Indonesian Journal of Education (INJOE) e-ISSN: 2810-059X
Vol. 3 No. 1, April 2023, pages: 153~174

SECONDARY SCHOOLING AS PREPARATION FOR WORLD OF WORK: EMPLOYERS EXPRESSED NEEDS AND CURRICULAR RESPONSES

Lemessa Abdi *
PhD Candidate in Curriculum Studies, Addis Ababa University, Ethiopia
lammessa01@gmail.com

Ambissa Kenea
PhD, Associate Professor, College of Education and Behavioral Studies, AAU
kenea2004@yahoo.com

ABSTRACT

The purpose of this study is to examine the linkage between expressed needs of selected employers of secondary school graduates and the secondary school curriculum with the overall aim of examining the relevance of curriculum. Mixed research method was employed. Employers and secondary school textbooks are the major sources of data for the study, with interview and document analysis as tools for data collection, respectively. The findings of the study indicated that the employers perceived time management, teamwork, communication skills, independent work, ability and readiness to learn, and self management are the competencies that are crucial for employees to survive in their organizations. On the other hand, ability to work with others, effective way of communication, appropriate use of work time, self-control, independently solving problems and ability to learn and adapt to work are the skills majority of novice employees faced difficulty to demonstrate. It was also found out that the curricular learning objectives and learning experiences aren't relevant and sufficient enough to prepare students in those needed work skills and competencies. Thus, it is concluded that the curriculum isn't relevant enough to equip students with the competencies required in the world of work. Possible implications of these and other findings of the study have been identified.

Keywords: Competencies, curriculum, secondary education, work skills, world of work

INTRODUCTION

Effective education leadership makes a difference in improving learning. In today's education systems, secondary education plays a dual role. On one hand, it serves as an extended platform for all young people to further develop the knowledge and skills that are needed in society. On the other hand it provides them with qualifications for the labour market and further learning (Sahlberg, 2007). It is clearly indicated in UNISCO (2005) that secondary education provides effective preparation for those proceeding to academic or professional tertiary education as well as for those entering the world of work either as trainees, wages employees or as self-employed entrepreneurs. Lewin and Caillods (2001) also consider that secondary education provides young people the

chance to acquire attitudes and skills which in turn enable them develop job-oriented skills, participate fully in society, take control of their own lives, and continue learning. In developed countries, the education that people receive during their teenage years has long been recognized as crucial to development of job skills and other attributes that affect the ability to function productively as a member of society (Eubanks and Eubanks, 2009). In most African countries, the role of secondary education is mainly to enable students acquire the knowledge and skills that are important to prepare them for the future education and work (Bregman and Bryner, 2003). Unless relevant education is provided, none of the countries will realize the goal to prepare high school students for work or the next level of education.

One of the main challenges Africa countries including Ethiopia have been facing is the problem to equip students with the knowledge and skills that help them to become self-employed and effective in the workplace environment. Though, in most developing countries relevance has got a major concern, secondary education continued to follow rigid curricula based on traditional disciplines that don't address the realities of the countries (UNESCO, 2005). Excessive academic and subject oriented curricula, objectives and contents that are disconnected from local realities reduce relevance of education (World Bank, 2005). Relevant secondary education caters the widest possible range of abilities, interests and backgrounds that are vital to set young people on the path to the world of work and help them satisfy the requirements of the labor market (Laura, 2013). Laura added that, if the concern is to prepare learners for the world of work, selection and organization of curriculum contents and learning experiences should consider the skills that are recognized to enhance youth's personal capability for social interactions, aptitude to work with other people and the ability to organize activities and make informed decision. Hilton (2015) also suggested that secondary education should be skill-focused program which provides students a broad and balanced knowledge of key subjects, cognitive skills, interpersonal skills and intrapersonal skills pertinent to equip them with the skills that are essential in the world of work.

In the field of education, there is a strongly held opinion that relevance can be considered from the point of view of organization of curriculum content, objectives, activities and exercises and end of unit questions in achieving balance between the various components in order that all the desirable learning objectives are adequately covered. In this regard, Tedesco, Opertti, and Amadio (2013) argued that the issue of balance should be sought not only in relation to disciplines or in terms of a balance to be established between objectives expressed as knowledge, attitudes, values or skills; instead, it should perhaps be seen in terms of the converging influence of the various components of the educational process on the development of the personality through cognitive affective, ethical, aesthetic and sometimes physical effects. Eyford (1986) also

suggested that curriculum should maintain balance between the different modes of knowing (cognitive, affective, and psycho-motor), recognizing the four faculties: reason, senses, emotions and intention, and recognizing the mental, physical, emotional and spiritual development (cited in UNISCO, 1990). Moreover, a curriculum should give emphasis to the higher order skills that will enable learners acquire the knowledge, attitude and skills help them effective in the world of work. Similarly, as indicated in MoE (2009), higher order skills are recognized as key competencies students need to live, learn, and work.

The world of work demands not only academic knowledge and technical skills, but also core work skills that will enable graduates to perform a task efficiently and effectively. Susan (2017) argued that today's labor market requires the workforce not only equipped with job-specific technical skills and attributes but also competencies and skills that are relevant to the workplace. Such skills are known by different names; including, transferable skills, key competencies, soft skills, generic skills, non-technical skills and 21st-century competencies/skills (Amadio, 2013). These skills are not job specific but are skills which cut horizontally across all industries and vertically across all jobs at all levels (Suarta, et al. 2017). For this writer, the list of such skills includes a set of non-technical knowledge and skills that are connected with personal attributes and attitudes (discipline, self-management...), social skills (communication, team working, and emotional intelligence.) and management abilities (time keeping, problem solving, critical thinking…). Johan, et al. (2012) identified five critical work skills employers expect employees to have: foundational/basic skills, social skills, higher-order thinking skills (problem solving, critical thinking, and decision-making), intrapersonal skills, and positive self-concept. Adding to the list, Watts (2001) also mentioned personal skills, thinking skills, learning skills and attitudes as important to the development and future life of individuals.

