'Future Perspectives' in Ethiopian Secondary School Curriculum and Instruction

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Abstract

Future perspective in curriculum refers to the various theories, approaches, and thoughts that educators and researchers have regarding how curricula should evolve to meet the changing needs of society, technology, and learners. The study aimed to evaluate the space accorded to 'Future Perspectives' in the Ethiopian secondary school curriculum. The study employed a document analysis method using two main themes, i.e., the manifestation of the key components of future perspectives and expected learning opportunities. The study examines the manifestations of the key components using three sub-themes: personalized learning, lifelong learning, and integrated skills. To this end, three policy documents, thirty-one scholarly journal articles, eleven textbooks, and eleven teachers' guides are selected for analysis. Findings indicated that, although the policy documents and curriculum materials presented the components of future perspectives, the latter are rarely presented in some units of mathematics, English, and physics curricula. Furthermore, studies suggest that personalized learning, including individualized curricula, effectively meets individual student needs and improves educational outcomes if it adapts to students' experiences and strengths. However, the curricula under study failed to customize learning for students' strengths, needs, and skills. Concerning teaching strategies, policy documents proposed a learner-centered approach, whereas the research on the issue revealed that the teacher-centered teaching approach is the predominant practice in classrooms. It was concluded that the space given to future perspectives in the Ethiopian secondary school curriculum was not entertained as desired.

Keywords: Curriculum, instruction, future perspectives, learning opportunities, secondary education

INTRODUCTION

Secondary education plays a dual role in today's education system. It provides an extended platform for all young people to enhance their knowledge and skills or prepares them for higher education essential for society and the knowledge economy (OECD, 2007) and qualifies them for the labor market and productive adult lives, including participation in social, political, and economic spheres (Abdi & Kenea, 2022). The Ethiopian education roadmap recommended that Ethiopia needs to universalize the quality of secondary education by 2030 to meet the global target of sustainable development (Teferra et al., 2018). However, studies revealed challenges that hinder this target. Some of the challenges are inadequate professionally qualified teachers

(Asiyai, 2013; Mera, 2023; UNSD, 2024), inadequate education infrastructure and inadequate funding (Asiyai, 2013; Mera, 2023), and insufficient teacher training (UN Sustainable Development Goals, 2024). Although technology has expanded educational opportunities, it has also widened inequalities, leaving millions of people, especially in marginalized and low-income communities, without access to education (UNSD, 2024). Moreover, Malik (2018) states the challenges of 21st-century education are globalization, information communication technology (I CT), and knowledge explosion.

Concerning this, the Ethiopian General Education Curriculum Framework (EGECF) states that

> EGECF aimed at producing citizens who have the competence essential for life, further learning, and the world of work. It also aims to nurture citizens who have scientific and technological literacy, possess the ability to think creatively and critically, solve problems, and act in morally responsible manners, among many others (MoE, 2020, p.17).

Secondary schools, at this junction, are the place where learners find their own identity and power in all aspects. The curriculum, at these levels, is a future document and designs the future objectives to enhance the identity and power of the learners (MoE, 1994; MoE, 2023a; Olugbenga & Oluwatosin, 2022). However, there are always multiple versions of the future. Some are assumptions; others are hopes and fears, or even signal that something is already changing (OECD, 2020). In line with multiple forms of the future, Kress (2000) argued that the changes in the social and economic circumstances that characterize the present period make it essential to rethink the relation of curriculum, its purposes, and its shapes to the social and economic environment of the near future.

Future Oriented Curriculum

Future perspectives can refer to a broad range of topics depending on the context. In curriculum, it refers to the various theories, approaches, and thoughts hold regarding how curricula should evolve to meet the changing needs of society, technology, and learners (Ivanitskaya et al., 2002). However, in a general sense, "future perspectives" often focus on predictions, trends, and anticipated developments across different domains such as technology, society, and education (Jamil et al., 2024). It encourages the nurturing and sustaining of culture in schools that promotes critical thinking, creativity (David, 2019; Jamil et al., 2024), emerging technologies and adaptability (Andars, 2012; Olugbenga & Oluwatosin, 2022), innovation, life-long learning, and embracing change in the 21st century (David, 2019). Moreover, it imagines a transformative approach that prepares students not just for the present but for a dynamic and unpredictable future. In this context, a curriculum can equip the next generation by embracing technology (Chiu & Li, 2023; Van Mechelen, et al, 2023), interdisciplinary learning, student-centered

pedagogies, and fostering essential life skills, with the tools they need to thrive in an ever-changing world (David, 2019).

The future curriculum is a planned education program for society and emphasizes a curriculum for tomorrow based on systematic forecasting today (Olugbenga & Oluwatosin, 2022). That means the present curriculum is an important foundation for the future. Whereas a future-ready curriculum is one designed to equip learners with the knowledge, skills, and mindset needed to thrive in an increasingly complex and rapidly changing world.

Future curricula are more likely to use scenario planning and foresight approaches (Olugbenga & Oluwatosin, 2022). To prepare students with the brainpower and courage to create, the foresight approach focuses on giving curriculum planners the tools they need to create curricula that will not only give students future literacy in anticipation of future changes but also technical know-how or agency for future changes (Ju et al., 2017). Scenario planning, on the other hand, adapts the curriculum to the goals and objectives of any educational system that is put into place (Oliver, 2023; Tsui, 2023). It modifies the curriculum to reflect societal shifts brought about by technological advancements (Olugbenga & Oluwatosin, 2022). Nonetheless, future dual-oriented learning is a method of instruction that seeks to build the abilities and skills necessary for students to flourish in an evolving world. Generally, future curriculum focuses on the educational program for the future; future perspectives attention on theories and principles, future-ready curriculum emphasizes experienced curriculum, and future dual-oriented learning centers on the pedagogy.

