

A Systemic Perspective to Realising and Improving Quality of Education in Schools

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Abstract

Poor education quality leads to student failure. Improving education quality requires an interdisciplinary approach from various stakeholders with skills to develop educational interventions. Training education personnel in quality improvement processes without buy-in from systems theory is unlikely to be successful. We examine how systems theory helps in education quality realization. An analysis of education levels and their roles in the attainment of education quality is done. This discussion leads to a conclusion of the need for an effective interdisciplinary systemic perspective to realize education quality. The study recommends education systems to apply systems theory to understand educational issues for improvement purposes.

Keywords

conceptual framework, education system, levels of education system, quality of education, systems theory

Introduction and Background

The past years have evidenced a renewed focus on the quality of education in education systems worldwide. This reformed focus came as a result of the United Nations Educational, Scientific and Cultural Organization (UNESCO) declaration that the quality of education in many countries was generally declining (UNESCO, 2004). Quality of education is now considered a crucial matter post-2015 educational agenda worldwide (UNESCO, 2014). In the past, quality of education was mainly thought of in

terms of inputs and outputs at the various levels of education systems. This was done to ensure that students should receive good education quality. Progress towards the provision of quality of education to all students has been complemented by various studies. Such studies aim to determine the quality of education in various education systems for improvement purposes (Benavot, 2011; Garira, 2020; Garira et al., 2019; Giannini, 2015; Meera, 2015). Such studies are essential because they may help with information on how to improve the quality of education systems. This is particularly essential because high-quality of education provides young people with adequate knowledge and skills which may help to sustain countries' social and economic development (European Commission/EACEA/Eurydice, 2015). Lately, research on the quality of education has focused on inputs and outputs. This focus has been concentrated either at the school level (Giannini, 2015; Jenjekwa, 2013), the preschool level (Biersteker et al., 2016; Slot et al., 2015), tertiary level (Akareem & Hossain, 2012; Madani, 2019), or the national level (Hapanyengwi et al., 2018; Postlethwaite & Kellaghan, 2008). Correspondingly, there is copious research and literature on how the quality of education may be improved. Most of these research studies focus on improving one aspect of the education system for example inputs (Nyagura, 1991) or outputs (Williams, 2001) among other aspects of education. The emphasis of these studies will be either at the classroom, the school, or the national levels. Lamentably, no analogous research agenda has been pursued on the relationships among the inputs, processes, and outputs and how this may contribute to the overall quality of education. Equally, there is a dearth of research on how education quality may be realized and improved from a systems theory perspective. For effective realization and improvement of education quality, all the levels of an education system and the various experts in education, together with other stakeholders with an interest in education should work together. All these stakeholders should be brought together for a common cause of helping in the realization and improvement of the quality of education. The lack of focus on the relationships among the inputs, processes, and outputs and among education experts may have stemmed partly from the lack of a systems approach to realizing and improving the quality of education. There is, therefore, a need to approach the quality of education from a systems perspective if it is to be effectively realized and improved.

Education is considered essential, especially in most developing countries, as it is regarded as a key to evading poverty (Mihai et al., 2015). Notwithstanding the efforts by many countries towards the achievement of universal basic education for all, a lot of children are still out of school. Moreover, some students who are in school are not learning effectively. This has been demonstrated by students' achievements in international education assessments like the Trends in Mathematics and Science Study (TIMSS), Progress in Reading Literacy Study (PIRLS), and Southern and East African Consortium on Monitoring Education Quality (SACMEQ) among others over the past years. Some education systems have made some improvements in international education assessments (Mullis & Martin, 2015). However, some studies indicate that many children and adolescents worldwide are not meeting minimum proficiency standards in reading and mathematics (Hungu et al., 2010; Reddy et al., 2016). United Nations (2019) estimates that around 617 million children and adolescents of primary and lower secondary school age globally lacked minimum proficiency in reading and mathematics in 2015. This may be due to inequalities in educational opportunities which also bring differences in educational outcomes. While these inequalities and outcomes are observed across regions, this is typically felt in many developing countries. This is particularly so because these countries have a history of deficiency of resources, both human and material. Such disparities in educational opportunities and outcomes may leave many students ill-prepared to partake in a highly complex global economy. This gap is necessitated by the poor quality of education offered by the affected education systems. Therefore, it is vital to ensure good quality of education through a systems approach.

