abstracts and full texts to consider their eligibility. On deciding the selection process of certain articles, a PhD candidate in Educational Policy and Leadership was consulted for an opinion. Studies that mate the eligibility criteria but whose abstracts only available were excluded.

Policy documents, system files, strategies and abstracts collected from Ministerial office of Ethiopia served as the main instruments against which the analysis was done. Eventually, the researcher obtained (i) 8 policy documents on education and training, agriculture, industrial development, labor trade, foreign relations, service and social affairs; (ii) 5 strategic documents on TVET, labor, employment, agriculture and industry; (iii) 40 system documents on cooperative training, enrollment, competence assessment, finance and leadership; (iv) annual abstracts from five Ministerial offices and three Regional bureaus and (v) periodic reports of three Ministerial offices and three Regional bureaus (Fig. 1).

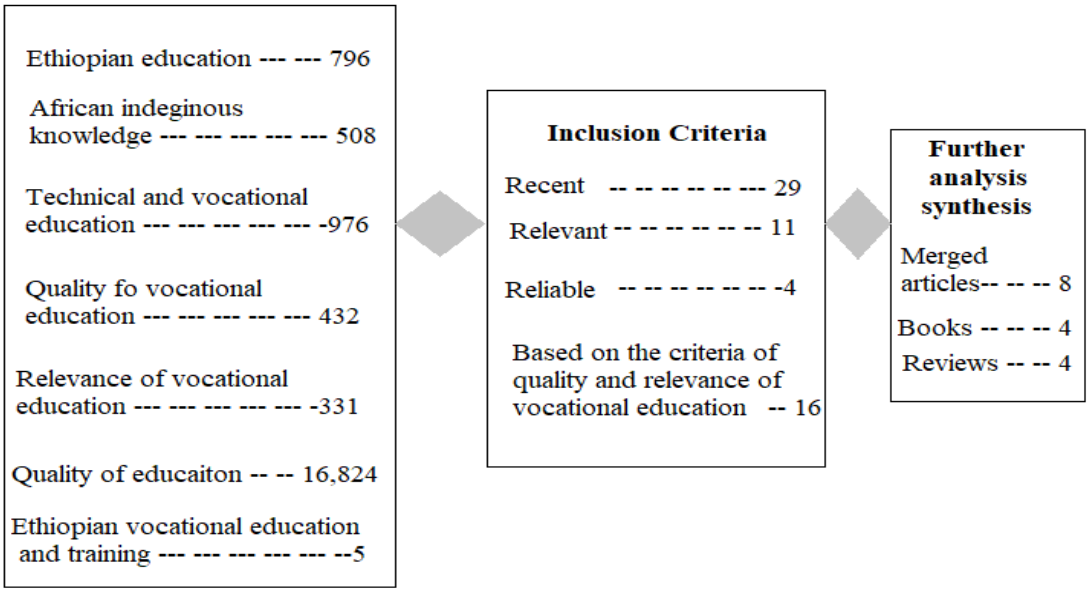


Figure 2: *International literature search diagram*

Internationally peer reviewed and published literature were searched using the searching titles of History of Ethiopian Education, Technical and Vocational Education and Training, Quality of Technical and Vocational Education, Relevance of Technical and Vocational Education, and TVET Policy. Search was also made using abstracts, keywords, authors, and publication years.

The Education Research Information Center (ERIC), SCOPUS, PubMed, American Psychological Association PsycNet, EBSCO and The Canadian Center of Science and Education (CCSE), were used for those publications. Harzing's Publish or Perish software program was used to retrieve and analyse citations. The author manually searched reference lists of articles through Google Scholar.

Policy description and outcomes

The Plan for Accelerated and Sustained Development to End Poverty (PASDEP), Ethiopia's second poverty reduction strategy paper, estimates that the Country has to raise its average economic growth rate to 8% annually in order to achieve the Millennium Development Goals PASDEP, (MOFED, 2006a, 2006b). Human capital development was identified as one of the strategic directions under the Sustainable Development and Poverty Reduction Program (SDPRP), (MOFED, 2002) to achieve the plan. Technical and vocational education is being used as a tool to achieve this. This direction required commercialization of agriculture, enhancement of private sector development, urban development and achievement of the Millennium Development Goals (MDGs) (MOFED, 2004). The Ethiopian Government has seen education and training as important factor to achieve these goals. The Growth and Transformation Plan (GTP 2010/11-2014/15) aimed to achieve the Millennium Development Goals (MDGs) by making Ethiopia reach a middle-class economy by the years 2020-2023

(Krishnan & Shaorshadze, 2013). In order to achieve these aims, the country needed to achieve annual growth rate of 11.2% for consecutive 14 years (Joshi & Verspoor, 2013).

Ethiopia is one of the poorest countries of the world, with agrarian economy and low urbanization rate. Enrollment rate to educational institutions has been lower even when compared to the sub-Saharan countries. However, after the Second Education Sector Development Program (ESDP II) and since the implementation of the Education and Training Policy adopted in 1994, data showed an encouraging increase: (i) primary level (grades 1- 8) increased from 3 million to 11.4 million; (ii) secondary level (grades 9-12) jumped from 400,000 to 953,212; (iii) TVET institutions increased from 3,000 to 106,305 until 2004/5 (MOE, 2021; Killian et al., 2009). The trend is in line with a strong argument that investment in human capital and economic development are positively related.

TVET program was provided both in the non-government and government TVET institutions in a regular (60%) and evening (40%) programs. Though enrollment rate was increasing, only 3% of the relevant age group got the chance of enrollment (MOE, 2005). The increase in enrollment rate was attributed to an increase in the number of TVET institutions providing formal training programs in the country (Killian et al., 2009). As identified on a consultative meeting in 2005, the increase in enrollment rate has created problems of quality, overcrowding of trainees in limited infrastructure, shortage of skilled manpower, and shortage of learning materials (MOE, 2005). It would be important to relate the reported achievements against the objectives of the policy (MOE, 1994), which envisioned:

- To create competent and self-reliant citizens to contribute to the economic and social development of the country, thus improving the livelihoods of all Ethiopians and sustainable reduction of poverty.
- 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 in need of skills development.

The National TVET strategy derived from the policy (MOE, 2008) further aimed to (i) create and further develop a comprehensive, integrated, outcome based and decentralized TVET system for Ethiopia (ii) strengthen working organizations in view of making TVET institutions centers for Technology Transfer (iii) create a coherent framework for all actors and stakeholders in the TVET system (iv) establish and capacitate the necessary institutional set-up to manage and implement TVET in Ethiopia and to ensure a quality management system (QMS) (v) improve the quality of TVET (formal and non-formal) at all levels and make it responsive to the needs of the labor market (vi) facilitate the expansion of relevant TVET programs offered in Ethiopia which are crucial to national development (vii) strengthen the private training market and encourage enterprises to participate in the TVET system (ix) empower women and rural people through skills development (x) ensure equal access of women and people with special

needs to TVET (xi) strengthen the culture of self-employment and support innovation in the Ethiopian economy, in particular in the emerging regions (xii) develop a sustainable financing system for TVET with efficient and cost-effective delivery systems and management structures (xiii) and build the necessary human capacities to effectively manage and implement TVET.

Though significant changes have been emerging in achieving the objectives in the policy and the strategy in current time, the participation of skilled human power in industries was very low. The emphasis of TVET for achieving the development goals is motivated by the fact that the labor productivity in Ethiopia is very low, even as the domestic wages are about one third of the average wage in Sub-Saharan Africa (Joshi & Verspoor, 2013). According to the World Bank Assessment (World Bank., 2009), the country's labor productivity in industries is less than half of the average for the SSA countries, and even smaller fraction of that of the low income country group. The majority of young population still live in rural areas engaged in agricultural activities. The Ethiopian government has implemented the Growth and Transformation Plan (GTP I and II) that envisions to transform the agrarian to industrial economy through emphasis on manufacturing. By its nature, the manufacturing industry requires large number of employees in lower and middle level competence levels. With this background, TVET system was introduced to the country's education sector in 1994.

The Government has introduced the TVET program as an important initiative in human resource development for the anticipated overall economic development. The 2008 TVET strategy states that the Ethiopian Government has initiated a new push towards creating frameworks conducive to economic and social development. Comprehensive capacity building and human capital formation are key pillars in all these efforts. As such, this National TVET Strategy is an important element of the overall policy framework towards development and poverty reduction (MOE, 2008). The purpose of the TVET strategy was to create competent employees in the lower and middle level through strong involvement of private investors. However, TVET is considered as the last alternative to be joined by general education completers and their parents.

The strategy that took more than a decade is still in problems of awareness. Findings obtained from periodic reports indicated that there is a low perception towards the TVET program among the community. According to an analytic study by UNESCO (2011), in Ethiopia, as in many African countries, TVET suffers from a relatively poor public image. TVET is usually associated with low status job, low salary and lack of personal development opportunities, partly due to the low quality of previous TVET programs that did not allow TVET graduates to successfully compete in the labor market. TVET is generally perceived as a place of last resort for those students who failed to get into higher education. This misconception needs to be rectified.

Occupational standards

Occupational standards are baseline for all skill development programs in Ethiopia. They define the competence of a worker required by the labor market (MOE, 2008). Competence on the other hand is the ability to do something successfully or efficiently (Lester & Religa, 2017). A

typical occupational standard includes the National TVET Qualification Framework Level, unit of competence, performance criteria, training and assessment context, trainers and trainee's profile, and certification. Skills standards describe responsibilities needed for competent performance and knowledge and skills required to carry out duties (National Skill Standards Board, 2000), define graduates measurable performance developed in an educational institution and applied to a work place (Rahn et al., 1999), and bring changes in both works and the economy (Carnevale & Desrochers, 2001; Faulkner, 2002; Wills, 1998). The occupational standards are prepared by the concerned industries because they define what to do, how well to do, and the specific knowledge, skills and attitudes required to do the jobs (Aragon et al., 2005).

The TVET strategy of Ethiopia is found to use dual training method at which training takes place both in the school compound and the industry in a form of cooperative training (Figure. 3). Dual system of vocational education is a German model that is characterized by (i) contractual relations between the vocational school and employer/organization providing workplace training, (ii) apprenticeship contract between the student and the employer, (iii) practical in-organization/workplace training, and (iv) workplace training financed by the employer (Barnová, Krásna & Gabrhelová, 2020). It has many advantages as it creates an opportunity for the learner to be practically engaged in the real world of work and experience with the machine, tools, people, etc. he/she used to work with. Moreover, it has an advantage for the industry operators to train and employ the best competent graduates for their companies.

The TVET system used formal and non-formal modes of training in regular and evening sessions. Candidates for the formal TVET program are General Education 10th grade completers who wish to join TVET based on their previous experience or inclination, in general (MOE, 2008). However, the strategy also allows further training for industry practitioners to come back to the system to earn additional training. Feinstein and Hammond (2004) as cited in Barnová and Gabrhelová (2020) indicated that participation in further education is a central success factor for economic growth and societal as well as individual development. Through the Industry Extension Service department, TVET providers are required to train, support, capacitate and evaluate industry practitioners or job creators commonly called Micro and Small

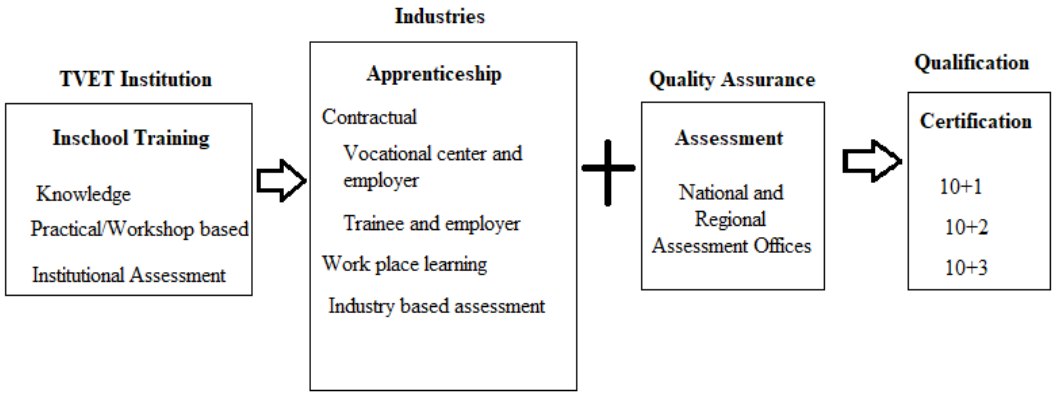


Figure 3: *Dual Training system of the Ethiopian TVET program (1994 – 2009)*

Enterprises. Further training is required for the practitioners to be competent in ever changing world economy. With technological changes, a structural transformation towards more knowledge intensive production, methods and services is to be expected. The trend seems to be brought in from abroad as it is applicable in other parts of the world. In this sense, Descy (2014) reported that as many economies are struggling with shortages in qualified labor force, which will intensify drastically in the coming years. Consequently, the need for continuous and life-long vocational training is increasing from time to time (Bonekamp & Sure, 2015).

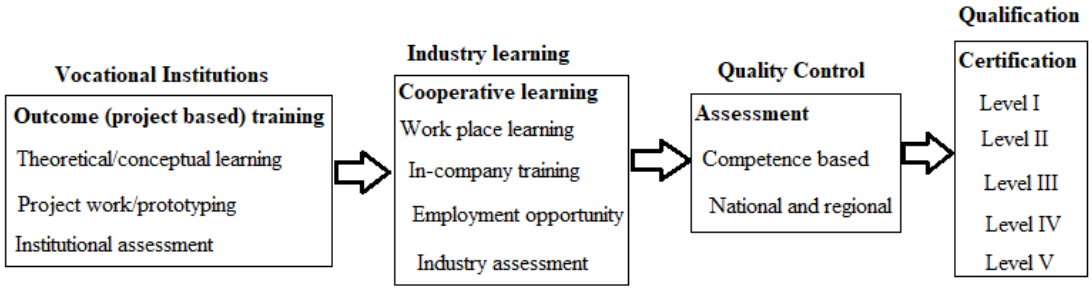


Figure 4: The current Ethiopian TVET system

Occupational assessment is another component in the system which is conducted by the industries which are the owners of the occupational standard as they are mutually responsible for the industry learning (Figure 4). Occupational qualification certificates are awarded upon passing the occupational assessments according to the qualification levels achieved. Occupational assessment and certification are accessible to all candidates who feel competent that they meet the requirements of the respective occupational standard, irrespective of how and where they were trained or learned. Contrary to past practice in Ethiopia, access to occupational qualifications is no longer dependent on attending a formal TVET program (MOE, 2021; MOE, 2008). Occupational assessment will be the major tool to integrate different TVET delivery modes and recognize prior learning, significantly increasing access to the TVET system and its qualifications for a greater section of the society. Moreover, the assessment procedure serves as a quality control mechanism in the TVET system as depicted in Figure 4.

Relevance of the Ethiopian TVET System

The survey conducted by the World Bank found that the large proportion of medium and large firms stated that worker skills are a severe or very severe constraint on business (World Bank, 2009). Similarly, according to Allais (2022), sub-Saharan African countries have low numbers of well-paying jobs requiring technical expertise and African TVET systems are 'under-resourced' and 'obsolete' with 'damaged infrastructure' and 'inadequate inter-sectorial linkages' (Geressu, 2017). The African Union, on the other hand, described the quality and relevance of Ethiopian TVET as handicapped due to stagnant employment opportunities, poor quality in the delivery of curriculum, weak leadership and meager stakeholders' involvement (Geressu, 2017). For a sector with poor/bad perception by parents, employers and politicians,

the continent continued importing skilled human power (Geressu, 2017, Powell & McGrath, 2019).

One segment of vocational education is its productivity which ensures employability to bring economic development (Giddens, 1994). In this regard, Anderson (2009) identified two key productivist assumptions: (i) training leads to productivity, to economic growth, and (ii) skills lead to employability, lead to jobs (Artess et al., 2017). The labor market highly demands workers with experience for productivity and low cost of training (Arrow, 1962; Salvisberg, 2010; Thurow, 1975). An industry prefers to hire an experienced but not holding any certificate to a fresh graduate with diploma or degree. That is how training institutions approach the problem by including exposure (experience building) curriculum in their training programs (Cranmer, 2006; Helyer & Lee, 2014; Billett, 2014; Silva et al., 2016). Nonetheless, none of the official documents from the TVET stakeholders precisely described the cause of non-relevance of skills is attributed to loose coordination between them.

Understanding the labor market trend of a specific area or country plays an important role in alleviating problems of unemployment and underemployment that are the direct causes of poverty and, in some cases conflict as well. Labor Market Information (LMI) is also very important for competitiveness and economic growth of countries, particularly, for proper growth strategies.

Labor Market Information encompasses all quantitative and qualitative facts related to a labor market. It includes statistical summaries regarding demographics, employment, unemployment and vacancy rates; industry data; occupational statistics; summary report on outcomes; and forecast of future trends. In this regard, the Ministry of Labor and Social Affairs (2009) asserted that the country has very low Labor Market Information System and a weak labor organization system. Consequently, there is a quantitative and qualitative mismatch between the TVET supply and demand of employers. Quantitatively, there is a wide spread unemployment among TVET graduates on one hand while there is a wide market vacancy for TVET graduates. Graduates' inability to fulfill the required minimum competence level and standard is evidence for the prevalence of qualitative mismatch between what is supplied and what is demanded. However, all these data can only be obtained through a coordinated system of stakeholders. Thus, the TVET sub-sector needs to coordinate its efforts with that of its stakeholders such as Agriculture, Trade and Industry and other regional stakeholders involved in the training (Lasonen et al., 2005).

The quantitative mismatch of TVET graduates and the labor demand lack valid data for justification as little publications are made available to review. Training intake should be based on the market study about the demand of the industries. According to the Ethiopian National TVET strategy, the sub-sector needs to focus on labor market demand. Labor market information shows all the demographic developments, number of school leavers at different levels, number of unemployed by region, qualification profile, etc. The analysis on labor demand side includes skill gaps, employment trends by sectors and occupations, emerging

markets, new investments, economic opportunities in rural areas, etc. Data could be obtained from the Ministry of Labor and Social Affairs, the central Statistics Agency, Ministry of Trade and Industry, Regional Micro and Small Enterprises Development Bureaus, etc. Thus, the quantitative problems of the sub-sector can only be addressed through a reliable labor market study. Yet, employers complain the quality of graduates does not meet their standard of employment. This is in part due to the fact that the occupational areas of skill development being delivered in the TVET are not relevant to the country's socio-economic context.

The commonly known skill development areas being in use are Auto Mechanics, Information Technology, Construction, Electricity, Garment/Textile and Business and Finance. For a nation like Ethiopia where more than 80% of the population is dependent on agricultural practices, there are only few occupational skill development curricula in the sub-system. In the then SNNPR, among the 52 centers contacted, only two colleges have a training program in agricultural areas. Based on an annual booklet published by the regional TVET bureau in 2019 which lists training areas of all public TVET providers in the region, the agricultural occupational areas found in a college trains in level one and two which is the lowest level of the training programs (SNNPR TVET Bureau, 2019b; MOE, 2008).

A structural analysis conducted by the Edukans Foundation (2009) indicated that vocational guidance and counseling plays pivotal role in matching training delivery with the market demand. It does this by delivering the required information regarding the world of work and the training delivery that enable the prospective student arrive at a mature decision.

The newly formulated Education Development Road Map (2018-30) also stated that the TVET strategy introduced occupational standards and outcome-based curricula to ensure relevance of the TVET for economic and social development. The initiative seems plausible but the system is still stacked by the problem of relevance. A survey on two garment and textile factories in Addis Ababa indicated that they employ TVET graduates every year but forced to provide additional training in order to upgrade their skills to the requirements of the factories.

Quality of the Ethiopian TVET System

The 1991 change in government brought significant changes on every aspect of the country. The introduction of liberal economy ignited the need for massive human resource. The Plan for Accelerated and Sustained Development to End Poverty (PASDEP), Ethiopia's second poverty reduction strategy paper, estimates that the Country has to raise its average economic growth rate to 8% annually in order to achieve the Millennium Development Goals. Although challenged by financial resources, the government vested much attention on the sub-sector and vocational schools were mushrooming in every corner. By the time of the introduction of the 1994 Education and Training Policy, around 35 million people of the Ethiopian work force are characterized by low skill levels and very low average educational attainment. Only 10% of the urban population has post-secondary school education. As a consequence, 75% of the workforce is concentrated on low skill employment sectors such as commerce, services and elementary

occupations. Less than half of the urban workforce is engaged in wage employment. A significant portion of the urban workforce works for unpaid family business. More than 40% are self-employed in the informal economy, most of which live on the edge of poverty (MOE, 2008).

Since the implementation of the Policy, however, there was a continuous complaint and criticism on the deteriorating quality of education. The challenges were beyond the capacity of government (Poluha, 2001) that include teachers' wretched work conditions; lack of textbooks, teaching aids and materials; and overcrowded schools. Quality of the vocational education deteriorates due to many reasons. Although the Government has raised public expenditure on education to 4.6% of the GDP, it will not be enough to ensure education for all (Lasonen, et al. 2005). An assessment made by UNESCO found that the quality challenges included lack of quality training materials, outdated equipment, teaching and learning methods and approach that differ from one training to another and absence of competence based training materials and assessment systems (UNESCO, 2012). The quality of education depends on teachers' pedagogical training, student and teacher ratios, educational expenditure and student achievement as indicators of quality (Lasonen et al. 2005). The source of finance for acquiring training equipment predominantly comes from donors like the World Bank, European Union, IMF, African Development Bank, etc. As the model of training was derived from best practices of other countries such as Germany, Vietnam, Singapore and Japan which have implemented the dual training system, the sub-sector required huge investment for full functioning because there were few industries for the apprenticeship. Only few vocational centers located in big cities have the chance to obtain the minimum required machineries and equipment for their training. Many of the vocational schools located in rural areas do not have such facilities and students do not have the access to practice and use. However, both the newly developed Education and Training Policy (MOE, 2023) and the Education Development Roadmap (MOE, 2018) did not show how the cost-sharing scheme between TVET providers and cooperative companies will be instrumented in improving quality of training.

If the TVET Program is to be effective, the system should ensure employability of graduates. Many countries are facing difficulties in making transition from formal schooling into employment (Euler, 2013) and this can be addressed through the proper implementation of German dual training model. Inability in implementing the dual training program aimed to conduct training both in the school's workshop and in nearby companies, has created a problem on the overall quality of the sub-sector because there were no such companies operating adjacent to the vocational schools. For some, who have the access in large cities, like Addis Ababa, Hawassa, Kombolcha, Debre Birhan and Dire Dawa, the companies were not well informed about the policy and resisted the application of dual-training. Because of this, the vocational schools were forced to rely on their own workshop-based training which was challenged by shortage and outdated facilities (MOSHE, 2018).

The TVET system was implemented on an empty ground with regard to competent trainers. Although there were some teachers who were serving in comprehensive schools, they were

incomparable with the number of newly inaugurated vocational schools. Moreover, the expansion of educational system has created shortage of teachers even to meet the minimum teacher-student ratio (Lasonen et al., 2005). Highly competent, qualified, motivated, flexible and creative TVET teachers and instructors are the backbone of any TVET system, capable of adjusting to changing technological environments and creating conducive learning environments for different target groups. To this effect, the Government of Ethiopia was in the process of fundamentally overhauling the system and provision of TVET teacher/instructor training. The aim of this process was to create a corps of TVET teachers/instructors capable of preparing trainees to successfully pass occupational assessment. If Ethiopia is to improve quality of education and achieve its universal objectives, it must engage a great number of new teachers annually (Lasonen et al., 2005). A working paper published by Froyland (2001) and Abebe (2009) also showed there was a shortage of TVET teachers, and hence the government was forced to contract many TVET instructors from abroad.

Systematic training, education and further training was provided to teachers and instructors in the TVET system at all levels in the formal programs. Official reports obtained from the concerned stake holders in the Ethiopian TVET system between the years of 2001 to 2005 showed the system had shortage of qualified trainers in lower and upper levels of qualification (MOE, 2005, 2010; SNNPR TVET Commission, 2002, 2003). However, the system seemed to create its own trainers through learning with their learners. Alternative training of teachers for the vocational stream was provided through summer in-service programs to upgrade existing diploma holders into first degree. Additional TVET experts and teachers were brought from Germany, India, China, Nigeria and Cuba to bridge the deficiency (Lasonen et al., 2005). The Country did not have any single higher education institution that provides training for teachers of vocational education. Thus, the quality of vocational education was heavily halted by availability of qualified and competent teachers.

The preparation of TVET institutions by equipping with the necessary training materials was started soon after so many vocational schools were opened. With an objective of strengthening vocational teachers' training and further training at NCTTE, the national TVET teacher training college was established through the financial aid from the World Bank in 1997/98 and later joined by the Ethio-German TVET program in 1999 to train a two-year program for TVET teachers and a two-year program for training technicians in 1999 (MOE, 2005). Though the effort was considered as a relieving measure, the attrition rate for TVET teachers was as high as 20% (Froyland, 2001). The National TVET Strategy (MOE, 2008) stated that increasing the supply with relevant training and further training, TVET teacher training at higher education institutions is currently being strengthened and new programs are being developed. Furthermore, new TVET teacher/instructor training faculties or departments will be established at the respective Ethiopian universities.

Coordination among stakeholders is very low. A report obtained from the FDRE TVET Agency (FTVET Agency, 2017) indicated the cooperative work among different stakeholders of the sub-

sector is the major problem in the academic year. Although a few committees were formed, the agency reported, there was no binding plan prepared in consent of the parties and hence, at the end of the year, it was found that there was no coordinated output.

The Ethiopian TVET Strategy states that TVET operates at the interface of different sectors of society, notably the education sector, the labor market, industry, MSE sectors, agriculture and rural development, and public administration. In order to serve all these sectors through high quality and demand-responsive instruments, the TVET system must be steered and implemented with the involvement of a wide stakeholder group. Different stakeholders contribute their own expertise, experience and capacities, in order that their combined efforts improve the relevance and effectiveness of the TVET system (MOE, 2008). The ESDP-V further insisted that the industry leads the TVET sub-sector during the program's period, guiding revisions to Occupational Standards (OS), calling for adjustments and improvements when the sector needs change.

The involvement and active engagement of the stakeholders highly determines the quality of delivery of TVET programs. In the first place, these stakeholders are the owners of the occupational skills and need to ensure the proper implementation. To this effect, they should facilitate the way the trainees should be sent to the industry for practical engagement and final assessment against the occupational standard because they are the employers of the graduates from the TVETs. Cooperative training has the advantage of systematic learning in and exposure to workplace realities, making training more relevant, holistic and sustainable (Barnová, 2020; MOE, 2015b). Using industry trainers either in the form of Supervisors or Dual Employment could be enhanced through the cooperative engagement of stakeholders in the training process. Nonetheless, no report was found from any stakeholder on its performance and about future plans.

The stakeholders, on the other hand, could be sources of finance for expansion and acquisition of training facilities which have a direct impact on quality of training. The TVET system naturally uses comparatively expensive resources and it requires huge capital for uncompromised quality of training. This burden can only be relieved by the involvement of stakeholders to share cost of training. The stakeholders could provide finance or training machineries in support of the sub-system. Moreover, trainees can be sent to these well-organized organizations for practical training in modern machineries.

Since the stakeholders are the owners of the occupational competencies, they are expected to assess the TVET graduates against their standards. However, since there is little coordination among the TVET providers, the assessment is being conducted by an agent established for this purpose. Most of the assessors are trainers and few industry practitioners. Therefore, it is too difficult to ensure quality of training while the industry is not fully overtaking the responsibility of assessment. Reports obtained from two regions (Addis Ababa City Administration and the then SNNPR State Administration) indicated that they are conducting occupational assessments with non-professionals and mostly with TVET trainers.

Conclusion

Human resource development is a key in Ethiopia's future economic and social developments. As indicated in the TVET strategy (MOE, 2008), with the Plan for Accelerated and Sustained Development to End Poverty (PASDEP), the Industrial Development Strategy and other sector development strategies, the Ethiopian Government has initiated a new push towards designing frameworks conducive to economic and social development. Comprehensive capacity building and human capital formation are key pillars in all these efforts. As such, this National TVET Strategy is an important element of the overall policy framework towards development and poverty reduction. However, the contribution of the TVET sub-sector to the country's development depends on the relevance of the TVET programs to local needs of the country and quality of training.

Initially, the TVET program focused on eight priority sectors: agriculture, industry, economic infrastructure, health, hotel and tourism, trade, mining, labor and social affairs. The current situation, nevertheless, shows the TVET sectors' main focus is on industry and labor and social affairs. Moreover, the newly adopted Ethiopian Education Development Roadmap 2018-2030 (MOE, 2018), shows that the TVET strategy introduced occupational standards and outcome-based curriculum to ensure relevance of the TVET for economy and social development. This initiative seems plausible but the system is still stacked by the problem of relevance. Ironically, what the TVETs produce is not being employed and what the industries need to employ has not been produced yet.

Ethiopian skills are not aligned to the local needs of the country's economy. Every TVET institution opens common occupational areas such as Information and Communications Technology, Construction, Automotive, Metal Work, etc. without or with little investigation of the local skill demand. If proper investigation is conducted on skills demand of the local economy, graduates may have a greater opportunity to get employed in these industries. The Ethiopian economy is characterized as dependent on agriculture; crop and livestock production. According to the Report of World Bank (2009), the rural agriculture sector accounts for about 85% of the country's population engagement. In addition, the agricultural sector is characterized by the use of traditional, manual, labor based and inefficient mechanism of production. Yet, research shows that the Country is endowed with numerous mineral resources.

The quality of vocational training is impacted by a number of factors that include training facilities, trainers, cooperative industries, leadership, among other things. The expansion program has to reach each Woreda and has to have at least one TVET center. However, they are challenged by shortage of updated training facilities, qualified trainers and cooperative industries around them.

The quality problem of the TVET providers has an impact on the industries. For instance, the industries are not getting graduates who can satisfy their standard. The quality of training is measured through assessment conducted by the industry, TVET authorities and an independent

agency (Center of Competence, COC) at each region. The assessment results show on average that less than 42% of the graduates are competent in each academic year.

The quality parameter also differs from region to Woreda levels due to unequal distribution of training facilities, workshops and cooperative industries. TVETs that are found in big cities have a big chance of getting better training facilities. In addition, since a lot of industries are operating around these cities, trainees enrolled in these TVETs have a better chance to go for apprentice and practical engagements in these factories than those found in rural areas.

