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Prospects and Challenges of Implementing Curriculum of Learners' Early Specialization in Tanzanian Secondary Schools Education: Evidence from Stakeholders' Voices

Shadrack Ernest Mwakalinga
Catholic University of Mbeya
Email: shadrackmwakalinga@gmail.com

Abstract: *Education global systems are increasingly reforming to meet twenty-first century demands for employability, skills development, and knowledge acquisition. In Tanzania, one emerging reform is early specialisation in Ordinary level of secondary schools, where learners choose academic pathways earlier than waiting for Advanced level as it was practised. There are arguments that early specialisation enhances career alignment, deepens subject mastery, and addresses skills mismatches that hinder youth employment, while critics content that it may restrict learners' holistic development, limit subject exposure, and intensify inequalities in under-resourced schools. Despite ongoing debates, empirical evidence capturing stakeholder perspectives in the Tanzanian context remains limited. This study examined the prospects and challenges of early specialisation in Tanzanian secondary schools from the viewpoints of students, teachers, parents and education officers. Using a qualitative research design, data were collected from thirty respondents through interviews and focus group discussions across selected urban and semi-urban schools in Morogoro, Mbeya, Njombe, and Dar es Salaam. The study revealed that early specialisation enhances career preparation, learner motivation, and talent development; however, its effectiveness is hindered by resource constraints, limited career guidance, and disparities between rural and urban schools. Stakeholders also expressed concerns about reduced curriculum breadth, potential misalignment between students' evolving interests and early choices, and the risk of widening educational inequities.The study concludes that while early specialisation offers potential benefits for improving relevance and employability, its implementation requires careful planning, adequate resourcing, and strong support systems.*

Keywords: Prospects, Challenges, Implementing, Curriculum, Learners, Early Specialization, Tanzanian Secondary Schools, Education and Stakeholders' Voices

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1. Introduction

Education systems worldwide are undergoing continuous transformation in response to the demands of the twenty-first century, where employability, skills development, and knowledge acquisition are central to national progress (UNESCO, 2017). As global economies increasingly shift toward knowledge-based and skills-oriented structures, countries are rethinking how secondary education can better prepare young learners for further learning, productive employment, and responsible citizenship. Contemporary reforms therefore emphasise curriculum relevance, learner competencies, and flexible pathways that facilitate students' transition into higher education and the labour market.

Within this global context, Tanzania, like many countries in sub-Saharan Africa, has embarked on a series of secondary education reforms aimed at improving the relevance and effectiveness of schooling. Historically, subject specialisation in Tanzania was introduced at the Advanced Level of secondary education. However, this approach excluded a large proportion of learners who do not progress beyond Ordinary Level due to the competitive Certificate of Secondary School Examination (CSEE). Consequently, many students who exit the system at this stage leave school without specialised competencies that could enhance their employability or self-reliance (Mwakalinga, 2024). In response to this challenge, policymakers have recently proposed the introduction of early specialisation at lower secondary level as a strategy to equip all learners with practical and academic skills aligned with labour market demands.

Early specialisation involves guiding students to select specific academic streams—such as sciences, social sciences, business, or arts—earlier in their secondary schooling. Advocates argue that this model promotes focused learning, strengthens subject mastery, and improves alignment between secondary education, higher education, and workforce needs (World Bank, 2020; Oketch, 2019). Afeti (2018) further contends that early specialisation may reduce skills mismatches that contribute to persistent youth unemployment in Africa. However, critics caution that early academic streaming may narrow students' educational experiences, limit later mobility across disciplines, and disadvantage learners in under-resourced schools where facilities, qualified teachers, and career guidance services are limited (Lewin, 2007; Mosha, 2018). Evidence from other African contexts suggests that premature specialisation can undermine holistic development and reinforce educational inequalities (Sifuna & Sawamura, 2010), while excessive curricular narrowing may hinder the acquisition of transferable skills required in dynamic labour markets (ILO, 2019).

1.1 Statement of the Problem

The concept of early specialization in secondary schools is still debatable, despite Tanzania's ongoing efforts to improve the quality and relevance of education (Mosha, 2018; Wedgwood, 2007). By allowing students to focus on areas related to their interests and potential careers, some stakeholders think it could improve academic achievement and professional preparedness (Oketch, 2019; World Bank, 2020). Advocates contend that exposing students to specialized fields earlier develops deeper competence and equips them to fulfil the needs of the labour market in a knowledge-based economy (Afeti, 2018).

On the other hand, some believe that early specialization is unfair and premature, especially for pupils in underprivileged rural areas where schools frequently lack adequate funding, trained teachers, and career counselling services (Lewin, 2007; Sifuna & Sawamura, 2010). Critics warn that early enrolment in tight academic programs may limit children' exposure to a variety of knowledge areas, stunt their intellectual development, and perpetuate educational disparities (UNESCO, 2017; ILO, 2019). These issues are particularly pertinent in Tanzania, where there are still persisting differences in educational resources between urban and rural schools (URT, 2019).

Despite these discussions, little empirical research has been done to systematically record the opinions of stakeholders on the matter. Little tangible proof about the impact of early specialization is given by the majority of Tanzanian education reform literature, which focuses on changes to the curriculum, access, and quality improvement (Galabawa, 2001; Hakielimu, 2020). Without this sort of data, policymakers run a risk of ignoring significant contextual variables like economic obstacles, involvement of parents, and student goals. In order to close this gap and support evidence-based policy and practice, this study examines the opportunities and challenges of early specialization in Tanzanian secondary schools from the perspectives of stakeholders.

1.2 Objectives of the Study

1.2.1 General Objective

To examine the prospects and challenges of early specialization in Tanzanian secondary school education based on stakeholders' perspectives.

1.2.2 Specific Objectives

The following objectives guided this study:

1. To explore stakeholders' perceptions of the benefits (prospects) of early specialization in secondary schools,
2. To investigate the challenges associated with implementing early specialization in Tanzanian secondary schools
3. To explore how stakeholders' opinions differ across various contexts regarding early specialization in secondary schools.

1.3 Justification for the Study Area

To represent urban and semi-urban environments, the study was carried out at a few chosen secondary schools from Morogoro, Njombe, Mbeya and Dar Es Salaam. While Mbeya and Dar Es Salaam offers a diverse urban setting with higher levels of school enrolment and resource variance, Morogoro and Njombe, is a rapidly expanding centre for education with both government

and private schools (URT, 2019). By concentrating on these four areas, comparisons across various socioeconomic and infrastructure circumstances was made, which enhances the results (Wedgwood, 2007). These areas were purposively selected because it reflects diverse educational contexts, including urban, rural and semi-urbansettings, variations in school resources, and differing patterns of student performance and transition rates. These characteristics provide a suitable environment for examining how early specialisation may operate under different institutional and socio-economic conditions. Studying this area therefore offered valuable insights into the practical realities, opportunities, and challenges of implementing early specialisation across heterogeneous secondary school settings in Tanzania, thereby enhancing the relevance and generalisability of the study findings.