The Sustainable Development Goals (SDG) goal number 4 emphasizes the importance of quality education which is essential in promoting lifelong learning opportunities for all (United Nations, 2019). Many countries have dedicated themselves to SDG 4. However, numerous countries have limited knowledge of how to conceptualize and realize this goal. This is principally because the quality of education has not been widely conceptualized from a systemic perspective. Unless the realization and improvement of education quality is given a systemic viewpoint, education systems may not improve. This may be so because improving one aspect of an education system may not automatically bring the preferred results. Garira (2020) denotes that improving a single aspect of education at one level may create

problems at other levels which may also create a cycle of problems. Hence, improving one aspect of education may not be effective in the realization and improvement of education quality. There is, therefore, a need to focus on education realization and improvement thereof with the lenses of systems theory which is the purpose of this article.

For us to effectively discuss about a systemic perspective to the realization of education quality, there is a need to develop an incorporated conceptual framework for the quality of education. This framework focuses on a systems approach to the realization and improvement of the quality of education. Such a framework may help us to understand the various levels of education systems and their contribution to the realization of education quality. The interaction among these levels, and the inputs, processes and outputs, and education experts may enlighten us on how to effectively realize and improve education. Such an understanding may make it possible for us to establish the kind of teamwork required among education specialists with diverse skills in research on education.

Collaboration among education experts from various disciplines is essential for educational development. This teamwork can be possible if we have a common understanding of the interaction among the levels of an education system. Without this systemic approach and understanding of the overall education system, the realization and development of education may be based on trial and error (Banathy & Jenlink, 2004). In most cases, such efforts may be ineffectual. There is a need for a common vision to enable teamwork among the various education experts from different disciplines of education to improve quality. Social structures with an interest in education such as churches and nongovernmental organizations and others may also play a crucial role toward the realization and improvement of education quality. We focus on the theoretical framework next.

Theoretical Framework

This article is informed by systems theory which stems from science. This theory denotes that a set of parts of a system interact to achieve specified objectives (Meadows, 2008). Respectively, when applied to education, this theory assumes that

various levels of an education system (the national {provincial, district}, school, tertiary, and their associated classrooms) must work together to achieve systemic educational goals. If these goals are not realized in any education system, it will be imprudent to place the blame entirely at any one of the levels (Garira, 2020). Instead, a methodical analysis of the whole education system should be done to ascertain the source of the problem. Such an analysis may help in finding effective ways of realizing and improving the quality of education. Problems in any system should be analytically explored with all those affected by them (Meadows, 2008). Such an analysis may help for a sustainable solution to be found. Due to the distinctiveness of education systems, general solutions to educational problems may not work (Garira, 2020). Without a systemic approach to solving educational problems, we may not effectively address the problems.

Systems theory helps our understanding of education systems because it contrasts disjointed reforms aimed at improving aspects of education that may not typically succeed (Banathy, 1991; Banathy & Jenlink, 2004). Furthermore, general solutions to educational problems may not work because of the individuality of each education system. To this effect, Meadows (2008) recommends that problems within systems should be explored with all those affected by them and education is not excluded. Inopportunately, very few people are trained in the systems theory approach to solving educational problems. Systems are characterized by interconnectedness and by feedback loops (Allen & Cherrey, 2000), and education systems are no exception. Considering education in schools as a separate entity from the whole education system may not help us to understand different interacting factors and feedback loops that may influence the realization of education quality. Moreover, changes at one organizational level of an education system may affect the other levels or the whole system. Hence, there is a need to consider all levels of an education system before making changes to one of them if effective change is to be realized. For us to gain an understanding of the organizational levels of an education system, let us look at the multi-level structure of education systems.