Recommendations

For a country that aspires to transform from agriculture to the mechanized industrial economy, the skills training program is significant in increasing productivity and increased input for the industry and export. In the Ethiopian context, rural unemployment is increasing because of backward farming techniques, dependency on rain fall and limited development of farming infrastructure. Demand driven and market based TVET of formal and non-formal programs, therefore, need to be extended to equip rural youth with relevant skills for self-employment or engagement in micro-economic activities at family level as well as in cooperatives (Educkans Foundation, 2009). Occupational skills on mining and mineral works also help to boost the revenue generated from the sector.

Involving the stakeholders in TVET operations is essential for the success of the sub-sector. The government alone cannot fulfill all the training facilities including trainers. As stated in the ESDP V and Strategy, the stakeholders or industries should take the responsibility to own the TVET sub-sector in developing occupational standards, facilitating the cooperative learning process and assessing the performance of graduates in particular and TVET providers in general. Moreover, the industry should assist training programs by providing updated and sufficient training facilities which are difficult for the Government to avail.

Awareness programs must be carried out among the community members about the occupational areas the Country demands at large. Agriculture, mining, forestry, etc. are considered as secondary options of training by the trainees and the community. As indicated above, however, they are the backbones of the Country's economy and can employ large number of graduates each year. Thus, the perception of the society towards these training areas must be shaped.

The expansion program of TVET centers should be accompanied by sufficient training facilities and competent trainers. Training facilities can be obtained from the government, donors, industries or internal revenues. Trainers should be prepared for the occupational skills. Quality of trainers could be improved through their engagement in the industries for practical training. The sub-system needs to have its own source of trainers like Technical Universities. Trainers should also be exposed to the ever-changing technological environment.

References

Abebe, A. (2009). Influences of individual and contextual factors on improving the professional development of TVET teachers in Ethiopia. Doctoral dissertation, Technische Universität Kaiserslautern.

Adejumobi, Saheed A. (2007). The History of Ethiopia: The Greenwood histories of the modern nations. London: Greenwood Press

Akareem, H. S., & Hossain, S. S. (2016). Determinants of education quality: what makes students' perception different? Open review of educational research, 3(1), 52-67. https://doi.org/10.1080/23265507.2016.1155167

Allais, S. M. (2022). Beyond 'supply and demand': Moving from skills 'planning' to seeing skills as endogenous to the economy. Journal of Vocational, Adult and Continuing Education and Training, 5(1), 56–74. https://doi.org/10.14426/jovacet.v5i1.246

Anderson, K. (2009). Distorted agricultural incentives and economic development: Asia's experience. World Economy, 32(3), 351-384. https://doi.org/10.1111/j.1467-9701.2009.01163.x

Aragon, S. R., Woo, H. J., & Marvel, M. R. (2005). The Role of National Industry-Based Skill Standards in the Development, Implementation, and Assessment of Community College Curriculum. Journal of Career and Technical Education, 21(2), 35-50.

Arrow, K. J. (1962). The economic implications of learning by doing. The Review of economic studies, 29(3), 155–173. https://doi.org/10.2307/2295952

Artess, J., Mellors-Bourne, R., & Hooley, T. (2017). Employability: A review of the literature 2012-2016.

Asgedom, A. (Ed.). (1998). Quality Education in Ethiopia: Visions for the 21st Century: Proceedings of National Conference Held in Awassa College of Teacher Education, 12-18 July 1998. Institute of Educational Research, Addis Ababa University.

Barnová, S., Krásna, S., & Gabrhelová, G. (2020). Dual system of vocational education and training in Slovakia. INTED2020 Proceeding, Valencia, 4592-4596.

Befekadu, Z. (2022). The Mismatch between Technical and Vocational Education and Training Graduates' Competence and Expected Employees' Skills: Perceived Experience of Employers in Private Firms of Addis Ababa. East African Journal of Social Sciences and Humanities, 7(1), 47-68.

Billett, S. (2014). Integrating learning experiences across tertiary education and practice settings: A socio-personal account. Educational Research Review, 12, 1–13. https://doi.org/10.1016/j.edurev.2014.01.002

Bonekamp, L., & Sure, M. (2015). Consequences of Industry 4.0 on human labour and work organisation. Journal of business and media Psychology, 6(1), 33-40.

Carnevale, A. P., & Desrochers, D. M. (2001). Help wanted ... credentials required: Community colleges in the knowledge economy. Princeton, NJ: Educational Testing Service.

Cranmer, S. (2006). Enhancing graduate employability: Best intentions and mixed outcomes. Studies in Higher Education, 31(2), 169–184. https://doi.org/10.1080/03075070600572041

CSA (2011). Ethiopia, Federal Democratic Republic of (Central Statistical Agency). Report on the 2005 National Labor Force Survey. Addis Ababa: Statistical Bulletin 365. CSA

Descy, P. (2014), "Projected labour market imbalances in Europe: Policy challenges in meeting the Europe 2020 employment targets", in Matching Economic Migration with Labour Market Needs (PP. 315 - 333), OECD Publishing, Paris. https://doi.org/10.1787/9789264216501-12-en.

Educans Foundation. (2009). Technical vocational education and training in Ethiopia mapping: Learn4Work-Schokland Programme on TVET.

Euler, D. (2013). Germany's dual vocational training system: a model for other countries? Gütersloh: Bertelsmann Stiftung.

Faulkner, D. (Ed.). (2002). Strategy: critical perspectives on business and management (Vol. 1). Taylor & Francis.

Feinstein, L., & Hammond, C. (2004). The contribution of adult learning to health and social capital. Oxford Review of Education, 30(2), 199-221. https://doi.org/10.1080/0305498042000215520

Froyland, E. (2001). Training for survival and growth in Ethiopia. An explanatory working paper on policy frameworks, productive capacity building and international co-operation. Teacher Education Development Study Mission, 5-30 November, 2001, Ethiopia.

FTVET AGENCY (2017). Federal Democratic Republic of Ethiopia; Technical and Vocational Education and Training Agency. Annual Performance Evaluation Meeting. Addis Ababa, Ethiopia.

Geressu, B. (2017). Impact of Competence-Based Training on Employability of Technical and Vocational Graduates in Ethiopia. *Tuning Journal for Higher Education, 5*(1), 101-119. https://doi.org/10.18543/tjhe-5(1)-2017pp101-119

Giddens, A. (1994). Beyond left and right: The future of radical politics. Stanford University Press.

Helyer, R., & Lee, D. (2014). The role of work experience in the future employability of higher education graduates. Higher Education Quarterly, 68(3), 348–372. https://doi.org/10.1111/hequ.12055

ILO (2022). International Labor Organization, National TVET policies and systems in Ethiopia: Opportunities and issues in challenging times.

Joshi, R. D., & Verspoor, A. (2013). Secondary Education in Ethiopia: Supporting Growth and Transformation. Washington, DC: World Bank. https://doi.org/10.1596/978-0-8213-9727-5

Kedir, K., & Geleta, A. (2017). Leading Educational Change: The Practices of Transformational Leadership in the Ethiopian Technical Vocational Education and Training (TVET) Institutions. Online Submission, 9(5), 46-61. https://doi.org/10.5897/IJVTE2017.0233

Killian, M., Tendayi, G., & Augustine, T. (2009). An assessment of partnerships between technical vocational education and training and its stakeholders in the development of Ethiopian SMEs. Economia, Seria Management, 12(2), 39-56.

Krishnan, P., & Shaorshadze, I. (2013). Technical and Vocational Education and Training in Ethiopia: International Growth Centre. Working Paper. https://www.theigc.org/wp-content/uploads/2014/09/Krishnan-Shaorshadze-2013-Working-Paper. pdf.

Krötz, M., & Deutscher, V. (2021). Differences in perception matter–How differences in the perception of training quality of trainees and trainers affect drop-out in VET. Vocations and Learning, 14(3), 369-409. https://doi.org/10.1007/s12186-021-09263-7

Lasonen, J., Kemppainen, R., & Raheem, K. (2005). Education and training in Ethiopia: An evaluation of approaching EFA goals (No. 23). Institute for Educational Research.

Lester, S., & Religa, J. (2017). “Competence” and occupational standards: observations from six European countries. Education+ Training.

Mason, R. B., Mbambo, S. N., & Pillay, M. A. (2018). Service quality at technical and vocational education and training colleges: Perception according to demographic factors. Journal of Technical Education and Training, 10(1), 15-29. https://10.30880/jtet.2018.10.01.002

Mesfin, D. M. (2017). Evaluating the perceived effectiveness of the leadership styles of deans in Ethiopian governmental technical and vocational education and training (TVET) colleges. Unpublished Doctoral Dissertation, University of South Africa.

Mesfin, M., & Niekerk, E. (2019). Leadership styles of the deans in Ethiopian governmental technical and vocational education and training (TVET) colleges. European Journal of Social Sciences Studies,4(1) 123-140. http://dx.doi.org/10.5281/zenodo.2575885

Messay Kebede. (2006) ‘The Roots and Fallouts of Haile Selasie’s Educational Policy’, UNESCO Forum Occasional Paper Series, Paper No.10.

Ministry of Labor and Social Affairs (2009). The federal democratic republic of Ethiopia, national social protection policy of Ethiopia final draft. Addis Ababa, Ethiopia.

MOE (1994). Education and Training Policy, Transitional Government of Ethiopia, Addis Ababa, Ethiopia.

MOE (2023). Education and Training Policy, Federal Democratic Republic of Ethiopia, Ababa, Ethiopia.

MOE (2008). National Technical and Vocational Education and Training (TVET) Strategy. Addis Ababa. Ethiopia.

MOE. (2005), FDRE, Ministry of Education. Consultative meeting on education quality. Addis Ababa, Ethiopia.

MOE. (2010). Education Statistics Annual Abstract. Addis Ababa: Ministry of Education

MOE. (2015a). Education Sector Development Program V (ESDP V): 2008 - 2012 E.C. 2015/16 - 2019/20 G.C. Addis Ababa, Ethiopia.

MOE. (2015b). Scientific and technological human resource supply and demand in Ethiopia or 2015-2025. Addis Ababa, Ethiopia.

MOE. (2018). Ministry of Education. Ethiopian education development roadmap (2018-30). An integrated Executive Summary. Ministry of Education Strategy Center (ESC) Draft for Discussion: Addis Ababa.

MOE. (2021). Education Sector Development Program VI (ESDP VI): 2020/21 – 2024/25 Addis Ababa, Ethiopia.

MOFED (2002). Sustainable Development and Poverty Reduction Program (SDPRP). Addis Ababa: MOFED.

MOFED (2004). “Millennium Development Goals Report: Challenges and Prospects for Ethiopia”. Ministry of Finance and Economic Development (MoFED) of the Federal Democratic Republic of Ethiopia and United Nations Country Team, Addis Ababa. Retrieved on May 2009 from: http://planipolis.iiep.unesco.org/upload/Ethiopia/ Ethiopia%20MDG%20Report.pdf.

MOFED (2006a). Ethiopia: Building on Progress. A Plan for Accelerated and Sustained Development to End Poverty (PASDEP) (2005/06-2009/10). Volume I: Main Text. Ministry of Finance and

Economic Development (MoFED), Addis Ababa. Retrieved on May, 2009 from: http://siteresources.worldbank.org/INTETHIOPIA/Resources/ PASDEP_Final_English.pdf.

MOFED (2006b). Ethiopia: Building on Progress. A Plan for Accelerated and Sustained Development to End Poverty (PASDEP) (2005/06-2009/10). Volume II: Policy Matrix. Ministry of Finance and Economic Development (MoFED). Addis Ababa. Retrieved May, 2009 from: http://www.et.undp.org/index.php?option=com_docman&task =doc_download&gid=8.

Mohamed, A (2020). Historical Developments and Challenges of Ethiopian Education. STUDENT ARTICLES-II, In E.M. Deniz (Ed.), International Student Articles II (PP.163-172). Istanbul: Saner Printing.

MOSHE. (2018), Ministry of Science and Higher Education, Ethiopia. Annual Report. May 2020. Addis Ababa.

MOSHE. (2019). Ministry of Science and Higher Education. ToR for Tracer Study, TVET Skill Gap Surveying and Industry Skill Demand Assessments for Manufacturing and Leather and Leather Products. (World Bank- EASTRIP), Addis Ababa, Ethiopia.

MOSHE. (2019/20), Ministry of Science and Higher Education, Ethiopia. Annual Report. May 2020. Addis Ababa.

National Skill Standards Board (2000). Built to work: A common framework for skill standards. Washington, DC: Author.

Poluha, E. (2001). Teachers' recruitment and employment conditions in Ethiopia. Draft report for SIDA. Addis Abeba: SIDA and Ireland Aid.

Powell, L., & McGrath, S. (2019). Skills for human development: Transforming vocational education and training. Routledge.

Rahn, M. L., O'Driscoll, P., &Hudecki, P. (1999). Taking off!: Sharing state-level accountability strategies. Berkeley, CA: National Center for Research in Vocational Education.

Salvisberg, A. (2010). Soft skills auf demarbeitsmarkt: Bedeutung und wandel (dissertation). SeismoVerlag. Sozialwissenschaften und Gesellschaftsfragen.

Seyoum Tefera. (1996). The impact of legislation on the development of modern education in Ethiopia, 1906-1984. Ethiopian Journal of Development Research, 18(1), 27-48.

Silva, P., Lopes, B., Costa, M., Melo, A. I., Dias, G. P., Brito, E., &Seabra, D. (2016). The million-dollar question: Can internships boost employment? Studies in Higher Education, 43(1), 2–21. http://dx.doi.org/10.1080/03075079.2016.1144181

SNNPR TVET Commission. (2002). Annual Performance Report. June, 2019. Hawassa, Ethiopia.

SNNPR TVET Commission. (2003). Annual Performance Report. Augest, 2019. Hawassa, Ethiopia.

SNNPR TVET Bureau. (2019b). Sothern Nations, Nationalities and People's Regional Technical and Vocational Education and Training Bureau, Booklet: Polytechnic Colleges, TVET Colleges and TVET Institutions for the academic year 2019/20. Hawassa, Ethiopia.

Thurow, L. C. (1975). Generating inequality. London and Basingstoke: The Macmillan Press LTD.

UNESCO (2012). Inter-Agency Working Group on TVET Indicators, UNESCO, "Proposed Indicators for Assessing Technical and Vocational Education and Training." April 2012

UNESCO. (2011). Technical and vocational education and training (TVET) system in India for sustainable development. Bonn, UNEVOC.

Wills, J. (1998). Taking on the CosmoCorps? Experiments in transnational labor organization. Economic Geography, 74(2), 111-130. http://doi.org/10.1111/j.1944-8287.1998.tb00108.x

Wondemetegegn, SA (2016). The historic move, contemporary challenges and opportunities in Ethiopian education. International journal of African and Asian studies, 26, 56-66.

World Bank (2010) Education in Ghana: Constraints and Opportunities in Service Delivery (Draft of May 2010). World Bank: Accra.

World Bank. (2009). Towards the Compatitive Frontier: Strategies for Improving Ethiopia's Investment Climate. Report No. 48472-ET. Financial and Private Sector Development Unit, Africa Region, World Bank, Washington DC.

Yamada, S., Otchia, C. S., Shimazu, Y., Taniguchi, K., & Nigussie, F. (2018). Bridging the Supply-Demand Gaps of the Industrial Workforce: Findings from a Skills Assessment of Garment Workers in Ethiopia. Interim Report of SKY, Skills, and Knowledge for Youths.

Teachers' Sense of Autonomy and their Work Motivation in Selected Secondary Schools in Oromia Regional State

Begna Ordofa*[1] and Ambissa Kenea[2]

[1] *Wollega University*
[2] *Professor of General Education, Addis Ababa University*
***Corresponding*:** *begnaordofa@yahoo.com*

DOI: https://doi.org/10.20372/ejtel.v1i2.10160
Received: September 9, 2022; Revised: September 9/2023;
Accepted: March 15, 2024

Abstract:

The purpose of this study was to examine the level of teachers' sense of autonomy and its association with their work motivation in some selected secondary schools in Ethiopia. In this mixed methods research, data were gathered from 95 teachers with a questionnaire and 5 teachers with semi-structured interview guide from three secondary schools in the Oromia region, Ethiopia. T-test, one-way ANOVA, and thematic descriptions were used for data analysis. The result indicated that the perceived level of teacher autonomy as measured along two dimensions (general autonomy and curriculum autonomy) seemed to be low. Teachers' sense of autonomy was associated positively with their work motivation. External interference (e.g., imposed teaching approaches that ignore teachers' decisions and too many routine activities imposed on the teachers) was prevalent. Hence, teachers feel that they are powerless to decide what they have to do at school. This might hinder them from involving actively, confidently, creatively, and with motivation in their teaching activities. The implications of these and other findings of the study were identified and suggestions for further research were forwarded.

Keywords: *Teacher autonomy, General autonomy, Curriculum autonomy, Work motivation.*

Introduction

The notion of teacher autonomy in Ethiopia has its origin in traditional education. A study conducted by Amare (2007) indicated that though the principle of academic freedom has been known in traditional education, it has not been strongly institutionalized in modern education, particularly in higher education. Along the same line, a recent study by Ambissa and Begna (2021) on teacher identity development proposed in-depth studies on teacher autonomy in Ethiopian schools for it is under-researched and does not get proper attention in educational reforms. No doubt, teacher autonomy is one of the critical bottlenecks in educational provisions. Pearson and Moomaw (2006) and Fadaee et al. (2021) argued that teacher autonomy affects the standards of education and plays a significant role in solving school problems.

Of course, autonomy is a widely used concept in education, law, moral and political philosophies, and other known fields (Wermke & Salokangas, 2015). While its meaning differs based on the perspective from which it is seen, in this study the term 'freedom' is used to describe autonomy. According to the self-determination theory, autonomy is considered as

governance by the self (Ryans & Deed, 2006). For these writers, this is the opposite of heteronomy, which refers to being under the sway of another or influenced by a force outside the individual. As to Hargreaves (2000), autonomy puts a demarcation line between professional and proletarian work. That is why autonomy is taken as one of the core attributes of a profession.

In education, the known forms of autonomy are teacher autonomy, learner autonomy, school autonomy, and principal autonomy (Wermke & Salokangas, 2015). Among these, teacher professional autonomy or simply teacher autonomy is the focus of this study, though these constructs are interrelated. Based on the unique nature of the teaching profession, teacher autonomy can be viewed in two ways (Paradis, 2019). Firstly, it is conceptualized as individualistic, which is considered a traditional one. It views teachers as isolated working entities. This view overlooks the social and institutional relationships and interdependencies present in teachers' work. Based on this scenario, teacher autonomy can be defined as:

> *the degree to which teaching provides substantial freedom, independence, power, and discretion to participate in scheduling, selecting, and executing administrative, instructional, and socialization and sorting activities both in the classroom and in the school organization at large* (Gwaltney in Pradis 2019: 47).

Secondly, teacher autonomy is viewed as a relational one. This is the recent conceptualization where the important connectivity found in the work of teachers is considered. In this view, teacher autonomy is founded on social and institutional supportive relationships as well as the teachers' genuine opportunities to make autonomous decisions (Pradis, 2019). The present study tends to adapt more of the first conception (i.e. freedom from control) while it is very difficult to claim that it excludes the second conception. It leans much towards the first conception because its principal purpose is to assess the perceived level of teacher autonomy which needs individual teachers' assessment of their autonomy. Besides, this individual conception of teacher autonomy is a basis for the relational one. As Pradis (2019) indicated, though relational autonomy is associated with support relationships - which is out of the scope of this study- it is also founded on whether teachers are free to make autonomous decisions. Hence, the focus of this study is more on teachers' freedom and power in their activities related to classroom instruction. Accordingly, the leading definition of teacher autonomy for this study is described as the degree of professional freedom teachers have in classrooms to make instructional decisions (Fachrurrazi, 2017; Moomaaw, 2005).

Accordingly, two types of autonomy for teachers, i.e. general autonomy and curriculum autonomy (Haapaniemi et al, 2020), which are closely related to teachers' immediate and day-to-day task, are considered. For these writers, general autonomy deals with issues related to classroom standards of conduct and personal on–the–job discretion. It includes elements concerned with the control of activities generally considered to be part of teachers' teaching responsibilities, including teaching approaches, assessment and the teacher's freedom in the use of space and time. In addition, it involves their freedom to participate in decisions related to their job in general. And, curriculum autonomy deals with teachers' freedom to participate in decisions related to curriculum planning and development such as the selection of activities,

contents, goals, objectives and materials as well as instructional planning and sequencing. It includes points related to the independence of having one's guidelines and procedures, participating in selecting contents, skills, goals, objectives and sequencing them, and choosing materials (Moomaw, 2005). Of course, it is possible to see that all these activities indicated in both aspects of teacher autonomy are intertwined. However, having the sense of autonomy in one's job in general (general autonomy) and having the feeling of freedom to participate in deciding curricular issues (curriculum autonomy) are two different things. Hence, these two aspects of teacher autonomy are used to assess teacher autonomy in this study.

It is indicated that autonomous teachers do their tasks more effectively and conveniently than non-autonomous teachers (Sehrawat, 2014). Teachers who enjoy a significant level of autonomy can create a suitable learning environment that meets learners' needs (Sehrawat, 2014). Besides, students need to be provided the freedom to learn independently and from one another (Ambissa, 2009; Sukowati et al., 2020). And, the teacher should support his/her students to participate in decision-making and to develop important skills including self-regulated learning (Yalew, 2004). Yet, as Lamb (2008) argued, all these efforts to make learners be autonomous in their learning need teacher autonomy.

Despite its importance, many scholars (e.g. Robertson, 1996; Berry, 2012; Paradis, 2019) believe that recently teacher autonomy has been eroded due to many reasons. For Berry (2012), the reason for the erosion of professional autonomy is due to the growth of marketization and the emergence of a highly competitive marketplace for education. Another reason, according to Robertson (1996), might be that teachers are considered a special target for control due to their vital role in producing society's knowledge and labor power. Others argue from the vantage point of balancing autonomy with control. For instance, Paradis (2019) stated that control in parallel with independence and freedom in teachers' tasks is important as it is the recurrent characteristic of teacher autonomy. In a related manner, Hargreaves, and Goodson (2003) contended that in this postmodern age, occupational heteronomy is more appropriate than self-protective autonomy.

From the arguments of these writers, it is possible to identify at least three reasons why they believe that teachers' autonomy is declining or being challenged at present: marketization, hegemonic control, and lack of trust in teachers' autonomy to bring about improvement in education. Contrary to this, in some education systems (e.g. in the Nordic tradition), teachers are trusted by their employers and their communities, respected for their knowledge, skills, and values, and trusted to value students' needs (Erss, 2017). Hence, they are given autonomy to make decisions on how best to establish and maintain a professional teaching pedagogy that enhances learning for their students (Darling-Hammond 2010). There are enough pieces of evidence that such education systems are doing well globally. According to Paradis (2019), when teachers are trusted and provided with a decisional opportunity as a policy or at their superiors' discretion, teachers' professionalism is enhanced, which substantially promotes a positive perception of their autonomy. Similarly, Parker (2015) strongly argued that autonomy

is considered as an essential element of teachers' work, and it plays a central role in teachers' engagement with their job.

Teachers' job situation is a function of several generic constructs including work motivation. Work motivation is described as the forces that drive an individual to spend time, energy, and resources to initiate behaviors related to his/her work (Latham & Pinder, 2005 as cited in Karaolis & Philippou, 2019). According to Drnyei and Ushioda (2011), teacher motivation has two dimensions: motivation to teach and motivation to stay in the profession. While the former refers to the day-to-day act of the teacher; the latter refers to retention within the profession or continued attachment to the profession. According to de Jesus and Lens (2005), teacher motivation at school plays a significant role in enhancing student motivation, promoting educational reform, and enhancing the job satisfaction of the teachers. A study by Dixit (2022) indicated that teacher motivation has a positive association with student motivation. Literature indicated that there are associations between autonomy and this construct. For instance, according to Losos (2000) and Hoyle and John (1995) teachers who experience more autonomy feel more satisfied in their work, are more motivated, and feel more competent. On the other hand, teachers who perceive themselves as powerless to behave autonomously may become dissatisfied, possibly leaving the profession earlier than those who enjoy better autonomy (Lamb, 2000). For Smithers and Robinson (2003), the most significant impact of lack of autonomy is perhaps the high attrition rate among new teachers.

Studies related to teachers' autonomy have been conducted in different contexts, possibly with different purposes. According to Öztürk (2011) different reforms, particularly many of those that take efficiency as their starting point, reduced space for power exercise by teachers. The new era of public administration distributed power to other authorities (e.g. to states, principals, school markets, etc.) and minimized teacher autonomy (Lundstrom, 2015). However, a curriculum that emphasizes integrative teaching has enhanced teacher autonomy and collaboration in school (Haapaniemi, et al 2020). Research by Webb (2002) found that exercising autonomy at school provides an opportunity for teachers to alter curriculum and assessment policies. A study by Ingrid and Kathryn (2006) showed that textbooks are considered as important factor in facilitating teacher autonomy to plan curriculum. A study by Moloney (1997) indicated that the autonomy of the teacher can optimally facilitate the development of learner autonomy, and hence learning. Yet, the results of studies conducted on the benefits of teacher autonomy are not conclusively consistent. For instance, a study by Gurganious (2017) showed that there was no association between teacher autonomy and student science achievement scores. Similarly, a study by Pearson and Moomaw (2005) revealed that there was little association between curriculum autonomy and job satisfaction. Hence, one can observe that the results of the studies varied and were not conclusive. This calls for more local research to understand teacher autonomy in schools deeply in the Ethiopian context. Similarly, Wermke and Salokangas (2015) highlighted the importance of context when studying the autonomy of individuals or groups as it provides a better understanding of what autonomy really means. Besides, from a study on 'Strength of professional identity development among

secondary school teachers in Ethiopia,' it was learned that teachers' autonomy in the schools is under question which needs separate and further research (Ambissa & Begna, 2021). Moreover, several studies indicated that Ethiopian teachers lack satisfaction in their jobs (Berhanu, 2018; Desta, 2014; Yitbarek, 2007). Unfortunately, the association of the observed status of teachers' work motivation with teachers' autonomy was not examined to the best of the knowledge of the present researchers.

The Ethiopian education development roadmap (2018-2030) advocates learner-centered approach at all levels of schooling (Tirussew et al. 2018). Teachers who enjoy a significant level of autonomy can create a suitable learning environment and meet learners' needs (Sehrawat, 2014) which are important features of the learner-centered approach. This necessitates teachers at schools to enjoy autonomy to devise local means to ensure the engagement of their students in learning. According to a school policy/guideline presented by the Oromia Education Bureau (Biiroo Barnoota Oromia, 1998), teachers are responsible for achieving the objectives of the curriculum prepared at the regional/central level by actively involving students in their learning activities using various teaching methods and aids. They are expected to continuously assess student progress and monitor student behavior in the classroom. In addition, they are responsible for contributing constructive ideas to improve the working curriculum. However, the issue of teacher autonomy is vague in the roadmap and the Ethiopian Education Sector Development Program VI. More emphasis is given to institutional autonomy than teacher autonomy in these documents (Tirussew et al. 2018; Ministry of Education, 2021). Therefore, the researchers believe that teacher autonomy should be examined to gain better insight into it in the Ethiopian school context.

This article attempted to answer the following research questions:

a. What is the level of teacher autonomy in the schools?
b. What is the perceived level of teacher work motivation in the schools?
c. What is the relationship between teachers' sense of autonomy and their work motivation?

Geographically, the study took place in three secondary schools in Western Oromia, specifically at Nekemte and Bedele Towns. Conceptually, the study examined teacher autonomy confined to general autonomy and curriculum autonomy as they are closely related to teachers' immediate and day-to-day tasks. Besides, among teachers' job situations, this study is limited to work motivation including both motivation to teach and motivation to stay in the profession.

Methods of the Study

The Research Design: The study employed a concurrent nested strategy under the umbrella of a mixed research approach (Cresswell, 2012). This particular research design allowed the researchers to simultaneously collect both quantitative and qualitative data. Both types of data (quantitative and qualitative) were treated equally in this study.

Participants: The target population comprises teachers currently teaching in three secondary schools in the Oromia region (Ethiopia). One school is from Nekemte town (East Wollega zone) and two are from Beddele town (Bunno Beddele zone). These schools were considered for the study as they are easily accessible for the researchers and the places were working sites of one of the researchers. Since, the number of teachers found in each school was manageable (e.g., school X =89; school Y =56; School Z = 39 teachers) the researchers decided to collect data from all teachers teaching in each school. Then, the questionnaire was distributed to the total number of teachers (i.e.120 teachers) who were available at the time of the school visit. Out of this, 95 (67 male and 28 female) filled in and returned the questionnaire. The interview was conducted with five teachers (two females and three males).

Instruments: A questionnaire with three parts was used to collect data for the study. The first part constituted teacher attribute variables (demographic information) and contained five items. The second part comprised teachers' professional autonomy with two sub-scales (general autonomy and curriculum autonomy). This part was adapted from a teacher autonomy scale developed by Moomaw (2005). The scales related to teacher autonomy contain a total of 18 items (Moomaw, 2005). A brief description of the teacher autonomy scale is provided below.

Teacher autonomy scale: The teacher autonomy questionnaire contains two important scales. The first is related to the General Autonomy scale. This scale contains twelve items. For example, it includes items such as "I am free to be creative in my teaching approach"; and "The selection of student-learning activities in my class is under my control". The second scale linked to the curriculum autonomy scale contains six items. For instance, it included items such as "In my teaching, I use my own guidelines and procedures."

Teachers' work motivation scale: the questionnaire contains five items targeted at identifying the work motivation of the respondents. These were prepared by the researchers based on a review of related literature. It contains items such as "I need to contribute to producing good and competent citizens;" and "I love my subject matter".

A five-point Likert-type scale used was designated as 1 = strongly disagree; 2 = disagree; 3 = undecided; 4 = agree; and 5 = strongly agree. The questionnaire (scales) was piloted on 40 teachers (grades 9 and 10) from two schools in Nekemte town. The primary goals of the pilot study were to analyze the clarity of the items and to further modify the items based on the findings. As a result, a few elements on the scales were modified (e.g., re-worded or re-phrased) in preparation for the major data collection. The reliability of the three tools was calculated using the split-half method. Accordingly, reliability coefficients of $\alpha = 0.67$ (for the teacher autonomy scale), $\alpha = 0.65$ (for the curriculum autonomy scale), and $\alpha = 0.69$ (for the teachers' work motivation scale) were found. According to Taber (2018), these alpha values can indicate reasonable or acceptable reliability.