2. Literature Review

2.1 Theory guiding this study

This study is guided by the Expectancy–Value Theory. Eccles and Wigfield (2002) established the Expectancy–Value Theory (EVT). According to EVT, anticipation for success and subjective task value are two fundamental psychological components that influence students' academic choices, effort, and perseverance (Eccles & Wigfield, 2002). These values include perceived cost (what students must give up completing a task), achievement value (personal importance), utility value (future usefulness), and intrinsic value (enjoyment).

Because this study looks at the viewpoints of several stakeholders, including educators, parents, students, and Policy makers, the idea makes sense. According to Wigfield et al. (2017), EVT describes how these social groups influence students' self-esteem and value views by offering resources, support, feedback, and knowledge about upcoming possibilities. The degree to which students make well-informed or mismatched specialisation decisions is directly impacted by these contextual factors.

This theory assists the researcher in understanding stakeholder perspectives on the advantages and drawbacks of early specialisation, EVT directs data interpretation in this study. It makes it possible to examine how students' decisions are influenced by motivation, competency views, future goals, and environmental barriers. By elucidating how environmental elements impact expectations and value judgements, it also facilitates comparisons between urban and rural environments. All things considered, EVT provides a methodical and theoretically sound framework for analysing opportunities, difficulties, and suggestions pertaining to early specialisation.

2.2 Empirical Literature

Significance to policy: It gives policymakers empirical data on the viability and repercussions of early specialization in Tanzanian ordinary level secondary schools which started from by the form ones from January 2025. Tanzanian educational changes are often the product of authoritative policy choices with little participation from bottom stakeholders, which has sometimes led to difficulties in their implementation (Mosha, 2018; Wedgwood, 2007). This study provides facts that can guide policy decisions that are in line with contextual realities by methodically gathering the opinions of educators, parents, students, and legislators. For reforms to be successful and long-lasting, evidence-based policy making is essential (World Bank, 2020; UNESCO, 2022).

Practice in education: Teachers and school administrators can use the data to better manage curricular changes and guide students in an early specialization framework. Teachers are essential to the delivery of curricula, and student learning outcomes are directly impacted by their readiness, pedagogical approaches, and attitudes towards change (Vavrus & Bartlett, 2013). This study advances professional practice by emphasizing the issues and experiences of educators, giving school administrators the knowledge they need to support students' academic progress while preserving their holistic development (Mkumbo, 2012).

Equity lens: The study's focus on equity is another significant contribution. Tanzania continues to have unequal access to high-quality secondary education, with marginalized and rural pupils frequently confronting a lack of trained teachers, subpar facilities, and no career counselling (Lewin, 2007; URT, 2019). If early specialization is not carefully planned, it may inadvertently increase these discrepancies. In line with Sustainable Development Goal 4's need for inclusive and equitable quality education, the study makes sure that equity concerns are front and centre in policy discussions by elevating voices from a variety of contexts, including underprivileged schools (UNESCO, 2017; Hakielimu, 2020).

Academic contribution: Lastly, by including Tanzanian viewpoints in international discussions on early specialization, the study closes a research vacuum. Although the subject has drawn scholarly interest in other settings (Oketch, 2019; Sifuna & Sawamura, 2010), little empirical research has been done to examine its applicability and ramifications in Tanzania. Thus, by placing the discussion inside the socioeconomic and educational realities of an East African nation, our research enhances the scholarly conversation. By doing this, it strengthens the body of evidence supporting upcoming reforms by adding to the literature on

comparative education as well as local knowledge generation (Galabawa, 2001; Vavrus, 2017).

Studies on early specialization have been conducted in a variety of settings, presenting both potential and difficulties. These studies shows that early specialization enhances students' career alignments, interest, and proficiency in skills (Darling-Hammond et al., 2017; UNESCO, 2020). From countries like South Korea and the United Kingdom indicates that young participation in discipline-specific pathways improves the transition to professional careers and higher learning while also increasing strong achievement in particular disciplines (Kim, 2016; Hodgson & Spours, 2018). Also, specialization may enable learners to acquire expertise and employable skills that meet market demands in systems that have access to career counselling and adequate resources in educational institutions (OECD, 2019; World Bank, 2020).

This study highlights the uneven outcomes of early specialization in Sub-Saharan Africa level, which supports the necessity to look into stakeholder voices in Tanzania. Understanding the perspectives of educators, parents, students, and policymakers is crucial to ensuring that any shift towards specialization is in keeping with Tanzania's educational reality and egalitarian goals (Vavrus & Bartlett, 2013; UNESCO, 2022).

3. Methodology

This study was guided by pragmatic philosophy, which emphasises practical implications and concentrates on what functions in real-life scenarios. According to pragmatism, educational reform's utility and capacity to solve actual issues determine its worth (Dewey, 1938). This makes it appropriate for a study looking at stakeholders' experiences and implementation of early specialisation.

Pragmatism emphasises knowledge acquired through practice rather than abstract theory, which is consistent with the study's goal of comprehending the real-world experiences of educators, students, parents, and policymakers (Biesta, 2015). By emphasising what works in certain situations and how practices may be improved, it also matches the study's consideration of the advantages and difficulties of early specialisation (Cherryholmes, 1999).

3.1 Research Design

The study adopted a qualitative research design, specifically a phenomenological approach. This design was appropriate because the purpose of the study was to explore participants' lived experiences, perceptions, and interpretations regarding the phenomenon under investigation. Qualitative research is suitable when a study seeks to understand meanings, viewpoints, and social realities as constructed by individuals rather than to measure variables numerically (Creswell, 2014).

The phenomenological orientation enabled the researcher to capture in-depth insights from participants through interviews and focus group discussions (FGDs), allowing rich descriptions of shared experiences and divergent perspectives. This design was particularly relevant given the exploratory nature of the study and the need to uncover recurrent themes and opposing viewpoints embedded in participants' narratives.

3.2 Sampling Procedures and Sample Type

The study employed non-probability purposive sampling. This sampling technique was chosen because it allows the deliberate selection of participants who possess specific knowledge, experiences, or roles relevant to the research problem (Patton, 2015). Participants were selected based on predefined inclusion criteria, such as: Direct involvement with or exposure to the phenomenon under study, Ability to articulate experiences and perspectives relevant to the research objectives, and the willingness to participate in interviews or focus group discussions.

The sample type was purposive, ensuring that information-rich cases were included. The adequacy of the sample was determined by data saturation, that is, the point at which no new themes or significant insights emerged from additional data.

To gain rich and detailed insights, the study adopted a case study design, which is well suited for exploring complex educational phenomena within their real-life contexts. Phenomenology allows the researcher to examine a situation holistically and understand the lived experiences, perceptions, and interactions of those involved (Rana & Chimoriya, 2025). Because early specialization affects different groups in different ways, this design provided an opportunity to collect in-depth information from various stakeholders.

Data was collected using two qualitative tools: an interview guide and a focus group discussion guide. The interviews enabled participants to express their personal views, experiences, and reflections on early specialization in a detailed and confidential manner. Focus group discussions, on the other hand, created space for group interaction, allowing participants to build on each other's ideas, challenge assumptions, and highlight shared concerns or agreements.