Organizational Structure of Education Systems

Education systems generally consist of six main organizational levels. These are the individual pupil/student, the classroom, the school, the district, the provincial, and the national levels (Garira, 2020) (see Figure 1). Each of these levels has a crucial role to play in educational quality to be realized. Figure 1 shows a diagrammatical representation of the organizational structure of an education system.

Figure 1 shows six main organizational levels of an education system. Various processes should happen at each of these levels for the attainment of systemic educational goals. The lower levels of the education system (pupil, classroom, and school) occupy lower spatial and time scales (see Figure 1). This is normally the case because the time needed to make decisions at these levels should not be long for effectiveness to be realized. For example, at the student level, there will be one individual involved. Therefore, in terms of the decisions concerned about his/her learning, they should happen within a short space of time. For instance, a student may decide to read at a particular time. This decision will be implemented instantly for it only involves one person to decide. Similarly, decisions on whether a student will attend lessons on a particular day should not take long to be implemented. If this happens, lessons for the day may end without a decision being made which may not be beneficial to the student's learning.

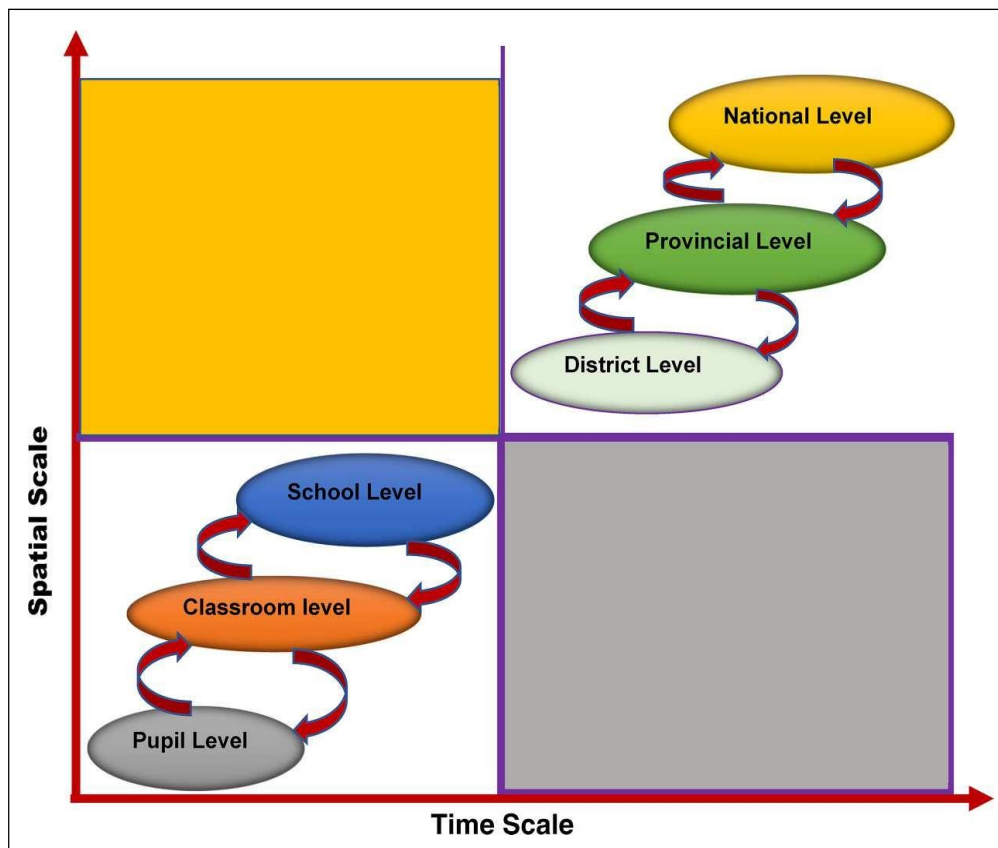


Figure 1. The main levels of organization of an education system (adapted from Garira, 2015).