UNESCO (2015) and the OECD (2018) underline that this generation needs a new mindset because our world is changing in complex ways, and the future is more complex than today. Although the importance of a future perspective in curriculum is broadly acknowledged, the implementation of a future dimension in schools is far from easy (Hicks, 2012; Slaughter & Beare, 2011). Even where future education pilots and experiments were successful, it proved to be complicated to give the future perspective a structural place in curricula and classroom practices. However, the concept of the "future" in curriculum involves preparing students for instability and change and emphasizes the role of design and creativity in shaping educational goals (Kress, 2000). Kress suggests that placing "design" at the center of the curriculum redefines the goal of education as fostering innovation, creativity, transformation, and adaptability to future environments. Incorporating a future perspective into the curriculum helps cultivate students' optimism about their ability to influence and shape the future (Rawnsley, 1999). According to Rawnsley (1999), there are two important rationales for examining the future. These are: (1) humanity is poised on the global brink of immense changes in a broad range of social, technological, and environmental areas; and (2) educating students about the

future will assist them in anticipating, preparing for, and possibly directing humanities and their futures.

Key Components of Future Curriculum

Studies revealed that there are various components of future perspectives in the curriculum. For instance, interdisciplinary learning that characterized by the integration of multidisciplinary knowledge across a central program theme (Ivanitskaya et al., 2002), and personalized learning that aims to customize learning for each student's strengths, needs, skills, and interests (Derseh et al, 2024) are some of the components. Moreover, it encompasses the interconnected but different key components such as personalized learning, lifelong learning, and integrated skills. Personalized learning is a learning strategy in which learners take responsibility for their learning, deciding what, how, and when they want to learn (Derseh et al., 2024; Shemshack & Michael, 2020; UNESCO, 2017). Similarly, lifelong learning is the provision or use of both formal and informal learning opportunities throughout people's lives to foster the continuous development and improvement of the knowledge and skills needed for employment and personal fulfillment (Laal & Salamati, 2012). It is essential in a dynamic and fast-changing knowledge world. It is perceived as the continuous acquisition of knowledge, skills, and competencies throughout one's life beyond formal education necessities in the future (Laal & Salamati, 2012; OECD, 2007).

Integrated skills are multifaceted. For Pardede (2010), the accelerative globalization and digitalization in the 21st century have been increasingly changing the way we live, interact, learn, and work. Consequently, to thrive in the 21st century, besides knowledge and basic skills, today's students should also be equipped with what is called the 4Cs (communication, collaboration, critical thinking, and creativity). Asrizal et al. (2023) state citizens of a country are expected to have a variety of skills, including critical thinking and problem-solving abilities, which are highly desirable, as well as creativity, communication, and teamwork to find solutions to 21st-century problems. The 21st century is a period focused on science and technology. Moreover, science, technology, engineering, and mathematics (STEM) learning is one of the high-level learning that is creating the future (Kömür & Gürbüz, 2021). STEM learning can increase student learning motivation because students are directly involved in the learning process and create generations who like learning science and mathematics. Through STEM learning, students are required to solve problems, be innovators, build independence, think logically, be literate in technology, and be able to connect STEM education with the real world (Artobatama et al., 2020).

Generally, the integration of personalized learning, lifelong learning, and integrated skills prepares learners to become adaptable, knowledgeable, and equipped to navigate an ever-

changing world. This holistic approach not only enhances personal growth but also prepares individuals for professional success in various fields. It is critical to incorporate them into the curriculum to give students the ability to influence and navigate probable future situations. Hence, the key components are operationally expressed as (1) personalized learning refers to an educational approach that modifies curriculum, instruction, and learning experiences to meet the needs, interests, and abilities of each learner; (2) lifelong learning is the selection and arrangement of curriculum contents that motivate learners to seek wisdom, knowledge, and skills throughout their life; and (3) integrated skills refer to the combined use of multiple competencies such as 4Cs and STEM in a unified manner to achieve specific goals.

Studies discussed that life skills, 21st-century skills, and future perspectives all focus on preparing individuals for success in various aspects of life (Chakra, & Kandhiraju, 2024), but they do so from different angles. All have nearly common key elements and components of future perspectives built on both life skills and 21st-century skills that prepare learners to face evolving challenges in a global context by equipping them with personal and professional success (Kennedy & Sundberg, 2020; Rotherham, & Willingham, 2010). Concerning the key components of future perspectives, EGECF identified them as 'core competencies, which include learning to learn, critical thinking and problem-solving, creative thinking and innovation, communication, collaboration, leadership and decision-making, digital literacy, cultural identity, and global citizenship (MoE, 2020). It is expected that these skills will be given space in the design of curriculum materials and instructional procedures for classrooms. Taking this as essential background, the study aims to appraise the space accorded future perspectives in the secondary school curriculum and instruction. The specific objectives are to evaluate the manifestation of the key components of future perspectives and assess the expected learning opportunities.

CONCEPTUAL FRAMEWORK

"Future perspectives" in curriculum and pedagogy would focus on integrating future-ready skills (McRae et al., 2019), preparing students for an evolving global environment, and aligning teaching methods with contemporary and future educational needs. The curriculum should not only focus on current knowledge but also on emerging trends and future possibilities (Gosper & Ifenthaler, 2014; Laal & Salamati, 2012). The future curriculum will need to prioritize skills over traditional subject boundaries, including 21st-century skills (collaboration, creativity, communication, and critical thinking), innovation (science, technology, engineering, and mathematics (STEM) (Kain, et al. 2024; Voogt & Roblin, 2010), as well as personalization and lifelong learning (Broeck et al., 2024; Thwe, 2024). Various studies demonstrate learning opportunities for future education will focus on inquiry-based learning (Pedaste et al., 2024), collaborative learning (Yang, 2023), and blended and digital learning (Zainil, 2024). According

to these studies, inquiry-based learning encourages students to pose questions, explore, and construct knowledge rather than passively receive information. Besides, collaborative learning facilitates peer learning and teamwork, which are essential in preparing students for future work environments that value cooperation. However, blended and digital learning incorporates both traditional and digital platforms to support diverse learning styles and increase accessibility to digital learning. Beyond basic technology skills, future students must be proficient in coding, data analysis, and using digital tools for teaching the learning process.