Using these tools helped the researcher understand stakeholders' opinions on key issues, including what

they think about early specialization, what they have personally experienced in schools, and what suggestions they offer for improving the practice. This combination of methods provided a comprehensive understanding of the phenomenon, strengthened the credibility of the findings, and ensured that the study captured the complexity of early specialization from multiple perspectives.

3.3 Population and Sample

Since the study is qualitative numerical data are limited. The target population consists of educators, parents, students, and education officers. The choice of these groups is due to the fact that they are affected by early specialization reforms. A sample of 30 respondents was chosen, including 4 education officers/policymakers (One from each region), 12 students (Three from each region), 8 teachers (Two from each region), and 6 parents (one from each region plus two: one from rural region and one from urban region (Bryman, 2016). For a qualitative study this sample was enough because it reached the data saturation point (Cress-well, 2018).

3.4 Sampling Techniques

Given their lesser numbers and the necessity for knowledgeable viewpoints, policymakers and parents were chosen through the use of purposeful sampling (Etikan, Musa, & Alkassim, 2016). To guarantee that various groups (such as subject instructors, gender, and grade levels) are fairly represented, stratified random sampling was used for both teachers and students (Cohen, Manion, & Morrison, 2018). This approach reduces sampling bias, improving the validity of results since For teachers and students, the study employed stratified random sampling enabled to ensure fair representation from different subgroups within the school population. Stratification was done based on characteristics such as subject specialization (e.g., science, arts, business), and form. According to Cohen, Manion, and Morrison (2018), stratified random sampling increases the accuracy of findings by ensuring that all key categories within a population are proportionately represented. This method minimizes sampling bias and enhances the credibility and validity of the study's results by preventing over- or under-representation of any subgroup.

3.5 Data Collection Methods

To guarantee triangulation, several instruments were used (Denzin, 2012): 18 participants including teachers, parents and policymakers were interviewed to have a deeper understanding of their viewpoints and expectations, the interview took 30 to 45 minutes. 12 students participated in focus group discussions (FGDs) which took 40 to 60 minutes, which promoted peer interaction and highlight complex viewpoints that are sometimes overlooked in individual surveys (Krueger & Casey, 2015).

By placing stakeholder opinions within larger national frameworks, the analysis of policy papers, curriculum standards, and educational statistics supplemented primary data (URT, 2019).

3.6 Data Analysis

To find recurrent themes and opposing points of view, qualitative data from interviews and focus group discussions were transcribed, categorized, and subjected to thematic analysis (Braun & Clarke, 2006). Triangulation was possible and the study's validity was strengthened by integrating the two data collection tools (Creswell, 2014).

Justification for Using Braun and Clarke's (2006) Six-Step Thematic Analysis

The six-step thematic analysis framework by Braun and Clarke (2006) was adopted because it provides a systematic, flexible, and rigorous method for identifying, analysing, and reporting patterns within qualitative data. This approach was considered suitable for several reasons: It allowed both inductive and deductive theme development, in the sense that data were speaking themselves and others were formulated by the researcher. Also, it is transparent and clearly structured, enhancing methodological rigor.

Data analysis followed Braun and Clarke's (2006) six sequential steps, ensuring systematic progression from raw data to well-defined themes. Familiarization with the recorded data and transcribe verbatim, forming codes in the transcribed data, finding themes, reviewing the accuracy of the themes, providing named to the themes and finally writing a report. Yet reflexive notes were maintained to document analytical decisions and reduce researcher bias.

Table 1 below shows how the codes were formed and the findings are organised according to the codes.

Table 1: Code formation

Objective	Theme	Code
Objective I: stakeholders' perceptions of early specialization in secondary schools	Theme 1: Academic and Skill Development Benefits	1.1 Improved academic focus 1.2 Enhanced skill acquisition
	Theme 2: Career Preparation and Employability	1.3 Early career orientation 1.4 Relevance to labour market needs
	Theme 3: System-Level Advantages	1.5 Efficient use of educational resources
Objective II: Challenges	Theme 4: Institutional and Resource Constraints	2.1 Inadequate infrastructure 2.2 Teacher-related challenges
	Theme 5: Learner-Related Challenges	2.3 Premature career decision-making 2.4 Equity and access concerns
	Theme 6: Policy and Curriculum Challenges	2.5 Curriculum rigidity 2.6 Policy implementation gaps
Objective III: Stakeholders' opinions	Theme 7: Contextual Variations in Perceptions	3.1 School location context 3.2 Stakeholder group differences 3.4 Cultural beliefs and expectations

4. Results and Discussions

The findings and discussions are organized into five categories based on where they rely thematically. These categories are: Benefits of early specialization, Effects Early Specialization on Student Learning & Engagement, Factors affecting Early specialization, Stakeholder opinions on early specialization across different school settings, and Suggestion to improve early specialization. Figure 1 below summarizes:

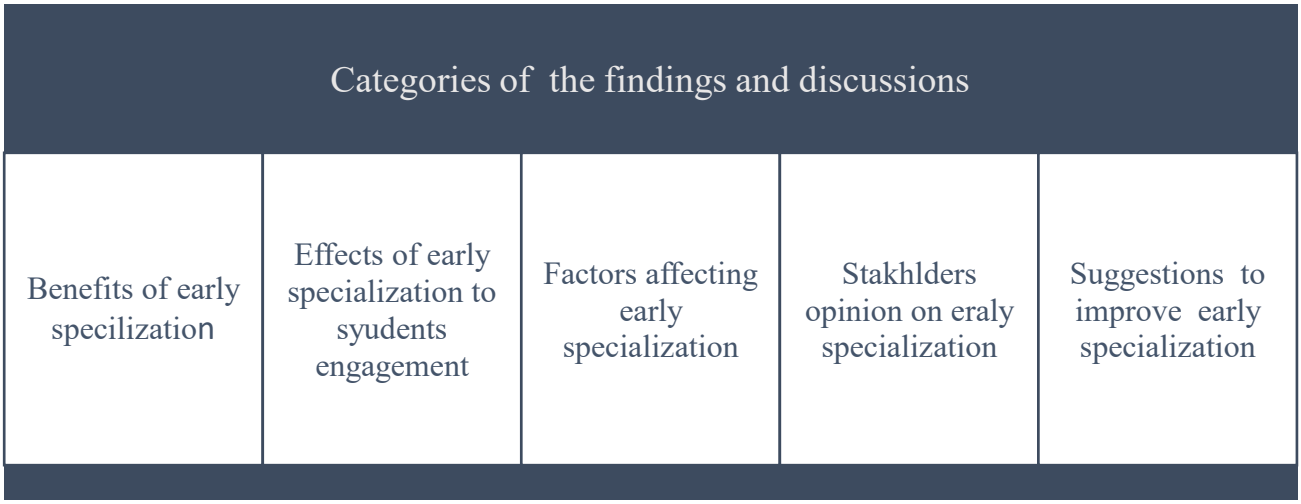

Figure 1: Categories of findings and discussions

4.1 Benefits of Early Specialization

The benefits of early specialization are referred to the positive side of where early specialization shows a great advantage and focus. Below is the presentation:

4.1.1 Career Preparation & Employ ability

Respondents in the interviews and the focus group discussion declared that early specialization gives learners knowledge and abilities they need for future employment by allowing them to develop employment skills earlier. They also continued saying learners who study disciplines that are in line with their goals and talents gain professional knowledge and practical skills that employers greatly value. This is in line with the OECD plan of 2018 which argues that early specialization results into competent workers. Again, UNESCO, (2023) declares that through the acquisition of fundamental skills pertinent to their chosen industries, this early exposure facilitates their seamless transition from school to the workplace. Below are the anchor examples from the interview and focus group discussion.