The classroom level's spatial scale is larger than that of the student level because it involves many students and a teacher who makes decisions (see Figure 1). This means that an individual student does not have the freedom to choose what s/he likes to learn at a particular time because there is a timetable to be followed. Moreover, some of the processes that happen in the classroom depend on the decisions made at the school level by the school administrators. In some cases, these decisions may take a longer time to be implemented which may affect classroom processes thereby affecting the quality of education.

The spatial scale of the school level is larger than that of the classroom level. This means that more time is needed to make decisions on teaching and learning processes at this level. The school is required to make consultations with parents and other social structures with an interest in education to make decisions on various

aspects of teaching and learning. Therefore, the decisions to be made may take more time to be implemented both at the school and the classroom levels. The spatial and time scales increase as we get to the higher levels of the education system (district, province, and national) (see Figure 1). This suggests that most decisions may take longer to be made and implemented at these levels as more stakeholders must be consulted. Such prolonged decisions and their implementation thereof may affect the quality of education in schools. The district and provincial levels help in the management of education in schools as well as monitoring its quality. The national level of the education system occupies a much larger spatial scale (see Figure 1) for it comprises all the lower levels (provinces, districts, and schools). The national education level is responsible for the overall management of the education system in all the districts and provinces. Decisions at the national education level take longer to be implemented which may also affect the quality of education in schools. All the levels of the education system should work together for systemic educational goals to be realized, failure of which may affect the quality of education in schools.

The coloured boxes in Figure 1 denote that a scale mismatch may occur. This normally occurs when planning for and execution of decisions is at a scale that does not reflect the level concerned (Welsh et al., 2020). In the case of education, an example may be if higher levels of an education system try to implement decisions that are supposed to be fulfilled at the lower levels and vice versa. This scale mismatch may bring challenges in quality of education realization and improvement. For example, there may be challenges of operational capacity for implementation at the levels concerned as there may be a lack of understanding of the activities involved (Welsh et al., 2020). Moreover, the rate at which decisions are implemented at a particular level may not reflect the rate of change required in order to realize and improve education quality. This may be due to a lack of appropriate indicators for monitoring and evaluating education at the appropriate level of organization. Failure to recognize and to account for these challenges when planning for education quality realization may result in actions that do not address the multilevel nature of education. Hence, an understanding of the processes at each level of an education system is requisite to avoid this scale mismatch as it may affect the realization of the quality of education and its enhancement thereof.

In this article, we discuss the need for the application of systems theory for the realization and improvement of education quality in schools. Formerly, the realization of the quality of education and its improvement has been focused on from a reductionist perspective. Reductionism or reductionist theory applied to education assumes that the education system is complex and made up of various parts. Reductionism aims to simplify events and processes by looking at their smallest elements, thereby reducing something, that is, complex to make it simple (Miller, 2000; Wrigley, 2019). To understand education in schools, a reductionist may suggest that the best way is to study the parts which it is made up of and conclusions will be made on how to improve education based on studying a single part. This theoretical perspective may be essential in that it may allow researchers to look at complex phenomena such as an education system and break it into smaller parts that are easier to investigate. However, as reductionist theory tries to explain an education system with one influence, it may fail to consider the interaction of factors that influence education. This theory has been used to inform education for a long time. This may have resulted in education systems failing to understand where exactly problems lie due to the bidirectional influence of quality among levels of organization of an education system (Garira, 2020).

Banathy (1991) indicates that our efforts to make change in education have yielded little success. This may have been attributed to a piecemeal approach to understanding problems, failure to integrate solution ideas as well as discipline by discipline study of education. Understanding education through its parts may fail to give us its true picture which may lead to wrong decisions. Such decisions and their implementation thereof may affect the quality of education. In a system, once you try to change one aspect, it may affect the others as well (Meadows, 2008). As a result, the desired change may not be realized. Since very few researchers are trained in systems thinking research, realization, and improvement of education quality is normally based on trying to improve single aspects of education. Some researchers may focus on how to improve teacher quality, curriculum quality, or teaching methods among other aspects of education. However, without a holistic approach to realizing and improving education quality, such methods may not necessarily work. Therefore, there is a need for a systemic focus on education for the effective realization of its

goals. A diagrammatical representation and description of our systemic conceptual framework for realizing and improving the quality of education in schools follows.