Besides, a semi-structured interview guide was developed to collect the necessary data through discussion with selected teachers. The items in the interview guide were prepared to complement the items in the questionnaire.

Methods of Data Analysis: The data collected from these sources were sorted out and tallied. One sample t-test was used to test the perceived level of teachers' general and curriculum autonomy as well as work motivation. Pearson Correlation was used to test the relationship between teacher general autonomy and work motivation. SPSS-24 was used to analyze the quantitative data. The qualitative data were analyzed thematically. The themes were identified based on the objectives of the study and from reading and re-reading the results of the interviews held with the teachers. The data from the interviews and the questionnaire were integrated under the identified themes (as found appropriate) for the purpose of the discussion.

Result

This section is devoted to the presentation of the findings through four sub-titles: teachers' perceived level of autonomy, teachers' perceived autonomy in terms of some attribute variables, teachers perceived level of work motivation and the relationship between teachers' work motivation and level of autonomy.

A. *Teachers' Perceived Level of Autonomy*

In gauging the level of teachers' professional autonomy based on the data collected, one of the challenges the researchers confronted was that they didn't come across any data/information from previous research that could serve as a test value against which the measurement of a good level of teacher autonomy is gauged. Hence, they had to set the reference following the rating scale presented to the teachers. Teachers were asked to rate their perceived level of autonomy in the schools along a five-point Likert-type scale. Taking four points (4) (out of the five scales categorized as 1, 2, 3, 4, and 5) as a minimum possible positive value and multiplying it with the number of indicators/items (12), 48 as a test value for general autonomy. A similar assumption is used throughout this report wherever a one-sample t-test was applied. Thus, a one-sample t-test of the perceived level of autonomy of the teachers in terms of the two dimensions (General Autonomy [GA] and Curriculum Autonomy [CA]) is organized as in Table 1:

Table 1: *One-Sample T-test on Teachers' Autonomy*

Variables	N	Mean	SD	Test Value	t	P
GA	95	39.03	4.88	48	17.53	0.000
CA	95	20.40	2.92	24	12.04	0.000

General Autonomy (GA): is an aspect of teacher autonomy where teachers are expected to participate in classroom activities and on-the-job discretion (Pearson and Hall, 1993 as cited in Haapaniemi, et al 2020). It gears towards teachers' feeling of freedom on their job activities in general. Table 1 shows that in the comparison of the mean value of teachers' general autonomy (39.03) with the test value (48) there is a statistically significant difference between the teachers'

rating of their level of general autonomy and the test value (t = 17.93, df = 94, P = .000). Based on this result, it is possible to say that the teachers' general autonomy is at a low level.

Curriculum Autonomy (CA): This is another aspect of teacher autonomy where teachers are empowered with the capacity to select activities and materials for teaching, instructional planning, and sequencing (Pearson and Hall, 1993, as cited in Haapaniemi, et al., 2020). This aspect of teacher autonomy focuses on teachers' power to alter and minimize the total dependence on the prescribed curriculum. As described earlier, a list of six specific indicators/items were used to assess this along the five-point scale. Consequently, the test value will be the result of the product of 6 and 4, which results in 24. The result has been organized as in Table-1 and it shows the comparison of the mean value of teachers' curriculum autonomy (20.40) with the test value (24) using one-sample t-test. From the analysis it was learned that there is a statistically significant difference between the teachers' rating of their level of curriculum autonomy and the test value (t = 12.04, df = 94, P = .000). This implies that the level of curriculum autonomy, as perceived by the teachers, is below what is expected to be. Based on this result one can conclude that teachers' curriculum autonomy is low.

Another test was also conducted using a one-sample t-test to see the cumulative form of rating for the two dimensions of teacher autonomy together to determine the level of teachers' autonomy. A total list of 18 specific indicators/items was used to assess the cumulative result of teacher autonomy on a five-point scale. Consequently, the test value will be the result of the product of 18 and 4, which results in 72. The result is organized in Table 2.

Table 2: *One-Sample t-test on the cumulative result of Teacher Autonomy (TA total)*

Variables	N	Mean	SD	Test Value	t	p
TA total	95	59.43	5.74	72	21.36	0.000

The result presented using Table 2 shows that the cumulative mean value for teacher autonomy is significantly different from the test value (t=21.36, df =94, P=0.000) and lower. This implies that teachers, in general, feel that they are not autonomous in their profession.

From the qualitative data the following themes were identified:

(i) Imposed teaching approach

The teacher respondents indicated that they are urged to use a student-centered method when a supervisor comes. One of these respondents said:

> *When a supervisor comes, we will be urged to plan a student-centered approach to teaching without considering the content, purpose and other issues which are assumed to be factors affecting the methodological choices* (Teacher D from School Z; Age = 53; Experience = 32).

> *The Woreda Education Office dictates us to give multiple tests during a semester. This is checked from the student results register which every teacher is supposed to have. Therefore, we have to fill all that is needed before the supervisor's visit,*

> *whether or not that is professionally sound.* (Teacher E from school X; Age 41; Experience = 22).

This implies that teachers are forced to use a teaching approach without considering their teaching context. They are not free to choose either the teaching method or how to assess their students' learning progress because the supervisor visits the school to check that teachers are doing their activities along the prescribed approaches. This could negatively impact teachers' confidence in choosing teaching methods based on the type of objectives and content they are teaching.

(ii) Too much work from bosses - routines

The interview result showed also that teachers are busy in doing routine activities (often not directly professional) given to them from 'the top'. For instance, one of the interviewees said:

> *We have been always reactive, responding to what others are loading on us. We are forced to complete many things coming from our bosses. We are too busy doing routine activities coming from administrators. We do not have time to be free and creative in our major activities. We do not feel well in terms of doing things freely and independently.* (Teacher A from school Z; Age 34; Experience = 11).

Another teacher added that tasks extra to teaching including, political activities are common at school. He said:

> *These politicians urge us to accomplish both the teaching and political tasks for them. You will become over and over busy. You accomplish many tasks outside the school, which is not related to your profession. The burden is on you, but the benefit is for them. We have almost forgotten that our main task is teaching* (Teacher E from school X; Age 41; Experience = 22).

This indicates that teachers spend most of their time performing non-teaching tasks and other routine activities at school – all of these are through imposition rather than through free professional choice.

(iii) Limited say on students' discipline matters

Teachers are unable to decide on students' discipline issues/problems in school. One of the interviewees said:

> *The teacher is not free to suggest and take corrective measures on issues related to the students. We do nothing when the students become out of the normal line. For example, if a student comes to class without doing homework, the teacher fears to take corrective measures on the student. If a teacher tries to take corrective action, the parent would come to school and shout at him/her. The school leaders do not want to protect the teacher in such cases. The students may bully the teacher or disturb the normal working of the whole class. The community out of school does not support teachers* (Teacher C from school Y; Age 44; Experience = 23).

Focusing on the same problem, another informant added:

> *We teachers cannot use our mechanisms to handle and manage our students' disciplinary problems at school. …. When we take any preventive and/or corrective measures, school leaders would call us to their office and warn us not to do that again. Even some parents come and insult us in front of our students. In addition, sometimes students might harass or even try to beat teachers out of the school compound. Hence, now I have begun to compromise mistakes committed by the students, as if I didn't see it, just to save my life* (Teacher D from School Z).

Therefore, teachers' roles in disciplining students using their mechanisms are very much limited at best and missing at worst. They are not autonomous in that respect.

(iv) Society does not respect teachers/teaching - low social status.

How society perceives teachers has an important impact on teachers' sense of independence and confidence as professionals. The informants have talked about this. For instance, a respondent said,

> *Society respects the name teaching profession because they know that it brings their children out of 'darkness,' as often said. But society's internal feelings do not reflect that. It is not an exaggeration if one says the society has forgotten teachers. One indicator is that society doesn't want its children to take up teaching as their career. The reason may not be necessary to mention here. There is a growing materialistic orientation among the society. There is an increasing tendency to interpret everything in terms of material return which is clear that teachers do not have much of that. This situation has made teachers not feel confident to participate and contribute in community affairs* (Teacher B from School X; Age 36; Experience = 14).

Another respondent underscored teachers' economic situation to strengthen the same idea:

> *After more than 20 years of teaching, I'm still living in a rented room often at the back of the houses of my students' parents or in their neighborhood. I do not have my own house. Then, how can I stand and teach in front of my students with confidence? I do not feel free. The place we have in the society is very low. The community does not give value to us. The students also assume that we have nothing* (Teacher C from school Y).

The weak social status and teacher poverty are likely to affect teachers' capacity to do things autonomously and confidently.

(v) Pressures connected to testing, assessment, and grading

An important area in the general autonomy of a teacher is connected to testing, assessing, and promoting or detaining students. The respondents indicated that several problems that shake teachers' autonomy are experienced in connection to these. Here are a few responses to these:

> *When we invigilate students at examinations, especially during national/regional examinations, bosses would call personally and urge us not to be very serious in the exam rooms. The community also directly or indirectly influences us to do the same. If not, the students will harm the teacher out of the class/school in groups. In general, teachers who do not allow cheating are the most hated in the community, especially among most of the students* (Teacher C from School Y).

This implies that teacher harm is prevalent in secondary schools. The teacher may be harassed and beaten by students just because he/she wants to demonstrate his/her professional integrity.

A related situation is an instance where teachers are urged to pass students without making sure that the students have achieved the required competencies. Here is a typical response:

> *Teachers are expected to make sure that their students pass to the next grade level freely. This simply means teachers will be urged to fill rosters/marks for their students and make them pass. Or they might be pressured to use different mechanisms through continuous assessment simply to make them pass to the next grade level. This contradicts one's desire for professional integrity.* (Teacher E from school X)

This may be taken as an important challenge to teachers' quest for professional autonomy.

In general, the qualitative data indicate that there is much interference in teachers' tasks by several bodies in and out of school, which makes them feel no freedom to exercise their profession. For instance, their freedom in using teaching approaches, deciding on students' disciplines, and in promoting/detaining students has been compromised by the school leaders. Teachers are heavily preoccupied with doing routine activities at school. Besides, teachers' low social status eroded their confidence and capacity to perform activities autonomously and confidently. From this one can learn that teachers are facing challenges that hinder them from exercising their professional tasks autonomously. It is generally observed that results from qualitative studies are consistent with those from quantitative studies.

B. *Teachers' Perceived Level of Work Motivation*

Teacher work motivation is described as the forces that drive an individual to spend time, energy and resources to initiate behaviors related to his work (Latham & Pinder, 2005, as cited in Karaolis & Philippou, 2019). Several factors in education, including student motivation, teaching activity, educational reform, and teachers' psychological satisfaction and well-being, are thought to be directly related to teacher motivation (Han & Yin, 2016). As described earlier, a list of five specific indicators/items was used to assess teachers' work motivation along the five-point scale. Consequently, the test value will be the result of the product of 5 and 4, which results in 20. As we did earlier, the one sample t-test was used to examine whether teacher respondents have a good level of perceived work motivation in the schools as shown in Table 3:

Table 3: *One-Sample T-test on Teachers' Work Motivation (WM)*

Variables	N	Mean	SD	Test Value	t	P
WM	95	15.59	3.59	20	11.96	0.000

The result presented using Table 3 shows the comparison of the mean value of teachers' work motivation (15.59) with the test value (20) using the one-sample t-test. The analysis indicated that there is a statistically significant difference between the teachers' rating of their level of motivation and the test value (t = 11.96, df = 94, P = .000). This implies that the level of work motivation, as perceived by the teachers, is below what it is expected to be. Based on this result one can say that the respondent teachers believed that their motivation for their work is low.

C. *The relationship between teachers' sense of autonomy and work motivation*

The correlation between the cumulative result of teacher autonomy (TA total) and Work Motivation (WM) was examined and presented as in Table 4 below.

Table 4: *Pearson Correlation (r) between teacher autonomy (TA) and work motivation (WM)*

	TA	WM
TA	1	0.289**
WM	0.289**	1

P** < 0.01

Note: 'TA' refers to teacher autonomy and 'WM' refers to work motivation

As shown here, the association teacher autonomy has with work motivation (r=0.289) was found to be positive and statistically significant. Table 4 shows that the correlation between teacher autonomy and work motivation is moderate (Evans, 1996). Accordingly, teacher autonomy has a moderate positive correlation with work motivation. This means that as long as teachers' professional autonomy is low (as presented in the above results), the teachers are more likely to have low work motivation.

Discussion

According to teachers' ratings, the perceived level of teacher autonomy is low. Similarly, the two dimensions of teacher autonomy considered in this study (i.e. general autonomy and curriculum autonomy) were examined separately, and both of them were found to be at a low level. This means, teachers think that they are not autonomous in both general and curriculum autonomy in school. They do not feel empowered to become creative or in devising new ways for their classroom activities as well as regarding curricular issues. The qualitative result also indicated that teachers are too busy in doing many routine activities given to them by different external bodies (e.g. school leaders, supervisors, local political leaders, etc.). This implies that much interference is there in the teachers' tasks in the schools. As a result, they don't get enough time to perform their professional activities freely and independently. This might also indicate that teachers are not feeling autonomous. This finding is different from a study that took place in Indonesia, which showed that most teachers attained moderate teacher work autonomy

(Fachrurrazi, 2017). The situation observed might be related to a series of packaged top-down reforms Ethiopia has been experiencing. The tendency of the centers (whether the center is the Federal government or the Regional one or its affiliates) to control what goes on in the schools might be behind such pressure over teachers' autonomy. This situation deserves careful attention if teachers are to practice their profession freely and creatively.

In addition, it is revealed that there is no support to the teachers both from the community and the local government. Hence, teachers feel isolated. But Paradis (2019) noted that if teachers enjoy supportive and trusting social relationships with parents, principals, and colleagues, and if they enjoy supportive institutional relationships with the general public, they could consider themselves autonomous in a relational sense. In turn, such teachers are said to be effective. Besides, it was found out that teachers felt that they are not autonomous in managing students' disciplinary issues, in using a teaching approach they think relevant (particularly during supervisory visits), and in promoting students from one grade to the next. However, according to Wilches (2007) and Pearson and Hall (1993) as cited in Haapaniemi, et al (2020), these tasks are activities over which teachers should exert control and involve actively in school. This finding is also different from a study conducted in many countries like Australia, England, Finland, etc. (though there is variation among them), where a large proportion of teachers in school enjoy a high level of autonomy in establishing students' disciplinary and assessment procedures, selecting the learning materials and content, approving students' admission and in allocating budgets (Freeman et al., 2014). As Paradis (2019) argued, a low level of teacher autonomy in practice and perception negatively affects the performances of the teachers.

An attempt was made to examine the association teacher autonomy has with their work motivation. The result indicated that teacher autonomy is moderately and positively correlated with this variable. This means that if teachers are autonomous in their work, then that is associated with their work motivation. This suggests that if teachers have a good level of autonomy in school, it is likely that they also have a good level of work motivation. This finding coincides with a result of a study by Paradis (2019) which showed that teachers who feel autonomous are more motivated. Moreover, Vansteenkiste and Ryan (2013) noted that autonomy can be an important motivational factor for workers. Hence, teacher autonomy is positively and moderately associated with work motivation. This implies that additional variables need to be looked for to enhance the strength of teachers' work motivation.

Conclusions and Recommendations

The result of this study showed that teachers' perceived autonomy is low and it is positively associated with teachers' work motivation. It is known that various measures were proposed in the new education development roadmap (Tirussew et al., 2018) to improve the situation of teachers as a mechanism to improve the quality of education. Incentive packages are among the most important ones. However, other than institutional autonomy not much attention has been given to individual autonomy of teachers as professionals. Hence, we suggest that there is a need to create a space for teacher autonomy in Ethiopia both at the policy and practice (school) level.

Teachers should be helped to enjoy a level of autonomy in the classroom activities (like, in deciding on assessment, evaluation, and disciplining of their students), curricular activities, and other administrative tasks. Unnecessary interferences by different stakeholders should be minimized, so that teachers might feel to be trusted and their actions are valued or respected. Darling-Hammond (2010) argued that teachers are given autonomy just to empower them in making decisions on how to maintain the professionalism of teaching through professional pedagogy that enhances students' learning. Therefore, teacher autonomy is important for the teacher, the learners as well as the profession. Under this general proposition, we would like to forward the following specific recommendations:

a. The issue of teacher autonomy needs to be problematized across the education system and be taken as a topic for discussion. The discussion on the matter at every level should include the teacher representatives, educational leaders (e.g. heads of district education), public administrators, and even the political parties. Among others, the focus of the discussion is advised to be on teacher accountability, professional trust, and the value of teachers' freedom of action.
b. Teacher autonomy should be given emphasis in school, teachers' roles and responsibilities must be respected, and extracurricular tasks should be kept to a minimum.
c. Teaching has to be freed from political interference. Teachers should be entitled to make their own choices and should not be assigned as political cadres for the governing parties.
d. Strengthen teachers' professional associations (unions) so that the associations are empowered to take up building the professional integrity of teaching and teachers as their important concerns.
e. Build harmony (and partnership) among members of the school community, namely school leadership, teachers, parent-teachers-student associations (PTSA), and individual parents. Such harmony should be promoted to strengthen the unity of purpose among the community - e.g. on the underlying purpose of controlling students' school activities.
f. Provide continued on-the-job professional development for teachers on teacher professionalism so that teachers themselves come to have a consolidated understanding of what they stand for as professionals.
g. Finally, we suggest that further research needs to be conducted on how to enhance the professional trust of teachers; teacher autonomy (including its other dimensions), and professional accountability at the school level in the Ethiopian context. Additional variables need to be looked for to enhance the strength of teachers' work motivation.

References

Abdi Ismail (2004). Ethiopian Federalism: Autonomy versus control in the Somali Region. *The World Quarterly, 25*(6), 1131-1154. https://doi.org/10.2307/3993755.

Amare Asgedom (2007). *Academic Freedom and the Development of Higher Education: The Case of Addis Ababa University 1950-2005*. Unpublished PhD thesis, University of East Anglia.

Ambissa Kenea (2009). Students' reactions to active learning methods in selected classrooms of Addis Ababa University. *The Ethiopian Journal of Education, 29*(1), 77-109.

Ambissa Kenea and Begna Ordofa (2021). Level of professional identity development among teachers in two secondary schools. *Ethiopian Journal of Behavioral Studies, 4*(2), 22-51.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117–148. https://doi.org/10.1207/s15326985ep2802_3.

Berhanu Shanko, (2018). *Teachers' Job Satisfaction and Professional Commitment In Government Secondary Schools In Hadiya Zone*. Unpublished MA Thesis, Addis Ababa University.

Berry, J. (2012). Teachers' professional autonomy in England: Are neo-liberal approaches incontestable? *Forum, 54*(3), 397-410.

Biiroo Barnoota Oromiyaa (1998). Qajeelfama Gurmaa'ina Hoggansa Barnootaa, Hirmaannaa Uummataa fi Faayinaansii: Naannoo Oromiyaa tiif akka tajaajilutti foyya'ee kan Qophaa'ee, Finfinnee, Save the Children USA

Blau, G., Paul, A. and St. John, N. (1993). On Developing a General Index of Work Commitment. *Journal of Vocational Behavior, 42*(3), 298-314. https://doi.org/10.1006/jvbe.1003.1021.

Creswell, J.W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th edition). USA: Pearson Education, Inc

Darling-Hammond (2010). Teacher Education and the American Future. *Journal of Teacher Education*, 61(1-2). https://doi.org/10.1177/0022487109348024.

de Jesus, S. N., & Lens, W. (2005). An integrated model for the study of teacher motivation. *Applied Psychology, 54*, 119–134. http://dx.doi.org/10.1111/apps.2005.54.issue-1.

Desta Ayele. (2014). *Teachers" Job Satisfaction and Commitment in General Secondary Schools of Hadiya Zone, in Southern Nation Nationality and Peoples Regional State*. Unpublished MA Thesis, Jimma University.

Dixit, K.K. (2022). *Teacher motivation, professional development, and English language education*. In S.P. Dhanavel (Ed.), Continuing professional development of English language teachers. Springer, Singapore. https://doi.org/10.1007/978-981-19-5069-8_3

Dörnyei, Z., & Ushioda, E. (2011). *Teaching and researching motivation (2nd ed.)*. New York, NY: Longman

Erss M. (2017). Curriculum as a Political and Cultural Framework Defining Teachers' Roles and Autonomy. https://www.researchgate.net/publication/324561642.

Evans, J. D. (1996). *Straightforward statistics for the behavioral sciences*. Pacific Grove, CA: Brooks/Cole Publishing

Fachrurrazi (2017). Relationship between teacher professional competence and teacher work autonomy. SUKMA: *Jurnal Pendidikan, 1*(2), 281-300.

Fadaee, E., Marzban, A., & Najafi Karimi, S. (2021). The relationship between autonomy, second language teaching styles, and personality traits: A case study of Iranian EFL teachers. *Cogent Education, 8*(1), 1881203. https://doi.org/10.1080/2331186X.2021.1881203.

Freeman C., O'Malley K. & Eveleigh F. (2014). *Australian teachers and the learning environment: An analysis of teacher response to TALIS 2013 Final Report*. Australian Council for Educational Research.

Gurganious N. (2017). *The Relationship between Teacher Autonomy and Middle School Students' Achievement in Science*. PhD Dissertation, Walden University.

Haapaniemi J., Venäläinen S., Malin A. & Palojoki P. (2020). Teacher autonomy and collaboration as part of integrative teaching – Reflections on the curriculum approach in Finland. *Journal of Curriculum Studies, 53*(4), 546-562. https://doi.org/10.1080/00220272.2020.1759145.

Han, J., & Yin, H. (2016). Teacher motivation: Definition, research development and implications for teachers. *Cogent education*, *3*(1), 1217819. https://doi.org/10.1080/2331186X.2016.1217819.

Hargreaves, A. & Goodson, I. (2003). *'Teachers' Professional Lives: Aspirations and Actualities*. In I. F. Goodson and A. Hargreaves (eds), Teachers' Professional Lives (pp. 1–27), London: Falmer Press.

Hargreaves, A. (2000). Four ages of professionalism and professional learning. *Teachers and Teaching: Theory and Practice*, *6*(2), 151–182. http://dx.doi.org/10.1080/713698714.

Hoyle, E. & John, P. D. (1995). *Professional Knowledge and Professional Practice*. London: Cassell.

Ingrid & Kathryn (2006). *Are 'textbooks' a barrier for teacher autonomy? A case study from a Hong Kong Primary School*. APERA Conference, Hong Kong.

Karaolis A. &. Philippou G. N., (2019). Teachers' professional identity. In M.S. Hannula, G.C. Leder, F. Morselli, M. Vollstedt. and Q. Zhang (Eds.), Affect and mathematics education: fresh perspectives on motivation, engagement, and identity, ICME-13 Monographs. https://doi.org/10.1007/978-3-030-13761-8_18.

Lamb T. (2008). Learner autonomy and teacher autonomy: Synthesizing an agenda. https://www.researchgate.net/publication/283998700.

Losos, L. W. (2000). Comparing the motivation levels of public, private, and parochial high school teachers. Doctoral dissertation, Saint Louis University. *Dissertation Abstracts International, 61* (05A), 1742.

Lundström U. (2015). Teacher autonomy in the era of New Public Management. *Nordic Journal of Studies in Educational Policy, 2015*(2), 28144. https://doi.org/10.3402/nstep.v1.28144.

Ministry of Education (2021). *Federal Democratic Republic of Ethiopia Ministry of Education: Education Sector Development Programme VI (ESDP VI) 2013 – 2017 E.C*. 2020/21–2024/25G.C. https://planipolis.iiep.unesco.org/sites/default/files/ressources/ethiopia_esdp_iv.pdf.

Moloney, D. T. (1997). Teacher Autonomy: a Vygotskian theoretical framework. *CLCS Occasional, 48*. Dublin: Trinity College, CLCS.

Moomaw ,W. E. (2005). *Teacher perceived autonomy: A construct validation of the teacher autonomy scale*. PhD Dissertation, The University of West Florida.

Öztürk I.H. (2011). Curriculum reform and teacher autonomy in Turkey: The case of the history teaching. *International Journal of Instruction, 4*(2), 113-128.

Paradis A. (2019). *Towards a relational conceptualization of teacher autonomy —Narrative research on the autonomy perceptions of upper-secondary school teachers in different contexts*, PhD Dissertation, University of Oulu, Finland.

Parker G. (2015). Teachers' autonomy. *Research in Education, 93*(1), 19-33 http://dx.doi.org/10.7227/RIE.0008.

Pearson L.C. & Moomaw W. (2006). Continuing Validation of the Teaching Autonomy Scale. *The Journal of Educational Research, 100*(1), 44-51. http://dx.doi.org/10.2307/27548158.

Pearson, L.C. and Moomaw, W. (2005). The relationship between autonomy and stress, work satisfaction, empowerment, and professionalism. *Educational Research Quarterly, 29*(1), 38-54.

Robertson, S. L. (1996). 'Teacher' Work, Restructuring and Postfordism: Constructing the New "Professionalism". In I. F. Goodson and A. Hargreaves (Eds.), Teachers' Professional Lives, (28–55). London: Falmer Press.

Ryan, R. M., & Deci, E. L. (2006). Self-Regulation and the Problem of Human Autonomy: Does Psychology Need Choice, Self-Determination, and Will? Journal of Personality, 74(6), 1557-1585. https://doi.org/10.1111/j.1467-6494.2006.00420.x

Sehrawat, J. (2014). Teacher Autonomy: Key to Teaching Success. Bhartiyam International Journal of Research and Education, 4(1), 1–8.

Smithers, A. and Robinson, P. (2003). Factors Affecting Teachers' Decisions to Leave the Profession. Research Report 430. London: DfES.

Sukowati, S., Sartono, E. K. E. , & Pradewi, G. I. (2020). The effect of self-regulated learning strategies on the primary school students' independent learning skill. Psychology, Evaluation, and Technology in Educational Research, 2(2), 81-89.

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. Research in science education, 48, 1273-1296. http://doi.org/10.1007/s11165-016-9602-2

Tirussew T., Amare, A., Jeilu, O., Tassew, W., Aklilu, D., & Berhannu, A. (2018). Ethiopian education development roadmap (2018-30). An integrated Executive Summary. Ministry of Education Strategy Center (ESC) Draft for Discussion: Addis Ababa.

Van der Ploeg, J.D., and E.M. Scholte. (2003). Arbeidssatisfactie onder leraren [Job satisfaction among teachers]. Pedagogiek, 23 276–90.

Vansteenkiste, M., & Ryan, R. M. (2013). On Psychological Growth and Vulnerability: Basic Psychological Need Satisfaction and Need Frustration as a Unifying Principle. Journal of Psychotherapy Integration, 23(3), 263–280. https://doi.org/10.1037/a0032359.

Webb T.P. (2002). Teacher power: the exercise of professional autonomy in an era of strict accountability. Teacher Development, 6(1), 47-62. https://doi.org/10.1080/13664530200200156

Wermke, W. & Salokangas, M. (2015).Autonomy in education: theoretical and empirical approaches to a contested concept. Nordic Journal of Studies in Educational Policy 2015(2), http://dx.doi.org/10.3402/nstep.v1.28841.

Wilches J. U., (2007). Teacher Autonomy: A Critical Review of the Research and Concept beyond Applied Linguistics. Íkala, revista de lenguaje y cultura, 12(18), 245-275.

Yalew Endawoke, (2004). Teachers' Beliefs, Knowledge and Practice of Learner-Centered Approach in Schools of Ethiopia. The Ethiopian Journal of Education, 24(2), 17-42.

Yitbarek Melles. (2007). Job Stress and Satisfaction of TVET Teachers in Tigray Region, Ethiopia. Unpublished Master's Thesis, Addis Ababa University.

Appendix A

Descriptive Statistics

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
SS	17	58.94	8.374	2.031	54.28	62.89	45.00	77.00
NS	31	59.90	4.773	.858	58.99	62.49	53.00	73.00
MATHS	19	58.25	5.500	1.262	56.98	62.28	51.00	70.00
L	27	60.07	5.919	1.139	57.69	62.39	50.00	74.00
Total	94	59.29	5.970	.616	58.70	61.13	45.00	77.00

The Gap between Indigenous Ways of Life and Formal Education among the Guji People in Southern Ethiopia: Challenges and Lessons

Tadesse Jaleta Jirata (tadesse.jaleta@aau.edu.et)
Center for Early Childhood Care and Education, Addis Ababa University

DOI: https://doi.org/10.20372/ejtel.v1i2.10161
Received: May 23, 2023; Revised: November 13/2023;
Accepted: January 3, 2024

Abstract

Children among indigenous people are involved in two disconnected social environments: the indigenous home context and the "modern" school environment. This disconnection and the way it affects children's everyday lives have received little research attention so far. Drawing on an ethnographic approach, this article examines children's perspectives on this disconnection and its effects on their educational well-being among the Guji people in Ethiopia. Unstructured interviews, focus group discussions and participant observations were used to generate data. Data were collected from three villages in the western part of the Guji district in 2019. Twenty-five children (13 girls and 12 boys) in the age range of 6-13 and their parents participated as sources of data. The data were analyzed qualitatively and the result shows that the gap between the indigenous ways of life and formal education has exposed children to a sense of dis-entanglement and increasing challenges of learning. It discusses that the gap between the indigenous ways of life and formal education has weakened children's learning efficacy; therefore, needs due attention from the government, policymakers, curriculum developers, teachers, and parents.

Keywords: *Indigenous ways of life, formal education, children, Guji people, Ethiopia*

Introduction

This article focuses on qualitative analyses of the gap between children's indigenous ways of life and formal education and the effects of the gap on their learning efficacy among the Guji society - an indigenous society living on agro-pastoral activities in southern Ethiopia. It discusses how the disparity between the local ways of life and the school environment affects children's success in learning.

Among the Guji people, children's "indigenous ways of life" constitute unique social and cultural practices – value systems, customary practices, norms of interpersonal and intergenerational interactions, and learning through work and play- that the children perform as an integral part of their everyday life (Tadesse, 2012; Tadesse, 2017). According to Tadesse and Kjorhot (2013) and Tadesse (2018), children's indigenous ways of life in Guji society includes profound oral traditions, traditional play practices, customary social relationships, subsistent livelihood practices, and ancestral values of parenting and household labour divisions. On the one hand, the school environment, which was introduced in the area only four decades ago, has been perceived to be a way to "modern" life although its constituents are all alien to children's indigenous ways of life (Tadesse, 2022a; 2022b). According to Tadesse and Kjorholt (2013), the school environment encompasses organized and conventional learning processes and

didactic practices in which teachers present an extended explanation of concepts to students in structured school classrooms. This represents the universal mode of learning. On the other hand, the indigenous ways of life are characterized by relatively contextualized practical knowledge that children learn through observing, trying, and performing actions which can be understood as the indigenous mode of learning (Tadesse, 2022a; 2022b). These two children's daily environments have not yet been interconnected and used as mutually supportive learning contexts for children. This article deals with the challenges that this gap causes to children's learning within the context of the Guji People.