The interconnection among the key components is vital for creating an effective educational environment. They help the learners to connect the theoretical and practical aspects of curriculum and pedagogy with the real-world situation. Besides, their synergy creates a holistic educational experience that not only addresses individual needs but also prepares students for complex real-world challenges by equipping them with a broad range of competencies. Hence, the common intersection point of the three circles indicates the occurrence of real learning
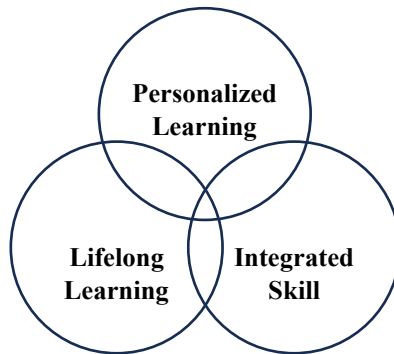
Figure1:　*Interconnection among Key components of future perspectives developed by authors*

METHODS AND MATERIALS

Method: The study used a qualitative document analysis method that helps to better conceptualize the "future perspectives" and the space accorded for its components based on data available from documents and the author's views and experiences. Document analysis is a systematic procedure for evaluating documents that examine and interpret data to elicit meaning, gain understanding, and develop empirical knowledge (Bowen, 2009).

Document analysis method: It involves the analysis of various types of documents, including books, newspapers, articles, academic journals, research results, policies, and institutional reports (Morgan, 2022). It uses pre-existing documents that allow researchers to gain access to the best source of data for completing the study. The process of conducting a document analysis starts with selecting the documents for the study. In selecting the documents, the researcher

needs to consider several factors: authenticity, credibility, representativeness, and meaning (Flick, 2018).

Materials and Sampling Technique: This study used purposive sampling for a document analysis. Hence, three subjects, namely mathematics, English, and physics, were purposively sampled from grades 9-12 to address the manifestation of key components and assess the expected learning opportunities. The subjects are selected based on the expectation that the key components are more manifest, and teaching strategies are more applicable in English, mathematics, and science subjects than others. As a result, three policy documents, thirty-one scholarly journal articles, eleven textbooks, and eleven teachers' guides are selected and analyzed.

Data Collection: Data were mainly generated from institutional, national, and international secondary sources of policies and strategies, textbooks, teacher's guides, research findings, and articles.

Data analysis procedures: Since document analysis is the process of evaluating the existing documents, it helps to examine and interpret, uncover meaning, gain understanding, and come to a conclusion. To this end, to address the objectives of the study based on theme, relevant documents are selected, organized, analyzed, and interpreted. Finally, the conclusion is drawn from the findings

RESULTS AND DISCUSSION

This section presents the results and discussion of the data obtained from policy documents, the curriculum framework, curriculum materials (textbooks and teacher`s guides), and research outputs. However, there were limitations in the research product that was done on future perspectives in the Ethiopian secondary school curriculum. Though there were limitations of research outputs on the topic under study, the study tried to connect the concepts, phrases, and issues related to key components.

Results:

Studies discuss that future perspectives curriculum contents and learning opportunities are organized to improve learners` autonomy, personal fulfillment, and creation of their world (Derseh et al., 2024; Shemshack & Michael, 2020; UNESCO, 2017). In doing so, the curriculum materials are expected to consolidate their contents and deliver concepts, theories, and facts through keynote speeches (the teacher introduces new concepts), which cover 20%; demonstration sessions, which cover 40%; and workshop sessions, which cover 40% of the total portions of curriculum materials (MoE, 2013).

This study often applied the words 'small, few, inadequate, limited, minimal, many, much, and most' to explain the existence of key components in policies and curriculum materials. For this

study, these modifiers are categorized into three percentage ranges. The scientific categorization of them is based on the contexts of the topic under study. Categorizing the words into percentage ranges can be somewhat subjective, as these terms are often context dependent. However, researchers, psychologists, health researchers, statistical analysts, and linguists (Barwise & Cooper, 1981) have studied how people interpret these terms in various contexts, providing some evidence for their categorization. In most of the fields, these quantifiers are categorized as a high percentage (70%-100%), which includes most; moderate percentage (30%-70%), which includes many and much; and low percentage (0%-30%), which includes small, few, inadequate, and minimal. These categorizations can help in evaluating the completeness and effectiveness of policies and curriculum materials, guiding necessary improvements. As a result, this study applies a high percentage range (70%-100%) that encompasses the words "most," a moderate percentage range (30%-70%) that includes "many and much," and low percentage ranges (0%-30%) that include small, few, inadequate, and minimal.

Key Components of Future Perspectives in Curriculum

Educational Policies: Policies are the guiding principles that set the direction in which curricula are developed, implemented, and evaluated. They also decide the future direction of the learner, the expected outcomes, and the learning opportunities. Besides, the new education and training policy and EGECF proposed 'eclectic' as a philosophical direction and perceived secondary education as a life to be lived and a preparation for future living. Moreover, researchers articulated that the goal of secondary education is to prepare students for further education and for the world of work.