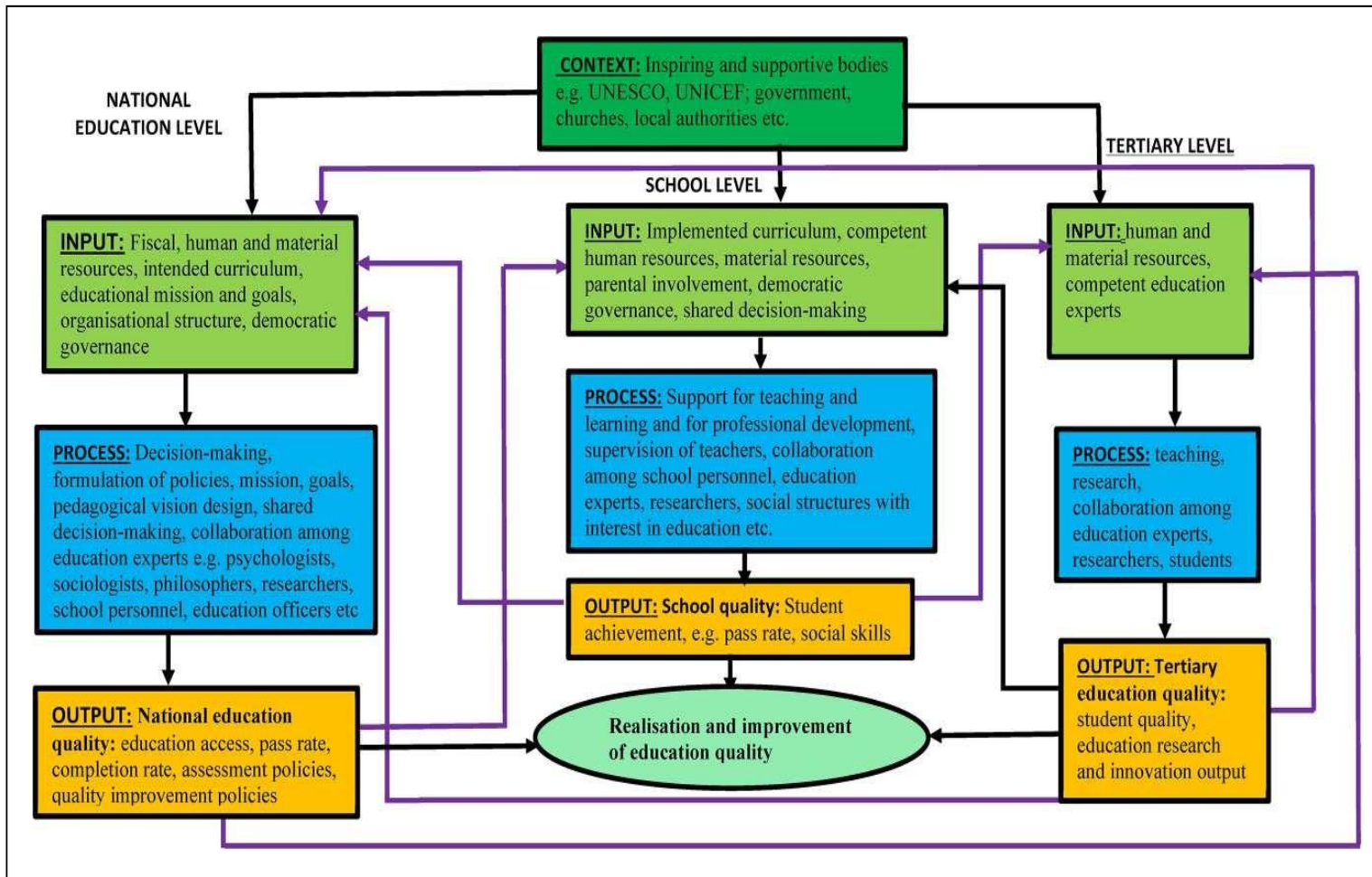


Figure 2. A conceptual framework for a systemic perspective to realizing and improving the quality of education in schools (adapted from Garira, 2015).