The core work skills are transferable across domains, geographies, work and life contexts, and cross-functional and cross-curricular in education (Whittemore, 2018). Brewer (2013), having reviewed dozens of lists of work skills drawn from enterprise/employer surveys across sectors and around the globe, identified that these skills appeared repeatedly in most or all contexts. The survey conducted by Esther, Helyn, Alvin, and Kate (2018) revealed that the skills that are categorized under cognitive, interpersonal/affective, and intrapersonal domains of competencies are highly preferred by most of organizations around the globe. According to UNESCO (2016a) framework, the core work skills and competencies are categorized into five broad domains of competencies, skills, values and/or attributes: critical and innovative thinking (cognitive skills), interpersonal skills, intra-personal skills, global citizenship, and media and information literacy. Laura (2013) identified that employers want

employees who can communicate effectively, think creatively, solve problems independently, manage themselves at work, interact with co-workers, work in teams or groups, handle basic technology, lead effectively as well as follow supervision.

Manufacturing industry, agriculture, construction, business sectors, services and public sectors are among the labour markets inviting secondary school graduates around the world (Seetha, 2014; International Labour Organization, 2016). In Ethiopia, organizations that have been absorbing secondary school graduate as employee are industries, public sectors, private and non-public organizations (Education Development Centre, 2018). The three main sectors in the formal Ethiopian economy that offer the most opportunity for employment for youth are construction, manufacturing, and the services sector. Berhe and Tsegay (2018) identified that apparel / textiles, leather, agribusiness, metal products and wood products are the top five manufacturing industries in Ethiopia. The research conducted by Berhe and Tsegay revealed that services, industry and agricultural sectors contributed 68.5%, 23.6% and 7.9% of the total employment respectively. In 2006 and 2014, the share of secondary school graduates employment in industry was 29.1% and 25.5% respectively (Berhe and Tsegay, 2018). The unemployment rate and its trend significantly vary across different levels of education, and it was highest for secondary education graduates. In this regard, Tewabe (2018) found that 20% of the registered job seekers in 2018 were high school graduates.

RESEARCH METHOD

The Research Design

Mixed research approach was employed to investigate the linkage between expressed needs of employers of secondary school graduates and the secondary school curriculum with the overall aim of examining the relevance of curriculum. The approach was employed with the assumption that it involves collecting, analyzing, and integrating (or mixing) quantitative and qualitative data (and research) in a single study (Onwuegbuzie and Johnson, 2006).

Content analysis and case study are the methods chosen to achieve the intended purpose of the study. Case study is often associated with a qualitative research design. However, Yin (2003) argues that case studies can be used with both qualitative and quantitative data. Descriptive case study was selected with the assumption that it allows the use of a wide range of data collection methods that allow the researcher to use document analysis and semi-structured interview to collect data (Tharenou, Donohue and Cooper, 2007) from the selected sites.

Population and Sampling Techniques

The main data sources of this study are employers (organizations) inviting secondary school graduates and student textbooks. Adam Industrial Park and Eastern Industrial Zone were selected purposely because they were among the major recipients of secondary school graduates in Oromia. Public sectors found in Nekemte and Burayu towns are selected using convenient sampling technique. Among companies and sectors found in the selected areas, seven companies (three from Adama Industrial Park and four from Eastern Industry Zone) and five public sectors (two from Burayu and three from Nekemte) that had relatively large number of employees graduated from secondary school were selected purposely. One from each company and public sector, a total of twelve human resource/general managers and twelve supervisors were interviewed purposely. Chemistry, Biology, History and Geography textbooks were selected using stratified sampling technique. All learning objectives, review activities and review exercises in each subject were reviewed to examine their relevance to the skills demand of employers.

Data Collection Instruments

Interview and document analysis were used to collect data from different sources. A semi-structured interview was employed to identify the skills the labor markets demanded from secondary school graduates. The interview was organized around a set of open-ended questions which offer participants the chance to explore issues they feel are important (Longhurst, 2010). The respondents were supervisors and human resource managers of the organizations specified above. The number of interviewees from industries and public sectors was fourteen and ten respectively. On average, interviews made took 52 minutes for each and the results of the interviews were recorded using notes and tape recorder.

Content analysis as a method of research and data collection instrument can be descriptive or inferential (Amare, 1998). Both, qualitative and quantitative methods of content analysis were employed to study and describe the extent to which learning objectives, activities, and review exercises and end of unit questions are relevant to the skills that are vital to prepare students for work. High school Chemistry, History, Biology and Geography textbooks were selected using stratified sampling technique so that the two streams are equally addressed in the study. Analysis of learning objectives, activities and exercises and end of unit questions was made using the indicators for the work skills discussed by V Murthy (2016), Erawan (2010) and Bloom (1956). Consequently, cognitive, interpersonal and intrapersonal domain of competencies and the identified specific work skills were used as major and sub-categories of analysis. In addition to this, cognitive, affective and psychomotor domains together with their sub-domains were

used to analyze learning objectives. Analysis of the textbooks was made by one subject specialist for each subject in addition to the researchers.

Methods of Data Analysis

The data collected from employers and student textbooks were organized and analyzed under different themes created based on the specific research objectives. While quantitative data collected via document analysis were analyzed quantitatively using percentage, the qualitative data gathered using the same tool were analyzed qualitatively and narrated in ways it gives answer to the basic research questions. The qualitative data obtained through interviews were analyzed qualitatively and narrated side by side with quantitative data that have similar concern and triangulated as found relevant. Finally, data from document analysis and interview were compared to show the gap between the acquired skills and the skills required by employers.

RESULTS

This section presents analysis of data pertaining to the needs of employers and secondary education curriculum responses.

The Skills Demand of the World of Work

The Work Skills Demand of Industries

Industrial parks/zones are among organizations where many secondary school dropouts and graduates have been employed. So as to get hold of a closer understanding of employers' perceptions about the skills that are essential in their organizations and to identify the gap between demand of the world of work and skills acquired by employees, interviews were made with human resource managers and supervisors in the organizations. The table below shows summary of percentage of employers who responded very high or high to the question which asks: 'to what extent your organization require the following skills from employees?