More specifically, the article documents how children's living conditions in their local environments affect their learning success in the formal educational context. Based on the empirical data from participant observation in children's homes, work, and school environments and in-depth interviews with selected children and adults in society, the article answers the following questions.

1. What do children's indigenous ways of life constitute among the Guji society?
2. What are the views of children, teachers and parents towards formal education?
3. What gaps exist between indigenous education and formal education in the eyes of children and parents?
4. What are the effects of these gaps on the teaching and learning process?

Based on these questions, the article analyses the gap between indigenous practices and formal education and its impact on children's formal education. It constructs knowledge that would help to enrich education policies and strategies relevant to children among agro-pastoral societies.

Indigenous Ways of Life and Formal Education in Africa: Literature Review

Kelman, et.al. (2012) and Schafer et al (2004) state that the indigenous way of life refers to a century-old way of life including knowledge, skills, and values developed by various groups of peoples to cope with their day-to-day environmental, socio-economic, and political challenges. It is a time-proven knowledge developed via trial-and-error method and sustained for centuries. According to Sharma (2011) and Mawere (2015), one of the typical characteristics of indigenous way of life is that it is context specific. However, this does not mean that the indigenous way of life is endemic because there is a high probability of finding similar knowledge in different countries with similar environmental or socio-economic contexts (Kinzel, 2020; Moahi, 2012). According to Kolawolei (2009), indigenous knowledge that is embedded in the indigenous way of life transmits via customary practices, material culture, folk arts and music, and folk lives and is perceived to be a means to become a knowledgeable person who can cope with the cultural ways of life which includes survival and accomplishments as individuals in a society. Furthermore, Moahi (2012) states that despite the existence of a great wealth of indigenous knowledge in the areas of social relationships, health, and natural and human phenomenon, this knowledge is not yet being sufficiently or systematically integrated into school curriculum to enrich and contextualize learning. Further, Tadesse (2022a) states that the pedagogic,

developmental, and social significance of the Ethiopian indigenous knowledge has not been utilized to the level it should be.

The loose connection between the indigenous ways of life and formal education in the African context is a result of colonialism in the past and globalization in the present persisting across different generations. Semali and Stambach (1997) assert that this divide is attributed to the colonization that damaged the African indigenous knowledge and introduced the Western educational system in the different parts of Africa. The African home environment constitutes indigenous ways of life that encompass what local people know and do, and what they have known and done for generations as parts of their everyday life (Kresse, 2009; Kolawolei, 2009; Semali & Stambach 1997). Such a way of life and knowledge connected to it is developed through trial and error and proved flexible to cope with changes. On the other hand, formal education in the African context, according to Elleni (1992), refers to the conventional mode of learning informed by universal thoughts and pedagogic practices.

Studies such as Isawumi and Oyundoyin (2016), McCarthy (2010), Martini (2010), and Baral (2018) argue that such disconnection between indigenous ways of life and formal education results in the widening of the gap between children's everyday life and formal education which in turn may affect their holistic learning. Accordingly, a curriculum that disconnects African "indigenous" knowledge from formal education fails to support children to contextualize their learning. According to Abebe and Kjorholt (2009), Marshall (2016), Kassa and Abebe (2016), and Sackey and Johannesen (2015), among traditional societies where the home environment is characterized by indigenous ways of life, formal education can only be relevant if it provides children with the intellectual tools, moral values, and skills needed to cope with local realities. In many contemporary African settings, however, the content and organization of formal education are structured in different ways from students' indigenous ways of life and out-of-school experiences (Greenwood, 2016; Shaerma, 2016; Mawere, 2015).

According to Hangartner-Everts (2013), what is significant is that there have been studies disapproving of the notion that puts disconnection between indigenous knowledge and scientific knowledge as well as what is local and what is global. Bartel (2010) adds that there has been a continuous attempt to minimize the disconnection between indigenous knowledge and "modern" education, but it has been common to observe an increasing dilemma with the way schools in Africa may prepare children to cope with the local and global changes. Abebe and Kjorholt (2013) and Tadesse and Kjorholt (2013) state that these dilemmas include the way parents may be involved in the school environment to help children learn better, the way indigenous communities participate in and guide the education of their children in schools within their local districts, and the changes that the indigenous forms of education and formal school curricula should undergo to help children develop conventional knowledge based on traditional values. Sharma (2011) and Moahi (2012) argue that these dilemmas have contributed to the difference between home and school environments which in turn has made people's indigenous ways of life to be perceived as inferior to formal education.

Recent studies (Tadesse, 2018; 2019; 2022b; Tadesse & Kjorholt, 2015; Tadesse & Simonsen, 2014) argue that such a prevalent divide between the indigenous ways of life and formal education may affect children's holistic learning in many ways. It may make formal education fail to benefit from the underlying values and principles embedded in indigenous knowledge (Tadesse & Kjorholt,2013). Because of the disconnection, there could be limited interplay between indigenous practices and formal educational exercises (Benti & Tadesse, 2013). Tadesse (2018) argues that there is also an inadequate understanding of how formal education intersects with indigenous knowledge and how to provide children with locally meaningful learning.

Research context and methodology

In this research, I employed participatory ethnographic activities through which I collected qualitative data embodying children's perspectives on the gap between their indigenous ways of life and formal education. This methodological approach considers children as social actors in their social and cultural settings on their rights. It involves child-centered research methods that can give opportunities for a researcher to construct children's perspectives through closeness and joint participation (Tadesse, 2017). By using joint participation as strategies for establishing trust with children (Tadesse, 2015), I was able to join children's peer groups and attained the ability to participate in their everyday lives (herding cattle with children, taking part in storytelling activities with children in the cattle herding places and at their homes) as an adult friend. My interest in studying the relationships between children's indigenous ways of life and formal education in society has grown out of my long-time connection to the society and continued ethnographic research in their local villages among the society.

The Guji society is part of the Oromo ethnic group. They speak Afan Oromo (Oromo language) and live in a large territory in the distant southern part of Ethiopia (Debsu, 2009). They predominantly inhabit rural remote areas where access to roads, electricity, and clean water is still limited. The Guji population is estimated to be 2.5 million (CSA, 2008) and live on traditional and subsistent agriculture that includes animal husbandry and crop cultivation. They largely exercise animal husbandry which they perceive as an integral part of their culture to which they give profound cultural and economic values. Apart from this, children are perceived to be valuable in the society in many ways (Tadesse, 2015). Firstly, the people perceive children as symbols of blessing and fertility. That is because a family with a large number of children is considered to be prosperous and respectful. Secondly, families understand that children are the prime forces in a household labor division as they share huge roles in agriculture and animal husbandry.

Data discussed in this article are drawn from the ethnographic fieldwork that I carried out among the Guji society from January to June in 2019. The fieldwork was done in three rural villages called Samaro, Bunata and Sorro (See Figure 1). I selected these villages on the basis of practical possibility for continuous participation and observation as well as their ecological and cultural representativeness. The Guji people resides in highland, midland and lowland ecological areas. The everyday life and cultural practices of the people across these ecological areas is slightly

different. To ensure representation of these areas, I selected one village from each ecological area. I used three methods of data collection: participant observation, unstructured interview and focus group discussion. Through the participant observation, I documented children's roles and learning activities at homes, in schools and workplaces (cattle herding places). This method enabled me to learn the way children participate in their home and school learning contexts; how they strive to connect their learning and work practices at home; and learning activities in school and challenges they encounter in the course of this process.

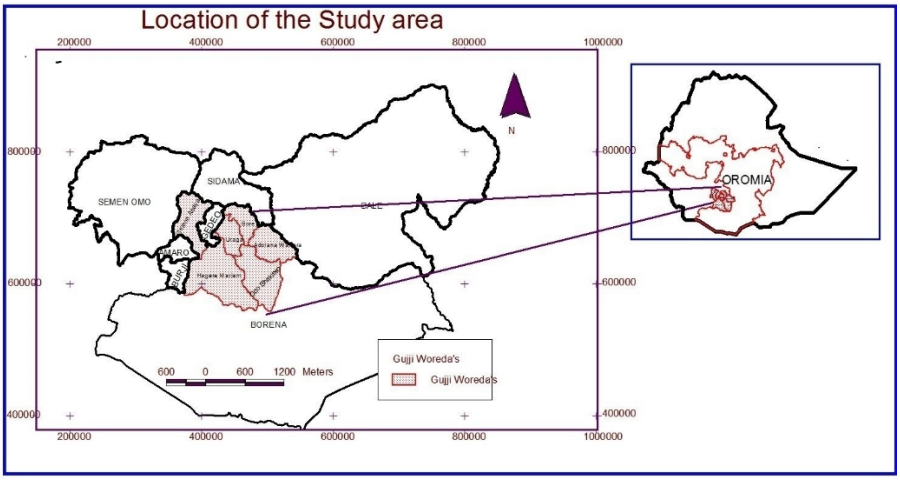


Figure 1: *Research Location*

I conducted unstructured interviews with 25 children (13 girls and 12 boys) who were in the age range of 6 -13 years old. I selected the children through purposive sampling in which I gave attention to children in the observation area and those who were able to express their views clearly. Through the unstructured interviews, I elicited the views and beliefs of the children in relation to what they think of the relationships between their everyday life and school practices, and how they connect their practices at their home and workplaces to their learning in school.

The same children participated in the focus group discussion (FGD). I divided the children into two groups and supported them to discuss on the connections and disconnections between their indigenous ways of life and formal education. Through the focus group discussion, I collected data related to the diverse views on the issues of the connection between children's indigenous ways of life and school participation among the Guji people. Although the major subjects of the research were children, parents and teachers were also participants mainly in the unstructured interviews. The involvement of parents and teachers was meant for reinforcement and triangulation of children's perspectives. Twenty-five children (13 girls and 12 boys), 15 parents and 10 primary school teachers who were selected purposively.

Analysis and Discussion

Play, Work, and Oral Performances as Children's Indigenous Ways of Life

The children and their parents expressed that play, work and oral performances including storytelling, riddling, and singing are integral parts of children's everyday lives among the Guji

people. Besides, home is conceptualized as a space where children learn from indigenous practices and develop their knowledge of culture, environment, and people (Tadesse, 2017). The children also stated that home is a space in which they begin to gain indigenous knowledge from their social and natural environment and develop their survival skills through work activities, social relationships, and oral traditions (Tadesse & Kjorholt, 2015). This is evident from the words of Gadissa (10-year-old boy) who said, "When I am out of school, I keep cattle and I play with my friends at cattle herding places. We would be involved in storytelling, riddling, and sing children's songs". It is clear from these statements that children's indigenous ways of life in society embody work, participation in cultural practices, and learning through such participation. Barite (11-year-old) added all children above five years old are expected to take part in work that includes cattle herding, fetching water and firewood, and looking after younger siblings". This shows that active participation in different forms of work, cultural processes, oral traditions, and peer interactions are social practices through which children play and learn to become capable persons who can exercise their social duties and rights (Tadesse, 2017). These social and cultural spaces encompass children's practices of self-socialization, self-empowerment, and development. For instance, it is commonly accepted that children learn values related to the age-based and sex-based role divisions through participation in work activities, cultural practices, and oral traditions such as storytelling, folksongs, riddles, and games. A quote from an interview with Sore (12-year-old girl) illustrates this tradition.

> *My siblings and I play storytelling and riddling at home. I along with my younger sister and brother (five and seven years) participate in Gada rituals and work activities including fetching water, looking after calves around home, and herding cattle in the nearby fields. We play storytelling, riddling, and song-making with each other while doing these work activities. Our elder brother (14 years old) works on a farm with our father. My younger sister and I work at home with our mother. We cook food and make coffee for the family. We learn through working and playing with our parents and siblings. Not only during the daytime but also in the night time, we all come together and play storytelling and riddling with each other.*

Participants in the focus group discussions also expressed that their indigenous ways of life encompass conditions in which they combine work with play and learn through working and playing with their parents and siblings. As notable from the quote above and focus group discussion, children understand that through performing storytelling, riddling, and song-making, they develop their knowledge about their social and cultural environment. They also recognize that their indigenous play practices provide them with the opportunity to learn values related to intergenerational, interpersonal, and inter-gender relationships. In the focus group discussion, it was emphasized that only very young children (children below five years old) are free from the social roles and labor divisions at home. This was also raised in the interview with Edilu (12-year-old boy) as, "Small children do not work. They eat without working. They stay at home and play." As noted in the focus group discussions, learning such social values through social and cultural participation at home, the children present themselves as vital actors in family

livelihoods and knowledge transmission which Abebe (2007) called "intergenerational interdependence" among family members. Statements from the interview with Edema (11-year-old boy) explain such home tradition.

> *In our culture, every member of a family is responsible for his/her roles. There are roles for us [the children]. There are roles for my father. There are roles for my mother. If one fails to do his/her roles, our life cannot be in order. For example, if I do not herd cattle, my father cannot work on a farm. That is how we [the children] lead our everyday life.*

This quotation shows that the children comprehend that their home environment provides them with an indigenous way of learning through which they develop their capability of active participation in the cultural performances and labor division which in turn is useful for their learning and development.

Figure 2: *Children on Indigenous Play Practices*

Similarly, data from the focus group discussions show that children understand that through their indigenous play practices and participation in cultural performances, they acquire indigenous knowledge and values by which they understand, manage, and utilize their social and cultural environments. Statements such as "learning culture is done through performing cultural practices, our culture is part of our everyday lives and learning" were often voiced in the focus group discussion and indicate how the children connect their indigenous practices to learning. The home environment, according to the children, embodies the different forms of oral narratives (tales, songs, rhymes, riddles) that their parents provide them as part of knowledge transfer. In this regard, Tadesse (2022a) states that these forms of oral narratives are produced by adults for children to develop children`s knowledge and capabilities. According to Tadesse and Simonsen (2014), the performance of oral narratives draws children and adults together and serves as a situation in which adults educate and entertain their children. The children, on the other hand, accept storytelling as a means of entertainment; thus, attentively listen to their parents/grandparents. The Guji children articulate that in such cultural interaction,

their parents and grandparents educate and entertain them in line with accepted norms and children's interest and motivations. As presented in the interviews and focus group discussions with children, the Guji children present that through their peer play tradition at home - folktales, riddles, songs – they gain values, norms and skills of life essential for their present and future lives. This shows how children are the central agents to initiate, reproduce, and transmit indigenous knowledge (Tadesse, 2013). In general, the children recognize that their indigenous ways of life that contain work, participation in cultural and play practices, peer interactions, and family relationships help them develop their capability through contextual learning and intergenerational knowledge transmission.

Formal Education as "Modernity"

Formal education is a new phenomenon in the Guji society like the other indigenous and agro-pastoral societies in the southern part of Ethiopia (Tadesse & Kjorholt, 2013). School was introduced in the area following the 1990s political change that brought about a better connection between the rural and the urban settings (Deressu, 2013). Following the political change, the governance and political arrangement in Ethiopia became the federation of nine regional states responsible for the expansion and development of formal education at all levels (MoE, 1994). The regional states in collaboration with the federal ministry of education have formulated policies and strategies for the development of education in rural and urban settings. However, these policies and strategies are substantially informed by conventional practices of schooling; therefore, they are rarely sensitive to children's indigenous ways of life among the agro-pastoral society (Tadesse, 2019). Participants in the focus group discussion asserted that schools among the agro-pastoral societies follow fixed schedules similar to schools in the urban and semi-urban areas of the country. This was supported by a key informant who stated that curriculums and course contents of school education among the agro-pastoral societies are based on conventional knowledge and educational trends without ample sensitivity to the indigenous ways of life in the local communities (Cavner & Fox, 2014). The voice of Roba (12-year-old boy) illustrates this reality.

> *I leave home at 7 am and arrive at school at 8 am. I attend school from 8 am to 3 pm. During this time, I stay in the classroom and learn subjects. We listen to teachers, take notes, do exercises, ask questions and answer questions. We only have 15 minutes break. When the bell rings, we leave the classrooms and rush home. In this modern way of learning, we do have no storytelling, riddling or singing in school.*

As notable from the statements above, children perceive that formal education pertains to the modern ways of learning where they are confined in the school from 8 am to 3pm from Monday to Friday and attend "modern" education with no touch to their indigenous play practices.

Dureti (12-year-old girl) also says, "My purpose of attending school is to gain modern knowledge. I attend school from morning to early afternoon. In school, there is no time to play. We sit down in the classrooms and learn different subjects". Dureti gives more illustrations of children's reality in school. She shows that children's activities in school are restricted to

classroom learning practices with narrow play opportunities. She also indicated that school exposes her and her friends to modern knowledge generated from conventional courses. She believes that learning in school allows her and her friends to become 'literate' and 'modern' but fails to help them manage their local life. The following statements of Ayano (11- year-old boy) exemplify this view.

> *I, like all children in my village, am attending school and hope to gain modern knowledge. I want to be able to read and write. However, the knowledge I gained from school has not helped me to become more knowledgeable in farming, herding cattle, and performing cultural practices.*

This child understands formal education as a tool to become "modern" and literate but an obstacle to have the skill of leading the indigenous ways of life. This perception has resulted from the increasing interconnection between formal education and people's local livelihood practices. What is clear from the perspective of Ayano is that the children recognize formal education as a force that helps them move from rural to urban areas, live and work in the urban areas, and detach themselves from agrarian and pastoral ways of life. This reality, in turn, has increased children's need for the ability to read and write. Words of Niguse (12-year-old boy), reflect this situation as follows.

> *My father and my mother cannot read and write but they are knowledgeable and skilful in leading their livelihoods. I am happy that I can read and write. After I finish school, I want to get a government job, live in urban areas, and support my parents. But I do not think I will be capable of leading the rural livelihoods.*

By these words, Niguse expressed that the underlying reasons for his interest in formal education are literacy, aspiration for a job, and life in the urban setting. As it was clear from the interview with school teachers, the improvement of access to primary schools in each village was accepted as a new phenomenon; thus, motivated parents to send children to school. Similarly, with the national and global drive to put all children in school, the government dictates parents to send their children to school. The increasing interconnection between the rural and urban areas has also made children and their parents perceive formal education as an important means to live a 'modern' life. However, the children perceive that formal education does not provide them with knowledge and skills that would help them cope with their indigenous ways of life and assist them survive in the rural areas.

The Gap between Children's Indigenous Ways of Life and Formal Education as a Learning Challenge

The interplay between indigenous ways of life and formal education is essential for children's holistic development particularly among societies living in relatively indigenous ways of life (Semali & Stambach, 1997). Holistic development, in this context, refers to comprehensive learning and growing achievement that combines indigenous knowledge with formal education (Semali & Stambach, 1997; Tedla, 1992). Such contexts of learning provide children with the opportunity to develop comprehensive competence that helps them to manage their everyday lives and makes them ready for success in formal education (Tadesse & Kjorholt, 2013). Among

the Guji people, the indigenous way of learning – learning through intergenerational and intra-generational interactions at home-is an integral part of everyday life and is essential for survival and sustainability. This is clear from statements by Galgalo (45- year-old), "We lead our everyday life by using our ancestral knowledge (indigenous knowledge). By using our indigenous knowledge, we teach our children to become wise, hard workers, skillful, respectful, and resilient". According to this informant, agro-pastoral communities such as the Guji people give deep value to the knowledge and skills of farming, cattle rearing, environment protection, and peaceful interpersonal relationships. They pass these aspects of knowledge from generation to generation through their oral traditions and customary practices. However, the children among the people perceive that the knowledge they gain from formal education fails to help them develop their indigenous knowledge.

On the other hand, Beka (13-year-old boy) asserted that he and his friends attend formal education as they think that it is important for them to become literate. He believes that the connection between his indigenous ways of life and formal education is important because children's indigenous knowledge can help children to contextualize and understand formal education. This shows that the Guji children have an interest in formal education but also want to remain connected to their local ways of life. However, they articulate that their indigenous knowledge has not been connected to their learning in school as it is clear from Chaltu's (12-year-old girl) statement, "Our everyday play practices such storytelling, riddling and games are not available in our school. There is not enough time for storytelling, riddling, dramatic plays and creativity in school." The children believe that learning in school does not help them to develop indigenous play practices to which they are familiar. This is clear from the following conversation.

Researcher: Do you want to perform your indigenous play practices in school? Why?

Gemechu (10-year-old boy): Yes, my friends and I are happy to perform our indigenous plays in school. Our indigenous plays are useful for learning in school.

Researcher: Is there time and opportunity for you to perform your indigenous play practices?

Gemechu: No, we cannot perform our indigenous play practices in school. There is a limited time for such play activities. In school, we can attend school subjects, but we cannot play. It is only during the night times at home and day times in the cattle herding places that we can perform storytelling, riddling, songs and other plays. Our indigenous plays are not connected to learning in school. Our learning in school does not help us learn and perform our indigenous plays.

Gemechu stated the disconnection between formal education and the indigenous ways of life as "Our indigenous plays are not connected to learning in school. Our learning in school does not help us learn and perform our indigenous plays". These statements portray children's understanding of the trade-off between their learning from their indigenous ways of life and

formal education. Barite (10-year-old girl) says, "The play and oral traditions that we perform at home do not exist in the school and the learning activities in the school do not give us the time and situation to play our oral traditions in school". As shown by this statement, the children have the perspective that their indigenous play practices are not connected to learning activities in school and the learning activities in school do not provide them with skills to perform their social roles at home. Another child, Udessa (11-year-old boy) explains the incongruity between these two learning environments, "when I give time to working on farm or herding cattle, I cannot have time to attend school. I am good at working at home, but I am lazy at school." This child perceives his social activities at home as a challenge to his learning success.

It is clear from the statements of these children that although a strong connection between indigenous knowledge and formal education is essential for children's learning and development, there is a continuous dichotomization of home-based traditional practices from the disciplinary and pedagogic activities in the school environment. Such dichotomization has been perceived by the children as a learning challenge resulting in their failure to have quality and relevant learning to understand and manage their everyday lives. According to the children, the gap between the indigenous ways of life and formal education can be observed from several dimensions. The first gap originates from the way teachers perceive indigenous knowledge as less relevant for learning in school. The voice of a teacher who participated in the in-depth interview is a piece of evidence for the argument. A teacher said. "Indigenous knowledge is not scientific and structured. It is less relevant to support formal education". Such perception has influenced the school environment to favor formal education and underestimate indigenous knowledge. As a result, indigenous knowledge has been perceived as "traditional" and lacks universally acceptable meaning and relevance for the modern world. Such a school environment has influenced the children to consider school education as a means to become "modern" and "knowledgeable" persons. This situation has caused an increasing gap between home and school environments in the agro-pastoral society and has perpetuated the perception that indigenous practices at home are inferior to formal education that represents modernization. In such a context, formal education has been considered weak to provide children with knowledge pertinent to their living realities. The second gap is the mismatch between times of children's work in the home environment and learning in school. Of the four seasons of a year in Ethiopia, winter (December and January) is the peak time during which farmers harvest their crops. This is the season in which children's work and social contribution at home is highly needed. On the other hand, this is an essential time when the first-semester final examinations are given in primary schools. The divergence between different environments of children is evident from the words of Diribe who was a 12 years old girl.

> *During the harvesting time, I became bewildered between home and school duties. At home, it is a time when crops are collected. I cannot go to school because I have to harvest crops. That is the way we live. In school, it is a time when final examinations are given. When I miss exams, I cannot continue with attending school as my teachers do not understand our ways of life.*

Diribe expressed that the mismatch between the work times at home and learning times in school and teachers' poor recognition of her ways of life has made her home environment not conducive for her learning in school and her school environment is not favorable for her social responsibilities at home. She misses the opportunity to learn in school when she gives time to work and exercise her social responsibilities at home. She misses learning through the indigenous practices at home when she gives time to learning in school.

The third cause of the disparity is parents` perception of school and their lack of motivation to support children to attend school. Words of Elema (46-year-old man) illustrate this reality.

> *In our condition, children have social responsibilities at home of which work is the first. Besides, they may attend school. They have to herd cattle on the first day and attend school on the next day. This is the way our children work and learn. The problem is that our children stay in the school compound but do not learn as teachers do not allow them to sit in the classroom because of absenteeism. The teachers do not understand our ways of life. Our children neither work on our farms nor attend school properly. That is why we do not want to send children to school.*

Statements of the informant above reflect how the disparity between home traditions and school environments shapes parents' perception of school and has a negative impact on their motivation to send children to it. The fact that teachers' disciplinary and pedagogic practices in school are not sensitive to children's social and cultural realities at home discourages parents' interest in allowing their children to attend school.

The fourth cause is the mismatch between girls' social roles at home and teacher's expectations in school. Unlike boys who are free at night times, girls have domestic routines that are extended to midnights during which they make coffee, serve food, clean dishes, put all equipment in order, and prepare food for breakfast. This extended time of domestic work constrains girls' time to work on school subjects. As a result, teachers often chase them out of classrooms. Barite (12-year-old girl) and Takelu (11-year-old girl) expressed such reality as follows.

> Barite: I stand outside until the first period ends because the teacher refuses to let me sit in the classroom because I have not done my homework.
>
> Takelu: I have not done the homework that the teacher gave us yesterday. Now, the teacher chased me out of the classroom. So, I must stay outside until this period ends.

I continued asking why the girls could not do their home-take assignments at home and Barite replied as follows.

> *At home, I am busy with home routines and don`t have time to do school assignments. I have told this problem to my teachers, but they do not understand my problems. The teachers do not understand our problems.*

Barite's and Takelu's statements clarify the disparity between girls' social responsibilities at home and learning practices in school; the impacts of such disparity on their learning and

development. The disparity is attributed to the failure of teachers to understand the girls' indigenous ways of life at home. This situation reflects how the school environment is not conducive to children's home tradition where the children struggle to learn through accomplishing their social responsibilities. The roles of teachers in supporting children to combine indigenous practices with learning activities in school have not been established as a trend (Knight-McKenna & Hollingsworth, 2016). This is attributed to the limited synchronization between the indigenous and school learning systems.

The inadequacy of synchronization is evident from the contesting views of teachers and parents as articulated by Alemu and Bonaya. Alemu (a primary school teacher) said, "Parents want children to give more time to work than schooling. They lead traditional ways of life and do not know the value of education." In contrast to the statement of the teacher, Bonayya (a father of three school children) said "Teachers think that children do not have duties at home. They do not know our ways of life. They condescend on our indigenous knowledge". Such lack of mutual compliance from teachers and parents originates from the very lack of communication and cooperation among members of school communities which in turn reflects the disconnection between home traditions and school contexts. Such a school environment makes children despise their indigenous practices because the school curriculum does not show that knowledge from such practices is important.

In general, discussions so far show that children among the Guji people observe there is a clear divide between their indigenous ways of life and learning activities in school to which due attention should be given. At home, children assert that they develop their capabilities through the indigenous ways of learning which they want to connect to the learning activities in school. However, both realities of children are less connected and integrated which they perceive as learning trade-offs. As children's formal education is not conducive to their indigenous learning, they fail to integrate their indigenous knowledge with their learning practices in school. It has been clear that parents' perception of school, teachers' perception of local traditions and indigenous ways of life, and the absence of home environment-sensitive school policies are factors that have made the home environment not supportive of children's learning in school. This implies that interventions are needed to enable children to make their indigenous knowledge and ways of life compatible with their learning practices in school.

Conclusion

This article observes children's perspectives on the connection between their indigenous ways of life and formal education and its effects on their learning. It shows that children in the Guji society understand that their indigenous practices enable them to meet the culturally acceptable values underlying everyday life and become productive members of a family while school contexts are characterized by universal pedagogic practices rarely sensitive to their indigenous ways of life. The children have the perspective that formal education seems to be disengaging their everyday lives.

Such disconnection between indigenous ways of life and formal education originates from the lack of effort to relate learning activities in school to people's indigenous knowledge and ways

of life. The lack of integration between the two realities created the tradition of condescending indigenous knowledge as inferior to formal education. As a result of such dichotomization, school teachers perceive formal education as "modern', and the home traditions as "backward". This scenario, in turn, created the situation in which schoolteachers undermine the educational values of indigenous practices and ways of life. Added to the intensive poverty, persistent drought and deteriorated health service, the disconnection between indigenous ways of life and formal education puts children at risk of losing their rights to meaningful learning. Although children need their indigenous play, cultural and oral practices become part of their learning practices in school, only limited attention has been given to the contextualization of formal education by connecting it to indigenous knowledge. What is clear from such reality is that ensuring children's rights to education among indigenous societies can be possible only when the curriculum and pedagogic practices in school are sensitive to and inclusive of children's indigenous ways of life. Members of the school community (children, parents, teachers, support staff, and management) must be included in the process of creating a formal learning context connected to children's indigenous knowledge and ways of life. Similarly, there should be viable policies and strategies to make learning systems including curriculum, lessons and pedagogic activities, and teacher education programs sensitive to children's indigenous practices and local ways of life. Above all, the in-service and preservice teachers training curriculums and courses should be designed in such a way that they enable teachers to make use of the indigenous knowledge and contextualize pedagogic activities. Parents' involvement in the design of school activities and calendars is also very useful to connect indigenous ways of life to formal education. In general, the discussion in this article indicates that the realities of children among the agro-pastoral societies in Ethiopia require a new schooling paradigm that recognizes children's traditional ways of life and promotes close cooperation among members of school communities including government, teachers, parents, and children.

References

Abebe, T. (2007). Changing Livelihoods, Changing Childhoods: Patterns of Children's Work in Rural Southern Ethiopia. Children's Geographies, 5(1-2), 77-93. https://doi.org/10.1080/14733280601108205.

Abebe, T & Bessell, S. (2011). Dominant Discourses, Debates and Silences on Child Labor in Africa and Asia. Third World Quarterly, 32 (4), 765-786. https://doi.org/10.1080/01436597.2011.567007.

Abebe, T & Kjorholt, A. T. (2009). Social Actors and Victims of Exploitation: Working children in the cash economy of Ethiopia's South. Childhood,16 (2), 175-194. https://doi.org/10.1177/0907568209104400.