Essentially, the three key components, namely personalized learning, lifelong learning, and integrated skills (4Cs, STEM, creative thinking, critical thinking, and problem-solving), are assessed in the policies and EGECF. In Table 1, "X" indicates the appearance of key components in the policies (Education and Training Policy 1994, 2023) and curriculum framework.

Table 1
Key Components of Future Perspectives Addressed in Policy Documents

Key Components Documents	Personalized learning	Lifelong learning	Integration of Skills
1. **Education and Training Policy (MoE, 1994, 2023a)**			
Principles		X	**X**
Objectives	X	X	**X**
2. **EGECF (MoE, 2020)**			
Aim		X	**X**
Objectives	X		**X**
Competences	X	X	**X**

The new education and training policy, in its principles, stated relevance and quality, decentralization, transparency, and responsiveness, being free from politics and religions, being result-oriented and modern technology, and being competitive. The principles point out the issues of lifelong learning implicitly as 'deliver quality and lifelong education and training for citizens', and integration skills as 'modern technological integration with education and training.' Similarly, in their objectives, they stated lifelong learning indirectly as 'education for personal and social improvement,' personalized learning as 'preparing citizens who believed in rational thinking and discussion, research, and reasoning,' the integrated skills as 'the integration of science and technology,' creative thinking as 'entrepreneurs,' and problem-solving as 'responding to the existing condition'. In connection to indigenizing the curriculum, the education and training policy (MoE, 2023a) proposed that the general education curriculum should be prepared with quality by taking indigenous knowledge, ethics education, and productive and practical integration into account. However, the MoE (2023a) missed the issue of personalized learning in its principles.

Similarly, the EGECF demonstrates some components of future perspectives in its aims, objectives, and competencies. As shown in Table 1, its aim states lifelong learning is 'to produce citizens who have the competence essential for life, further learning, and the world of work,' and integrated skills is 'to nurture citizens who have scientific and technological literacy.' In the objective part, the EGECF states personalized learning as 'use what is learned creatively, effectively, and ethically in life and the world of work,' and integrated skills as 'utilize knowledge and skills of science and technology for innovation, invention, and entrepreneurship.' In connection with competencies, the EGECF discusses personalized learning as learning to learn, critical thinking and problem solving, and creative thinking and innovation. It implies that EGECF addresses most of the components of future perspectives.

On the other hand, contextualizing the key components with Indigenous knowledge as well as intersectional perspectives is very crucial. In line with these, EGECF perceives education as a life to be lived and a preparation for future lives, recognizes different ethnic or linguistic groups, and addresses the utilization of indigenous knowledge and skills for the advancement of the self and society. Moreover, it addresses regional diversity through a substantial and complex balance between developing curriculum at the federal level (curriculum framework, syllabuses, and flow charts) and regional levels (adaptation of syllabuses and development of textbooks).

The policies and the framework describe and underline the importance of considering an intersectional perspective in secondary education. Scholars discussed intersectional perspectives in secondary education, which involve understanding and addressing the interconnectedness of various identity factors, such as race, gender, linguistic diversity, and

socioeconomic status (urban-rural, poor-rich) to create inclusive educational environments that recognize and mitigate multiple forms of discrimination and inequality (Dunajeva & Siarova, 2024; Harris & Leonardo, 2018). Even though the framework (MoE, 2020: 23) has described intersectional perspectives that should provide equal opportunities for all learners so that they would be able to fulfill their potential and recognize the uniqueness of each individual and the fact that each individual learns in different ways and at different rates, the contents of secondary education curriculum materials are prepared by assuming all students are at equal status in rural and urban, particularly, it ignores the disparities between socioeconomic status in urban and rural contexts. To elicit this concept, curriculum materials are assessed.

Curriculum Materials: Currently, Ethiopia revised the secondary school curriculum materials based on the curriculum framework (MoE, 2020) that emphasizes on 21st century skills and learner-centered teaching strategies. In this study, mathematics, physics, and English language teacher`s guides and textbooks are selected and the existence of key components are evaluated.

Personalized Learning: It is a complex instructional philosophy and approach that optimizes learners' autonomy. The contents of such strategies are consciously and carefully developed. It is about individuals developing a clear understanding of how learning to learn occurs. EGECF adopted the four pillars of learning espoused earlier by UNESCO: learning to know, learning to do, learning to be, and learning to live together. It discusses that to handle these pillars, learners must be able to work effectively, independently, and in groups that build on their own learning experiences, cultural backgrounds, and preferred learning styles, as well as develop sound work habits and take increasing responsibility for their learning and achievement. To strengthen or argue these issues, mathematics, English, and physics curricula are examined.

Mathematics: The secondary school mathematics curriculum presented different contents across the grade levels that required the students' engagement in the teaching and learning process. In connection to personalized learning, the grade ten mathematics teacher`s guide stated:

> Studying mathematics provides learners not only with specific skills in mathematics but also with tools and attitudes for constructing the future of our society. The students automatically begin to apply high levels of mathematical reasoning and values to daily life and also to their understanding of the social, economic, political, and cultural realities of the country. In doing so, a student-centered approach that encourages personalized learning will be employed,

which will encourage students to develop personal qualities that will help them in real life. (MoE, 2023b, p. 1)

This text depicted that mathematics prepares learners for the future through a student-centered approach that encourages personalized learning. To improve personalized learning, the role of teachers must become more flexible, ranging from lecturer to motivator and facilitator. To synchronize whether personalized learning is exhibited in grade 9-12 mathematics textbooks or not, contents are assessed. Contents, activities, examples, and exercises should be developed in ways that encourage personalized learning. Accordingly, there are many contents, activities, examples, and exercises that lead towards personalized learning. For instance, in grade nine textbooks, the issue of own learning is expressed as 'Two pencils and one eraser cost Birr 5, and three pencils and two erasers cost Birr 8. Let the price of a pencil and an eraser is x and y Birr, respectively. Express the statements with x and y by your own; in the grade eleven textbook 'Discuss rotation of points through 90° and 180° about origin'; in the grade twelve textbook 'Assume that you deposit Birr 3500 in a bank account paying an annual interest rate of 6%. Find the amount you have at the end of the first year, second year, third year, and nth year'.