Table 1: Summary of Data on Importance of the Work Skills, as Perceived by Employers: Non public Organizations

No	Work Skills	Responses (%)	Rank
1	Communication skills	57.14	6
2	Teamwork & collaboration skills	64.29	4
3	Problem solving skills	42.86	7
4	Decision making skills	35.57	9
5	Independent work	71.43	2
6	Critical thinking skills	42.86	7
7	Leadership skills	28.71	10

8	Creativity	14.29	11
9	Self management skills	64.29	4
10	Ability to learn	71.43	2
11	Time management (use of time)	85.71	1
12	Technical/practical skills	100	1*

Responses obtained from interviewees regarding the level of importance of the skills that are identified as essential for the benefit of employers depend on the specific industry (company) that he/she was representing. However, the results of the study showed that the skills demand of companies in Adama Industrial Park and Eastern Industry Zone was almost similar. Regarding this, one of the interviewees from Adama industrial park said:

> *The nature of skills our organization demand from employees depend on their responsibility. Team leaders are required to coordinate and support operators, smoothly communicate with operators, report to supervisors, solve problems, make decisions, and follow disciplinary issues. Operators are expected to use work time appropriately, cooperate and work with others, effectively communicate with team leaders and others, respect work ethics, independently mange their responsibility and show willingness to learn from others (Hayu, human resource head in Adama Industrial Park, company 2).*

On the same issue, another interviewee explained the level of importance of the skills as follows:

> *Teamwork, communication skills, time usage, self management (work ethics), technical skills and skills to work independently are the skills all operators and team leaders always need to demonstrate. Employees are required to show their commitment to solve problem, make evidence-based decision and critically think (when needed). The nature of operators' responsibility doesn't require creativity and leadership skills. Leadership is additional skills team leaders expected to demonstrate (Boru, General Manager in Eastern Industrial zone, company 3).*

The Work Skills Demand of Public Sectors

Public sectors are among the destinations of students who are interested to join the world of work immediately after graduation from secondary school. They used written examinations and interviews to select employees from applicants. The main purpose of the tools employed during screening was to evaluate applicants awareness about the expected responsibilities assigned to the positions they were competing for, issues related to work ethics and their communication skills (oral and writing skills)

(Tokuma, Human resource expert of public sector 3). Among the skills under question, majority of informants mentioned teamwork, time management, independent work, self control, ability to learn and effective communication as the skills employees must possess. In this regard, one of the interviewees reported that:

> *Critical thinking, readiness and ability to learn, problem solving and decision making are the skills employees are required to demonstrate occasionally. Oral communication with customers and staff members, cooperation and work with others, work independently, time usage, self discipline and work ethics are the skills always required to effectively demonstrate their responsibilities (Gamta, Human resource head of public sector 1).*

Another interview explained that:

> *In order to effectively demonstrate their roles employees graduated from high school are required to read and write (local language), independently perform activities based on the timeline of the organization, cooperate with others, solve problems related to their task and respect rule and regulation. Their positions don't frequently require them to demonstrate critical thinking skills, decision making skills and creativity (Oda, Human resource head of public sectors 2).*

Even though the skills in the list are essential for public organizations, it was found that they aren't equally important. The table below shows percentage of respondents who responded high or very high regarding the level of importance of the skills for employees and public sectors.

Table 2: Summary of Data on Importance of the Work Skills, as Perceived by Employers: Public Organizations

No	Work Skill	Responses (%)	Rank
1	Communication skills	100	1
2	Teamwork & collaboration skills	80	4
3	Problem solving skills	50	7
4	Decision making skill	30	9
5	Independent work	90	3
6	Critical thinking skills	50	7
7	Leadership skills	30	9
8	Creativity	20	11
9	Self management skills	70	5
10	Ability to learn	60	6
11	Time management skills	100	1
12	Technical/practical skills	100	1*

The result of the study showed that the level of importance of the skills that are identified as essential for employees' survival and the benefit of organizations are not equally important for nonpublic and public sectors. Based on reports from public sectors, the first six ranks were taken by communication skills (100%), time management (100%), ability to work independently (90%), teamwork (80%), self management skills (70%) and ability to learn (60%) respectively. On the other hand, for industries (or non-public sectors), time management (92.85%), ability to work independently (85.17%), ability to learn and adapt(71.43%), self management(64.29%), teamwork(64.29%), and communication skills(57.14%) are the most important six skills respectively. Though technical skill was equally (100%) important for both groups, only 14.29% and 10% of respondents from nonpublic and public sectors respectively perceived the level of importance of creativity as high. 20% - 50% of respondents perceived as problem-solving, decision making, critical thinking and leadership skills were important for their organizations.

Secondary School Curriculum Response to the World of Work

Textbook presents contents and activities that can shape what will happen in the classrooms (Brown, 2000). In order for graduates to be job-ready, secondary education ought to address the skill needs of employers in secondary curriculum and instruction. In this section, the results of analysis of objectives, activities, exercises and end of unit questions included in high school Biology, History, Chemistry and Geography textbooks are discussed.

As Wagner (2008) suggested, academic contents must be the means by which we teach core competencies rather than through merely memorizing contents. However, as can be seen from Table 1, 82.32%, 81.85%, 86.45% and 90.90% of learning objectives in chemistry for grade 9, 10, 11 and 12 respectively was dominated by the first three lower order cognitive domains (knowledge, comprehension and application). This informs that majority of objectives included in high school chemistry don't represent the skills required in the world of work.