A Systems Approach to Realizing and Improving Quality of Education

Education systems are extremely complex and consist of various components. These constituents interact at various education levels and at different time scales. The miscellany of these components and their loci of control is important in enabling diverse stakeholders to understand how they may help in the realization of quality of education in schools. These stakeholders range from students and their parents to the various education personnel, education experts, and other social structures with an interest in education. The intensity of interaction among these groups is essential for an education system's functioning. Such interactions must be part of any attempts to support, reform, or improve education quality in schools. Figure 2 shows our proposed conceptual framework for a systemic perspective to the realization and improvement of the quality of education in schools. Our conceptual framework acknowledges a bidirectional influence on the quality of education among the different levels of an education system (Garira, 2020). This bidirectional influence assumes that the quality of education at one level will influence that of the other levels and vice versa (Garira, 2020) (see Figure 2). We discuss the salient details of each organizational level of an education system. An analysis of how each may contribute to the realization and improvement of the quality of education is also done.

Our proposed conceptual framework for a systemic perspective for realizing quality of education is one of its kind to use systems thinking. Previously this understanding has been based on a reductionist approach. In this reductionist theory, a single component or level of organization of an education system would be studied, and conclusions made about the whole system (Miller, 2000; Wrigley, 2019). In our conceptual framework, we consider all the components (inputs, processes, and outputs) and all the levels of organization (school, tertiary, and national) (see Figure 2) in the realization and improvement of the quality of education in schools. Our conceptual framework places substantial obligations to the various education stakeholders at different levels of an education system. Emphasis is also placed on the need for collaboration among education experts to enhance the quality of education. Our postulation is that all the stakeholders and education experts should work together for quality of education to be fully realized and improved as discussed next.

The Relevance of the Context to Education

The conceptual framework for the quality of education we propose in this article illustrates the context as the provider of inputs to the various levels of the education system (national, tertiary, and school) (see Garira, 2020 for details) (see Figure 2). This context may include international bodies such as UNESCO and the United Nations Children's Fund (UNICEF). The context also comprises the government and other organizations with an interest in education. Such organizations may consist of churches, parents, and other civic and nongovernmental organizations (see Garira, 2020 for details) (see Figure 2). Inputs from the context may also be provided directly to the classroom, for example, exercise books and other school stationery which are bought for the pupils by parents. The helping of children's homework by parents may also be considered as a direct input to the classroom (Garira, 2015). The context has been accentuated as an essential cog in the development of education in schools (UNESCO, 2004). The context, then, has the important function of providing enabling conditions for effective schooling to take place (Scheerens, 2004) which may enhance the quality of education. For the effective development of education, we propose that the various stakeholders of the context should work together. Such collaboration may help to identify where problems are as a step towards solving them.

The National Education Level's Significance to Advancing Education

Our conceptual framework depicts the national education level receiving inputs from the context (see Figure 2). This national education level comprises the national head office of the education system as well as the administrative provincial and district levels (South African Department of Education, 2009). There are several processes that happen within this level. These processes are mainly decision-making including decisions on various aspects of education like education policy formulation. Decisions at this level may also embroil those on designing of pedagogical vision, assessment policies, educational mission, vision, and goals (see Garira, 2015, 2019 for details) (see Figure 2). The national education level should also design and develop school self-evaluation (SSE) frameworks to be used in the monitoring and evaluation of quality of education (see Figure 2). These SSE frameworks can be used to monitor and evaluate the quality of education at the various levels of an education system