Baral, R. (2018). Impact of home environment and institutional climate on creativity of high school students. International Journal of Recent Scientific Research, 9 (6):27520-27525. https://doi.org/10.24327/IJRSR

Debsu, D. (2009). Gender and Culture in Southern Ethiopia: An Ethnographic Analysis of Guji-Oromo Women`s Customary Rights. African Study Monographs, 30(1), 15-36.

Deressu, T. (2013). The Challenges of Primary Education Expansion in the Pastoralist Woredas of Borana Zone of Oromia Regional State. Unpublished MA thesis, Addis Ababa University.

Dyer, C. (2016). Approaches to education provision for mobile pastoralists. Revue scientifique et technique (International Office of Epizootics), 35(2), 631-638.

Cavner, D. & Fox, J. (2014). 21st Century Teaching and Learning in Ethiopia: Challenges and Hindrances. International Journal of Pedagogy and Curriculum, 22(2), 25-38. https://doi.org/10.18848/2327-7963/CGP/v22i02/48881

CSA .2008. Summary and statistical report of the 2007 population and housing census of Ethiopia. www.csa.gov.et/pdf/Cen2007_firstdraft.pdf (accessed, 2016)

Gasson, N R. et al. (2015). Young people's employment: Protection or participation? Childhood, 22(2), 154– 170, https://doi.org/10.1177/0907568214524456

Greenwood, M. (2016). Language, culture, and early childhood: Indigenous children's rights in a time of transformation. Canadian Journal of Children's Rights/Revue canadienne des droits des enfants, 3(1), 16-31.

Hangartner-Everts, E. (2013). Integrating Indigenous Knowledge in Education and Healthcare in Northern Malawi: Pregnancy through Toddlerhood. Department of Teacher Education Wright State University, Dayton OH.

Isawumi, O. D & Oyundoyin, J. O .(2016). Home and School Environments as Determinant of Social Skills Deficit among Learners with Intellectual Disability in Lagos State. Journal of Education and Practice, 7 (20): 75-80

Tadesse J.J. (2022a). Indigenous Rights of Children among Agropastoral Communities in Southern Ethiopia. Childhood, 29(3), 389-405.

Tadesse J.J. (2022b). 'Our children are neither here nor there': An Ethnographic Gaze to Children's Right to Education in Southern Ethiopia, Children's Geographies, 20(5), 728-739

Tadesse J.J. (2019). The cultural spaces of young children: Care, play and learning patterns in early childhood among the Guji people of Ethiopia. Global Studies of Childhood, 9(1), 42-55. https://doi.org/10.1177/2043610618817317

Tadesse J.J. (2018). Folktales, Reality, and Childhood in Ethiopia: How Children Construct Social Values through Performance of Folktales. Folklore, 129 (2), 237—253, https://doi.org/10.1080/0015587X.2018.1449457

Tadesse J.J. (2017). Oral Poetry as Herding Tool: A Study of Cattle Songs as Children's Art and Cultural Exercise among the Guji-Oromo in Ethiopia. Journal of African Cultural Studies,29 (3), 292—310. https://doi.org/10.1080/13696815.2016.1201653

Tadesse J.J.& Kjorholt, A.T. (2015). The place of children among the Guji people in Southern Ethiopia: work, play and School. Children's Geographies, 13 (2), 13(2), 226-239.

Tadesse J.J. & Simonsen, J.K. (2014). The Roles of Oromo-Speaking Children in the Storytelling Tradition in Ethiopia. Research in African Literatures,45(2) 135—149. https://doi.org/10.2979/reseafrilite.45.2.135

Tadesse J.J. & Benti, D. (2013). Storytelling, Local Knowledge, and Formal Education: Bridging the Gap between Everyday Life and School. In T. Abebe and A.T. Kjorholt (Eds.), Childhood and Local Knowledge in Ethiopia: Rights, Livelihoods and Generations (pp. 213-234), Oslo: Akademica publishing

Tadesse J.J. (2012). Learning through play: An ethnographic study of children's riddling in Ethiopia. Africa, 82(2), 272-286.

Jones, N A. & Pereznieto, P (2006). Educational choices in Ethiopia: What determines whether poor children go to school? Young Lives Policy Brief 2

Kassa, S C. & Abebe, T. (2016). Qenja: child fostering and relocation practices in the Amhara region, Ethiopia. Children's Geographies, 14(1), 46-62. http://dx.doi.org/10.1080/14733285.2014.974508

Kelman, I., Mercer, J., & Gaillard, J. (2012). Indigenous knowledge and disaster risk reduction. Geography, 97(1), 12-21. http://dx.doi.org/10.1080/00167487.2012.12094332

Kinzel, C. (2020). Indigenous Knowledge in Early Childhood Education: Building a Nest for Reconciliation. Journal of Childhood Studies, 45(1), 19-32.

Klocker, N. (2014). Struggling with child domestic work: what can a postcolonial perspective offer? Children's Geographies, 12(4), 464-478. http://dx.doi.org/10.1080/14733285.2013.827870

Kolawolei, O. D. (2009). Situating local knowledge within development agenda: Some Reflections. Consilience: The Journal of Sustainable Development, 2(5), 1- 23

Kresse, K. (2009). Knowledge and Intellectual Practice in a Swahili Context: Wisdom and the Social Dimensions of Knowledge. Africa/ Journal of the International African Institute, 79 (1), 148—167. http://dx.doi.org/10.3366/E000197200800065X

Marshal, L. (2016). 'Going to school to become good people': Examining aspirations to respectability and goodness among schoolchildren in urban Ethiopia. Childhood 23(3), 423–437. http://dx.doi.org/10.1177/0907568216634065

Martini, Mary ,2010. Features of home environments associated with children's school success, Early Child Development and Care, 111 (1): 49-68

Mawere, M. (2015). Indigenous Knowledge and Public Education in Sub-Saharan Africa. Africa Spectrum. https://doi.org/10.1177/000203971505000203

Mccarthey, Sarah J.,(2010). Home–School Connections: A Review of the Literature. The Journal of Educational Research, 93(3):145-153. https://doi.org/10.1080/00220670009598703

Moahi, K. H. (2012). Promoting African indigenous knowledge in the knowledge economy. Aslib Proceedings, 64(5), 540–554. https://doi.org/10.1108/00012531211263157

Schafer, J., Ezirim, M., Gamurorwa, A., Ntsonyane, P., Phiri, M., Sagnia, J., ... & Bairu, W. W. (2004). Exploring and Promoting the Value of Indigenous Knowledge in Early Childhood Development in Africa. International Journal of Educational Policy, Research, and Practice: Reconceptualizing Childhood Studies, 5(3), 61-80.

Semali, L., & Stambach, A. (1997). Cultural identity in an African context: Indigenous education and curriculum in East Africa. Folklore and Instruction in Africa, 28(1), 3–23.

Sharma, R. (2011). Effect of school and home environments on creativity of children. MIER Journal of Educational Studies Trends and Practices, 1(2), 187–196. https://doi.org/10.52634/mier/2011/v1/i2/1614

Tafere, Y and Pankhurst, A. (2015). Children combining school and work in Ethiopian communities, in Children's Work and Labour in East Africa: Social Context and Implications for Policy. In: A. Pankhurst, M. Bourdillon, and G., Crivello (eds.), Children's Work and Labor in East Africa: Social Context and Implications for Policy. Addis Ababa: OSSREA,

Tedla, E. (1992). Indigenous African education as a means for understanding the fullness of life: Amara Traditional Education. Journal of Black Studies, 23(1), 7-26. https://doi.org/10.2307/2784670

Affective and Professional Knowledge Components: An Assessment of their Association and Implication in Primary School Mathematics Teacher Education

Kassa Michael*[1] and Mulugeta Atnafu[1]

[1] *Department of Science and Mathematics Education, College of Education and Behavioural Studies Addis Ababa University, Ethiopia*

Corresponding: kassa.michael@aau.edu.et*

DOI: https://doi.org/10.20372/ejtel.v1i2.10162

Received: December 20, 2023; Revised: April 14, 2024;

Accepted: May 2, 2024

Abstract

The competence of pre-service teachers at teacher education colleges is at stake in Ethiopia where some are attributed to knowledge dimensions and the other to affective dimensions. This Study assessed the association between the knowledge dimensions and affective components pre-service teachers should possess by employing a correlational survey design and indicating implications. A sample was drawn from nine colleges of teacher education (CTE) which was selected using stratified sampling. Those selected regions that have only one CTE were selected based on availability sampling. The Study employed questionnaires with five-point Likert scale-type questions. Factor analysis followed by correlational analysis was conducted to reduce data. As a result, the seven knowledge components of technological pedagogical content knowledge were significantly correlated among each other. The three affective component variables were also significantly correlated. The aggregate of knowledge and affective variables were found to have a significant correlation with around 42% of common variance. Despite these, the primary and secondary factor loadings were extracted. The Study result indicates a strong association between knowledge and affective components. Thus, it has been recommended that the capacity of teacher educators should be enhanced and a teacher education program that fulfills both ends to meet the demands for teacher knowledge for teaching and concerned bodies should be developed. Also, attention should be given to enhancing affective constructs through integrating content, pedagogy, and technology beyond the usual knowledge related concerns.

Keywords: *knowledge components, affective components, association, Implications, primary teacher education*

Introduction

Teachers are at the center of teaching-learning. They are key factors for quality learning to happen. To this effect, teacher education plays an important role in training competent teachers. Nonetheless, the emphases attributed to the organization and implementation of teacher education are debated among scholars of education (Hammond, 2024) leading to varying types and nature of teacher education programs. These aroused mutual uprising concerns of both governments and the larger public demonstrated by dissatisfaction with the ongoing teacher education, especially in the low-income countries (UNESCO, 2022). Methodological considerations in teacher education and issues of professional competence are among the issues of concern among professionals (Kassa, 2015). In addition, key requirements for enrolment in

teacher education include academic standing and interest among other things (MoE, 2023) with the view – having both leads to success. Thus, trying to address issues related to teacher preparation is crucial in an educational system, where one of the issues is an association between the knowledge of teachers and their affective constructs. Scholars have forwarded varying ideas on the ongoing teacher education in Ethiopia. Tesfaye (2014) says 'reforming the existing lower and upper primary teacher preparation programs should be an urgent priority' and Amka (2020) noted that teachers' positive attitudes play an important role in driving the success of education change in schools. Buabeng and Akuamoah-Boateng (2019) further justify that there is a clear understanding of the impact of teachers on academic success on the part of both teachers and students, and the potential of meeting both needs – knowledge, and interest should be the focus of teacher education.

Blömeke and Delaney (2012) also found out that an examination of [mathematics] teachers' knowledge is an important parameter of school quality, and they further reiterated that it is important to ascertain whether and how teacher training contributes to the development of teacher knowledge. Similarly, the Ministry of Education (MoE) of Ethiopia aspires candidates to teacher education must prove to have an interest in the profession and there is a need to further strengthen teacher training and qualifications at primary and secondary levels (MoE, 2010). The MoE in its recent Education Roadmap further specifies that one of the purposes of shifts is 'to ensure the provision of adequate qualified and motivated teachers to provide relevant teaching, training, and learning opportunities for all children, youth and adults in all sub-sectors of education and training throughout the country' (MoE, 2018, p.53). These points indicate the need for trained and competent teaching staff, where teachers must have sound knowledge including content knowledge (CK), pedagogical knowledge (PK), technological knowledge (TK), pedagogical content knowledge (PCK), technological content knowledge (TCK), technological pedagogical knowledge (TPK) and technological pedagogical content knowledge (TPCK), and affective domains in becoming a teacher. Concerning these the MoE asserts that:

Schools in Ethiopia are struggling to offer high-quality instruction and continue to fail in their quest to improve the teaching and learning of science and mathematics. And despite the efforts made, both by the ministry and the schools, the improvements seem limited (MoE 2010a. p.3).

More and better teachers are needed if proficiency is indeed to become a widely held competence that encompasses both knowledge and affection (Adler et al., 2005) as quality instruction depends largely on teachers. Since recently, teacher educators' instructional practices are among the factors that impact affects (Anteneh et al., 2021). So, the preparation of teachers endowed with both knowledge and affection is crucial. Inconsistent mathematics teacher education programs at both the colleges of teacher education and universities, and ongoing dissatisfaction with the overall quality of teacher education instigates the need for studying the ongoing teacher education, and the link between knowledge and affective dimensions of preservice teachers. This Study thus sought to investigate mathematics teacher education and explicate the observed association between trainees' knowledge and knowledge components and their affective constructs to becoming a teacher.

Statement of the problem

It is well noted that teacher education has to be relevant to the principles it is established for and should meet teachers' needs of building sound knowledge and positive affect towards becoming a teacher. However, in Ethiopia, the pool of prospective teachers admitted to a teacher training college is made up of a low-achieving group (Tesfaye, 2014). The MoE also declared that the teaching profession is still not attracting high-caliber entrants who wish to remain in teaching (MoE, 2008, 2018). As stipulated by Senk et al. (2008), government officials and policymakers in many countries share a common concern that too many teachers are ill-equipped to teach mathematics well. The Fifth Education Sector Development Program (ESDP V) targeted that at the end of the period (2019/20), 100% of the teachers for the primary first cycle (Grades 1-4) and primary second cycle (Grades 5-8) should have the minimum required qualification for both sexes, but the target has been unraveled (MoE, 2020). Solomon (2022) in turn reported that the attrition of well-trained teachers is a severe problem in peripheral and rural schools in Ethiopia. The MoE (2020) also noted that the attrition of teachers is excessive manifesting the prevalence of challenges related to the affection of the teachers that could not allow them to stay in the profession.

The MoE (2010) has noted that sometimes teachers exhibit negative attitudes towards science and mathematics. It was also noted that the number of properly qualified teachers in Ethiopian schools is less than 50 percent and those that are qualified are not well versed in the professional pedagogical skills that teachers are required to possess (MoE 2010a). Such problems have forced the Ministry of Education of Ethiopia to make repeated revisions and reforms to teacher education. However, no sufficient study has been conducted to explore the association between teachers' knowledge and their affective dimensions to identify possible solutions to the recurring problems and foresee its implications. A reform on general education curriculum that transcends to teacher education is also underway. Currently, the MoE is developing a teacher education curriculum framework that needs inputs founded by research studies, where future teachers could have both knowledge and affect to help them build the professional competence as teachers during their stay at the teacher education. Hence, studying this kind of problem will account for both theoretical and practical significance and can serve as an input to the ongoing reform initiatives by identifying the extent of association between the two, and associated implications. This Study, thus, has tried to answer the following research questions.

1. What is the association between each of the components of knowledge of the preservice teachers?
2. What is the association between each of the affective domains of the preservice teachers?
3. What is the association between the synthetic knowledge and affection of preservice teachers?
4. What implications do the association between knowledge and affection have for improving the quality of teacher education?

Literature Review

Teachers' Knowledge and Affective Components and Impact on Students' Learning

a) *Teachers' Knowledge and its Impact on Students' Learning*

Teacher quality matters a great deal for student learning and achievement, and there is extensive literature on the topic (Holvio, 2022). Teachers' knowledge of both content and pedagogy is important in teaching-learning. Teacher knowledge focuses on enabling teachers to fulfill their central role: teaching subject matter using appropriate pedagogical principles and skills (Ben-Peretz, 2011). Shulman (1986) initiated what teachers need to know about students' learning by coining the term pedagogical content knowledge. Such knowledge significantly contributed to various aspects of teaching (Even & Tirosh, 2008) including content knowledge and pedagogical knowledge among other things. In addition, experimental and other tightly controlled professional development studies on how students learn subject matter (Franke & Kazemi 2001) have helped identify classroom practices, and an emphasis on identifying and remediating holes in the teachers' knowledge may be more helpful for the teachers' effectiveness (Sadler et al., 2013). Nevertheless, teacher knowledge for teaching is emerging as a research area in the field. Hill and Chin (2018) stated the presence of incomplete evidence regarding how well teachers' capacities in the domain of teacher knowledge can be measured and how such teacher capacities relate to other forms of teacher knowledge, such as subject matter knowledge.

b) *Teachers' Affective Components and their Impact on Students' Learning*

Attitudes and beliefs are important concepts in understanding teachers' thought processes, classroom practices, changes, and learning to teach (Richardson, 1996). Teachers' beliefs about pedagogy are closely related to their beliefs about how their students learn and instructional practices depend on what teachers bring to the classroom (OECD, 2009). Self-efficacy predicts teachers' efforts, and the efforts increase teachers' chance of experiencing mastery (Agyekum, 2019) and their relations with the students where the research field of teacher-student relationship quality has evolved over the past three decades (Fabris, et al., 2022) dignifying the importance of studying teacher's affective constructs. These also explain that the approach teachers choose to teach a certain concept and other forms of knowledge are subject to their beliefs. In addition, the attitude of teachers is correlated positively and significantly with students' academic performance (Ekperi et al, 2019). These pieces could account for the overall teachers' affection, but issues related to their motivation, perception, and practical engagement are considered in this particular article. The points noted above highlight how much knowledge and positive affection impact developing professional competence and learning. If these two are treated in aggregate, it is expected that they can improve practice and achievement through developing preservice teacher competence.

Knowledge Components Attributing to Teachers' Professional Competence

Teachers' knowledge is important for learning to take place. Teacher knowledge is diverse, but their knowledge in terms of subject matter, pedagogy, and technology is promoted especially after the emergence of TPCK of Mishra and Koehler (2006). The Framework describes the

relationship between the knowledge domains adopted by Koehler and Mishra (2008) and each of the knowledge components useful for teachers is described below. The knowledge components are also measured through self-response questionnaire, and with a scale (Landry, 2010)

a) *Subject Content Knowledge (CK)*

Content knowledge is essential for prospective teachers to possess and can be considered as knowledge about the subject such as mathematics and its structure (Turnuklu & Yesildere 2007). Fennema and Franke (1992), for example, argue that if a teacher has a conceptual understanding of mathematics, this positively influences classroom instruction. Hill et al, (2008) also declared that programs and professional development opportunities often focus on developing teachers' knowledge. Hannula (2017) on his part stated that subject matter knowledge plays a significant role in a teacher's professional competence. According to UNESCO-IIEP (2022), several studies have found that teachers' content knowledge has significant positive effects on student achievement. Yet, teachers in many countries around the world still lack part of the content knowledge necessary for their teaching. These imply that a competent teacher needs to have solid content knowledge because anyone who has a gap in content knowledge cannot in any way convey the content sufficiently.

b) *Pedagogical Knowledge (PK)*

The knowledge one has about teaching and the essential skill for teaching is pedagogical knowledge. Lack of pedagogical knowledge influences teachers to focus on either mere factual teaching or fail to capture the horizon of learning as teachers need to know not only what to teach, but also how to teach and improve student behavior. Strengthening this, Fennema and Franke (1992) and Turunklu and Yesildere (2007) noted that if teachers do not know how to translate abstractions into a form that enables learners to relate the mathematics to what extent they already know, they will not learn with understanding. Teachers' pedagogical knowledge base is not static as new knowledge emerges from research or is shared through professional communities, and this knowledge needs to be accessed, processed evaluated, and transformed into knowledge for practice (Guerriero, 2017).

c) *Technological Knowledge (TK)*

These days, technology is not only a privilege but a necessity for the teaching-learning of Mathematics. Technology which is essential in teaching and learning mathematics influences the mathematics that is taught and enhances future teachers' learning (NCTM 2000, p. 24). The technological knowledge consists of both hardware and software useful for teaching. In addition, mathematics teaching is a deeply mathematical act that is built on a base of mathematical understanding and that also calls for different types of knowledge (Schoenfeld, 2005), one of the required types of knowledge being technological. Technological knowledge of teachers is essential and needs to be improved in selecting variations in the use of software, the creativity of teachers in packaging technology-based materials, and teacher innovations in integrating technology into learning (Wuryaningtyas & Setyaningsih, 2020). Thus, future teachers need to know emerging technologies that are useful for instructional purposes. Such knowledge of

technology helps them choose the proper technology for specified instruction and the specific application of these for specific mathematical content.

d) *Pedagogical Content Knowledge (PCK)*

Teacher education institutions are mandated to educate and make teachers qualified in both content knowledge and pedagogical knowledge. Scholars like Shulman (1986) have suggested pedagogical content knowledge (PCK) and described it as the particular form of content knowledge that embodies the aspect of content most germane to its teachability. Temechegn (2011) also stated that "a teacher must first comprehend the material to be taught, that is, grasp the relevant content knowledge (CK). This must, however, be transformed by the use of pedagogical-content knowledge, into a form in which it can be taught" (p.1). In light of that, College of Education of Addis Ababa University (CoE) also presented that:

> *the process of teaching must be dynamic and reciprocal, responding to the many contexts within which future teachers learn. Such teaching demands that teachers integrate their knowledge of subjects, pedagogy, psychology, future teachers, the community, and curriculum to create a bridge between learning goals and learners' lives, not simply filling the mind with rigid content that is learned through rote memory* (CoE, 2008, p. 20).

The focus in this knowledge domain is the ability of teachers of mathematics to use a variety of teaching approaches proper for specific mathematics content teachers have.

e) *Technological Content Knowledge (TCK)*

When examining the use of technology in education, the idea of how teachers learn is important for teacher education programs to consider (Herron, 2010), and is a place preservice teachers encounter with applications of emerging technologies for education. TCK is useful for selecting the proper technology for teaching certain content. For example, the technology for teaching geometry and algebra might not be always the same. Hence, it will be useful to know such technologies that are useful for teaching mathematics since "Teacher education programs need to examine methods that allow for elementary pre-service teachers to gain the knowledge necessary for implementing technology into the mathematics classroom" (Herron 2010, p.27). This is so because teachers these days must be aware of the demands of teaching in and for the 21st century (Zorlu & Zorlu, 2021) and practical experiences during their stay in teacher education give impression and insight into the nature of the teaching profession.

f) *Technological Pedagogical Knowledge (TPK)*

TPK is knowledge of the "existence, components, and capabilities of various technologies as they are used in teaching and learning settings, and conversely, knowing how teaching might change as the result of using particular technologies" (Mishra & Koehler 2006, p.12). Several researchers have acknowledged misconceptions about the meaning of "technology integration" among educational practitioners and administrative staff after the technology was introduced on their campuses (Hsueh, 2008). He further stated that technology integration is not putting computers in the classroom without teacher training. Harris, et al., (2007) also criticized current

technology training methods as unduly techno-centric and as not considering the dynamic and complete relationship connecting technology and pedagogy.

Teacher education programs must prepare future teachers to effectively use technology in mathematics instruction (Herron 2010). But Carlson and Gooden (1999) reported that many pre-service teachers feel that they are not prepared to teach using technology after they graduate. The use of technology for pedagogical purposes is continually advancing making it relevant to consider in teacher education programs. However, the challenges that relate to identifying and implementing methods to most effectively integrate technology in the educational context (Johnson, et al., 2016) are evident. The emergence of COVID-19, however, brought about extensive studies and practices of integrating technology for pedagogical purposes where knowledge of the capability of various technologies including affordances and constraints influence pedagogical designs and strategies in a teaching and learning setting (Kim, 2018).

g) *Technological Pedagogical Content Knowledge (TPCK)*

TPCK represents the thoughtful interweaving of all three key sources of knowledge – technology, pedagogy, and content (Mishra & Koehler 2006). Hence, TPCK describes how teachers' knowledge of technology, content, and pedagogy interact to use technology strategically for instruction (Landry, 2010, p.71). The intent of TPCK is to provide a framework to discuss the facets of teacher knowledge, not to propose a course for teacher instruction (Harris et al, 2009). However, it is noted that TPCK also enables teachers to successfully incorporate technology in teaching by enabling the teachers to make appropriate, context-specific strategies (Zaidi & Hussain, 2020). For this study, teacher education institutions need to set a mechanism on how to integrate these three sources of knowledge. Landry (2010) argues that "Mathematics teacher educators must provide teachers the TPCK experiences necessary to use technology strategically in their mathematics instruction" (p.72). This is so because, like technology, future teachers, and classroom contexts change. And TPCK provides a dynamic framework for viewing teachers' knowledge necessary for the design of curriculum and instruction focused on the preparation of their future teachers for thinking and learning mathematics with digital technologies (Niess et al., 2009). Digital technologies assist in developing abilities that will require students' professional performance, such as problem-solving, thinking structure creation, and process comprehension (Haleem et al., 2022).

Affective Constructs Attributing to Teachers' Professional Competence

Effective teachers do not only seek the sources of knowledge discussed above but also affection to becoming a teacher as beliefs or attitudes are a crucial part of mathematics teachers' competence (Richardson 1996). Several studies have indicated that the concept of professional competence is a multidimensional concept that seeks to integrate several affective constructs to influence student learning (Blömeke, 2017; Hill & Chin, 2018; Jentsch & König; Kaiser, 2019). There is ample evidence that aspects beyond knowledge may be important in determining teacher success (Kunter et al., 2013). According to the study by Kunter and colleagues, these aspects include teachers' beliefs, work-related motivation, and the ability for professional self-regulation. Because of this, teacher beliefs and meta-cognitive dispositions have to be included

to develop a full model of teacher competence (Blömeke, et al. 2014). Attitude, interest, readiness, engagement, perception, belief, value, motivation, etc., are all among the variables substantiating the affective elements. However, several researchers use varying approaches to measuring affection and factors that need consideration in becoming effective and competent teachers (Schoenfeld, 2010) such as value chains, respect, societal norms, etc.

In addition, the personality traits of the teachers are more powerful and influential than the course content or instructional strategies used in the classroom, indicating the importance of studying affective constructs. Given this necessity of studying affective elements for teachers, the variables that need to be considered are so vast and need to be comprehended. Attitude, interest, readiness, engagement, perception belief, value, etc., are all variables substantiating the affective elements. But, concerning related theoretical and practical aspects of teacher education, the affective elements considered for this study were attitude/motivation, engagement, and perception, where attitude/motivation stands for the overall belief the preservice teachers have, engagement depicting hard work and readiness for continued development, and perception the view preservice teachers have before they start teaching at the school. Of these, only three variables (motivation, engagement and perception) were selected after running principal component analysis for a list of several items extracted from various literature sources where autonomy failed to be reliable and hence ignored. It is worth noting that a brief description of these variables is given below. It was also identified that motivated preservice teachers are engaged learners, and this impacts their perception of becoming a teacher. Hence, it is important to treat affect constructs and their association with the teacher knowledge categories mentioned above.

a) *Motivation*

Motivation as a personal trait of becoming a teacher is a useful construct that has to be established. The Guideline of the Ministry of Education expects entrant preservice teachers to be motivated to become teachers and should demonstrate interest. Teachers need to be motivated and willing to apply their knowledge (Blomeke & Kaiser, 2017). Motivation is a key driver that influences preservice teachers to behave, and this impulse moves them to do something following the drive in them. It is revealed that teacher motivation has a significant impact on teacher performance (Sandriyani et al., 2021) and thus ensuring preservice teachers have the motivation is essential as one construct to develop professional competence.

b) *Engagement*

Engagement as an affective construct reflects the voluntary allocation of preservice teachers' resources and energy across their activities (Klassen et al., 2012). It is thus demanding due attention to embedding it in teacher education programs to unveil the extensive attrition from the profession at later times. Teacher professional learning is expected to provide opportunities to promote engagement. Thus, accumulating evidence on preservice teacher engagement is a crucial dimension of their professional development. This is so as lack of engagement cripples learning, whether we're talking about students or teachers (Wolpert-Gawron, 2020).

c) *Perception*

The perception of individuals on becoming a teacher before they enroll in teacher education programs may persist or erode during their stay in the program. Teacher education programs are expected to boost positive perceptions and love of the profession. In the Ethiopian context, teaching has not only eroded its nobility but has also been engulfed by incompetent professionals (Mekonen, 2018; Mihiretie, 2023; Tessema, 2015). These contextual situations have a cascading influence on the perceptions preservice teachers have for the teaching professions, and that in turn affects their professional competence. In addition, the perception of teaching as a profession has a significant influence on their motivation to do well in their teacher training program, and it boosts teachers' cognitive ability and affective disposition which empowers improvement through innovative teaching and learning by teacher trainers and the teacher trainees (Nenty, 2015).

Professional competence as nexus of Knowledge and Affective Domains

Based on the narratives provided above, the study aspired the model given as follows.

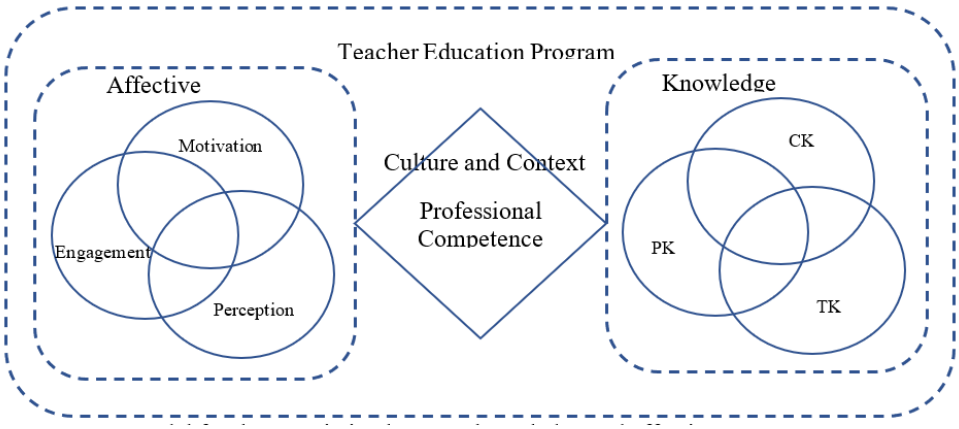


Figure 1: *A model for the association between knowledge and affective components*

Materials and methods

Research Design

A survey is used to collect information about people to describe, compare, or explain their knowledge, feelings, values, and behavior (Fink 2013). This Study was designed to investigate the association between knowledge and affective constructs of preservice teachers as it was manifested during the time of data collection. This Study was conducted based on cross-sectional survey design where data were collected at one point in time about the knowledge and its dimensions, and affective constructs that prevailed important for the study.

Population and Sampling

The population for this Study constituted all prospective teachers studying to be mathematics teachers at the colleges of teacher education in Ethiopia. The preservice teachers in the final year for graduation were selected because these can show the teachers' education process and their readiness as individuals to be teachers at their respective educational levels.

Since there were many colleges of teacher education for primary schools during the time of the study, it was not feasible to encompass all these colleges. Hence, the Study used a sample. For this purpose, the Study used probability sampling method. However, selecting the CTEs randomly alone was not sufficient, as some CTEs did not have graduating students. For this reason, some informed judgment was employed to filter out some of the CTEs using some exclusion criteria. The case in point was, excluding those CTES that had no graduates. Then stratified sampling with a cluster of CTEs as strata was employed to select specific CTEs from which the preservice teachers in their final year were involved in the study. Applying Cohen, Manion, and Morrison (2007) ten CTEs and all the prospective teachers in their final year for graduation at each of the selected ten CTEs were included in the Study.