Early specialization in secondary schools allows students to develop deeper expertise and clearer career direction by focusing on their strengths and interests

from a younger age ***(Interview H, September ,2025***

When students specialize earlier, they can spend more time focusing on a particular field (e.g., sciences, arts, or business). This allows them to develop deeper subject mastery, practical skills, and confidence compared to spreading their energy across many unrelated areas… ***(Focus group T,September, 2025)***

Early specialization allows students to focus on subjects aligned with their talents and career interests, which can deepen their knowledge, improve motivation, and prepare them for future professional fields. It also helps in producing graduates with clearer career pathways and skills relevant to the labor market. ***(Focus group M,September, 2025)***

Besides by matching job aspirations with academic programs, specialization helps learners achieve their objectives and get ready for career opportunities. Students develop self-assurance, drive, and a feeling of purpose when they are led into things they have an interest in; these qualities increase their perseverance and long-term success (Deci & Ryan, 2000). According to Eccles and Wigfield (2020), the capacity to concentrate on a certain field as a young age also encourages driven by passion learning, resulting in improved learning outcomes and personal growth.

Early specialization also results in learners who are competent and skilled, more prepared to handle the demands of both the workplace and higher learning. Learners may work successfully in specialized occupations by focusing on a smaller range of disciplines, which results in deeper competence and expertise (World Bank, 2019).

4.1.2 Motivation & Engagement

In line with Eccles & Wigfield, (2020) the respondents exposed that enabling learners to dive deeper into courses that match their interests and strengths, early specialization increases learning motivation. Learners are more likely to be persistent, engaged, and actively participate in class when they perceive the connection between what they are learning and their future employment. Moreover they added that academic success and personal development are both improved by this intrinsic drive.below is the anchor example:

Early specialization allows students to focus on their strengths and interests at an earlier stage, which can improve motivation and academic performance. It also helps learners build deep knowledge and skills in specific areas, preparing them for future careers or higher education pathways. Additionally, it promotes efficiency in learning by reducing unnecessary workload in subjects unrelated to a student's chosen field. ***(IntervieX, September 2025)***

According to the respondents the author sees that,early specialization helps learners become more serious and concentrated on their studies. Because learners can focus their energies on learning something by reducing on unnecessary subjects, which increases commitment, focus, and goal setting (Schunk et al., 2019). In along with improving academic performance, this kind of care fosters lifetime learning habits, which are essential for success in college and beyond.

Early specialization also gives learners greater clarity of purpose, which increases confidence and desire in future careers. Learners' belief in their capacity for achievement in professional paths is reinforced by their increased self-efficacy as they become proficient in specific areas (Bandura, 1997; Wigfield et al., 2021). In conjunction with improving participation in school, this sense of preparedness gives students an ability to create and seek rewarding professional paths.

4.1.3 Talent Identification & Development

Talent identification and development was also identified in the study, respondents argued that providing learners with structured opportunity to explore and hone their skills in specific subjects of study, early specialization aids students in discovering their gifts. Learners who participate in specialized courses are better equipped to identify their innate skills and match them with their future academic and professional goals. According to research, adolescents who are exposed to specialized fields are better able to form a vocational identity and a self-concept, both of which are critical for long-term success (Gore et al., 2017; Sikora & Pokropek, 2021).

Also, by focusing their time and energy on areas in which they show a high level of competence or passion, students can master their strengths and interests via specialization. According to Eccles and Wigfield (2020), concentrated involvement in these areas increases intrinsic motivation and increases deep learning, expertise, and confidence. Recent research shows that students who follow what interests them in school have a greater likelihood of succeeding both academically and in sticking with their studies and career paths (Schunk et al., 2019; Guo et al., 2023).

4.1.4 Efficiency & Focus in Learning

Learners are less burdened when they specialize early since they study fewer courses. Learners avoid the burden of balancing many unrelated subjects by having a more reduced curriculum, which reduces stress and cognitive load (Darling-Hammond et al., 2020). Learning outcomes and general happiness increase when their academic burden is reduced because they can better manage their time and interact with the material (OECD, 2021). In one of the interviews one respondent argued:

> *In some cases, it has motivated and increased student engagement, as students are learning about things they like. On the other hand, it denies students chances to explore other fields making them be competent in their specialization area and lack basic skills on other field.* ***(Interview A, September 2025)***

Furthermore, by enabling students to concentrate intently on a smaller number of academic topics, specialization promotes deeper subject understanding. Higher-level of analytical abilities, problem-solving skills, and domain-specific expertise are all enhanced by focused study (Schunk et al., 2019). Deeply engaged learners are more likely to remember information across time and apply skills in a variety of settings, both of which are vital for achievement in school and the workplace (Guo et al., 2023).

Early specialization also improves academic performance and encourages learning efficiency. Learners can use class time more efficiently, build stronger academic opinions, and do better on tests if the breadth of the material is reduced and its depth is raised (Wang et al., 2019). According to studies, tailored paths to learning promote long-term education and professional advancement as well as enhancing immediate academic performance (Eccles & Wigfield, 2020).

4.2 Effects Early Specialization on Student Learning & Engagement

Effects in early specialization is categorized into two, positive effects and negative effect. The positive effect rely on the side that favour the student in terms of carrier development and negative effect shows the disadvantaging factors to a student in early specialization. Below is the discussion:

4.2.1 Positive Effects

Early specialization leads to increased engagement in subjects that students enjoy, as they are more likely to invest effort and time when learning content that resonates with their interests. Enjoyment of learning tasks fosters persistence and higher achievement because it is linked to intrinsic motivation and self-regulation (Schunk et al., 2019; Wigfield et al., 2021). This sense of enjoyment enhances students' desire to take on challenges and sustain effort in their studies.

Moreover, specialization contributes to greater focus, confidence, curiosity, and participation. When students dedicate themselves to subjects of interest, they develop competence and self-efficacy, which in turn strengthens confidence and encourages active participation in the classroom (Bandura, 1997; Guo et al., 2023). Focused learning also stimulates curiosity and deeper exploration of knowledge, helping learners to connect theory with practice in meaningful ways.

Finally, early specialization fosters a stronger alignment between students' interests and their learning outcomes, creating a pathway where education feels more relevant and purposeful. Studies show that when academic activities align with personal goals and values, learners demonstrate higher motivation, stronger performance, and greater long-term satisfaction (Eccles & Wigfield, 2020; Wang et al., 2019). This alignment not only improves current academic outcomes but also prepares students for future academic and career pursuits.