Table 3: Summary of Distribution of Domain of Objective in Chemistry and Biology Textbooks

Subject	Grade	Cognitive Domain						Affective domain	Psycho-motor	Total
		K	C	Ap	An	Syn	Eva			
Biology	9	42	55	8	10	1	3	-	-	119
	10	33	41	13	5	2	-	-	-	94
	11	22	27	8	6	3	2	8	-	76

	12	54	40	7	7	3	1	6	-	118
Chemistry	9	70	53	40	20	7	6	2	3	198
	10	108	65	39	33	9	4	1	3	259
	11	103	93	40	20	4	11	2	2	273
	12	102	123	45	13	9	5	-	2	297

Key: K: Knowledge, C: Comprehension, Ap: Application, An: Analysis, S: Synthesis, E: Evaluation

The following few are intended to show how each statement of objectives were categorized under the different domains and sub-domains of learning as indicated in Table 1.

- Know the terms like atomic number, mass number, atomic mass, isotope, valence electrons, and electron configuration (cognitive domain, comprehension, chemistry grade 9 unit 1)
- Demonstrate scientific inquiry skills: observing, classifying, communicating, measuring, asking questions, interpreting data, drawing conclusions, predicting and problem solving (Cognitive domain: analysis, synthesis & evaluation, chemistry grade 10 unit 1)
- Appreciate the importance of enzymes in industries and local products. (Affective domain, Biology grade 11 unit 2)
- Carry out test-tube reactions with Br2 in CCl4 (Psycho motor domain and analysis, Chemistry grade 10 unit 1).

Chemistry textbooks are rich in activities and experiments with few project works. For instance, Chemistry for grade 9 has 82 activities and 19 experiments. The experiments are designed to promote communication, problem solving skills (to some extent), critical thinking and the basic practical skills. For instance, Experiment 3.2 on page 85 of grade 9 chemistry asks students to investigate, observe, analyze and make conclusion based on evidence gathered through experimentation. Communication skills, teamwork, and critical thinking skills are the most frequently required skills in doing majority of the activities. 36 (43.9%), 31 (37.8%) and 18(21.95%) of the activities were designed to help students develop communication skills, teamwork and critical thinking skills respectively. Activity 1.6 on page 9 of grade 9 chemistry which ask students to form a group and discuss; present their discussion to the class; and compare and contrast these fundamental sub atomic particles with alpha particles, beta particles and gamma rays in terms of the nature of the particles is one of the evidences to show the focus given to the mentioned skills. However, only two activities were prepared to encourage students develop creative thinking skills. In chemistry for grade 11 textbook

there are 84 activities. Among these, 39 (75%), 60 (73.17%) and 33(40.24%) of the activities encourage students to develop teamwork, communication skills and critical thinking skills (see activity 1.1-1.6, Chemistry grade 11). While 5(6.1%) of the activities were planned to develop decision making skills, only two and one activities demand creativity and problem-solving skills respectively. This doesn't mean that one activity is designed to address only one skill. For instance, activity 1.10 (Chemistry grade 11, page 31) was designed to promote creativity, problem-solving communication, decision making and critical thinking skills.

The number of questions that are part of exercises and review questions included in Chemistry textbooks is large as compared to the others. In Chemistry for grade 9, there are 214 questions that are compiled in forty-five exercises and five review questions. Among these, 14 (6.54%) and 4(1.87%) questions promote the development of critical thinking and problem-solving skills respectively. The rest, 91.54% of the questions were to encourage students to acquire the lower order cognitive skills. Exercise 1.2, 1.3, 1.4, 1.5, 1.7, 1.8 and 1.9 (only from unit 1) are among review exercises that encourage students to develop lower order cognitive skills. However, intrapersonal skills and interpersonal skills that are essential for work weren't adequately addressed in the list of exercises included in grade 9 Chemistry.

Similarly, among the 336 review exercises and questions in Chemistry for grade 11, very few were designed to promote critical thinking skills, decision making skills and creativity. More than 95% of the questions demand students to apply formulas and remember what they have learned. For instance, exercise 3.15 - 3.18 and 4.1- 4.4 are among questions that require memorization and application of the learned lessons.

Biology as an experimental science must involve critical thinking, reasoning and problem solving in everyday life (MoE, 2009). Critical analysis of secondary school Biology textbooks showed that majority (87.19%) of the learning objectives that are part of the textbooks seem prepared to encourage memorization and understanding of the concepts discussed in the textbooks.

Biology for grade 9 - 12 has 6, 5, 5, and 4 chapters respectively. As can be seen from the table, 37.1%, 40.05%, and 8.85% of objectives are representatives of the first three lower order thinking skills respectively. Among these, 77.15% is covered by the first two cognitive domains. Only 10.56% of objectives are reflecting higher order thinking skills and the skills the world of work demand employers. Few objectives representing intrapersonal skills (self-management skill) are included in Biology for grade 11 and 12. The implication is that high school Biology was not intended to promote the skills employers demand from high school graduates.

Majority of the activities in high school Biology demand students or promotes the development of lower order thinking skills. Among 58 review activities included in

Biology for grade 10, the representation of communication, critical thinking, decision making, teamwork and cooperation and problem solving skills was 15(25.86%), 14 (24.14%), 6(10.34%), 5(8.62%) and 4(6.7%) respectively. Activities that encourage self management skill are two in number. This doesn't mean that the two activities are reserved only for the said skill. One activity may encourage students to develop more than one work skills. For instance activity 1.15 (see page 38 of grade12 Biology textbook) is designed to help students develop self management and decision making skills. There are activities that demand students to complete tasks in small groups. These activities encourage students to develop leadership skills, communication skill and team spirit. Similarly, among 66 activities included in Biology for grade 12 textbook only 17(25.76%), 14 (21.21%), 12(18.18%), and 5(7.58%) were designed to promote critical thinking, teamwork, communication and problem solving skills respectively. Decision making, self control and creativity are the skills that are rarely emphasized in the list of activities. Critical thinking is the most frequently represented skills in the activities.