Variables

In this Study, the two major variables, knowledge and affective constructs, were considered as dependent variables. These were also classified into seven domains of knowledge (content, pedagogy, technology, and their joint considerations) and three domains of affection (motivation, engagement, and perception) as sub-variables used as predictor variables of the dependent variables.

Data Collection Instruments

Landry (2010) assured that questionnaires can serve as an assessment tool to reliably assess components of the mathematics-TPCK framework. The affective constructs were also examined through self-responded questionnaires. Based on these, the Study employed two types of self-responded questionnaires for the seven knowledge domains and the three affective domains with five-point Likert scale-type questions. The instruments for knowledge domains were adapted from the cross-country studies such as MT21 and MKT studies (Blomeke et al. 2012; Tatto et al. 2012; Delaney et al. 2008; Hill et al. 2008), TEDS-M (Tatto et al., 2008; Schmidt et al., 2009) and modified to fit to the Ethiopian context. Likewise, instruments of scale were also used to measure the affective domains (motivation, engagement, and perception) that were adapted, modified, piloted, and validated for the purpose.

The first questionnaire of knowledge domains consists of a total of 46 items with seven major scales of CK (8 items), PK (9 items), TK (6 items), PCK (7 items), TCK (5 items), TPK (4 items), and TPCK (7 items). The second questionnaire deals with the affective domains with a total of 26 items presented in four major scales – motivation (10 items), engagement (8 items) and perception (8 items).

Validity and Reliability of the Instruments

Factor Analysis and Correlational Analysis were used to ensure construct validity. Additional validation by seven content and pedagogical experts was also employed for face and content validity. The instruments were initially pilot tested at the Kotebe University of Education with 78 prospective teachers. Internal consistency reliability of the scales both at the piloting and after final data collection were ensured by Cronbach's alpha. The Cronbach's Alpha at the end of the study for the knowledge domains were: CK (0.85), PK (0.89), TK (0.83), PCK (0.86), TCK (0.84), TPK (0.76), and TPCK (0.84), and for affective domains were: Motivation (0.73),

Engagement (0.73), and Perception (0.71). The overall reliability of knowledge domains was 0.83 and that of affective domains was 0.74 which shows that both are within the acceptable minimum range of 0.7.

Data Collection Procedures

After piloting, the English version of the instrument was translated into the medium of instructions that are used by each of the sampled institutions, i.e. Afan Oromo, Amharic, Tigrigna, and Hëmtana. This helped the would-be teachers to be able to fill the questionnaire in a language they use as a medium of instruction and help them respond meaningfully controlling the response errors that could emanate from language barriers. During the translation, both the original version and the forward-backward translated version in English were tested by prospective teachers who were not considered in the Study for the strength of association, and correlation was checked that verified a strong positive hold of working with the translated versions of the instruments. After finalizing those tasks data were collected during the regular academic calendar by deploying trained data collectors.

Methods of Data Analysis

The data collected for this Study were analyzed following each leading question. In addition, statistical techniques such as factor analysis were employed to identify factors that conduit knowledge and affective constructs of would-be teachers. The factor analysis classified TPCK and the three affective domain components into two addable clusters. Correlational analysis was also conducted for the association between the knowledge domains and affective domains and their components.

Results

Association between the Knowledge and Affective Components

An attempt was made to see the association between the set of variables on teachers' knowledge and that set of variables of preservice teachers' affective constructs. Table 1 shows that each pair of the seven knowledge domains was significantly correlated with a large effect size between PK and PCK, $r(468)=.80$, $p<.001$.

Table 1: Pairwise Inter-correlations, Means, and Standard Deviations for knowledge domain variables

	CK	PK	TK	PCK	TCK	TPK	TPCK1	TPCK2	Mean	SD
1. CK	--	.66**	.47**	.61**	.45**	.45**	.50**	.42**	3.95	.64
2. PK		--	.48**	.80**	.49**	.57**	.50**	.54**	4.22	.59
3. TK			--	.52**	.63**	.60**	.52**	.49**	3.52	.80
4. PCK				--	.58**	.60**	.54**	.56**	4.23	.61
5. TCK					--	.70**	.60**	.51**	3.82	.75
6. TPK						--	.50**	.63**	3.94	.72
7. TPCK 1 (Ability to operate technology)							--	.51**	3.06	.77
8. TPCK 2 (Actual usage of technology)								--	3.04	.84

**. $p < 0.001$

The Table shows that PK is positively and strongly associated with PCK. TPK was also positively correlated with TCK r(475)=.69, p<.001 which also has a large effect size according to Cohen (1988). In addition, CK and PK were strongly correlated r(564)=.66, p<.001.

Table 2 presents the association between the components of affective variables.

Table 2. Pairwise Intercorrelations for Affective Domain Variables

Affective variables	1	2	3	4	5	6	Mean	SD
1. Motivfactor1[2]	--	-.13**	.69**	-.23**	.47**	-.16**	4.35	.70
2. Motivfactor2[3]		--	-.08	.45**	-.03	.31**	2.45	.83
3. Engafactor1			--	-.19**	.61**	-.20**	4.19	.75
4. Engafactor2				--	-.15**	.36**	2.31	.83
5. Percfactor1					--	-.15**	3.92	.82
6. Percfactor2						--	2.27	.90

**. P < .001;

Table 2 shows that each pair of the three affective domain variables are significantly correlated. The strongest positive correlation with a large effect size was between positive motivation and positive engagement, r(439)=.69, p<.001. Positive engagement was also positively and significantly correlated with positive perception towards becoming a mathematics teacher r(445)=.61, p<.001 with a large effect size (Cohen 1988).

Cognizant of the associations between each subcomponent of the knowledge domains and the affective domains, it beseeched an interest in checking the association between the subcomponents of each domain.

Table 3. Pearson correlation between the knowledge domains vis-à-vis affective domains

Affective Domains	Motivation		Engagement		Perception	
	factor1	factor2	factor1	factor2	factor1	factor2
Knowledge Domains						
CK	.43**	-.02	.45**	-.12**	.36**	-.14**
PK	.44**	-.08*	.51**	-.15**	.35**	-.18**
TK	.28**	.09	.34**	-.02	.33**	-.07*
PCK	.49**	-.11**	.54**	-.21**	.39**	-.23**
TCK	.30**	-.00	.35**	-.10*	.36**	-.09**
TPK	.37**	-.02	.39**	-.15**	.34**	-.11*
TPCKFactor1	.37**	.02	.39**	-.15**	.34**	-.11**
TPCKFactor2	.41**	-.07	.46**	-.08*	.38**	-.15*

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

[1] Stands for positive affection; 2 Stands for negative affection; The same coding is valid for the others as well.

Table 3 indicates that all the knowledge domain subcomponents are significantly correlated with engagement and perception; and with the first factor of motivation (positive motivation). The only items that significantly correlate with the second factor of motivation (demotivation) were the PK and the PCK. The strongest positive correlation was between PCK and the first factor of engagement (engaging), r(442)=.54, p<.001 with a large effect size according to Cohen (1988) and showing that those who have relatively better PCK were likely to have better engagement. Therefore, PCK needs attention. PK is also positively correlated with engagement r(437)=.51, p<.001 with medium to large effect size according to Cohen (1988). Those that are significantly correlated with positive motivation were PCK, PK, and CK in order of their strength. From these, one can see that it is useful to focus on PCK, PK, and CK seeking the useful integration of content and pedagogy.

Canonical correlation analysis was performed for linear combinations of each group of variables. In this case, the possible number of pairs was limited to the number of variables in the smallest group, which in this case was six (the number of subscales of the affective domains). The following presents the canonical correlation and associated characteristics.

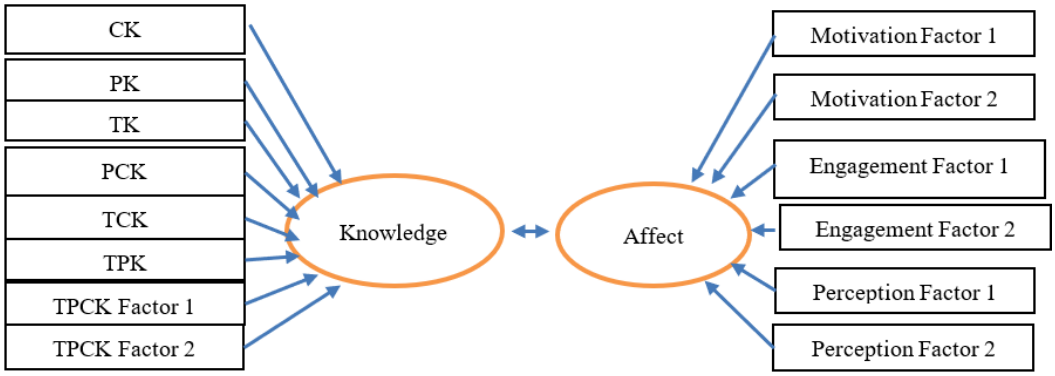


Figure 2: *Association between knowledge and affective constructs*

The Canonical correlation considered the eight knowledge domain variables as predictors of the six affective domain variables to evaluate the multivariate shared relationship between the two variable sets (Knowledge and affect). The analysis yielded six functions with squared canonical correlations (R2c) of .372, .044, .017, .008, .004, and .003. The first canonical correlation was found to be .61 (37.23% overlapping variance) and the second was .21 (4.37% overlapping variance). Peel-off test was also conducted from which all canonical correlations included Wilks' Lambda and corresponding tests revealed that the correlations are statistically significant, Λ =.582, F(48, 2552.84) = 6.195, p = .000 meaning that the two variables sets (knowledge and affection) have a relationship. The r2 type effect size was 1-.582=.418 which indicates that the full model explained a substantial portion, about 42% of the variance shared between the two variable sets, which is a large effect size.

Table 4: *Correlation and Standardized Canonical Coefficients between the knowledge domain and the affective domain variables*

Item Contents	First Canonical Correlation		Second Canonical Correlation	
	Loading	Coefficient	Loading	Coefficient
Knowledge Domains				
Content Knowledge	-.76	-.30	-.29	-.20
Pedagogical Knowledge	-.80	.00	-.08	-.27
Technological Knowledge	-.51	.12	-.62	-.75
Pedagogical Content Knowledge	-.93	-.60	.22	1.05
Technological Content Knowledge	-.65	-.03	-.33	-.14
Technological Pedagogical Knowledge	-.67	-.12	-.09	.29
TPCK Factor 1(ability to operate technology)	-.74	-.23	-.41	-.51
TPCK Factor 2 (practical usage)	-.56	-.01	-.06	.10
Affective Domains				
Motivation Factor 1 (Motivated)	-.82	-.33	.18	.26
Motivation Factor 2 (De-motivated)	.15	-.00	-.75	-.58
Engagement Factor 1(Engagement)	-.92	-.46	-.07	-.04
Engagement Factor 2 (Disengagement)	.39	.12	-.67	-.56
Perception Factor 1 (Positive Perception)	-.81	-.33	-.32	-.45
Perception Factor 2 (Negative Perception)	.33	-.00	.01	.39
Same Set % Variance	50.79		10.20	
Redundancy	18.91		.45	
Canonical Correlation	.61		.21	
r^2_c	37.23%		4.37%	
(sig)	(p < .001)			

Table 4 presents the standardized canonical function coefficients (loadings) and the structure coefficients (coefficients) for functions 1 and 2. Looking at the function 1 coefficients, one sees that the variables PCK, PK, CK, and TPCK Factor 1 were relevant primary predictors with TPK, TCK, TPCK Factor 2, and TK making secondary contributions to the synthetic variable (knowledge). All the variables' structure coefficients except PK and TK have the same sign, indicating that they were all positively related.

Discussion

Following the seminal work of Shulman (1986) that brought the idea of PCK, varying perspectives and interpretations of PCK have been taking place. Researchers such as Mishra and Koehler (2006) came up with the notion of TPCK (and later TPACK) incorporating technology. Though TPCK as a framework is believed to enhance quality, developing the notion of TPCK alone is insufficient unless the affective variables are also equally considered. According to Mishra, the TPACK framework is bound to culture and context (Mishra & Warr, 2021). Thus, the association between the synthetic variables of knowledge and affection and that of each of their components was critical to be investigated, especially within the cultural context of

Ethiopia in which the interest to become a teacher is either declining or considered a last choice, and the value of teachers reticent.

As presented in Table 2, Content, Pedagogy, and Technology are correlated with each other with the highest mean values of PCK and PK and smaller standard deviation. Thus, it is useful to deliberately work to associate content, pedagogy, and technology in teacher education programs, given that they are positively strongly correlated. According to Mishra and Koehler (2006), a teacher who can navigate between these interrelations acts as an expert who is different from a sole subject matter or pedagogy expert. Thus, paying attention to integrating these would add value to enhancing the peculiarities of PK and PCK which are useful for teaching specific content, and making the preservice trainees competent. As learners these days are technology natives, seeking a mechanism of integrating the three pillars of learning: content, pedagogy, and technology is more vital than presenting content and pedagogy separately. Designing courses that integrate content, pedagogy, and technology requires reviewing the existing courses and their delivery.

Though integrating content, pedagogy, and technology was found to be essential, nothing will be successful unless preservice teachers have positive psychological readiness, motivation, and interest to be successful learners who love the profession of teaching. As presented in Table 3, the three components of affect: motivation, engagement, and perception were found to be statistically significant in their association. Students who were motivated were the ones who equally had better engagement. Equally, the students who had better engagement were found to have better perceptions towards becoming a mathematics teacher $r(445)=.61$, $p<.001$ which can be taken as one indicator for enhanced professional competence. According to Davis et al (2009), the sorts of factors that tend to be identified as significant in discussions and studies of mathematics teacher development are focused on teachers themselves, including, for example, their beliefs about learning, their experiences with mathematics, and their attitude towards formal education. Enhancing positive motivation, as depicted above enhances engagement and perceptions which are useful in developing competence and the teaching profession. According to Bergmark et al. (2018), organizing teacher education programs drawing on multiple motives, which are expected to contribute positively to the completion of teacher education and teacher retention in future professions is important. Hence, addressing the affective issues of becoming a teacher in general and a mathematics teacher, in particular, is of primal importance that needs to be accounted for with cognitive developments in teacher education.

From the result presented in Table 4, all the knowledge domain subcomponents are significantly correlated with engagement, perception, and motivation. Those that are significantly correlated with positive motivation are PCK, PK, and CK in order of their strength. This shows the useful position of integrating content and pedagogy in teacher education programs.

From Table 4, one observes that integrating CK and PK is apparent and needs to be addressed. This is so because teachers' views, understanding, and practice evolve from their education and training but Ball et al., (2005) state subject matter knowledge – not only knowledge of the actual topics teachers teach but the special forms of mathematical knowledge that are particular to the

profession of teaching are needed. Equally, Turunklu and Yesildere (2007) stated that "if teachers do not know how to translate …[mathematical] abstractions into a form that enables learners to relate the mathematics to what extent they already know, they will not learn with understanding" (p.1). Therefore, integrating CK and PK is critical.

Despite the pairwise correlation of each of the components of both the knowledge and affective domains which showed varying degrees of associations, it was imperative to check the aggregate correlation that can be manifested between the knowledge and affective domains with the intent of identifying the common variance that required use of canonical correlation. The result of this canonical correlation is presented in Table 4 with a first factor loading of 37.23%, and this shows the importance of considering the design for joint consideration of knowledge and affect.

Some researchers emphasize the role technological knowledge plays in the competence of teachers (Mishra, 2020; Ramaila & Molwele, 2022). Some say technology enables teachers to rethink and refresh their pedagogy by providing opportunities rather than solutions for issues in mathematics instruction, explaining justified support of technology for pedagogy. Others counter-position this and indicate that merely using technology to replicate traditional lessons is not enough (Landry 2010) and the need to understand how teachers perceive students' use of these connected technologies in the classroom is of paramount importance (Luo & Murray, 2018). Mathematics teaching should maximize the potential of technologies to enrich and transform instruction and to take advantage of these opportunities, educators are required to think, work, and often experiment with technology (Bressoud, 2009). However, teachers generally appreciate the benefits of educational technologies, they often find smooth and effective integration of new educational technologies challenging. Therefore, integrating pedagogy and technology as indicated by the positive relation between PK and TK could enforce teachers' competence. At the TPCK level, however, content, area, and situation are predictor factors that need to be addressed (Mishra, 2020; Tara & Michele, 2008).

From Table 4, all canonical correlations that include the two variable sets (knowledge and affect) have a relationship with the r2 type effect size of .418 which indicates that the full model explained a substantial portion, about 42% of the variance shared between the two variable sets. In addition, the criterion variable set in function 1, positive engagement, positive motivation, and positive perception were the primary contributors to the criterion synthetic variable. Thus, focusing on TPCK that improves positive motivation, engagement, and perception is critically important in teacher education. The results tell us that if an effort is deployed towards PCK, PK, CK, and TPCK Factor 1 (the ability to operate technology) in their order of importance the future teachers will have better competence after graduation. In the Ethiopian context, however, Aklilu, and his colleagues, reported that:

> *we still have people who forcefully argue that the core of teacher education programs should be equipping prospective teachers with strong subject matter knowledge. Such people assume implicitly or explicitly that once the teacher has mastery of the subject matter, presentation of it will take care of itself* (Aklilu, et al. 2008, p. 23).

This saying goes without doubt that content knowledge alone is sufficient, but the finding of this Study challenges the primacy of the view towards the sufficiency of CK only. It calls for the consideration of the TPCK framework for knowledge development and boosting positive motivation, engagement, and perception so that preservice teachers will benefit from teacher education to be competent teachers and professionals. These results were supportive of the theoretically expected relationships between knowledge domains and affective domains, and the importance of each. In this regard, the affective side is thought to be among the most important qualities teachers should have (Cubuku, 2010) since teachers are more likely to exhibit more enthusiasm in the preparation and presentation of lessons when they are affectionate towards learners (Sandt, 2007), and tend to continuously engage in their professional development. The integration of technology in the classroom, however, needs to be practice-focused rather than techno-centrist tool-focused that persists in the system (Zinger, et al., 2017). Hence, the joint consideration of knowledge – integrating content, pedagogy, and technology and affect – integrating positive motivation, engagement, and perception is critical to produce competent future teachers, and these need to be considered in the reform efforts of teacher education programs. These also indicate both the direct and indirect impacts of strengthening the joint consideration of knowledge and affective dimensions on the selection of preservice teachers, the teaching-learning process in teacher education, and that of professional competence upon graduation. Sharma et al. (2008) and Kulgemeyer and Riese (2018) claimed that an emphasis on effective teaching strategies that improve both knowledge and attitude might also contribute to decreasing preservice teachers' concerns and foster their positive attitudes, and positive influence of the knowledge components they acquired in academic teacher education and on their teaching quality. Reviewing existing teacher education programs and curricula alongside such integration could also be one important implication. Ensuring the professional competence of preservice teachers shall also have far-reaching implications on student learning at schools.

Conclusion

Since both knowledge and affective domains were independently and synthetically correlated, and about 42% of the variance was shared between the two variable sets jointly considering these in teacher education is critically important, if not mandatory. Addressing an improvement of 42% of the variance through the joint consideration would also have reverberating impact on the teacher education program, and the quality of teaching-learning at schools where these preservice teachers would teach.

Recommendations

The following recommendations have been forwarded in relation to each specific research question.

- Since PCK, PK, CK, and TPCK factor 1 were found to have a strong impact on both affect and overall competence of would be teachers in their order of presentation, it is necessary to devise a mechanism for building the capacity of teacher educators to fulfill

the demands for PCK, PK, CK and TPCK and supply of resources so that preservice teachers could benefit during their stay in the teacher education programs.

- Since there was a strong correlation between knowledge and affective constructs, it would be good for concerned authorities to pay maximum attention to integrating both to impact the professional competence of preservice teachers.
- Since 42% of the variance was shared between the two variable sets of knowledge and affect, it is advisable to consider both jointly to bring a positive effect on teacher education which shall have an impact on both the preservice teachers and students at schools whom these preservice teachers would teach.

Limitation of the Study

The Study was cross-sectional where data was collected at one point in time. For generalizability, it may need mining more data and doing analysis. It is also based only on a sample of available graduating preservice teachers because of which it may lack the views of those who are at the beginning or in the middle of the teacher education program. Considering those may have contributed to a better conclusion.

References

Adler, J., Ball, D., Krainer, K., Lin, F.-L., & Novotna, J. (2005). Reflections on an Emerging Field: Researching Mathematics Teacher Education. Educational Studies in Mathematics, 60(3), 359–381. https://doi.org/10.1007/s10649-005-5072-6

Aklilu D., Alemayehu T., & Mekasha K. (2008). The Structure and Content of Secondary School Teacher Education Programs: International and National Experiences. Journal of Education for Development, 2(2), 1-57.

Anteneh Tefera, Mulugeta Atnafu, & Kassa Michael (2021). The Relevance of Current Ethiopian Primary School Teacher Education Program for Pre-service Mathematics Teacher's Knowledge and Teacher Educator's Awareness about Mathematics Knowledge for Teaching. EURASIA Journal of Mathematics, Science and Technology Education, 17(5), em1964, https://doi.org/10.29333/ejmste/10858

Ball, D. L., Hill, H. C., & Bass, H. (2005). Knowing Mathematics for Teaching: Who Knows Mathematics Well Enough to Teach Third Grade, and How Can We Decide? American Educator, 29(3), 14 – 22.

Ben-Peretz, M. (2011). Teacher knowledge: What is it? How do we uncover it? What are its implications for schooling? Teaching and Teacher Education, 27(1), 3–9. http://dx.doi.org/10.1016/j.tate.2010.07.015

Bergmark, U., Lundström, S., Manderstedt, L., & Palo, A. (2018). Why become a teacher? Student teachers' perceptions of the teaching profession and motives for career choice. European Journal of Teacher Education, 41(3), 266-281, https://doi.org/10.1080/02619768.2018.1448784

Blömeke S., Hsieh F., Kaiser G., & Schmidt W. (Eds.) (2014). International Perspectives on Teacher Knowledge, Beliefs and Opportunities to Learn: TEDS-M Results. New York: Springer

Blomeke, S., & Kaiser, G. (2017). Understanding the development of teachers' professional competencies as personally, situationally, and socially determined. In D.J. Clandinin & J. Husu (Eds.). The Sage Handbook of research on teacher education (pp. 783 – 802). India: SAGE Publications.

Blömeke, S., Delaney, S. (2012). Assessment of teacher knowledge across countries: a review of the state of research. ZDM Mathematics Education 44(3), 223–247. https://doi.org/10.1007/s11858-012-0429-7

Bressoud, D. M. (2009). Technology in support of the classroom. MAA Focus, 29(3), 9.

Buabeng I., & Akuamoah-Boateng C. (2019). Teaching as Inquiry: Teachers Understanding and its Implication for Teaching and Learning. World Journal of Education, 9(6), 45 - 56. https://doi.org/10.5430/wje.v9n6p45

Carlson, R. D., & Gooden, J. S. (1999). Are teacher preparation programs modeling technology use for pre-service teachers? ERS Spectrum 17(3), 11-15.

Cohen, J. (1988). Statistical power and analysis for the behavioral sciences (2nd ed). Hillsdale, NJ: Lawrence Erlbaum Associates

Cohen, L., Manion, L. & Morrison, K. (2007). Research Methods in Education (6th ed). USA, Routledge

Cubukcu, F. (2010). Student teachers' perceptions of teacher competence and their attributions for success and failure in learning. The Journal of International Social Research, 3(10), 213-217.

Davis, B. & Brown, L. (2009). Development of Teaching in and From Practice. In R. Even & D.L. Ball (Eds.), The Professional Education and Development of Teachers of Mathematics: The 15th ICMI Study (PP.149-166). New York: Springer. https://doi.org/10.1007/978-0-387-09601-8_15

Delaney, S., Ball, D.L., Hill, H.C., Schilling, S.G., & Zopf, D. (2008). Mathematical knowledge for teaching: adapting U.S. measures for use in Ireland. Journal of Mathematics Teacher Education, 11(3), 171-179. http://dx.doi.org/171-197. 10.1007/s10857-008-9072-1

Ekperi, P., Onwuka, U., & Nyejirime, W. (2019). Teachers' attitude as a correlate of students' academic performance. International Journal of Research and Innovation in Social Science (IJRISS), 3(1), 205-209.

Even, R. & Tirosh, D. (2008). Teachers' Knowledge and Understanding of Students' Mathematical Learning. In L.D. English (Ed.), Handbook of International Research in Mathematics Education (pp. 219 – 240). Mahawaj, NJ: Lawrence Erlbaum Associates.

Fabris, M.A, Roorda, D & Longobardi, C. (2022) Editorial: Student-teacher relationship quality research: Past, present and future. Frontiers in Education, 7:1049115. https://doi.org/10.3389/feduc.2022.1049115

Fink A. (2013). How to conduct surveys: A step-by-step guide (5th ed). United States of America, Los Angeles, SAGE

Franke, M.L., & Kazemi, E. (2001). Learning to teach Mathematics: Developing a Focus on Students' Mathematical Thinking. Theory into Practice, 40(2), 102-109

Guerriero, S. (ed.) (2017), Pedagogical Knowledge and the Changing Nature of the Teaching Profession, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264270695-en

Haleem, P.A., Javaid, D.M., Qadri, P.M., & Suman, D.R. (2022). Understanding the Role of Digital Technologies in Education: A review. Sustainable Operations and Computers, 3, 275-285. https://doi.org/10.1016/j.susoc.2022.05.004

Hannula, J. (2017). Subject matter knowledge and pedagogical content knowledge in the learning diaries of prospective mathematics teachers. In T. Dooley, & G. Gueudet (Eds.), Proceedings of the Tenth Congress of the European Society for Research in Mathematics Education (Vol. 2017) (pp. 3312-3319). Dublin City

Harris, J., Mishra, P., & Koehler, M. (2007). Teachers' technological pedagogical content knowledge: curriculum-based technology integration reframed. Paper presented at the 2007 Annual Meeting of the American Educational Research Association, Chicago, IL.

Harris, J., Mishra, P., & Koehler, M. (2009). Teachers' technological pedagogical content knowledge and learning activity types. Journal of Research on Technology in Education, 41(4), 393–416. https://doi.org/10.1080/15391523.2009.10782536

Herron, J. (2010). Implementation of Technology in an Elementary Mathematics Lesson: The Experiences of Pre-Service Teachers at One University. SRATE Journal, 19(1), 22-29.

Hill, H. C., & Chin, M. (2018). Connections between Teachers' Knowledge of Students, Instruction, and Achievement Outcomes. American Educational Research Journal, 55(5), 1076–1112. https://doi.org/10.3102/0002831218769614

Hill, H. C., Ball, D. L., & Schilling, S. G. (2008). Unpacking Pedagogical Content Knowledge: Conceptualizing and Measuring Teachers' Topic-Specific Knowledge of Students. Journal of Research in Mathematics Education, 39(4), 372 – 400. https://doi.org/10.2307/40539304

Hill, H.C., Rowan, B., & Ball, D.L. (2005). Effects of Teachers' mathematical knowledge for teaching on student achievement. American Educational Research Journal, 42(2), 371-406. https://doi.org/10.3102/00028312042002371

Johnson, A. M., Jacovina, M. E., Russell, D. E., & Soto, C. M. (2016). Challenges and solutions when using technologies in the classroom. In S.A. Crossley & D.S. McNamara (Eds.), Adaptive educational technologies for literacy instruction (pp. 13-29). New York: Taylor & Francis.

Kassa Michael (2015). Mathematics Teacher Education and Teachers Professional Competence. Unpublished Dissertation, Addis Ababa University.

Kim S. (2018). Technological, Pedagogical, and Content Knowledge (TPACK) and Beliefs of Preservice Secondary Mathematics Teachers: Examining the Relationships. EURASIA Journal of Mathematics, Science and Technology Education, 14(10), em1590, https://doi.org/10.29333/ejmste/93179

Klassen, R. M., Perry, N. E., & Frenzel, A. C. (2012). Teachers' relatedness with students: An underemphasized component of teachers' basic psychological needs. Journal of Educational Psychology, 104 (1), 150–165. https://doi.org/10.1037/a0026253

Koehler, M.J., & Mishra, P. (2008). Introducing TPCK. In AACTE Committee on Innovation and Technology (Ed.), The handbook of technological pedagogical content knowledge (TPCK) for educators (pp. 3-29). New York, NY: Routledge.

Kulgemeyer, C., & Riese, J. (2018). From professional knowledge to professional performance: The impact of CK and PCK on teaching quality in explaining situations. Journal of Research in Science Teaching, 55(10), 1393–1418. https:/doi.org/10.1002/tea.21457

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional Competence of Teachers: Effects on Instructional Quality and Student Development. Journal of Educational Psychology, 105(3), 805– 820. https://doi.org/10.1037/a0032583

Landry, G. A. (2010). Creating and Validating an Instrument to Measure Middle School Mathematics Teachers' Technological Pedagogical Content Knowledge (TPACK); PhD dissertation, University of Tennessee. http://trace.tennessee.edu/utk_graddiss/720

Luo, T., & Murray, A. (2018). Connected Education: Teachers' Attitudes towards Student Learning in a 1:1 Technology Middle School Environment. Journal of Online Learning Research 4(1), 87-116

Ministry of Education (MOE) (2008). Annual Intake and Enrollment Growths and Professional and Programme Mix of Ethiopian Public Higher Education: Strategies and Conversion Plan, 2001 – 2005, Addis Ababa, April 2008.

Ministry of Education (MOE) (2010). Education Sector Development Program IV (ESDP IV) 2010/11 – 2014/15. Program Action Plan, Addis Ababa, August 2010.

Ministry of Education (MOE) (2010a). Concept Paper and Strategies for Improving Science and Mathematics Education in Ethiopia. Addis Ababa, December 2010.

Ministry of Education (MOE) (2020). General education curriculum framework k – 12, Addis Ababa, December 2020.

Mishra p. (2020). Research: TPACK, TPACK | Punya Mishra's Web

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record, 108(6), 1017-1054.

Mishra, P., & Warr, M. (2021). Contextualizing TPACK within systems and culture of Practice. Computers in Human Behavior. 117, 106673. https://doi.org/10.1016/j.chb.2020.106673

National Council of Teachers of Mathematics (NCTM) (2000). Principles and Standards of School Mathematics. Reston, VA: Author.