Many various contents, activities, examples, and exercises in secondary mathematics lead to the application of personalized learning. However, most secondary level mathematics textbook contents are prepared in a "content-centered approach" and are not customized its instructions that consider individual needs and goals. The divergence here is the issue of 'personalized learning' needs careful and well-designed contents which emphasize student engagement whereas the "content-centered approach" places the transmission of content at the center of instructional processes and goals.

English: The secondary-level English curricula are emphasized on listening, speaking, reading, vocabulary, grammar, and writing, which are dependent on individualized learning. In connection to this, the grade ten English teacher`s guide discusses that

> The grade ten English has been designed based on the syllabus. Accordingly, the activities in the textbook have focused on developing the students' English language competence both as a subject and medium of instruction. To this effect, all language skills have been given appropriate attention as survival skills. In practicing the activities, as stated in the curriculum, principled eclecticism has been in focus. This means that though the focus is a student-centered approach, teacher-led presentations and discussions have not been ignored altogether. (MoE, 2023c, p. XV)

Parallel with this, the appraisal of the appearance of personalized learning in textbooks indicated that much of the content from grades 9–12 invited personalized learning strategies. The issue of personalized learning in grade nine was exhibited in 'pre-listening questions, practicing

intonation individually, collocations, constructing individual sentences, and combining them into a paragraph'. Similarly, in grade ten, guessing contextual meanings of words, deriving word formations, and analyzing and summarizing listening texts are some of the issues in which the individual tries to learn by himself/herself. The assessment of English subjects across grade levels indicated that language skills with meaningful activities have been given appropriate attention through cooperative learning.

Physics: Like any other science subjects, it is taught practically, either in the classroom, in the laboratory, or the real world. In doing so, personalized learning should be taken into consideration to address the developed contents as intended. Regarding this, the grade twelve physics teachers guide states that

> It is a system that challenges the traditional practice of focusing on content coverage without paying attention to skill mastery. It is a system of instruction that is based on students demonstrating that they have learned the knowledge and skills they are expected to acquire as they progress through their education. This will be achieved through personalized learning. (MoE, 2023d, p. 1)

Concerning personalizing learning, some portions of physics textbooks showed their learning; for example, in grade ten, 'In your everyday life, you come across a range of constant acceleration motions. Can you give two examples of such a motion of your own? Similarly, in grade eleven, an experiment on the measurement of acceleration due to gravity (g) using the free-fall method is performed. The objectives of this experiment are to know the meaning of free fall and the conditions under which it occurs; know the value for the acceleration of gravity; correlate the motion of a free-falling object to the graphical descriptions of its motion; understand that the acceleration of gravity is independent of the mass of the free-falling object; and test the hypothesis that the acceleration of a freely falling object is uniform. The learners are experimenting on their own under the guidance of a teacher. Though some of the physics curriculum emphasizes personal learning, research has indicated that personalized instruction consists of providing support, monitoring progress, and interaction, which are useful in leading learners' autonomy.

Lifelong Learning: The secondary school curriculum should be designed to not only impart knowledge but also to cultivate skills and attitudes that promote lifelong learning. This holistic approach prepares students to adapt to changes, pursue further education, and thrive in their personal and professional lives. Currently, lifelong learning has become a dominant theme of education and training policies across advanced industrial nations. It empowers individuals to thrive in a rapidly changing world and lead fulfilling lives. It is expected that the curriculum is developed to promote lifelong learning by fostering intrinsic interest in learning (Dobreva &

Buzhashka, 2024). This review assessed the manifestation of lifelong learning in the mathematics, English, and physics curricula.

Mathematics: It is a tool used to organize our everyday lives and many occupations. It is used for computer programmers and describes cultures and state democratic principles, such as equality and justice. These statements stress the significance of mathematics in society as well as in everyday life. If mathematics becomes an important part of our lives, the teaching of the subject must reflect the new demands of the 21st-century generation.

The study assessed secondary-level mathematics teachers guides and textbooks to see whether the issue of lifelong learning was considered in their content organization. In this regard, the grade nine teacher guide states the issue of lifelong learning as 'In this stage, you are going to gain new knowledge and experiences that can help you learn and advance your academic, personal, and social career in the field of mathematics.' Besides, the grade ten teacher's guide also states it as 'use mathematics in daily life', and the grade eleven and twelve teachers' guides state it as 'the study of mathematics at this level will significantly contribute to students' lifelong learning and self-development throughout their lives'.

To make it more noticeable, the study goes through the contents of textbooks to assess the existence of the issues of lifelong learning. Accordingly, in the grade nine textbook, 'Calculate upper and lower bounds for the area of a school football field if its dimensions are correct to 1 decimal place (football and life); from grade eleven, 'A chemist has 6% salt solution and 12% salt solution. How much of the 6% salt solution and 12% salt solution must be added to get 300 g of 10% salt solution? (the connection between salt and life)' and from grade twelve,' A man accepts an initial salary of 5,200 ETB. It is understood that he will receive an automatic increase of 320 ETB in the very next month and each month thereafter. (a) Find the salary after the tenth month. (b) What were his total earnings during the first few years? (Occupational life)'. Similarly, there are many such types of contents and exercises in secondary-level mathematics textbooks. However, its existence differs from unit to unit and across the grade levels.