4.2.2 Negative Effects

One major drawback of early specialization is that learners may become ignorant in non-specialized areas, as narrowing the curriculum reduces exposure to diverse knowledge domains. This limited breadth of learning can restrict general problem-solving skills, critical thinking, and adaptability in unfamiliar contexts (Niemi et al., 2022). Such knowledge gaps may disadvantage students in higher education and professional settings that demand interdisciplinary skills (OECD, 2021).

Besides, specialization can sometimes result in burnout, boredom, and laziness. When students are pushed too early into intensive study of a narrow field, they may experience academic fatigue and reduced intrinsic motivation (Schunk et al., 2019). Repetitive engagement with the same subject matter without sufficient variety can create monotony, leading to disengagement and negative attitudes toward learning (Wang et al., 2019).

Another challenge is that wrong choices reduce engagement. If students are directed into specializations that do not align with their true interests or evolving abilities, they are more likely to disengage, underperform, or even drop out (Gore et al., 2017). Career misalignment due to premature choices can have long-lasting consequences for educational attainment and employment opportunities (Sikora & Pokropek, 2021).

Moreover, early specialization can lead to a lack of exposure to other life skills that are often developed in broader curricula. Skills such as teamwork, communication, creativity, and civic competence are frequently fostered through diverse subjects and extracurricular experiences (Darling-Hammond et al., 2020). Without such holistic preparation, students may struggle with social adaptability and lifelong learning in rapidly changing societies (UNESCO, 2023**).**

4.3 Factors affecting Early Specialization

Factors affecting early specialization refers to attributes which hinder the effective implementation of the early specialization. These factors are considered as draw backs to implementation. These factors can be summarized in figure 2 below:

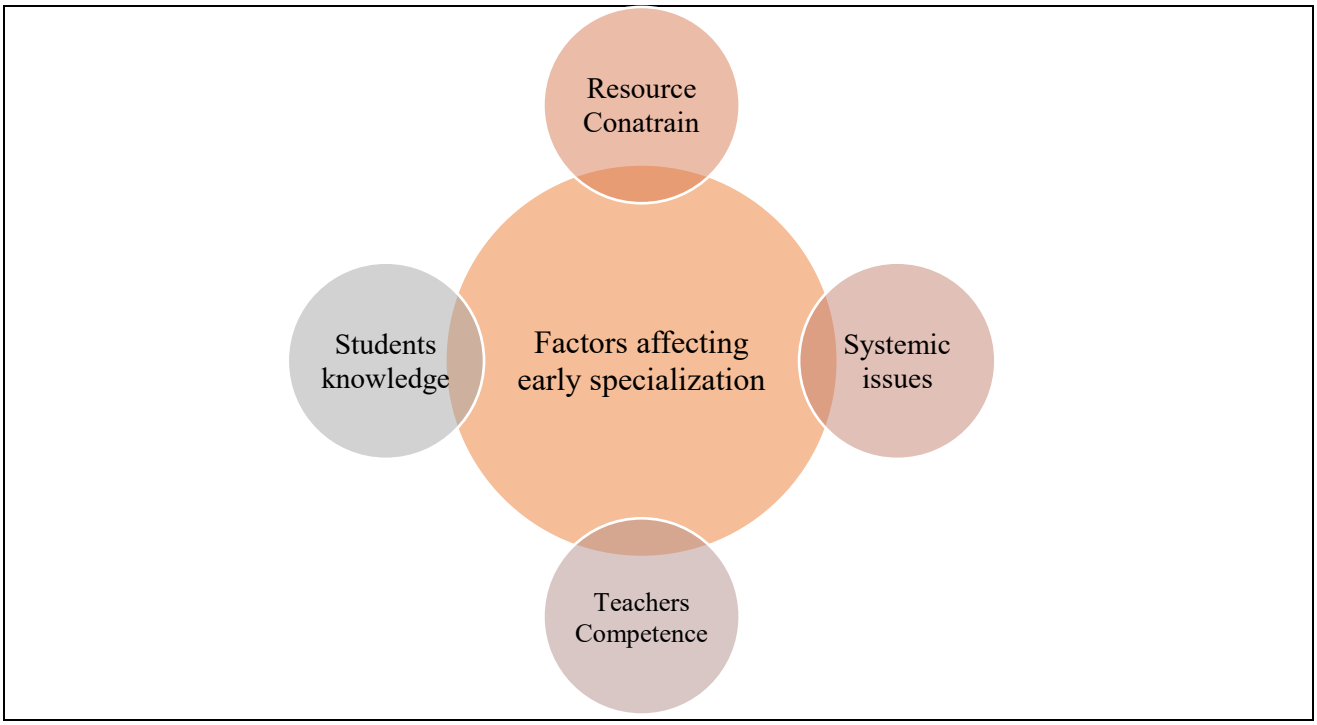

Figure 2: Factors affecting early specialization

Below is the discussion of these factors:

4.3.1 Resource Constraints

A critical barrier to effective early specialization is the shortage of facilities, laboratories, and teaching materials. Many schools, particularly in developing countries, lack adequate resources to support specialized learning, which reduces the quality of instruction and student outcomes (UNESCO, 2023). Limited funding and inadequate infrastructure further exacerbate inequalities, leaving rural and low-income schools unable to provide modern equipment, ICT tools, or safe learning environments (World Bank, 2019; OECD, 2021). Few resources were seen in the interview and focus group discussion below is an example of anchor examples:

> *Sometimes learners don't focus or put emphasize on their specialization. Lack of support from education stakeholders. Scarcity of resources to enhance learning. (4) Shortage of teachers who specialized in a particular specialization also limited area/fields of specialization the common being Science or arts, while other students prefer computer, Music, or Agriculture. insufficient resources ie, classroom, teaching and learning materials 3. Student dilemma on the area to specialize* ***(Focus group E, September 2025)***

> *The main challenges observed include inadequate resources (labs, equipment, and textbooks), shortage of qualified teachers in specialized subjects, and unequal access across schools, especially in rural areas. In some cases, students are misallocated to specializations due to limited options or poor career guidance* ***(Interview B, September 2025)***

4.3.2 Teacher-Competence

The success of specialization depends heavily on teacher competence. However, many systems face a shortage of specialized teachers, especially in science, technology, and vocational fields (ILO & UNESCO, 2021). Even where teachers are available, the lack of training and professional development hinders their ability to deliver specialized content effectively. Without continuous professional growth, teachers may rely on outdated

methods, limiting innovation in specialized education (Darling-Hammond et al., 2020).