Nenty, H. J., Moyo, S., & Fiji, P. (2015). Perception of teaching as a profession and UB teacher trainees' attitude towards training programme and teaching. Educational Research and Reviews, 10(21), 2797-2805, https://doi.org/10.5897/ERR2015.2441

Niess, M. L., Ronau, R. N., Shafer, K. G., Driskell, S. O., Harper S. R., Johnston, C., Browning, C., Özgün-Koca, S. A., and Kersaint, G. (2009). Mathematics teacher TPACK standards and development model. Contemporary Issues in Technology and Teacher Education, 9 (1), 4-24.

Organization for Economic Cooperation and Development (OECD) (2009). Teaching Practice, Teachers' Beliefs and Attitudes in Creating Effective Teaching and Learning Environments. In Creating Effective Teaching and Learning Environments: FIRST RESULTS FROM TALIS (PP.88-135). Paris: OCRD publishing

Ramaila, S., & Molwele, A.J. (2022). The Role of Technology Integration in the Development of 21st Century Skills and Competencies in Life Sciences Teaching and Learning. International Journal of Higher Education. Researching mathematics teacher education. Educational Studies in Mathematics, 60 (3), 359-381, https://doi.org/10.1007/s10649-005-5072-6

Richardson V. (1996). The Role of Attitudes and Beliefs in Learning to Teach. In J. Sikula (Ed.), Handbook of Research on Teacher Education (pp.102 – 119). NewYork: Macmillan Library.

Sadler, P.M., Sonnert, G., Coyle, H.P., Cook-Smith, N. & Miller, J.L. (2013). The Influence of Teachers' Knowledge on Student Learning in Middle School Physical Science Classrooms. American Educational Research Journal, 50(5), 1020–1049. https://doi.org/10.3102/0002831213477680

Sandriyani, M., Fitria, H., & Wahidy, A. (2021). The Influence of Teacher Competence and Motivation on The Teacher's Performance of SMP Negeri 11 Palembang. Advances in Social Science, Education, and Humanities Research, volume 565, Proceedings of the International Conference on Education Universitas PGRI Palembang (INCoEPP 2021). https://doi.org/10.2991/assehr.k.210716.260

Sandt S., V. (2007). Research Framework on Mathematics Teacher Behaviour: Koehler and Grouwns' Framework Revisited. Eurasia Journal of Mathematics, Science and Technology Education, 3 (4), 343 – 350

Schmidt D. A., Baran E., Thompson A. D., Mishra P., Koehler M. J., & Shin T. S. (2009). Technological Pedagogical Content Knowledge (TPACK): The Development and Validation of an Assessment Instrument for Preservice Teachers. Journal of Research on Technology in Education JRTE, 42(2), 123–149.

Schoenfeld, A., H. (2005). Mathematics Teaching and Learning: A draft for the Handbook of Educational Psychology, Second Edition

Schoenfeld, A., H. (2010). How we think: A theory of goal-oriented decision making and its educational applications. New York: Routledge.

Senk S. L., Peck R., Bankov K., & Tatto M. T. (2008). Conceptualizing and Measuring Mathematical Knowledge for Teaching: Issues from TEDS-M, an IEA Cross-National Study. Paper presented at ICME-11, Topic Study Group 27 in Mexico.

Sharma, U., Forlin, C., & Loreman, T. (2008). Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. Disability & Society, 23(7), 773–785. https://doi.org/10.1080/09687590802469271

Shulman, L. S. (1986). Those Who Understand: Knowledge Growth in Teaching. Educational Researcher, 15(2), 4 – 14.

Solomon Areaya (2022). The Use of Contract and Open-ended Teachers in Ethiopia: Understanding their Status and Professional Context. Staff and Educational Development International, 25 (1), 143-161.

Tara, E. H. & Michele, W. S. (2008). Supporting Teachers' Use of Technology in Science Instruction through Professional Development: A Literature Review Source: Journal of Science Education and Technology, 17(5), 511-521.

Tatto, M. T., Schwille, J., Senk, S.L., Ingvarson, L., Rowley, G., Peck, R., et al. (2012). Policy, Practice, and readiness to teach primary and secondary mathematics in 17 countries: Findings from the IEA Teacher Education Development Study in Mathematics (TEDS-M), Amsterdam: International Association for Educational Achievement (IEA).

Tatto, M.T., Schwille, J., Senk, S.L., Ingvarson, L., Peck, R., & Rowley, G. (2008). Teacher education and development study in mathematics (TEDS-M): Policy, Practice, and readiness to teach primary and secondary mathematics, Conceptual framework. East Lansing, MI: Teacher Education and Development International Study Center, College of Education, Michigan State University.

Temechegn Engida (2011). ICT-enhanced teacher development model UNESCO- IICBA. Addis Ababa, Ethiopia: United Nations Economic Commission for Africa.

Tesfaye S. (2014). Teacher preparation in Ethiopia: a critical analysis of reforms, Cambridge Journal of Education, 44(1), 113-145. https://doi.org/10.1080/0305764X.2013.860080

Turnuklu E. B. & Yesildere S. (2007). The Pedagogical Content Knowledge in Mathematics: Pre-Service Primary Mathematics Teachers' Pre-service in Turkey. IUMPST: The Journal, Vol. 1.

UNESCO-IIEP (2022). Teacher Content Knowledge. Retrieved from https://policytoolbox.iiep.unesco.org/policy-option/teacher-content-knowledge

Warr, M., Mishra, P., & Scragg, B. (2019). Beyond TPACK: Expanding technology and teacher education to systems and culture. Society for Information Technology & Teacher Education International Conference, 2233 – 2237. www.learntechlib.org/primary/p/208009

Wolpert-Gawron H. (2020). Professional Learning: Focusing on Teacher Engagement to Improve Professional Development. Edutopia, Retrieved from https://www.edutopia.org/article/focusing-teacher-engagement-improve-professional-development

Wuryaningtyas E.T., & Setyaningsih Y. (2020). Improvement Bases of Teachers' Technological Knowledge in the Implementation of Computer-Based Learning. Advances in Social Science, Education and Humanities Research, volume 509, 4th International Conference on Language, Literature, Culture, and Education (ICOLLITE 2020). https://doi.org/10.2991/assehr.k.201215.034

Zinger D., Tate T., & Warschauer M., (2017). Learning and Teaching with Technology: Technological Pedagogy and Teacher Practice. In Clandinin, D. J., & Husu J. (Eds), The SAGE Handbook of Research on Teacher Education (pp.577-593) Chapter: 33.

Zorlu, F., & Zorlu, Y. (2021). Investigation of The Relationship Between Preservice Science Teachers' 21st Century Skills and Science Learning Self-Efficacy Beliefs with Structural Equation Model. Journal of Turkish Science Education, 18(1), 1-16. https://doi.org/10.36681/tused.2021.49

Assessing the Implementation of Environmental and Sustainability Education: The Case of Robe College of Teacher Education

Kedir Gebi* (kegebitufa4@gmail.com)

* Addis Ababa University, Addis Ababa, Ethiopia

DOI: https://doi.org/10.20372/ejtel.v1i2.10163
Received: February 28, 2023; Revised: June 26, 2023;
Accepted: December 9, 2023

Abstract

This study aimed at assessing the implementation of environmental and sustainability education by Robe College of Teacher Education staff in Oromia Regional State, Ethiopia. The study sought to assess (1) staff perception towards environmental and sustainability education; (2) teaching strategies used by teachers while implementing environmental and sustainability education (3) environmental issues addressed during environmental and sustainability education; and, (4) factors hindering the implementation of environmental and sustainability education. A mixed research methods were employed to collect data for the study. Household survey, key informant interview and personal observation were the sources of data. Five management committee members, thirty teachers selected from all the departments, and five work team leaders were included in the sample. Descriptive statistics (frequencies, percentages, mean and standard deviation) was employed for data analysis using statistical package for social sciences (SPSS) software version 20. Result revealed that although the staff had positive perception towards environmental issues, and there were some effort to create awareness; respondents' understanding was found to be low, and practices of environmental measures had great variations. The interview and observation results were consistent with the quantitative findings. In short, the result implies that the staff need to be better familiarized with the notion of environment and sustainability; the teacher education curriculum needs to be revisited. Besides, there should be an effective law enforcement mechanism for effective implementation of environmental activities.

Keywords: *environment, environmental sustainability, sustainability education, implementation of environmental and sustainability education*

Introduction

The importance attached to education for sustainable development has grown over the past three decades or so throughout the world. The Rio Summit is largely responsible for the term "education for sustainable development (ESD)" which is now used more broadly than "environmental education". Sustainability in higher education is encouraged by governments in many nations, particularly in Europe and several emerging nations, and has resulted in profound ideals in many fields and professions that characterize complex and interdisciplinary nature having social, economic and environmental relevance (Stevenson, 2007). According to Kasimov et al., (2002), resolutions made in the Ministerial Conference on the Environment and the Global Summit in Johannesburg strongly indicate that ESD should be one of the top priorities for the international community. Buckler and Creech (2014) also suggested that the United Nations

decade for Education for Sustainable Development has made educational strategies to support the social transition to sustainability through the formal education system, as well as non-formal and informal learning environment. Furthermore, it was indicated that education for sustainability must emphasize the connectivity of many stakeholders thus; teachers worldwide have started sustainability education projects at the local level focusing on a variety of topics, and civil society partners have developed initiatives to embed education for sustainable development in non-formal settings and educational institutions.

Education for sustainable development, as explained by Tibaijuka (2007), continues to set up thorough teaching and learning procedures that place an emphasis on an interdisciplinary and holistic approach that encourages critical thinking and creativity in education. It promotes this goal based on the idea that human behavior may be changed to stop environmental destruction tendencies. Cooper et al.'s (2000) study also has revealed that the involvement of students in active teaching learning process and the participation of societies in environmental issues lead to considerable improvement in retention of knowledge. And further, it enhances motivation and results in higher order learning and development of practical skills. This implies that professionals' participation in active learning processes and societies' involvement in environmental concerns significantly boost students' knowledge and motivation, which in turn can bring about higher order thinking, better experience and good practical skills.

However, as reported by scholars such as Didham and Ofei-Manu, 2018 and Jickling and Wals, 2008, education for sustainability can assure human kind's survival in the future. Besides, Ockwell et al. (2010) argue that maintaining a harmonious balance between humans and nature has been one of modern society's greatest challenges. While describing the contribution of education in the context of sustainability, they further argued that education in developing countries is not saving their respective nations. This shows that despite the fact that the problems' scope varies from local to global, modern human society is grappling with serious social, economic, and physical environmental issues like climate change, depletion of natural resources, and biodiversity loss. There is an indication that the issue of environmental sustainability hasn't been fully incorporated into the curriculum so that it might not be well understood by the majority in educational institutions. Tal and Peled (2017) confirmed that increased un-sustainable lifestyles and environmental issues could be resulted from the difficulty of integrating environmental and sustainability education in educational institutions.

In Ethiopia, policy-wise, the education and training Policy of 1994 gives due emphasis to environmental and sustainability issues both in its vision and objectives by focusing on developing students' creative, productive, and problem-solving ability and skills, and addressing the needs and problems of the society (Serageldin et al., 1998). Thus, it was hoped to produce citizens who possess national and international outlook on the environmental issues. This is an indication that education has been given a key role policy-wise in solving problems and bringing sustainable development to Ethiopia. Specifically, Aklilu (2012) noted that teacher education colleges are in the position to provide a more coherent setting to integrate place-based environmental and development issues. They can play a significant role in enhancing the culture

of critical thinking among the various segments of the society although issues centering on environmental education and sustainability are sparsely incorporated. Moreover, through critical observation it could be noticed that some teachers in the educational institutions reduce the process of teaching and learning to a one focusing on transferring knowledge written in curricula materials into their students' mind. Against this backdrop, this study seeks to assess the implementation of environmental and sustainability education among college staff.

Statement of the Problem

The integration of education for sustainable development into teacher education has so far achieved only limited success; internationally only very few teachers have had any exposure in their training to sustainability issues (Gough, 2016).

In Ethiopia, several researchers (e.g. Aklilu, 2006; Gebrekidan, 2006; Girma, 1994) conducted studies on teachers' awareness and attitudes toward environmental and sustainability issues in Ethiopia coming up with different results. For instance, Girma (1994) pointed out that nearly half of the trainees in the teacher education institutions of Ethiopia who took part in the study primarily aimed at assessing the integration of environmental education had only very little mastery of environmental knowledge. Similarly, Gebrekidan (2006) reported that, in terms of training, there was a severe shortage of teachers with adequate training on issues related to the environment. Another study conducted by Dalelo (2011) identified that one of the most obvious gaps in environmental challenges is the underdeveloped integration of climate change education in the nation's formal education system. Moreover, the author has made clear that poor learning outcomes are frequently the result of excessively bookish and didactic modes of instruction, which are frequently caused by low levels of practical engagement on the part of educational institutions, a lack of teacher preparation, and an exam-driven system. The study also indicated that lack of institutional capacity and a shortage of trained human resources which had a meaning for low-level implementation of sustainability education are other obstacles. In other words, as Ethiopia aspires to achieve sustainable development by putting its people at the core of the three pillars (social, economic, and environmental), the education system has a considerable lack and needs a system that enhances pedagogy and gives students the chance to learn about the state of the nation's environmental issues, the causes of those issues, and strategies to encourage remedies through environmental sustainability education.

The studies conducted in Ethiopia indicate that while the significance of teacher education has been recognized, at least at policy level, as a key factor in implementing environmental and sustainability education system, there is a recognizable lack of awareness and attitudinal differences of the complex inter-relationship between environment and education as the major factor contributing to the implementation of social, economic, and bio-physical environmental problems prevailing in Ethiopia. In addition, previous studies (e.g. Gebrekidan, 2006; Girma, 1994) concentrated more on exploring teachers' understandings and awareness of education for sustainable development in general terms. Practical experience and understanding emerged from the studies show the existence of gaps between the intended environmental and sustainability education goals and what is being practiced in educational organizations. Particularly, at Robe

College of Teachers Education (based on informal discussion with some staff and practical observation), the College community has significantly conflicting understanding on environmental and sustainability education. Workers lack a grasp of environmental and sustainability education, including its socio-economic benefits and necessity. Furthermore, many of the teaching methods employed by teachers to teach students are conceptual and rarely practiced. This, in turn, has a substantial impact on graduates' ability to illustrate the importance of environmental and sustainability education in the bio-physical and socio-economic environment of their local community. Besides, this problem is not recently studied and it was difficult to find empirical evidence on staff's awareness, perceptions, and practical implementation of environmental and sustainability education strategies at college level.

Objective and Research Questions

Because environmental issue is among global concerns and its all-time study is valuable, this Study attempts to assess the implementation of environmental and sustainability education strategies particularly at Robe College of Teacher Education (CTE) in Oromia Regional State, Ethiopia. Therefore, the study aimed to answer the following specific research questions: (1) How do the College staff perceive environmental and sustainability education? (2) What teaching strategies do teachers use in implementing environmental and sustainability education? (3) What practices related to social, economic, and biophysical environmental issues indicated environmental sustainability strategies in the College? (4) What are the hindering factors and, in turn, solutions for the implementation of environmental and sustainability education strategies in the College?

Literature Review

Conceptual Overview: Environmental Education, Education for Sustainable Development and Education for Sustainability

Environmental Education: the term "environmental education" first appeared toward the end of the 1960s and is generally used to describe any educational activity (conducted in or outside of the classroom). It aims to impart knowledge about the natural and social environments, encourage respect for the environment and fellow humans, and provide instruction in working to improve both (Tal, 2017). We teach students that they are a part of or apart from the natural world by what is included in or deleted from the curriculum. Stapp et al. (1969) stated that environmental education should be an integral part of the education process. It aims at practical problems of an interdisciplinary character; build a sense of values; and contribute to public wellbeing. The author further explains that the main focus of environmental education should be on the learners' initiative, their participation in activities, and guidance from both the current and upcoming topics of concern. However, interdisciplinary education started to gain widespread acceptance in the 1980s.

Education for Sustainable Development: the Brundtland Commission (formerly the World Commission on Environment and Development) defined sustainable development as development that meets the needs of the present without compromising the ability of future generation to meet their own needs (Brundtland et al., 1987). This concept recognized that while

development may be required to satisfy human needs and enhance quality of life, it must not be done at the expense of the environment's ability to support both current and future requirements. Hence, the notion of sustainability evolved in the 1990s and it involved consideration of how current environmental actions may influence future generations emphasizing that each nation must determine its own appropriate path (Tilbury, 1995). More recently, education for sustainable development, which is based the idea of education for sustainability (EfS) was developed and broadly incorporated democratic values, civil cooperation, social values, and environmental education components; and that can be considered as the contemporary face of environmental education; and in the words of Sauvé (2005) as the path that the world needs to follow.

One of the goals of education for sustainable development is to prepare students for an active role in a society that places a priority on sustainability. It is argued that 1970s and 1980s were considered as turning point for public concern about the environment. These years demonstrated increased effort to integrate environmental programs into their educational systems at all levels. Their programs also aimed at producing an informed citizenry, who care about the future of the planet and engage in appropriate pro-environmental behaviors (Palmer, 1998).

Education for Sustainability: Wals (2014) argued that an important goal of sustainable development is to get a thorough grasp of the sustainability challenges that are at stake, both now and in the future, in the context of active citizenship in society although, because of how quickly and constantly the world changes, what we consider today may not be so tomorrow. Because sustainability issues, as noted by Lambrechts et al. (2013), are characterized by complexity and uncertainty. Education for sustainable development must evolve in order to be able to provide the skills and competencies that enable it to deal with this complexity and uncertainty. As a result, education for sustainable development calls for societies to be flexible, adaptive, and resilient. Based on this, various levels of education for sustainable development related works are being carried out at the global level. For instance, the United Nations Economic Commission for Europe (UNECE) Strategy for education for sustainable development endorsed by UNECE member states in 2005 as an operational tool to achieve its goal commits governments to integrate sustainable development concepts into their formal, informal and non-formal education systems, and is currently being implemented in a large number of European Union states (Jucker & Nuoffer, 2015).

Higher Education's Role in Environmental and Sustainability Education

The emphasis of higher education institutions should be to promote interdisciplinary thinking and analysis, which is the basis of sustainable development. This can be done by teaching the more complex interrelations between economic, social and environmental concepts. This is being done in several countries at the tertiary level in terms of the concept of sustainable development within particular academic disciplines and in terms of the institutions' day-to-day operations (Zervakis & Wahlers, 2007). Sustainability education must go beyond teaching environmental problems and the three pillars and need to include a more integrated set of

principles (Gibson, 2006), which better reflect the interdisciplinary nature of the concept and the need to address tradeoffs between environmental, economic and social outcomes.

The role of higher education institutions with regard to environmental sustainability initiatives is becoming more and more common as environmental sustainability becomes a global issue of rising importance. Colleges and universities must actively contribute to the sustainability movement as their purpose is to educate society's citizens. Even if students are accustomed to their surroundings, each university is distinct and has its own culture, approach, and geographic region that it can solve concerns and challenges pertaining to the local as well as the national and international community by using their current expertise and skilled people. According to Ram (2014), by creating strong regional information networks, colleges and universities can share information and may encourage respect for human rights and friendly neighborhood relationships. This indicates that they have a responsibility and a right to point out any issues. They can actively promote environmental balance by developing instruments to address these complex social, cultural, and environmental issues. In short, teaching program, research and community service activities should all contribute to the establishment of sustainable education.

Teaching Program

The framework of the curricula in the teaching program should include the necessary information regarding environmental issues. Dresner and Gill (1994) argue that young students require the greatest ability to educate the public about the state of the environment today outside the classroom. Thus, students should become familiar with all the knowledge and abilities pertaining to the environment. The curriculum ought to inspire students to get involved and address environmental issues. In addition, as noted by Erdogan and Uşak (2009), teaching and learning outside of the classroom as a part of extracurricular activities or non-formal activities offers opportunities to develop environmental awareness, environmental consciousness, and environmental responsibility. It has a critical position in the fields of environmental education and education for sustainable development.

Research

Higher education is not complete without research. Research is an investigative tool for learning new facts or seeking out novel concepts for the advancement of society and an individual. Higher education research, according to Ayeni (2010), is regarded as one of the most potent tools for environmental development worldwide, particularly in the promotion of healthy environment, the sustainability of resources, and the conservation of non-renewable resources for the benefit of society and mankind. This indicates that higher education research must have an impact on policy that would help society's transition to sustainable way of living. Therefore, scientific studies conducted on issues related to environmental sustainability in higher education institutions are particularly pertinent to both local and regional development processes as well as the national science systems.

Community Services

In order to improve the ability for research and teaching, and to build capacity to provide an appropriate solution to the problem in society, higher education institutions must establish long lasting relationships between academic institutions and communities (Kerr, 2001). Such initiatives by higher education institutions are crucial to the development of communities. Higher education institutions must engage in community-based research if they are to support a robust knowledge-based economy in their nations. Increased productivity and income from these activities can help nations make significant strides in advancing their social, economic, scientific, technical, and political developments. Stevenson (2007) argues that educational institutions can help students become more competent and knowledgeable with the demands of their societies that are supportive of sustainable development. In addition, according to Jadhav et al. (2014), students of today have to be thought to be the generation that cares the most about the environment, and students from which future leaders in the community will be drawn.

Environmental and sustainability education: Potential for people's empowerment

Environmental education encourages citizens to make wise decisions about their environmental behavior based on the awareness, information, skills, and attitudes instilled in them (Walker, 1997). The author noted that as a multidisciplinary field that draws from the social, physical, and biological sciences, the discipline uses a variety of methods and resources. To achieve its objectives, it relies on both formal and informal teaching techniques which are ultimately helpful in motivating citizens to take informed decisions that are beneficial to the environment and development.

Fien and Tilbury (2002) claim that environmental education can be an approach that bridges a variety of learning styles from a variety of nontraditional, multiple intelligences like naturalistic, interpersonal, or intrapersonal intelligences. The researchers further argue that the methodology and objectives of environmental and sustainability education can be incorporated into Agenda 21's goals for sustainable development in education, and education that emphasizes sustainable development and critical thought that has a higher chance of success. Hence, its nature makes it an ideal strategy for development generally as well as the improvement of teachers' and students' knowledge and skills regarding environmental issues. Notably, Kollmuss and Agyeman (2002) state that environmental and sustainability education can empower communities to cultivate, conserve, and thereby maintain healthy interplay between elements in the overall process of a system. It can also play a significant role in achieving desired behavioral change by educating people about the biophysical and socioeconomic environment, equipping them with necessary knowledge and skills for manipulating it, and promoting positive environmental behaviors.

Research Methodology

Description of the Study Area: The study was conducted at Robe College of Teachers Education which is located in Robe town of Bale zone, Oromia regional state. The study area is located at about 432 km away from Addis Ababa, Ethiopia's capital.

Methodology: This Study employed a mixed-method research design in order to gather relevant data about the practicability and come to reliable conclusions. A mixed research approach was employed where the qualitative approach helped to hear the voices and sense the feelings of respondents. Similarly, the quantitative approach was used to obtain detailed information and statistically analyze survey responses. According to Creswell (2003), a mixed research approach has come of age since the mid-1990s and also referred to as a multi-modal design and it is a way of capitalizing on the value of both quantitative and qualitative methods. In addition, Morse and Niehaus (2009) define mixed method research design as being concerned with the use of two or more research methods in a single study, when one of these methods is not complete in itself. Basing this, this Study also incorporated qualitative and quantitative methods to obtain in-depth information.

Sampling procedures: For the selection of survey participants, eleven departments in the college were purposefully included. Thus, out of a total of 70 academic staff, 30 instructors were selected through simple random probability sampling technique. Besides, 5 management committee members, 5 supportive staff work team coordinators and 2 club coordinators were included in the study using purposive non-probability sampling technique for the purpose of interviewing.

Data collection methods: the study used household survey questionnaire (both open-ended and close-ended questions), interviews, and personal observation to gather primary data. For the close-ended survey questionnaire, a true/false item, multiple choice items, and statements with a response format of five points Likert Scales were used to identify the sources of knowledge, the teaching strategies, and factors hindering the implementation of environmental activities; and statements which reflect practical activities were used to assess environmental and sustainability education issues. The content validity of the survey questionnaire was scholarly assessed by the colleagues and its reliability was determined by conducting a pilot study before the actual use. Finally, the results of data collected from household surveys, interviews, and observations were triangulated. In addition, to collect qualitative data, the researcher developed eight key questions and carried out interviews with management committee members, work team coordinators and the club coordinators of the college. The interview, which lasted for 20 minutes (on average) with each interviewee, was conducted in Afan Oromo and finally translated to English for data analysis. Moreover, the researcher used document analysis method to collect and analyze secondary data.

Data analysis methods: the qualitative data were discussed in text to explain the study's findings whereas the quantitative data were analyzed using the Statistical Packages for Social Sciences (SPSS-20 Version), and descriptive statistics such as frequencies, percentages, means and standard deviation were used to summarize, describe and interpret the study findings.

Ethical considerations: the researcher has clearly stated the purpose of the study and its benefit for the institution and the nation as a whole, kept the anonymity of participants and

confidentiality of their responses, and respected the human interest and safety of those people who participated in this study. Besides, all the pictures were used in the document with permission.

Results

Survey respondents' profile:

Regarding the respondents' sex and educational background information, among the 30 survey participants, 28 (93.3%) were male and 2 (6.7%) were female; and 27 (90%) had masters' degree (M.A., M.Sc., or M.Ed.) and 3 (10%) had bachelor's degree (B.A., B.Sc., or B.Ed.). This implies that the educational background (level) helped the study process since each respondent was supposed to possess at least good awareness about the issue and thereby could provide information that can enhance the quality of the study.

Concerning interviews, among 10 key informants, 8 were male and 2 were female. Regarding their educational background, both female respondents hold first degree (B.A/B.Sc.) whereas 3 of the male respondents hold second degree (M.A/M.Sc.) and 5 hold first degree (B.A/B.Sc.). The educational background helped the study process in a way that each informant had at least good awareness about the issue and could give information that can enhance the quality of the study.

I. Teachers' understanding and perception towards environmental and sustainability education

Three specific concepts were provided in response to the first fundamental research question. The concepts deal with teachers' perceptions and understandings of environmental and sustainability education.

1. Teachers' understandings about environmental and sustainability education

Three categories of responses were found for the open-ended questions regarding teachers' understandings or awareness of environmental and sustainability education.

First, some respondents had a good understanding of the issue. However, they replied differently. Their responses could be summarized as: environmental and sustainability education is about using resources in a sustainable way in order to benefit the coming generations; it is about educating individuals as to how to use and sustain the environment for the future; it is education about creating a healthy relationship between human living system and the earth as well as environmental responsibility; it is about teaching students to use and conserve about their environment continuously; it is about conservation of the environment; it is education that allows individuals explore environmental problems and engage in actions; it is an education through which we acquire knowledge to conserve natural resources and support the wellbeing of living standard. Second, seventeen respondents had a limited scope understanding. They responded to the concept relating only to using various teaching methods and performing the teaching-learning process in the class. Thirdly, eight respondents revealed that they were unaware of the problem and preferred not to respond to the question.

This was further demonstrated through an interview whereby four key informants described environmental and sustainability education as a form of instruction meant to increase environmental awareness so that our community at large and students in particular can at least gain a better understanding of maintaining environmental resources. The issue was related to environmental protection, according to two informants, in terms of preserving and utilizing resources wisely to secure the survival of the current generation and establish a sustainable future generation. However, one of the respondents specifically described it as a skill focused education and added, "It is a type of education that promotes the ability to solve problems and think about the physical world in a way that prevents humans from having a negative impact on it. Environmental and sustainability education thus impacts critical thinking skills so that they do not contribute to the problems." Five respondents were unable to comment on the idea behind the problem. This demonstrated the lack of awareness of environmental and sustainability education among many staff members.

2. Teachers' source of awareness about environmental and sustainability education

Table 1 below presents respondents' sources of environmental and sustainability awareness.

Table 1: *Respondents source of awareness about environmental sustainability education*

Source of awareness	Mean	Std. Dev.
The content of the course teachers teach	3.93	.74
Other reference books teachers read/use	3.90	1.03
National or local conferences on the issue	2.10	.89

As could be seen in Table 1, the content of the courses that the respondents teach is statistically described by the 3.93 mean, and 0.74 standard deviation. This implies that the source of most respondents possess good understanding of the issue, while other respondents' sources of understanding were reference books they read about environmental issues, as depicted by the 3.9 mean and 1.03 standard deviations. National or local environmental conferences were the third source of respondents' understanding of the issue, as shown by 2.1 mean and 0.88 standard deviation. This implies that the content of courses teachers teach are good sources of teachers' awareness about environmental and sustainability education.

3. Teachers' attitudes towards teaching environmental and sustainability education

22 (73.3%) of the respondents had positive attitudes toward teaching environmental and sustainability education because they believed that environmental and sustainability education is education about using resources in a sustainable way so as to benefit both the current generation and future generations. Three respondents described that environmental and sustainability education should be seen as a process intended to create a global population. It is concerned about the environment as a whole and the problems it is associated with thus, it encourages toward solutions of the current problems and the prevention of new ones.

Similarly, 8 (80%) of the interviewees were optimistic that the college staff could raise the issue of the significance of environmental and sustainability education and vigorously implement

various activities related to it. Even one of the respondents shared his idea by saying "Our staff can act as a catalyst for environmental and educational reform at our college and in the neighborhood". Another respondent described his emotion as “Most of our teachers and supportive staff,” he said “are highly committed that they can enable our students and transform knowledge and experiences regarding environmental issues to the local communities”. In addition, another third respondent added “that is the case, although almost all of our staff have no training on this issue. But, as a global environmental problem is creating huge life problem, the local knowledge and experiences we have can help us to implement the environmental activities.”

II. Strategies teachers use in implementing environmental and sustainability education

The second basic question of the study refers to the identification of the strategies that teachers use in implementing environmental and sustainability education; thus, two specific concerns (specific teaching methods and ways of integrating the issue into the pedagogical practices) were forwarded to respondents.