Different contributors advocated a variety of approaches to help learners learn mathematics. They stated that beforehand, mathematics contents must be organized carefully, contents and learners' lives must be connected, and learning strategies must be constructed to connect the contents with learners' lives. Though there are many contents related to lifelong learning, the way they are organized is not much connected to real life, and the learning strategies do not move beyond the classroom.

English: The English language plays a significant role in students' academic and personal lives. Moreover, language itself is a lifelong learning process. Most secondary-level English language contents seem to go beyond formal education. For example, grade nine English language contents stressed 'living in urban Areas, Study Skills, Traffic Accidents, National Parks,

Horticulture, Community Services, Communicable Diseases, Fairness, Equity, and the Internet'. Similarly, grade ten English contents are focused on 'Population Growth, Travel Behaviors, Punctuality, Tourist Attractions, Honey Processing, Branding Ethiopia and National Identity, the Healing Power of Plants, Multilingualism, and Digital versus satellite Television'. Grade eleven also focused on 'Environmental Hazards, Civilization, Causes of Road Traffic Accidents, People and Natural Resources, Global Warming, Patriotism, Efficiency of Health Services, Indigenous Conflict Resolution, Artificial Intelligence', and grade twelve English content focused on 'Sustainable Development, Time Management, Evidence on Traffic Accidents, Natural Resource Management, Mechanized Agriculture, Green Economies, National Pride, Telemedicine, Conflict Management, and Robotics'.

Most of the topics were designed to connect the issues with the emotional aspects of the learners, which helps them to critically understand their connection to their lives. The contents across the grade levels are slightly similar, with some variations. It was argued that the contents are interrelated to attach them with the learner's future lives. Studies also revealed that learning is by no means limited to the classroom. It can take place at anytime, anywhere, and in any form. English language content should enrich and extend learners' language learning experiences in real contexts.

Physics: It provides an ideal environment in which to engage in critical thinking and practical problem-solving skills. To bring the ideal world, the physics contents need to be well organized and address the learners' future. This review study also examines the appearance of lifelong learning in the secondary school physics curriculum. Some of the contents in the grade eleven textbook indicated the issue of lifelong learning, which is expressed by 'Traditional Maresha'. A farmer is plowing the field using a traditional Maresha (plow) pulled by two oxen. The two oxen are pulling the beam (*Mofer*) with a force F2v of 1200 N at an angle of 40° from the horizontal, and the farmer's force F1v on the handle (*Erif*) is 150 N at 60° above the horizontal. Find the resultant horizontal pulling force exerted by the farmer and the oxen on the Maresha'. Similarly, many contents in other grade levels show the existence of lifelong learning.

Integrated Skills: They are multifaceted. The accelerative globalization and digitalization in the 21st century have changed the way we live, interact, learn, and work. Consequently, to thrive in the 21st century, students should also be equipped with integrated skills. The study reviewed the appearance of the integrated skills in the three subjects.

Mathematics: - Studying mathematics provides students not only with specific skills in mathematics but also with tools and attitudes for constructing the future of our society. Studies revealed that the students automatically begin to apply a high level of mathematical reasoning, valuing daily life and understanding the social, economic, political, and cultural realities of the country. The assessment of the existence of the issues of integrated skills in some contents of

the mathematics curriculum showed that there was the integration of mathematics, physics, computers, and chemistry. For instance, in grade nine mathematics, the issue of integrated skills are stated as 'Two women A and *B* lie on the leveled ground at opposite sides of a 15-meter-tall tower. If A observes the top of the tower at an angle of 60° and B observes the same point at an angle of 30°, then how far can the two women be away from each other? (Physics and mathematics integration); the teacher wants to post square pieces of equal-sized color papers on a whiteboard measuring 20 cm by 50 cm. If only squares of length with natural numbers are considered, and the board is to be completely covered, find the largest possible length of the side of each square piece (critical and creative thinking). There are many types of content and examples across the secondary grade levels.

Research outputs revealed that integrated skills help learners tackle a problem from a multidimensional perspective. If the mathematics content is developed by considering integrated skills, it plays a crucial role in improving learners' creativity and critical thinking.

English: The integration of skills is emphasized throughout the secondary-level curriculum. In grade nine, the integration of different language skills into various activities to enhance learning and proficiency is prominent. Grade ten offers detailed information on how different language skills are integrated into various activities. It presents all language skills in connection with one another, in contrast to the traditional segregated language skills approach that presented each language skill separately. Besides, grade ten also provides resources and activities aimed at enhancing public speaking and communication skills, including tips on effective delivery, structuring speeches, and engaging an audience. However, despite the presentation of some integrated skills in secondary school English, there is a vast gap in addressing these components as anticipated. Studies depicted that integrating English language skills allows the learners to reach the level of realistic communication, which provides all round of communicative competencies in English.

Physics: *The* Grade 12 physics teacher's guide states about the integrated skills as:

> Physics generates fundamental knowledge needed for the development of other sciences, health education, and economic development; advancements in communication, energy, and transportation; and protection of the environment. It has made significant contributions to advances in new technologies by helping us understand scientific phenomena and creating theories critical to the development of new products that have dramatically transformed modern society. (MoE, 2023d, p. 1)

The study also assessed the presence of integrated skills in physics textbooks. As observed from the grade ten textbook, the issue of integrated skills is stated as 'a motorist undergoes a displacement of 250 km in a direction 30° north of east. Resolve this displacement into its

components (mathematics and physics integration); in grade eleven, Ethiopian Airlines, a Boeing airplane lands on one of the Bole International Airport runways with an initial velocity of 40.0 m/s and then decelerates at 1.50 m/s^2. (a) What length of runway will it need? (b) For how long will it move on the runway? (Critical thinking and creative thinking). Similarly, in grade twelve, 'Identify some relationships between physics and chemistry. What physics concept is applied in the separation of dissolved salt from water by the evaporation method (physics vs. chemistry)?