The number of questions in each of the Biology textbook exceeds 100. For instance, 137 questions are in Biology for grade 10. Majority of these questions were designed to encourage students develop the lower order thinking skills (see exercise 4.1-4.4 and all end of unit 4 questions). While interpersonal and intrapersonal skills had no share in the composition, critical thinking is represented by less than ten questions. There are 231 questions in Biology for grade 12. Majority of the questions don't demand students to use higher order thinking skills (see exercise 4.1- 4.5, 5.1-5.4). However, the questions that demand critical thinking skills and problem solving or decision making skills are only 14 (6.06%) and 4(1.73%) respectively.

Table 4: Summary of Distribution of Domain of Objective in Geography and History Textbooks

Subject	Grade	Cognitive Domain						Affective Domain	Psycho-motor	Total
		K	C	Ap	An	Syn	Eva			
Geography	9	39	33	9	15	1	11	1	1	110
	10	23	38	19	13	-	1	1	5	95
	11	13	41	7	13	3	11	4	-	92
	12	15	29	5	15	6	-	8	1	80
History	9	10	12	2	11	2	3	1	-	41
	10	6	24	-	12	1	-	-	-	43
	11	4	10	1	12	4	4	-	-	35
	12	16	31	5	9	-	-	6	-	67

Key: K: Knowledge, C: Comprehension, Ap: Application, An: Analysis, S: Synthesis, E: Evaluation

Geography concentrates on imparting basic knowledge and develops skills for analyzing spatial distribution and interpreting geographical facts and concepts (MoE, 2009). The number of objectives reflecting higher order thinking skills and lower order thinking skills are incomparable. Only 23.71% of the competencies included in high school Geography textbooks reflect of the skills employees require for work. Unlike other subjects, considerable emphasis was given to interpersonal skills (attitudes) and technical skills (psycho motor), particularly in geography for grade 11 and 12. The percentage of objectives representing skills required in the world of work was also better in Geography than in the others. The following are among the statements of objectives included in Geography grade 12 representing the required skills:

- Conduct action research on selected problems (critical thinking and problem solving, unit 1)
- Analyze the impact of rapid population growth on Ethiopia's socio-economic and environmental conditions (critical thinking, unit 4)
- Analyze the challenges and prospects of socio-economic development for Ethiopia(critical thinking, unit 5)

Though their frequency is different, all the skills under questions are reflected in high school Geography textbooks. The skills addressed as activities in Geography for grade 10 are teamwork (37.7 %), critical thinking (29.61%), communication skills (24.59%), problem solving skills (19.67%), decision making skills (8.19%), work habit (4.91%) and time management (1.64%). Communication skills (45.28%), teamwork (43.39%), critical thinking (28.3%), problem solving (11.32%), decision making (5.66%) and creativity (3.77%) are the skills reflected in review activities included in Geography for grade 12 textbook.

More than 90% of exercises and review questions in high school Geography textbooks require lower level cognitive skills. There are 119 and 139 questions in Geography for grade 10 and 12 respectively. Among these almost all review questions in grade 10 textbook and majority of questions in grade 12 were designed to promote the first three cognitive sub-domains. Only 2.88% and 2.16% of the questions in grade 12 Geography were planned to encourage the development of critical thinking skills and teamwork respectively.

History is a subject concerned with critical analysis of information and use of sources, and attitudes and values to provide an emotional and aesthetic experience. However, only 39%, 30%, 57.14% and 13.43% of the objectives included in grade 9 to 12 respectively are representatives of the lower order thinking skills that have insignificant contribution for success of middle level workforce.

Similarly, the number of activities included in History textbooks is low as compared to the other subjects. It was revealed that no activity was included in History grade 11 textbook, and unit 4 and unit 6 of History for grade 9. Among 130 questions included in History for grade 9 textbook, only 16.15%, 4.61% and 0.77% of the activities promote critical thinking skills, group work, and decision making skills respectively.

It is common to see that textbook writers and editors of grade 9-12 student textbooks of one subject is the same. Consequently, the nature of learning experiences and instructional objectives in grade 9-12 is similar. There are 144 questions listed under eight review exercises in History for grade 9. Except six and one questions that are intended to encourage the achievement of critical thinking skills and problem solving skills respectively, 95.14% (137) of the questions were planned not to encourage students to achieve the skills required to be successful in future work and life. Among the 307 questions organized under eleven review questions and forty-three exercises in History for grade 11, only 55 (17.91%), 19(6.19%), 2(0.65%) and 1(0.32%) of the questions were planned to promote communication, critical thinking, problem solving and decision making skills respectively. In addition the lower cognitive skills, exercises 6.1- 6.4, 7.1-7.4 and end of unit exercises promote communication skills.

Discussion

Critical thinking, problems solving, creativity, decision making, communication, teamwork, leadership, independent work, ability to learn and self management skills that are grouped under cognitive, interpersonal and intrapersonal domains of competencies were considered to assess the skill demand of employers and curriculum responses to the world of work.

Employment requirement and selection procedure manufacturing industries employed to cheek if the applicants were acquired the basic skills area was not uniform. However, the basic and common criteria used to select employees from applicants were related to communication skills, time management, teamwork, work ethics and readiness to learn. Public organizations used written exam and interview to measure their communication skills (oral, and writing skill), ethical issues, work habits and their understanding about the responsibilities the positions require from employees. Consistent with this finding, the research conducted by Suarta, et al. (2017) identified that communication skill, problem-solving and decision-making skills, tolerance, creativity, willingness to learn, adaptability and teamwork skills are the skills required by graduates in entering the workforce.

Manufacturing industries required time management, work independently, ability and readiness to learn, collaboration and self management (work ethics, self discipline) and communication skill as the top six skills employees must demonstrate to survive in

the organizations. This finding is consistent with the study conducted by Burrus, Jackson, Nuo Xi, and Steinberg (2013) which indicated problem solving, teamwork and cooperation and communication skills as the most important skills and competencies needed for workforce. The result also disclosed that decision making skills, problem solving skills and critical thinking skills took the middle position in the rank of the skill demand of the employers. This shows that time management (usage), independent work and ability and readiness to learn are the most essential workplace skills for employees. And, workplaces are becoming more team oriented and demand collaboration and communication skills. The leadership skill is required for line/team leaders that are assigned to coordinate, supervise and support operators. They are also expected to make decisions and solve minor problems that are expected to happen at operation level. Since their responsibilities require repeating the same procedure, creativity isn't expected from operators. Though few companies used basic technical skills as selection criteria for applicants, all employers require job specific technical skills as a minimum requirement to stay as employee in the organizations.