4.3.3 Student-lacking knowledge on what to specialize in

From the learner's perspective, early specialization creates risks due to the lack of knowledge and guidance in subject selection. Adolescents may not yet have the maturity or information needed to make informed career-related choices (Gore et al., 2017). This situation is often worsened by peer pressure and parental influence, which may push students into fields that do not match their interests or abilities (Sikora & Pokropek, 2021). Consequently, many learners face wrong career choices and frequent changes in academic pathways, which can lead to disengagement, reduced motivation, or school dropout (Eccles & Wigfield, 2020). Below is the example:

In my school and region, I have observed several challenges in implementing early specialization. One major issue is that many students are still unsure of their abilities and career goals at a young age, yet they are expected to choose a specialization that may shape their entire academic and professional path. This sometimes leads to regret or a lack of motivation later on ***(Interview D,September 2025)***

Key challenges include inadequate teaching and learning resources, limited guidance and counseling for students, unequal access to quality facilities across schools, and lack of adequately trained teachers to handle specialized subjects ***(Interview S, September 2025)***

4.3.4 Systemic Issues

At a broader level, limited subject options—often restricted to science or arts streams—constrain students' opportunities to explore diverse career paths (Schunk et al., 2019). In addition, the curriculum is not always fully understood by students, teachers, and even parents, which creates confusion in subject selection and undermines long-term career planning (Niemi et al., 2022). Finally, unequal access across urban and rural areas deepens educational inequality, as urban students are more likely to access specialized facilities, qualified teachers, and career guidance compared to their rural peers (UNESCO, 2023; World Bank, 2019).

4.4 Stakeholder opinion on early specialization

Stakeholders opinions are the views from the participants on the general practice of early specialization. These opinions have been captured from different themes as presented in Figure 3 below:

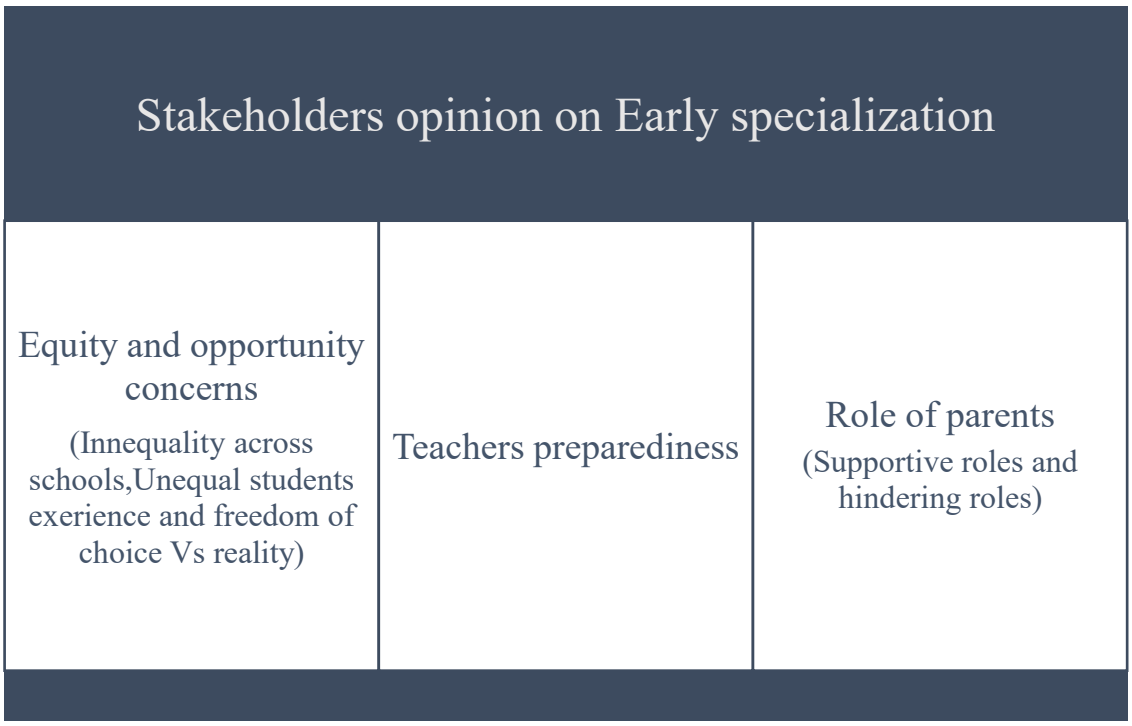

Figure 3: Stakeholders' opinion on early specialization

4.4.1 Equity & Opportunity Concerns

Inequalities Across Schools

A major concern in early specialization is the urban–rural disparity in facilities and teachers. In the study it was revealed that Urban schools are often better equipped

with laboratories, libraries, ICT resources, power, and trained teachers, while rural schools frequently face severe shortages and possibly no power (UNESCO, 2023). These disparities mean that students in rural areas may have fewer subject options and lower-quality instruction, which limits their ability to benefit from specialization (OECD, 2021). Furthermore, a student's socioeconomic background strongly affects access to specialized education. Learners from wealthier families are more likely to attend well-resourced schools, afford private tutoring, and receive career guidance, while disadvantaged students may be excluded from equal opportunities (World Bank, 2019; Gore et al., 2017).

Unequal Student Experiences

Students also face unequal experiences in subject selection. In many cases, learners are forced by parents or teachers into choices that may not reflect their interests or abilities, resulting in disengagement and reduced motivation (Sikora & Pokropek, 2021). In addition, the lack of adequate guidance and counseling services often leaves students with little information to make informed decisions, leading to wrong or uninformed specialization choices (Niemi et al., 2022). Without professional career support, students may enter fields mismatched with their aspirations or talents, with long-term consequences for academic and professional success.

Freedom of Choice vs. Reality

Although in theory all students are free to choose their specialization, in practice, opportunities remain highly unequal. Access to certain subjects—particularly in science, technology, and vocational education—is largely determined by school resources, geographical location, and teacher availability (ILO & UNESCO, 2021). This means that many students, especially in disadvantaged or rural settings, do not actually enjoy full freedom of choice. Instead, they are confined to the limited options provided by their schools, which perpetuates structural inequalities in education and employment pathways (UNESCO, 2023; OECD, 2021).

4.4.2 Teacher Preparedness

One of the recurring challenges in early specialization is that many teachers are not fully prepared due to a lack of training and resources. Inadequate pre-service training and insufficient access to modern teaching materials reduce teachers' capacity to deliver specialized content effectively (UNESCO, 2023). This challenge is especially pronounced in low-resource contexts, where science and technical subjects often suffer from outdated curricula, limited lab equipment, and insufficient ICT support (ILO & UNESCO, 2021).

Although some teachers are well-trained in certain subjects such as mathematics and science, the situation is often inconsistent across schools and regions. Well-qualified teachers tend to be concentrated in urban and higher-income schools, leaving rural areas with less qualified or underprepared educators (OECD, 2021). This imbalance contributes to unequal learning outcomes, as students' mastery of specialized subjects depends heavily on teacher expertise.

Furthermore, there is a strong need for ongoing professional development and career guidance skills among teachers. Professional learning communities, continuous in-service training, and mentoring are critical for keeping teachers updated with new pedagogical approaches, subject knowledge, and guidance practices (Darling-Hammond et al., 2020). Without such opportunities, teachers may struggle to support students in making informed specialization and career choices (Gore et al., 2017).

In fact, studies show that teacher preparedness is often rated from average to low in most responses, particularly in developing countries where systemic barriers limit teacher training and support (Schleicher, 2020). Addressing this gap requires not only investment in teacher training but also reforms that strengthen professional development systems and equip teachers with the necessary tools for specialized instruction.