Learning Opportunities

Curriculum and learning opportunities are like two sides of the same coin. The issues of learning opportunities have been taken as the central points in which they are all the experiences and situations that students can learn from organized and naturally (WOSM, 2018). They help learners to understand the interconnection between their lives, their planet, and their future. It is characterized by flexibility, accessibility, interactivity, and a focus on fostering lifelong learning habits. Moreover, adaptability and embracing new technologies will be keys to navigating this rapidly evolving educational landscape. Concerning this, the MoE (2020) stated that secondary education provides a rich and diverse array of learning opportunities that can help students grow academically, personally, and professionally. More specifically, the grade 12 mathematics teacher`s guide states

> Recent research gives strong arguments for changing the way mathematics is taught. The traditional teaching-learning paradigm has been replaced by a student-centered model. A student-centered classroom atmosphere and approaches stimulate students' inquiry. The role of a teacher would be a monitor who guides the students as they construct their own knowledge and skills. A primary goal is to help the students to discover the concepts by themselves under the teacher's guidance and supervision. (MoE, 2023e, p. V)

This text implies that teachers should create learning opportunities by motivating students to develop personal qualities that will help them in real life. As the students develop personal confidence and feel comfortable on the subject, they will be motivated to address their materials to groups and to express themselves and their ideas with strong conviction.

Similarly, a grade nine English language teacher`s guide states

> The learning outcomes expected of students are built upon the Minimum Learning Competencies (MLCs) and constitute listening to a variety of texts at different levels (surface and deeper levels), interacting in English reading, comprehending, analyzing, synthesizing, evaluating, and interpreting ideas vis-à-vis their environment, getting meanings of words through different strategies, and mastery of selected grammatical elements appropriate to the

level. Moreover, the learning opportunities focused on cooperative learning through group engagement. (MoE, 2023f, p.vii)

Some methods and techniques should help learners to achieve the required knowledge, skills, and attitudes. Besides, they are crucial for the successful implementation of the developed curriculum. On the other hand, Sisay & Enguday (2022), in their article "Teaching history in upper secondary education," found that teachers frequently use lectures, explanations, and discussions as the main methods of teaching. Contrary to popular belief, debate, inquiry, justification, and multiple-interpretation methods were not properly used by teachers and are rarely incorporated in textbooks. Fekede et al. (2023) also discussed that the student-centered approach is a teaching strategy that involves 21st-century skills and abilities like collaborative learning, problem-solving, creativity, self-directed learning, critical thinking skills, communication, digital, and technology literacy. However, the concept is poorly understood and not implemented so efficiently. They brought different determinant factors that have an impact on student-centered teaching and learning strategies, such as many students in a classroom, traditional classroom seating arrangements, insufficient teaching materials, a lack of time allocated for subjects, and teachers' perceptions of the use of student-centered teaching strategies.

However, the framework maintained that teachers must carefully select those appropriate to the learning situation and the needs of learners (MoE, 2020). When teachers identify methodologies of teaching, they must ensure that they are in line with learners' major capacities and desired characteristics, which are the main goals of learning. Even though the kind of teaching methodology recommended by the framework is one that engages students, makes learning enjoyable, and encourages students to explore, experiment, question, investigate, and create, it fails to address the factors that affect the teaching and learning process, which are listed by the above authors. In that connection, the kinds of strategies to be employed at different levels of education should be based upon learner ability, interest, capacity, degree of exposure to educational life, power of imagination, and chronological age, among others. In the same manner, teacher guides for secondary schools insist teachers use discussion, question, and answer, preparation and presentation of projects (Physics Teacher Guides), brainstorming, investigation and problem-solving, inquiry, laboratory experiment, fieldwork, research, use of analogy and examples, group work, cooperative learning, use of charts, mind maps, or concept maps and models (Physics Teacher Guides).

On the other hand, studies conducted on teaching methodologies in the Ethiopian education system revealed that even though student-centered teaching approaches that help activate learners' creativity, imagination, cooperation, critical thinking, and problem-solving skills were proposed in policies and framework, there were some barriers such as time allotment, a large

number of students in a class, traditional classroom seating arrangements, insufficient teaching materials, perceptions, and the readiness of teachers for the use of student-centered teaching strategies to implement them as intended in the classroom (Fufa et al., 2023).

DISCUSSION

Secondary school education in Ethiopia offers learners the opportunity to develop competencies and attitudes that enable them to develop job-oriented skills and continue learning. However, the study revealed that the issue of "future perspectives" in Ethiopian secondary school curriculum and instruction was not well investigated in the prior studies. Scholars implicitly state the future perspectives as interrelated but different components: personalized learning, lifelong learning, and integrated skills (Aliya et al., 2021; Copper, 2017; Derseh et al., 2024; Olugbenga & Oluwatosin, 2022; Shemshack & Michael, 2020).

The key components have been characterized by their nature or impacts on learners: focus, want to change, contexts in practicing, inputs needed, processes passed through, and outcomes brought on learners (Abiy et al., 2014; Eshete, 2005; MoE, 2020; OCED, 2018). With these characteristics of them, the results obtained from policy documents, curriculum materials and research outputs are discussed.

Personalized Learning: It focuses on the concept of learners' autonomy and increases the student's responsibility. In connection, the policy documents and curriculum materials should be carefully designed and organized to enhance the learner's autonomy. To address personalized learning approaches, the contents should be flexible and align with specific student needs and learning goals and promote ownership of learning (UNESCO, 2017).