The study revealed that communication skills, teamwork and cooperation, work independently, time management and self management skill (self discipline) are the most critical skills public sectors demand from applicants and novice employees. In consistence with this, Burnett and Jayaram (2013) identified that, in Africa, beside technical and basic cognitive skills transferrable and non-cognitive skills such as communication, problem solving, punctuality, and flexibility are increasingly important in the workplace. Readiness to learn, problem solving and critical thinking skills took the middle position in the list of the skills. Employees are required to demonstrate creativity, decision making and leadership skills when need arises. Although employees are required to possess practical skills, there is no complex and difficult technical skill they needed to utilize. Hence, appropriate use of work time, effective communication, independent work and team spirit and collaboration are the most critical skills for employees in public organizations.

Though the rank given to each skill was not identical, among the skills under investigation, most employers shared the idea that time management (time usage), independent work, ability to learn and adapt, self control (self management), teamwork and communication skills are the competency organizations demand from employees graduated from secondary schools. The study conducted to compare skill demand of employers in three African countries also showed that self management, teamwork, ability to learn, ability to work independently, and problem solving were the most essential skills for employees graduated from secondary education (World Bank, 2017). The study identified that the rank of critical thinking, problem solving and decision making skills was next to the mentioned six skills. Creativity took the least position in

the list of the skills required in public organizations. In addition to the mentioned skills, team/line leaders are required to demonstrate leadership skills. In industries, operators are required to demonstrate technical skills.

Among the mentioned skills, effective way of communication, self management (work ethics), appropriate use of work time, independent work, ability to work with others, ability to smoothly solve problems and ability to learn (adapt) are the areas of skills some of the employees faced difficulty to demonstrate effectively during the first month of their employment. Similarly, the study conducted by Dench, Perryman and Giles (1998) identified that employers were slightly less satisfied with workers oral communication, teamwork, and learning skills. Few among operators promoted to team/line leader position faced challenge to exercise their responsibilities related to decision making and problem solving skills.

The most important assumption behind analyzing textbooks is that, today's jobs require employees who demonstrate teamwork, problem-solving, Critical thinking skills, able to make decisions, take responsibility and communicate effectively (Joynes, Rossignoli, & Fenyiwa, 2019). These capabilities are not taught in isolation but rather are taught within a core body of subject matter content. The result of analysis chemistry textbooks depicted that critical thinking skills and problem solving skills are relatively well represented in the list of statements of objectives. The rank of objectives reflecting teamwork and collaboration and communication skills took the middle position. In consistence with this finding, critical thinking, problem solving, creativity, communication, collaboration and learning to learn are the core competencies Kenya embedded in subject areas such as English, mathematics, science and technology (Esther, Helyn, Alvin, and Kate, 2018). Unless students develop work habits and the skills help them to use and manipulate different equipments, they will face difficulty to adapt to technological tools and machines in workplaces. However, intrapersonal skills (self management and time management) are rarely appeared in the list or totally ignored by the curriculum experts or textbook writers. Conversely, in Montenegro, learning to learn, creativity, cooperation and problem solving are the least prevalent skills in secondary school curricula (Pešikan and Lalović, 2017).

Among the learning objectives included in Biology, few competencies were identified as they are relevant to the skills students require to be employed or effective in their future work environments. Similarly, most of objectives in Geography textbooks are representatives of lower order thinking skills. Although, they are insignificant as compared to the total number of objectives included in Biology and Geography textbooks, critical thinking, problem solving, decision making and communication (to some extent) are the skills represented in the list of objectives. Among these, critical thinking is the most emphasized skill throughout the textbooks. The study conducted by

Pešikan and Lalović (2017) identified that social skills, critical thinking skills and information literacy are the most prevalent skills in secondary school curriculum in Montenegro. Similarly, in History textbooks, the most important emphasis was given to critical thinking with small number of objectives designed to encourage decision making and communication skills. Intrapersonal skills, teamwork, cooperation, creativity and problem solving are the skills ignored by History textbook writers.

A good textbook realize student- centered method, promote self- directed learning, and have activities for students to enhance their mastery of skills and outline the objectives that guide learning process takes place in the classrooms(Noordin, 1994 cited in Temechegn, 2005). Most of the learning objectives, exercises and end of unit questions in chemistry textbooks don't encourage students to develop the skills employees require for work. However, some of the activities and all of the experiments were intended to open opportunities for students to develop critical thinking, communication, teamwork and problem solving skills. Regarding this, Temechegn (1992) identified that most of the individual elements of the science process skills applicable in chemistry are included in high school chemistry textbooks (published in 1989). However, the skill to communicate found to be almost negligible. Most of the instructional objectives in Biology textbooks are associated with lower level cognitive domains. The skills required by employers are better reflected in review activities than in the learning objectives and exercises and end of unit questions.

History education is aimed at providing the necessary skills that help the students to practice the scientific method by asking questions, analyzing causal links and applying a critical use of sources and other methods of gathering knowledge about the past (MoE, 2009). In contrast to the expectation, in History textbooks, the percentage of learning objectives and exercises intended to promote the skills graduates need to be employed and survive in the world of work was insignificant. However, few activities in the textbooks encourage students to develop critical thinking skills, problem solving skills, teamwork, and communication skills. In Geography, the number of activity designed to promote the skills students require for work is incomparable with the activities intended to encourage students develop lower order thinking skills. However, communication skills, teamwork, critical thinking, problem solving and decision making skills are relatively the most emphasized skills.