4.4.3 Role of Parents and Guardians

***S**upportive Roles*

Parents and guardians play a critical supportive role in enabling effective early specialization. They contribute by paying school fees, providing learning materials, motivating their children, and offering guidance on academic and career decisions (Eccles & Wigfield, 2020). Supportive parental involvement has been linked to higher student motivation, engagement, and academic achievement, as learners feel encouraged and backed in pursuing their interests (Hill & Tyson, 2009; Fan & Chen, 2020).

Moreover, parents can encourage children to pursue their strengths and interests, helping them identify talents and focus on areas where they are most likely to excel (Gore et al., 2017). Positive reinforcement from parents fosters self-efficacy and confidence, allowing students to develop mastery in their chosen fields and envision clear career pathways (Schunk et al., 2019).

Hindering Roles

On the other hand, parents and guardians can hinder early specialization when they impose their own career preferences on their children, pressuring them to choose

fields misaligned with their interests or abilities (Sikora & Pokropek, 2021). Such coercion can reduce intrinsic motivation and engagement, leading to lower academic performance and dissatisfaction.

In addition, lack of awareness or knowledge about specialization among parents can limit their ability to provide meaningful guidance. Many parents are unfamiliar with the demands, content, and future prospects of specialized subjects, which results in inadequate support for informed decision-making (Niemi et al., 2022; UNESCO, 2023). Finally, some parents fail to provide sufficient guidance or resources, leaving students to navigate critical choices independently, which increases the risk of poor subject selection and subsequent disengagement (World Bank, 2019).

4.5 Suggestion to improve early specialization

The suggestions for improvement have been identified depending on different organs responsible for the implementation of early specialization in Tanzania as presented in Figure 3, below:

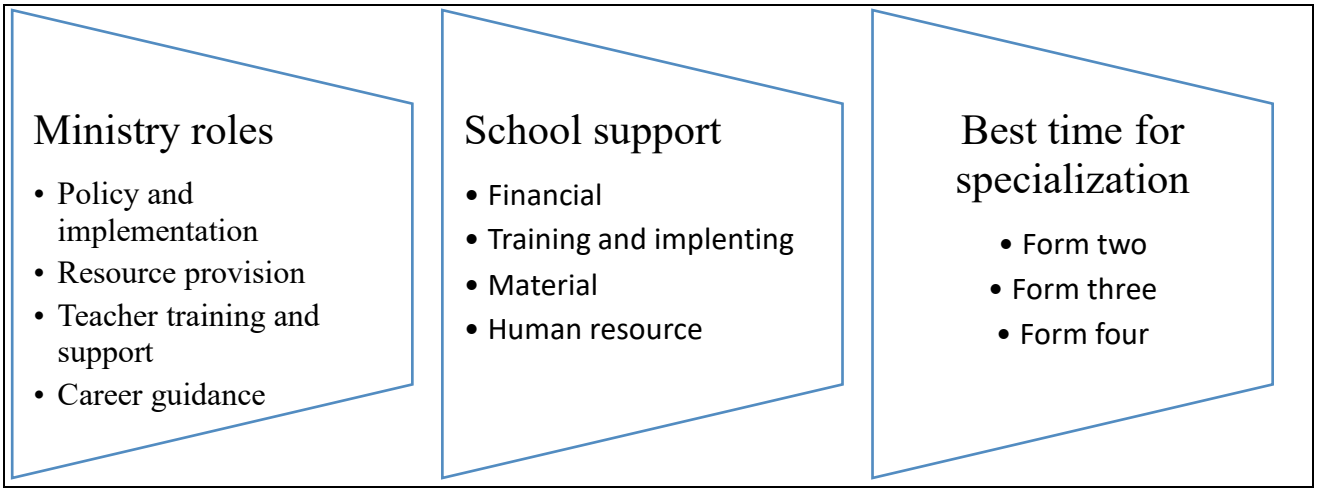

Figure 3: Suggestions to improve the practice of early specialization

4.5.1 Ministry of Education's Role

Policy & Implementation

Effective implementation of early specialization requires clear policy guidelines and a regular review of the curriculum to ensure alignment with current labor market needs and global education standards (UNESCO, 2023; OECD, 2021). Continuous monitoring of the policy helps identify gaps and ensures consistent implementation across all schools. Additionally, increasing capitation grants and financial support is essential to equip schools with the necessary resources for specialized programs, particularly in underfunded or rural areas (World Bank, 2019). Financial investment ensures that both students and teachers have the tools required to fully benefit from early specialization (Darling-Hammond et al., 2020). yet in most cases schools are not aware of the policy guidelines and the grants from the government are not adequate.

Resource Provision

Adequate infrastructure, laboratories, ICT facilities, and teaching materials, these are fundamental for students to gain practical and theoretical expertise in their chosen fields (ILO & UNESCO, 2021). But most of schools suffers from their inadequate. Ensuring equity across schools and regions is also critical, as urban and rural disparities often result in unequal access to specialized subjects, qualified teachers, and learning materials (Gore et al., 2017). Targeted resource provision allows all students, regardless of socioeconomic background or school location, to pursue specialization effectively.

Teacher Training & Support

Teachers are central to the success of early specialization, so continuous professional development is necessary to update pedagogical skills, subject knowledge, and career guidance competencies (Schleicher, 2020). Recruiting more specialized teachers ensures adequate coverage in areas such as science, technical, and vocational education, reducing gaps in instruction quality (OECD, 2021). Professional learning communities, mentoring, and training programs can enhance teachers' ability to guide students in making informed specialization choices and mastering their subjects (Darling-Hammond et al., 2020).

Career Guidance

Strengthening counseling services is critical for helping students make informed decisions about their subject choices based on interests, talents, and labor market prospects (Niemi et al., 2022). Career guidance programs

should provide information on career pathways, practical skills required, and opportunities for higher education. Moreover, allowing flexibility for subject changes ensures that students who discover new interests or talents can adjust their specialization without long-term disadvantage, reducing the risks associated with premature or uninformed choices (Sikora & Pokropek, 2021; UNESCO, 2023).

4.5.2 Support Needed by Schools

Financial Support

Adequate financial investment is critical for the successful implementation of early specialization. Schools require funding to develop and maintain infrastructure such as science laboratories, libraries, ICT facilities, and workshops for technical or vocational subjects (World Bank, 2019). Without sufficient financial resources, schools—especially those in rural or underfunded areas—struggle to provide quality specialized education, which exacerbates inequalities in student outcomes (OECD, 2021).

Material Support

Material support is essential to complement financial investment. This includes textbooks, laboratory equipment, digital tools, and other teaching aids that enable students to acquire practical skills and theoretical knowledge in their areas of specialization (ILO & UNESCO, 2021). Access to up-to-date materials not only improves learning outcomes but also enhances engagement and motivation, as students can directly apply concepts to real-world tasks (Darling-Hammond et al., 2020).

Training Support

Schools also require ongoing professional development for teachers to ensure they can effectively deliver specialized content. Continuous training equips teachers with updated pedagogical strategies, subject-specific knowledge, and career guidance skills, which are crucial for helping students make informed choices and succeed in their specialization (Schleicher, 2020; Niemi et al., 2022). Regular workshops, mentorship programs, and in-service training help teachers adapt to evolving curriculum demands and modern learning technologies.