The study findings indicated that the Ethiopian education policies presented personalized learning as learning to learn (MoE, 2020) as well as preparing citizens who believed in rational thinking and discussion, research, and reasoning (MoE, 2023a). Moreover, the findings from curriculum materials depicted that many contents of mathematics, physics, and English appreciated personalized learning. However, there are most of the mathematics and physics contents, activities, examples, and exercises in secondary mathematics curricula did not lead to the application of personalized learning. The two curriculums are overloaded by bulky content. That means they are prepared in a "content-centered approach" and are not customizing their instructions to consider individual needs and goals. The divergence here is the issue of 'personalized learning' needs careful and well-designed contents which emphasize on student engagement whereas the "content-centered approach" places the transmission of content at the center of instructional processes and goals.

Nevertheless, various studies argued that the shift from content-centered to personalized learning is not a simple task. Significant effort is needed to develop instructional models and train teachers and students (Rumawatine, 2023; Orhani, 2024).

On the other hand, studies have consistently shown that personalized learning in secondary level curriculum enhances intrinsic motivation, engagement, and self-efficacy among students (Jones & Brown, 2020; Patel & Nguyen, 2021), promotes deeper learning, and fosters a sense of ownership (Van Mechelen, et al., 2023). Even though the education policies and curriculum materials revealed the existence of personalized learning, they failed to address it as intended. The argument is that the secondary-level curriculum has limitations in improving students' autonomy. To practice personalized learning, the contents should be carefully chosen by taking the learners' interests and future goals into account.

Lifelong learning: From the beginning of the early 20th century until recently, lifelong learning became a key concept for solving social and economic problems in highly industrialized countries (ILO, 2019; Schlöglmann, 2006). Soni (2012) states it is essential for inventing the future of our societies. Scholars argued the selected contents should cross the boundary of formal education, which transforms society and makes them competitive globally.

In connection, this study appraised the existence of lifelong learning in policies and curriculum materials. It revealed lifelong learning implicitly stated in the objectives of policies as education for personal and social improvement (MoE, 2023a) and to produce citizens with the competence essential for life, further learning, and the world of work (MoE, 2020). Desalegn et al. (2014) discussed that promoting lifelong learning in Africa entails the creation of literate societies, the valuing of local knowledge, and talent and wisdom.

Though some contents benefit students to engage in lifelong learning in the three curriculum materials, most of the contents are focused on theories and concepts. However, different contributors advocated a variety of approaches to help learners learn mathematics, physics, and English. They stated that beforehand, their contents must be organized carefully, contents and learners' lives must be connected, and learning strategies must be constructed to connect the contents with learners' lives. Though there are 'many' contents in the three curricula that are related to lifelong learning, the way they are organized is not much connected to real life, and the learning strategies do not move beyond the classroom.

Above all, studies revealed lifelong learning is a mindset and a habit for people to acquire coherent and comprehensive learning strategies. For the action, valuing learning, investing time and money in learning, bringing together learners and learning opportunities; ensuring basic skills, and introducing innovative pedagogy took priorities. Concerning its practices, the secondary-level curriculum has some gaps in constructing the contents that lead to the future

lives of the learners. The educators should primarily value lifelong learning as well as develop curriculum materials that lead to improving the future lives of the learners.

Integrated skills: It creates knowledge that is more holistic than knowledge built in discipline-specific studies (Ivanitskaya et al., 2002). If contents are created given integrated skills, learners develop epistemological beliefs and enhance critical thinking. Moreover, the learners should master the integration of STEM, the 4Cs (Communication, Collaboration, and Critical Thinking and Creativity skills) (Nazifah & Asrizal, 2022).

The study revealed that educational policies and selected curriculum materials advocated integrated skills in selected secondary school curricula. The policies in its principles and objectives state the integration of science and technology as well as utilize critical thinking, problem-solving, and communication skills to engage with the constantly changing local, national, and global realities. Although the policies advocated integrated skills approaches, there was a lack of subsequent curriculum materials that developed such skills.

Finally, the study determined that even though there is the introduction of some key components of future perspectives in secondary-level curriculum materials, there are many gaps in addressing them as expected. Moreover, all selected grade-level curricula failed to customize learning for each student's strengths, needs, skills, and interests, rather, they followed subject-centered approaches in their curriculum developments. Consequently, the key components stated in the policies are not addressed in the selected curriculum materials.

CONCLUSION

The study emphasizes the space accorded 'future perspectives' in Ethiopia's secondary school curriculum and the expected learning opportunities. The studies revealed that future perspectives in curriculum encompass three key components: personalized learning, lifelong learning, and integrated skills, which are interconnected but dissimilar. Curriculum contents need to be well organized in advance in the manner that they will address the key components. In conclusion, the space accorded for the three key components in Ethiopia's secondary was not entertained as desired. The reasons are a lack of conceptualization about personalized learning, lifelong learning, and integrated skills, as well as taking less care during content selection and organization. Besides, it is important to recognize the space accorded for 'future perspectives' in education policy and curriculum framework as principles, aims, objectives, and competencies. The components exist but vary from unit to unit within the subject, among the subjects, and across grade levels. The studies conducted in Ethiopia about 'future perspectives' in the curriculum were inadequate and did not get proper attention.

Studies on learning opportunities revealed that learning occurs when students feel engaged, empowered, and in control of their learning. The contents in secondary school textbooks,

specifically in mathematics, physics, and English, are bulky and concentrated, which contradicts the practice of a learner-centered learning approach. Moreover, though learner-centered approaches were proposed by policy and curriculum framework, research output indicated that there are some barriers, such as a mismatch between content volume and time allocation, seating arrangement, and the readiness of teachers to implement it.

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