It is in the curriculum that effective teaching and learning of relevant skills, knowledge and values should take place (Hoppers & Yekhlef, 2012, cited in Roseman, 2018). Though the number of review questions (learning experience) included in high school Chemistry is large, majority of exercises and end of unit questions need simple memorization and comprehension of ideas discussed in the textbooks. Although, very few questions require analysis, synthesis and evaluation of information, majority of

questions in Biology textbooks don't require students to use higher order thinking skills. The answers are clearly discussed in the textbooks. Similarly, the study conducted in Pakistan by Mubeshera and Sufiana (2016) indentified that a gap was found in Biology textbook for providing any activity for the development critical thinking, problem-solving, creativity and leadership skills in secondary school students.

The primary goal of teaching social studies is to create citizens who use critical thinking, reflective thinking, and creativity in their daily tasks and make informed and reasonable decisions (Yilmaz, 2009). Conversely, high school Geography is dominated by multiple choices, true/false and short answer questions that require student to remember or read information presented in the textbooks that don't promote analysis, synthesis, and evaluation. Very few questions demand students to use critical thinking skills. Similarly, most of the review questions included in History encourage students to remember and understand previously learned concepts. Few of the questions demand critical thinking skills, teamwork, communication and problem solving skills.

CONCLUSIONS AND IMPLICATIONS

Conclusions

Preparation for work, developing positive work habits and respect for work and high regard for work are among the major aims of education. Providing students with the knowledge, skills, abilities and attitudes that enable them make all rounded participation is also among the objectives of education in Ethiopia. The result of the study revealed that almost all of the skills that are idetified as the key competencies and skills for work are recognized as essential for public and nonpublic organizations and required from employees graduated from secondary schools. Among these, communication skills, teamwork and cooperation, time management skills, independent work skills, self management and ability and readiness to learn are the skills that are vital for employees to survive in the different organizations. In addition to the mentioned skills, problem solving skills, decision making skills and critical thinking are the skills team/line leaders need to effectively demonstrate their responsibilities. Trainings were provided to equip novice employees with technical skills. However, employees faced difficulty to learn and adapt to the technical skills because they had no any relevant basic skills and experience they acquired at high school level. Moreover, it was confirmed that majority of the beginner employees faced difficulty to effectively communicate, cooperate and work with others, learn and adapt to job and work environment, effectively use work time and solve problems independently. Consequently, employers concluded that secondary education had not been equipping students with the skills the world of work demand from employees.

One among the purposes of secondary education is to prepare students for work. Conversely, the reality which was obtained through reviewing of textbooks and interview confirmed that preparation of secondary school curriculum undermined the importance of the skills employers require from applicants and employees graduated from secondary school. The study revealed that the skills that are essential in the world of work are not adequately included in secondary school textbooks. More specifically, learning objectives, activities and review exercises included in the textbooks promote the development of lower order thinking skills that have limited contribution for acquirement of the work skills. Consequently, the skills that are identified as essential for work and categorized under cognitive, interpersonal and intrapersonal domains are not incorporated to the level of organizations expectations. The investigation also depicted that the constructivist and student centered approach that are prescribed to prepare secondary school curriculum preparation and expected to be implemented in the classrooms were ignored. Consequently, most of the learning objectives and experiences (activities and review exercises) included in the curriculum don't reflect the skills that are essential for middle level workforces.

Implications

In the absence of involvement of key stakeholders and without assessing the needs of future destinations of students, it is difficult to prepare a curriculum which is relevant to the demands of the world of work. In order to prepare relevant curriculum to the world of work, experts and textbook writers must be advised to assess the skills employers require from secondary school graduates. The study revealed that curriculum is no responsive to the requirements of employers. This could be improved when the existing curriculum is revised to incorporate the skills the world of work demands from employees. More specifically, learning objectives, activities and review and end of unit exercises in secondary school curriculum need to be revised to integrate the skills students need for their future work.

REFERENCES

Alemayehu, B., and Lasser, J. (2012). Education in Ethiopia: Past, Present and Future Prospects. *African Nebula,* Issue 5

Amare Asgedom, (1998). "Content Analysis Methodology and Applications to Curriculum Evaluation" IER Flambeau, 6(1): 1-14.

Amadio, M. (2013). A rapid assessment of curricula for general education focusing on cross- curricular themes and generic competences or skills. UNESCO-IBE, Geneva.

Ball, A., Joyce, H., and Butcher, D. A. (2016). Exploring 21st Century Skills and Learning Environments for Middle School Youth. *International Journal of School Social Work*, 1(1): 1-15

Berhe Mekonnen and Tsegay Gebrekidan (2018). *The State, Determinants, and Consequences of Skills Mismatch in the Ethiopian Labour Market: Working Papers 021.* Ethiopian Development Research Institute.

Bloom B. S. (1956). *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain.* New York: David McKay Co Inc.

Burnett, N., and Jayaram, S. (2013). *Innovative Secondary Education For Skills Enhancement: Skills for Employability in Africa and Asia*. Washington, DC

Burrus, J., Jackson, T., Nuo Xi, and Steinberg, J (2013). *Identifying the Most Important 21st Century Workforce Competencies: An Analysis of the Occupational Information Network*. New Jersey: Princeton, Educational Testing Service.

Dench, S., Perryman, S., and Giles, L. (1998). Employers' Perceptions of Key Skills. UK, Brighton: University of Sussex

Erawan, P. (2010) Developing Life Skills Scale for High School Students through Mixed Methods Research. *European Journal of Scientific Research,* 47(2):169-186

Esther, C., Helyn. K., Alvin, V., and Kate, A. (2018). Education system alignment for 21st century skills: Focus on assessment. Singapore: Springer Nature

Eubanks, D., and Eubanks, L.T. (2009). *The Importance of Secondary Education.* In Tarasova, N. P. (edited). Quality of Human Resources: Education - Volume II. United Kingdom: EOLSS Publications

Joynes, C., Rossignoli, S., & Fenyiwa, E. (2019). 21st Century Skills: Evidence of issues in definition, demand and delivery for development contexts (K4D Helpdesk Report). Brighton, UK: Institute of Development Studies.