Table 2: *Teaching methods applied towards environmental issue*

Teaching Methods Teachers Apply	Mean	Std. Dev.
Holistic	3.67	.66
Lecture	4.00	.69
In-classroom learner-centered	3.93	.91
Field-based	2.47	1.11
Promoting 21st C skills (critical thinking, problem solving, communication and collaboration, IT skills)	2.43	.82
Preparing seminars and short-term trainings	2.00	.64
Through experimental activities	2.37	.85
Encouraging multilateral collaboration among organizations, local communities, scientific communities and NGOs	2.10	1.03

According to Table 2 above, the respondents use a variety of teaching techniques for subjects connected to the environment. As depicted by a mean of 4.00 and a standard deviation of 0.69, the majority of respondents strongly agreed that many lecturers frequently employed the lecture technique. A mean of 3.67 and a standard deviation of 0.66 indicated that many teachers also frequently used holistic approaches where this can be supported by the notion of Larson et al. (2013) describing interdisciplinary and holistic teaching methods for sustainability can include both formal and informal learning. Hence, using an interdisciplinary approach for teaching sustainability can help encapsulate the complexity inherent when integrating ecological, social and economic theory and practice. Preparing seminars and short term training, fostering multilateral collaboration among organizations, local communities, scientific communities and NGOs, teaching through experimental activities, promoting 21st century skills (critical thinking, problem solving, communication, collaboration, and IT skills), and utilizing field based teaching methods, as indicated by their respective means (2.00, 2.10, 2.37, 2.43, and 2.47), were teaching methods that were rarely used by teachers in teaching environmental issue.

Table 3: *Integration of environmental sustainability issues into curriculum*

Teaching Methods Teachers Apply	Mean	Std. Dev.
Reorienting the existing course contents towards sustainability as to what to teach and how to teach	3.93	.58
Adding new environmental and sustainability contents to the existing course contents	3.27	1.05
Adopting teaching methodologies and activities that address issues which are pertinent to environment and sustainability without changing the meaning and aim of the original version	3.67	.88

As can be seen from Table 3 above, besides using different teaching methods, teachers used to integrate the issue of environmental sustainability into their curriculum. With a mean of 3.93 and a standard deviation of 0.58, Table 3 indicates that teachers did some integration by reorienting the existing course contents towards sustainability as to what to teach and how to teach environmental issues. A mean of 3.27 and a standard deviation of 1.05 indicate that teachers did some integration by adding new environmental sustainability contents to the existing course contents, and a mean of 3.67 and a standard deviation of 0.88 indicate that teachers integrated environmental issues by adopting teaching methodologies and activities that address issues without changing the meaning and aim of the original version.

A similar question was presented for the interview. According to information obtained from key informants the college planned to plant trees with its regular summer (Kiremt) program, and the conservation of planted trees was well implemented. The key informants also raised that besides regular tree planting, the College prepared garbage and selected areas to collect solid wastes to keep the environment clean and was repairing machinery so as to increase their service lifespan.

Key informants further explained that for the last six consecutive years, the College prepared programs and used mainly the supportive staff to implement different situational activities, but these activities were not regularly performed. The respondents also added that, even though it was not a continuous program, the College formed different groups based on specific work areas and activities to be done; it implemented co-curricular activities in which the most committed teachers engaged their students in different activities. However, four respondents raised the concern that most of the activities were situational and had no continuity. In this regard, summer (Kiremt) program tree planting and its conservation is only exception; it is performed in a sustainable manner.

III. Practices of social, economic and physical environmental issues

The third basic question was related to sustainability practices in the College in terms of social, economic, and biophysical environmental issues. The results of the survey questions an d interviews are presented below.

Table 4: *Practices of social, economic and biophysical environmental issues in the College*

Practices	Mean	Std. Dev.
Planting of trees	4.27	.64
Effective resource/environmental conservation	3.73	.64
Cleaning of wastes in and around the campus regularly	3.10	.76
Placing recyclable wastes in the right recycle bins	3.27	.78
Reusing of recyclable resources effectively	2.73	.78
Reducing of resource consumption (water, electrical energy, machineries, etc)	3.13	.86
Generating income activities in the campus	2.57	.94
Supporting the poor in and out of the College	2.47	.57
Performing joint activities with community outside the campus	3.13	.82
Preparing environmental sustainability issue seminars, workshops and short trainings	2.23	.73
Working on co-curricular activities	3.70	1.26

The level of environmental issues implementation at the College is depicted in Table 4. After determining whether the environmental education about sustainability taught in the class had an impact on how the respondents applied the concept, the study looked into whether programmed tree planting, efficient utilization of resource and caring of environmental conservation, and involvement in co-curricular activities were frequently practiced in the College, with respective mean scores of 4.27, 3.73, and 3.70. However, as indicated by their respective means of 2.23, 2.47, 2.57, and 2.73, the preparation of environmental sustainability issue seminars, workshops, and brief trainings, assistance to the unprivileged on and off campus, income generating activities on campus, and efficient resource recycling were activities that were rarely carried out in the College.

Concerning exemplary environmental activities forwarded to interviewees, 6 respondents replied that many environmental activities were formally done in the college but the activities were highly tilted toward the implementation of biophysical environmental practices. More specifically, all the interviewees reported that the green corner, commonly known as the Negash Project, set up by the initiation of teacher Negash, is an exemplary environmental activity and has many and diverse indigenous plants. The corner is now serving as an area of recreation and beauty (aesthetic value). In it, many teachers and students implement various teaching-learning activities, and it is becoming a source of primary data for studies. The result could be supported by the idea that professionals are more than capable of focusing on improving students' knowledge of and experience with sustainability problems and issues while incorporating environmental related concepts *(*McKeown-Ice & Dendinger, 2009).

The key informants further noted that the College is rich in varied, attractive, and conducive learning environments pertaining to environmental sustainability education by planting trees for longer years. According to the respondents, the staff was actively participating in the program to achieve the College's plan and the "green legacy" of the nation, where small green areas were able to be created to create a favorable learning environment for the learners. In addition, the respondents described that based on the college's program, the staff, especially the supportive one, was participating in cleaning and facilitating the environment for learning. Garbage cans were distributed to collect paper, and solid waste materials collection stations were prepared. But this was not done in a regular and sustainable way. In addition, some informants particularly indicated that the college was supporting the nearby schools by providing teaching materials so that good relationships could be created with the surrounding environment.

IV. Factors hindering the implementation of environmental and sustainability education

The fourth basic question was regarding factors hindering the implementation of environmental and sustainability education activities in the College.

Table 5: *Factors that hinder effective implementation of environmental sustainability activities*

Factors	Mean	Std. Dev.
Pedagogical implementation problem	3.10	.76
Lack of commitment and motivation	3.67	.84
Lack of knowledge about the issue	3.00	.87
Lack of skill of implementation	3.07	.98
Lack of interest	3.27	.94
Lack of supportive (positive) attitude of the college leadership	2.53	.73
Because of focusing on teaching theoretical aspect only	4.63	.56
Overlooking crucial aspects that lead to developing critical thinking, expressing emotions and experiences	4.53	.57
Sustainability issue is embedded within such a wide variety of subjects that it tends to lose its substance	3.97	.89
Sustainability issue is not part of my course content that it has no concern	2.57	1.04

As could be seen from Table 5, a mean of 4.63 and a standard deviation of 0.56 indicate that environmental sustainability issue was not effectively implemented because teachers primarily focus on teaching the theoretical (knowledge) aspects; and overlooked crucial aspects that lead to developing critical thinking, expressing emotions, and experiences of teachers, as indicated by a mean of 4.53 and a standard deviation of 0.56. The results also show that other factors, including the fact that "the sustainability issue is embedded within such a wide variety of

subjects that it tends to lose its substance, lack of commitment, and motivation of teachers, and lack of interest" were all significant influences on implementation, as indicated by their respective means of 3.97, 3.27, and 3.27. Shortly, it can be observed from the result that the focusing of teachers on teaching the scientific aspects (cognitive aspect), and teachers overlooking crucial aspects are the major factors that hinder effective implementation of environmental sustainability activities in the College.

Besides the survey, the results of the interview show that different factors hindered the effective implementation of environmental activities. First, 6 respondents stated that one of the major hindering factors was a lack of understanding of the issue among the staff. Additionally, the key informants identified that a lack of commitment among many staff mattered to the implementation of environmental sustainability activities for not being well practiced and sustained. Besides, they forwarded that many teachers mainly focus on teaching knowledge at the expense of practical engagement part which is a crucial aspect in developing such competencies as critical thinking, problem-solving, and experience sharing. Moreover, one respondent specifically raised that the administrative body itself has no good understanding of the issue and has no supportive attitude towards environmental activities.

Also, two more questions describing the regional effects of environmental issues were raised to the interviewees. For these questions, every respondent explained that environmental issues have numerous local as well as global effects, including climate changes, which can have a negative impact on our culture and educational system as well as negatively affect our physical, economic, and social well-being. This could lead, the informants noted, to the extinction of the human race as well as other natural species and natural systems of biodiversity. In particular, one respondent stated that "the entire life system of the earth will be affected" while describing the effects of environmental problems.

The other question forwarded for the interviewees is concerned with the administrative solutions for these environmental problems and impacts. The responses could be categorized into three: awareness creation, responsibility case solution and collaborative work.

With respect to awareness creation, almost all of the respondents underlined the need for creating awareness about the objective and importance of environmental and sustainability education for the college staff and students. They suggested to the college's administration that continuous seminars and short-term training on environmental issues be organized. In addition, while one of the respondents noted that "Reconstruction and revision of the curriculum is essential in order to enshrine the content of environmental and sustainability education in all subjects as a core issue", another respondent noted "teachers should play a great role in enhancing the understanding of students about continual education on environmental issues."

As a solution, 4 respondents recommended that there should be law enforcement to implement environmental issue activities as a whole in Ethiopia and particularly in educational institutions. Therefore, there should be a shift from classroom knowledge-centered objectives to a holistic approach. One respondent particularly added that "Since the issue is very critical, it should be

every citizen's responsibility to read and understand environmental issues and make them practical, and this is the only way we will be able to live." This could be supported by the idea that some professionals may not see themselves as responsible for teaching applied or action-based sustainability. This, however, is in direct contrast to the practice-based project learning approaches to sustainability taken by interdisciplinary sustainability programs (Wiek et al., 2011).

Three other respondents expressed their ideas as to why the administrative body of the College should give prime concern to this issue and plan, organize, coordinate, and support environmental issue related activities and become exemplary for this action. Moreover, two respondents particularly raised the importance of commitment in relation to environmental issues and related activities in the College saying, "Commitment creates a difference." Even in our College, a highly committed single teacher has done a lot in the physical environment. "As a result, if every citizen is committed, not only in the physical environmental aspect but also in the integrative physical, social, and economic environmental aspects, a lot can be done."

Regarding collaborative work, 2 key informants raised their ideas as to why collaboration among stakeholders is very necessary to sustain the environment. This can be done through community-based projects and youth mobilization in awareness creation on environmental cleaning, wise resource utilization, and supporting educational institutions to encourage their environmental issue clubs. This could be seen within the view of Wiek *et al.* (2011) that suggests improving performance on the sustainability issues, professionals can embrace sustainability education by devising more interdisciplinary approaches to action-oriented learning.

Result Obtained from Observation

In this Study, the environmental observation that followed the staff interview covered the feasibility of various activities in the College and resulted in the identification of the following activities.

(i). *Availing garbage bins at different places:* Garbage bins were distributed to be used for collecting papers and other simple, worn-out solid materials. But the bins were very few in number and not proportional to the width of the campus. In addition, the staff's habit of using these materials (their practicality) was very low.

(ii). *Planting and conserving of plants:* During observation, the researcher realized that the College has been planting trees for such a long time and as shown in the pictures below is highly green. Every year, trees are planted in summer (Kiremt). For this reason, the College campus could even be taken as an ecological model for the surrounding community.

Picture 1. Status of Summer 2017 (Kiremt 2009E.C) planted trees (source: document & observation)

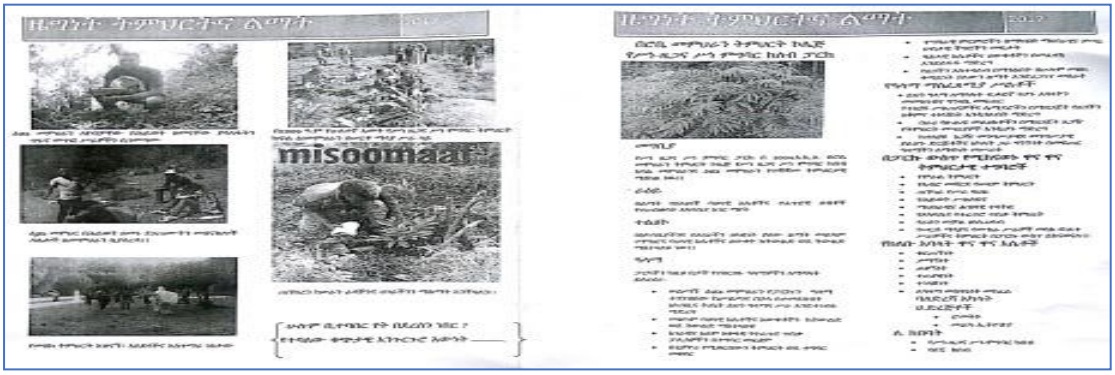
(iii). *Environmental cleaning:* The on-campus and off-campus cleaning levels were observed based on interviewee responses. While the on-campus participation and cleaning level were very good, the out-of-campus cleaning level was very low. In spite of its high potential, no activity was done on it.

Picture 2. Winter 2019 on-campus environmental cleaning activity by some staff members (source: document)

(iv). *Conducive environment for teaching-learning process:* Students could easily use open spaces, tree shades, and small green areas to study and perform different related activities, to stay on campus at their leisure, and to run socialization and interactive programs, despite the fact that there was limited online access (internet service) facility on campus.

(v). *Co-curricular activities:* The researcher realized that four co-curricular activity clubs had stopped participating in their regular activities as of COVID-19. Out of five existing co-curricular activities (during data collection), only teacher Negash's Nature Responsibility and Conserving Club, also known as the "Negash Project" was active; the club was regularly working on plantation, conservation of plants and disseminating valuable messages for different bodies even by involving voluntary teachers and supportive staff. The club's site has a variety of indigenous trees and is a well-kept, aesthetically pleasing, and well organized project thus could be taken as a model for the surrounding community. For this reality, the surrounding community joins the project and even locally uses the indigenous plants for health purpose, and

also experts and officials from different institutions observe the project for experience sharing purpose.



Picture 3. Nature Responsibility and Conservation Club Project in 2012 (source: document)

Picture 4. Nature Responsibility and Conservation Club Project in 2020 (Observation)

(vi). *Integrating environmental and sustainability education into classroom teaching:* There were no formal and unique programs designed for all classes that included environmental and sustainability education and related activities. However, through observation, the researcher could realize that a small number of teachers incorporated environmental and sustainability education into their contents, in different teaching methodologies, and in their regular practical assessments and written examinations. Seven teachers, however, showed no special concern for this global burning issue when it came to integrating environmental issue.

Discussion

The results obtained through various data collection methods show that there was substantial difference in the College staff's awareness of environmental and sustainability education. A good description of the problem was given by nearly one-sixth of the respondents. The respondents related it to using resources in a way that benefits future generations, educating people about how to use the environment, fostering a positive relationship between human living systems and the earth, and instructing students on how to use and conserve their environment. Many professionals and various fields including geography further link the human-

environmental issues to study environmental problems that are consistent with Robbins's (2012) observation. This made clear that teaching sustainability ultimately requires an understanding of the connections between natural and human systems, and geographers have a well-established tradition of examining these connections from an interdisciplinary perspective. However, other than describing the idea of environmental and sustainability in relation to the biophysical environment, no one mentioned the issue relating to social, cultural, ethical, or economic dimensions, as could be generalized from the opinions of practically all respondents. That is in agreement with Green and Somerville's (2015) contention that although teachers in educational institutions described their understanding of environmental and sustainability education in a variety of ways, the majority of the teachers did not identify the economic, community, or creative aspects as part of environmental and sustainability education could be used to support this. Additionally, sustainability, according to Reason (2007), requires radical knowledge and paradigm shifts, as well as individual and social reform. Environmental education has historically received little emphasis in teacher education programs and that little progress has been made in this area. Thus, a wide variety of pedagogical approaches, ranging from participatory approaches and team-based learning to action research and project-based learning, need to be applied. These help in changing the culture of teaching and learning, and changing the attitudes of many and build a supportive environment to open up space for critical debate (European Environment Agency [EEA], 2019).

Additionally, the results show that preparing seminars and short-term training, fostering multilateral collaboration among organizations, local communities, scientific communities, and NGOs, teaching through experimental activities, promoting 21st century skills, and field-based teaching methods are scientifically preferable and applicable methods for teaching environmental issues. However, the majority of teachers in the college does not use and implement these methods in the teaching process. The course materials were also reoriented towards environmental sustainability issues by various lecturers, who applied this through a variety of teaching methods. A few lecturers also taught by incorporating additional contents into the already existing course materials to help students better comprehend environmental concerns. This could result from the different ways that teachers understood and viewed the problem which affected their teaching strategies in the college. In line with teachers' awareness or perceptions of sustainability, Fraser et al. (2015) claim that education and its delivery methods differ from teacher to teacher, but teachers always aim to equip students to live and work in ways that preserve the environmental and cultural integrity of the areas they call home. Hence, teachers must be knowledgeable about educational institutions, environmental patterns, and the long-term impacts of human behavior on those patterns in order to do this.

Moreover, the results show that 93% of the respondents stated that programmed tree planting and physical environmental resource conservation were activities that were implemented in the College. This point can be supported by Bogner's (2010) argument that direct exposure to nature is known to increase people's environmental awareness and promote attitudes related to it. On the other side, all of the respondents did not elaborate further on the practices of social and

economic aspects of environmental activities in the College. Similarly, Mwenda (2017) found that while many people had a basic understanding of the physical environment and its conservation, their perceptions of other environmental issues and the extent to which they were being addressed varied, having an impact on both their daily lives and the environment as a whole. Loria (2015) also suggests that parents, teachers, and students must all actively participate in order for change to be implemented as effectively as possible.

This Study has also identified that a lack of knowledge about the pertinent environmental issues, methodological, and motivation were the main barriers to the proper implementation of environmental and sustainability education in the College. This can be supported by Tal and Abramovich's (2013) finding that some of the challenges in teaching environmental issues may be due to the pedagogical staff, some of whom lack motivation and zeal due to their ignorance of or incompetence in this field.

Conclusions and Policy Implications

The present *S*tudy aims at assessing the implementation of environmental and sustainability education among Robe College of Teacher Education staff. The findings have revealed that almost all of the respondents have positive attitudes toward the issue, 19 respondents have limited understanding of several issues related to environmental sustainability. Only 8 teacher educators acknowledged the incorporation of various teaching methods and strategies into their lesson plans. The economic issue related activities were practiced very little compared to the social and biophysical ones. It was found out that this happened because of lack of good understanding, commitments, and responsibilities variation among the College staff. On the other hand, as it focuses on assessing the implementation of environmental and sustainability education, this Study has some limitations. The practical aspect that curriculums were not analyzed in detail. It did not involve students as they were not in the College during data collection. Also, it is geographically limited to Robe College of Teacher Education due to financial and time constraints. Thus, its finding may not be generalized to other Colleges. However, the Study highlights the need for future shift of emphasis and practices in the College that attention should be given to learning than teaching, methods than theories, integrative environmental learning approach, and environmental concerns and actions. Therefore, for the future the College (Oromia Education Bureau, too) should give considerable emphasis to this issue. It should plan, organize, coordinate, and support environmental issue related activities through continuous seminars and short-term trainings. The teacher education curriculum needs to be reoriented. Also, other legal enforcements should be implemented for effective environmental and sustainability education.

References

Ayeni, M. A. (2010). Higher education research and environmental development. *European Journal of Educational Studies*, *2*(3), 211-216.

Bogner, F. X. (2010). The influence of short-term outdoor ecology education on long-term variables of environmental perspective. *The Journal of environmental education*, *29*(4), 17-29.

Brundtland, G. H., Khalid, M., Agnelli, S., Al-Athel, S. A., Chidzero, B. J. N. Y., Fadika, L. M., ... & Singh, N. (1987). Our common future; by world commission on environment and development.

Buckler, C., & Creech, H. (2014). *Shaping the future we want: UN Decade of Education for Sustainable Development; final report*. Unesco.

Cooper, J. L., J. MacGregor, K. A. Smith, & P. Robinson (2000). Implementing small-group

instruction: Insights from successful practitioners. *New Directions for Teaching and Learning 81:*63–76.

Creswell, J. W. (2003). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 2nd ed. London: SAGE.

Dalelo A. (2006). Principles and Practice of Environmental Education: *Focus on Ethiopia***.** Addis Ababa, Ethiopia.

Dalelo A. (2011). Global climate change in geography curricula for Ethiopian secondary and preparatory schools. *International Research in Geographical and Environmental Education*, *20*(3), 227-246.

Dalelo, A. (2012). Environment and Sustainability in Ethiopian Education System: *A Longitudinal Analysis.* University of Luneburg: VA

Didham, R. J., & Ofei-Manu, P. (2018). Advancing policy to achieve quality education for sustainable development. *Issues and trends in Education for Sustainable Development*, 87.

Dresner, M., & Gill, M. (1994). Environmental education at summer nature camp. *The Journal of Environmental Education*, *25*(3), 35-41.

Erdogan, M., & Usak, M. (2009). Curricular and Extra-Curricular Activities to Develop the Environmental Awareness of Young Students: A Case from Turkey. *Educational Sciences/Odgojne Znanosti*, *11*(1).

European Environment Agency - EEA (2019), The European Environment – State and Outlook 2020: Knowledge for transition to a sustainable Europe, Luxembourg: Publications Office of the European Union, doi:10.2800/96749.

Fien, J. & Tilbury, D. (2002). *Education and sustainability: Responding to the global challenge*. IUCN.

Fraser, J., Gupta, R., & Krasny, M. E. (2015). Practitioners' perspectives on the purpose of environmental education. *Environmental Education Research*, *21*(5), 777-800.

Gebrekidan, A. (2006). *Integrating Environmental Education into the Secondary and Senior Secondary Schools Curricula in Ethiopia*, paper presented at the Conference of Teacher Education for Sustainable Development in Ethiopia, organized by College of Education, Addis Ababa University, May 5-6, DebreZeit

Gibson, R.B. (2006). Beyond the pillars: sustainability assessment as a framework for effective integration of social, economic and ecological considerations in significant decision-making, *Journal of Environmental Assessment Policy and Management*, Vol. 8 No. 3, pp. 259-280.

Girma, M. (1994). *An Investigation into the Integration of Environmental Education into Social Studies Course in Some Selected Teacher Training Institutes (TTIs) of Ethiopia*. Unpublished MA thesis submitted to the School of Graduate Studies, Addis Ababa University, Addis Ababa

Gough, A. (2016). Teacher Education for Sustainable Development: Past, Present and Future, in Filho, W.L. and Pace, P. (Eds.), *Teaching Education for Sustainable Development at University Level*, Springer International Publishing, Cham, pp. 109–122.

Green, M., & Somerville, M. (2015). Sustainability education: researching practice in primary schools. *Environmental Education Research, 21*(6), 832ñ845.

Jadhav, A. S., Jadhav, V. V., & Raut, P. D. (2014). Role of higher education institutions in environmental conservation and sustainable development: A case study of Shivaji University, Maharashtra, India. *Journal of Environment and Earth Science*, *4*(5), 30-34.

Jickling, B., & Wals, A. E. J. (2008). Globalization and environmental education: looking beyond sustainable development. *Journal of Curriculum Studies*, *40*, 1-21. https://doi.org/10.1080/00220270701684667

Jucker, R., & Nuoffer, F. (2015). Education for Sustainable Development between Main-Streaming and Systemic Change: Switzerland as a Case Study. *Schooling for Sustainable Development in Europe: Concepts, Policies and Educational Experiences at the End of the UN Decade of Education for Sustainable Development*, 135-156.

Kasimov, N. S., Malkhazova, S. M. & Romanova, E. P. (2002). The role of Environmental Education for Sustainable Development in Russian Universities, *Planet*, *4*, pp. 24–25

Kerr, C., & Kerr, C. (2001). *The uses of the university* (Vol. 29). Harvard University Press.

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental education research*, *8*(3), 239-260.

Lambrechts, W., Mulà, I., Ceulemans, K., Molderez, I., & Gaeremynck, V. (2013). The integration of competences for sustainable development in higher education: an analysis of bachelor programs in management. *Journal of Cleaner Production*, *48*, 65-73.

Larson, K. L., Wiek, A. & Withycombe Keeler, L. (2013), A comprehensive sustainability appraisal of water governance in Phoenix, AZ", *Journal of Environmental Management*, Vol. 116 No. 1, pp. 58-71.

Loria, Y. (2015). The long-term impact of an education for sustainability course on Israeli science and technology teachers' pro-environment awareness, commitment and behaviour. *Australian Journal of Environmental Education*, *31*(2), 264-279.

McKeown-Ice, R. & Dendinger, R. (2009). A framework for teaching, learning, and assessing environmental issues, *Journal of Geography*, Vol. 107 Nos 4/5, pp. 161-166.

Morse J. M., & Niehaus, L. (2009). *Mixed method design: Principles and procedures*. Walnut Creek, CA: Left Coast Press.

Mwendwa, B. (2017). Learning for sustainable development: Integrating environmental education in the curriculum of ordinary secondary schools in Tanzania. *Journal of Sustainability Education*, *12*(24).

Ockwell, D., Watson, J., Mallett, A., Haum, R., MacKerron, G., & Verbeken, A. M. (2010). Enhancing developing country access to eco-innovation: The case of technology transfer and climate change in a post-2012 policy framework. Vol, No. ?????

Palmer, J. (1998). Environmental Education in the 21st Century*: Theory, practice, Progress and Promise*. London: Routledge.

Ram, A. (2014). Role of SEED project in propagating environmental awareness for environment conservation: A study on secondary school students of Kerala, India. *IOSR Journal of Research & Method in Education (IOSRJRME) IOSR-JRME*, *4*(4), 09-14.

Reason, P. (2007). Education for ecology: Science, aesthetics, spirit and ceremony. *Management Learning*, *38*(1), 27-44.

Robbins, P. (2012). Political Ecology: *A Critical Introduction* (2nd ed.), Wiley-Blackwell.

Sauvé, L. (2005). A Cartography of Currents in environmental education. *Environmental Education: Research and Challenges. Porto Alegre*.

Serageldin, I., Husain, T., Martin-Brown, J., Ospina, G. L., & Damlamian, J. (1998). Organizing knowledge for environmentally and socially sustainable development. In *Proceedings of the Fifth annual meeting of World Bank Conference on Environmentally and Socially Sustainable Development. World Bank, Washington, DC, USA*.

Stapp, W. B., Bennett, D., Bryan, W., Fulton, J., MacGregor, J., Nowak, P., & Havlick, S. (1969). The concept of environmental education. *Journal of environmental education*, *1*(1), 30-31.

Stevenson, R. B. (2007). Schooling and environmental education: Contradictions in purpose and practice. *Environmental education research*, *13*(2), 139-153.

Tal, T., & Peled, E. (2017). The philosophies, contents and pedagogies of environmental education programs in 10 Israeli elementary schools. *Environmental Education Research*, *23*(7), 1032-1053.

Tal, T., & Abramovitch, A. (2013). Activity and action: Bridging environmental sciences and environmental education. *Research in Science Education*, *43*, 1665-1687.

Tibaijuka, A. (2007). Nairobi and its Environment. *Nairobi city development strategy top priority for 21st Century future of the Kenyan capital. Nairobi: United Nations Environment Programme*.

Tilbury, D. (1995). Environmental education for sustainability: Defining the new focus of environmental education in the 1990s. *Environmental education research*, *1*(2), 195-212.

Walker, K. (1997). Challenging critical theory in environmental education. *Environmental Education Research*, *3*(2), 155-162.

Wals, A. E. (2014). Social learning-oriented capacity-building for critical transitions towards sustainability. In *Schooling for sustainable development in Europe: Concepts, policies and educational experiences at the end of the UN decade of education for sustainable development* (pp. 87-107). Cham: Springer International Publishing.

Wiek, A., Withycombe, L. & Redman, C.L. (2011). Key competencies in sustainability: a reference framework for academic program development: *Sustainability Science*, Vol. 6 No. 2, pp. 203-218.

Zervakis, P. & Wahlers, M. (2007). Education for sustainable development and bologna Process - The implementation of the bologna process in Germany. *BNE J. Line Mag. Educ. Sustain. Dev.* Available online: http://bneportal (Retrieved February 5, 2014).

Manuscript Preparation Guideline

Manuscript Presentation

EJTEL accepts submissions and publishes manuscripts written only in English (British or American English). A manuscript should be no more than 10000 words including figures, references, and tables.

Layout

Papers should be prepared with Microsoft Word in .docx, .doc or in .rtf file formats. Use 1" margins all around, 1.5 spacing, and 12-point Times New Roman, and pages numbered.

Title Page

The title page should contain a brief the title, running title (maximum of 7 words), name(s) of author(s), all authors' affiliations, the name of the corresponding author, and telephone (mobile), full postal address and e-mail address.

Abstract

A single paragraph not exceed 300 words in length. No references non-standard abbreviations should not be used, if necessary, they should be clearly defined in the abstract, at first use.

Keywords

Immediately after the abstract, about 4-6 keywords should be given.

Abbreviations

As specified in the latest APA guideline.

Quotations

Quotations of less than 40 words should be incorporated into the text using double quotation marks. Longer ones should be in a freestanding block of text without quotation marks, per APA style.

In text citations & References

Strictly as specified by the latest APA guideline. Section Headings

First-, second-, third-, and fourth-order headings should be clearly distinguishable.

Tables and Figures

No tables or figures should be given without discussion or reference inside the text. Table titles with number (Table #: title) should be at the top of the table and figure captions, underneath.

Appendices/Authors Notes

Supplementary material should be collected in an Appendix and placed before References.

General:

Refer to the guide to authors from the website http://ejol.aau.edu.et/index.php/EJTEL for detailed instruction

Submitting a Manuscript

Submit your article using online submission system ***http://ejol.aau.edu.et/index.php/EJTEL*** or using the official e-mail address *CEBS.ejtel@aau.edu.et* when the online system is not working.

Ethiopian Journal of Teacher Education and Leadership

Official Journal of College of Education and Behavioural Studies
Addis Ababa University

Available online at: http://ejol.aau.edu.et/index.php/EJTEL
DOI: *https://doi.org/10.20372/ejtel.v1i2*

In this issue:

For enquiry contact the managing editor at:
CEBS.ejtel@aau.edu.et
251-0916 83 10 94
251-0912 35 20 51

Layout Design: Mekbib Alemu