Human Resources

Finally, human resource support is necessary to recruit and retain qualified teachers in specialized areas. Many schools face shortages of educators capable of teaching science, technical, or vocational subjects, which limits the quality and availability of specialized education (Gore et al., 2017). Investing in teacher recruitment and retention ensures that students receive expert instruction and guidance, fostering deeper mastery of their chosen fields (OECD, 2021).

4.5.3 Best Time for Specialization

During data collection respondents pointed out that Form 3 is the most appropriate time for early specialization, as students have had sufficient exposure to a broad range of subjects in lower secondary education (Form 1–2). At this stage, learners have gained foundational knowledge and can make more informed choices regarding their interests and strengths (UNESCO, 2023). Specializing at this level allows students to focus on subjects aligned with their future academic and career pathways, improving motivation, engagement, and mastery (Darling-Hammond et al., 2020). Refer the anchor examples below:

> *The best time is in the later years of secondary education (around Form 3 or Form 4), after students have been exposed to a broad range of subjects. This allows them to make informed choices based on their abilities and interests. Because strategic career dependent decision ,often occurring after gaining foundation experience but reaching senior level* ***(Interview H, September 2025***
>
> *.....Form 3 because students in form 3 have generated awareness, interest and academic strength* ***(Interview N, September 2025)***
>
> *.... specialization should be from form three class* ***(Interview K, September 2025)***
>
> *Form one still is the best if and only if all stakeholders are involved*
>
> *In my opinion, the best time for specialization is in the later years of secondary school, usually around Form 3. At this stage, most students have had enough exposure to a wide range of subjects to discover their strengths and interests. They are also more mature and better able to make decisions about their future.(****Focus group Z September, 2025)***

Some argue that Form 2, immediately after form one, is suitable for specialization. At this stage, students have explored most core subjects but are still flexible enough to switch tracks if they discover new interests or aptitudes (OECD, 2021). Early specialization at Form 2 can help students develop deeper skills earlier, providing a head start in their chosen fields while still allowing for guidance and adaptation (Gore et al., 2017).

A minority of respondents propose starting specialization even earlier, in Form 1 or primary school, provided that there is strong teacher support, career guidance, and parental involvement (Niemi et al., 2022). Proponents argue that identifying talents and strengths at an early age can maximize skill development and motivate students through personalized learning experiences (Sikora & Pokropek, 2021). However, caution is advised, as premature specialization can limit exposure to other subjects and constrain holistic development (Schleicher, 2020).

Others suggest delaying specialization to Form 4, Form 6, or post-secondary education, emphasizing that students at these later stages have greater maturity and decision-making capacity (Eccles & Wigfield, 2020). By postponing specialization, students can make more informed and deliberate choices about their academic and career trajectories, reducing the risk of selecting unsuitable subjects and improving alignment with personal interests and labor market demands (UNESCO, 2023).

The researcher sees that these variations on the best time of specialization are significant due to individual differences and cognitive level of the learners. The author calls upon the educators to identify the talents of the learners and help them in making specialization. Nevertheless, career guidance is important to be provided to the learners so as to reduce the possibility of opting for a wrong option.

4.6 Recommendations for Balancing Benefits & Challenges

Gradual Introduction of Specialization: Specialization should be introduced slowly so that students first learn a wide range of subjects. This helps them discover their strengths and interests before choosing a specific path (Darling-Hammond et al., 2020). A gradual approach also prevents students from making decisions without enough knowledge and allows them to build strong basic skills (Schleicher, 2020).

Strengthen Career Guidance and Counseling: Schools need strong career guidance services to help students choose subjects wisely. Good counseling gives information about job trends, education opportunities, and students' abilities (Niemi et al., 2022; Sikora & Pokropek, 2021). Schools with proper guidance programs help students stay motivated and choose subjects that match their future goals (Gore et al., 2017).

Cooperation Between Teachers, Parents, and Students: Teachers, parents, and students must work together when making specialization decisions. Teachers give subject advice, parents offer support, and students share their goals (Eccles & Wigfield, 2020). Working together helps reduce mistakes caused by pressure from parents or friends (Fan & Chen, 2020).

Government Investment in Resources and Teacher Training: The government should invest in school buildings, learning materials, ICT tools, laboratories, and the training and hiring of qualified teachers (OECD, 2021; World Bank, 2019). This ensures that all students—both in cities and rural areas—have equal access to quality specialized education (ILO & UNESCO, 2021).

Encourage Balanced Parental Involvement: Parents should be involved, but their support must not become pressure. When parents guide instead of forcing choices, students become more confident and motivated, and they choose subjects that truly match their abilities and interests (Hill & Tyson, 2009; Eccles & Wigfield, 2020).

Curriculum Flexibility to Allow Changes in Specialization: The curriculum should allow students to change their specialization if their interests or strengths change. Flexible pathways prevent early choices from limiting future opportunities (UNESCO, 2023; Darling-Hammond et al., 2020). This flexibility keeps students engaged, reduces stress, and supports lifelong learning.

5. Conclusion and Recommendations

5.1 Conclusion

This study examined the prospects and challenges of early specialization in Tanzanian ordinary level secondary schools by drawing on the perspectives of key stakeholders students, teachers, parents, and education officers. Using a qualitative design supported by interviews and focus group discussions across four regions, the study provides evidence that early specialization is viewed as both a promising and a complex reform within Tanzania's evolving educational landscape.

Findings demonstrate that early specialization has the potential to strengthen career preparation, deepen learners' subject mastery, enhance engagement, and promote talent identification when implemented under supportive conditions. Stakeholders noted that enabling learners to focus on subjects aligned with their interests increases motivation, builds confidence, and equips them with employable skills relevant to a rapidly changing labour market. These insights align with global evidence that specialized learning pathways can improve transition to higher education and specialized careers.

However, the study also reveals substantial challenges that could undermine the equity and effectiveness of early specialization. Respondents highlighted concerns about unequal school resources, inconsistent teacher competencies, inadequate career guidance, and limited

exposure to broad foundational knowledge—issues that risk widening existing disparities between rural and urban schools. Without careful planning, early specialization may restrict learners' opportunities, reinforce systemic inequalities, and compromise holistic development, particularly in under-resourced settings.

The study therefore concludes that while early specialization holds significant prospects for improving relevance and responsiveness in secondary education, its success depends greatly on contextual realities. Effective implementation requires reliable infrastructure, teacher preparedness, strong guidance and counselling services, and inclusive policy design that prioritizes equity. Stakeholder voices indicate that reforms must be gradual, evidence-based, and aligned with the national commitment to Sustainable Development Goal 4, which emphasizes inclusive and equitable quality education for all.

5.2 Recommendations

In a nutshell, the findings underscore the importance of grounding policy decisions in the lived experiences of those most affected by education reforms. By foregrounding stakeholder perspectives, this study contributes valuable insights to ongoing national debates, supports informed policy making, and provides a foundation for future research on specialization pathways in Tanzania's education system.

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