Hilton, M. (2015). Preparing Students for Life and Work. *Issues I Science and Technology*, 31(4), 64.

International Labour Organization. (2016). *Key Indicators of the Labour Market (Ninth edition).* Geneva: Switzerland, www.ifrro.org

Joshi, R.D., and Verspoor, A. (2013). *Secondary Education in Ethiopia: Supporting Growth and Transformation.* Washington DC: World Bank

Lewin, K., and Caillods, F. (2001). *Financing Secondary Education in Developing Countries: Strategies for Sustainable Growth.* France: UNESCO, International Institute for Educational Planning.

Laura, B. (2013). Enhancing youth employability: What? Why? and How? Guide to core work skills; International Labour Office, Skills and Employability Department. Geneva: ILO

Longhurst, R. (2010). Semi-structured interviews and focus groups. In N. Clifford, S. French, & G. Valentine (Eds.), *Key methods in geography* (2nd ed.) (pp. 103-115). London, EN: SAGE Publications Limited.

Maaza Bekele. (1966). *A study of modern education in Ethiopia: Its foundation.* New York, US: Colombia University.

Marriott, N. & Goyder, H. (2009). *Manual for monitoring and evaluating educational partnerships.* France: UNESCO, International Institute for Educational Planning.

Marsh, C. (2009). *Key Concepts for understanding curriculum.* New York: Routledge Falmer.

MOE. (2005). *Education Sector Development Program –III. 2005/006- 2010/2011. Program Action Plan.* Addis Ababa: Berhanena Selam Printing Enterprise

MOE (2009). *Curriculum Framework for Ethiopian Education (KG- Grade 12).* St. George printing press

Mubeshera, T., and Sufiana, K. (2016). Analysis of Textbook of Biology for Higher Secondary Students With Reference to 21st century Life Skills. *Journal of Research in Social Sciences, 4 (2): 2305-6533*

Ndala, K. (2006). *Education Trends & Developments in Sub-Saharan Africa*. Retrieved on December 20, 2019 Retrieved from : https://www.opensocietyfoundations.org

Onwuegbuzie, A. J and Johnson, R.B. (2006). *The Validity Issue in Mixed Research. Research in the Schools,* 13(1): 48-63

Pešikan. A, and Lalović. A. (2017). *Education for Life: Key 21 Century Competencies in Curricula in Montenegro*. Podgorica: UNICEF Montenegro

Roseman, B. (2018). *From Policy to Practice: Perceptions of Effective Teaching in Ethiopia.* Universitetet i Oslo

Seetha, N. (2014). Are Soft skills Important in the Workplace? : A Preliminary Investigation in Malaysia, *International Journal of Academic Research in Business and Social Sciences,* 4(4), 44-56

Sahlberg, P. (2007). *Secondary Education in OCED Countries: Common challenges, differing solutions.* Brazil: European Training Foundation.

Solomon Melese and Aschale Tadege (2019). The Ethiopian curriculum development and implementation vis-à-vis Schwab's signs of crisis in the field of curriculum. *Cogent Education,* 6(1):1-16

Suarta, et al. (2017). Employability Skills required by the 21st-century Workplace: a literature review of labour market demand. *Advances in Social Science, Education and Humanities Research, volume 102, 337-342*

Tedesco, J.C., Opertti, R., and Amadio,M. (2013). *The curriculum debate: why it is important today.* Geneva, Switzerland: UNISCO IBE

Tekeste Negash (1990). The Crisis of Ethiopian Education: Implications for Nation-Building. *Uppsala Reports on Education, 29*. Uppsala: Uppsala University, Department of Education.

Tekeste Negash (2006). Education in Ethiopia: From Crisis to the Brink of Collapse. Stockholm: Nordica Africa institute

Temechegn Engida. (1992). *Analysis of the Science Process Skills in High School Chemistry Textbooks.* Paper presented at the 9th Annual Congress of the Chemical Society of Ethiopia

Temechegn Engida. (2005). *Chemistry Teaching in Secondary Schools*. Addis Ababa University. Unpublished.

Teshome, G. (1979). *Education in Ethiopia: Prospect and Retrospect*. Ann Arbor: University of Michigan Press

Tewabe Yilak (2018). *Public Employment Services Provision and Labour Market Information Collection and Utilization Ethiopia.* Ethiopia: published by International Labour Organization

TGE (1994). *Education and Training Policy. St. George Printing Press.* Addis Ababa

UNISCO (1990). *Relevance, Balance and Integration of the Content of General Education: Achievements, Trends and Issues.* Hamburg: Germany

UNESCO. (2004). *EFA Global Monitoring Report 2005. Education for All: The Quality Imperative*. Paris: UNESCO

UNISCO (2005). *Secondary Education Reform towards a Convergence of Knowledge Acquisition and Skills development.* Paris: UNISCO

UNESCO. (2016a). *School and teaching practices for twenty-first century challenges: Lessons from the Asia-Pacific region (Phase II): Regional synthesis report.* Paris, France: UNESCO

V Murthy (2016). Issues, Problems and Possibilities of Life Skills Education for School Adolescents. *International Journal of Indian Psychology,* 3(3): 56-76

Wagner, T. (2008). *The Global Achievement Gap: Why Even Our Best Schools Don't Teach the New Survival Skills Our Children Need and What We Can Do About It?*: New York: Basic Books publisher

Watts, A. G. (2001). Career Education for Young People: Rationale and Provision in the UK and Other European Countries. *International Journal for Educational & Vocational Guidance.*

World Bank (2005). *Expanding Opportunities and Building Competencies for Young People. A New Agenda for Secondary Education*. Washington D.C: The World of Bank

World Bank (2017). *Job-Ready Graduates of Secondary Education in Botswana, Lesotho and Zambia.* Washington DC: World Bank group

Whittemore, S. (2018). Transversal Competencies Essential for Future Proofing the Workforce. www.skilla.co.uk

Yin, R.K. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.