(Garira, 2020). For effectiveness to be realized, we propose that all stakeholders should be involved in the evaluation processes at the appropriate levels. Processes at the national education level yield outputs which include education access, completion rate, SSE instruments, among others (see Garira, 2020 for details) (see Figure 2). We have dubbed this output in this study the national education quality (see Garira, 2020 for details) (see Figure 2). Outputs at the national level are given to institutional levels (tertiary, school [including preschool, primary, and secondary]) as inputs (Garira, 2015) (see Figure 2). We recommend that the relevant stakeholders at this level should team up in the execution of processes to produce the anticipated outputs.

Research signifies that an education system that works together with its levels of organization may offer high-quality learning opportunities (Garira et al., 2019; Lewis & Pettersson, 2009). Such learning opportunities may enhance the quality of education in schools. The national education level makes major decisions on education policies and practices. We recommend that education systems should consult other stakeholders in decision-making processes as well as their implementation thereof for the development of education. They should also provide inputs (human and material) and other enabling conditions at the appropriate time for effective teaching and learning processes to take place in schools. Making national education decisions over a short space of time may affect both the processes at the other levels as well as the quality of education. This happens because some of the stakeholders may not be consulted during the decision-making processes. This lack of operative consultation may affect both the quality of the decisions and their implementation as well as the overall quality of education. Hence, national levels of education systems should have a systemic standpoint when making decisions for education if success is to be achieved.

The School Level and its Role in Education Quality Realization

In many countries, the school level comprises preschools, primary, and secondary schools. The school level is an intermediary point in that the inputs it gets from the context, the national as well as from the tertiary levels are all utilized at this level and the output is fed back to the tertiary and the national levels (see Figure 2). Various processes which may include decision-making by school administrators and teaching

and learning happen here (see Figure 2). In order for school processes to be fully attained, there should be teamwork among school staff and between the administrators and staff within schools and between schools (see Figure 2). Such teamwork may enhance the effective implementation of the processes. If effectively executed, these processes will produce an output which is denoted as school quality in our conceptual framework (see Garira, 2015 for details) (see Figure 2). Without consultations from other school personnel either from the same school or from other schools may make it difficult to yield positive results. Therefore, there is a need for education personnel to work together if education is to be enhanced in education systems.

The output at the school level denoted as school quality (Garira, 2015) (see Figure 2) is given to the respective classrooms of the school level for further processes in an effort to attain educational goals. There are also feedback loops from this output to the national and tertiary levels in terms of the quality of labour force and quality of students (see Figure 2). If teachers and school administrators work together within and between schools, good school quality may be realized. This may have a positive effect on the national and tertiary education quality for they are an overall reflection of the quality of education in schools (Garira, 2015, 2020) (see Figure 2). Moreover, there is a bidirectional influence on the quality of education among the organizational levels of the education system (Garira, 2020) (see Figure 2). Hence, school staff need to work together within and between schools if they are to successfully produce good school quality.

How the Tertiary Education Level May Help in Education Improvement

The tertiary education level is part of any education system and comprises colleges (including teacher education colleges) and universities (Akareem & Hossain, 2012). In these institutions that is where experts in various disciplines of education work. In our conceptual framework, the tertiary level receives inputs, mainly human and material resources from the other levels (see Figure 2). A lot of processes happen at this level including teaching and learning, research as well as engagement with communities (see Figure 2). Our assumption is that a lot of collaboration among education experts, researchers, and students should happen here for the common cause, that of

improving education quality. It is at this level where education personnel are trained. So, the processes that happen at this level should produce a good output if quality of education is to be realized. Moreover, we assume that systems' approach to achieving quality of education should start for there are various experts in education at this level. The output at this level, classified as tertiary quality (see Figure 2) (see also Garira, 2015 for details), primarily comprises human resources and knowledge. A lot of education personnel are trained at this level and in the process, they acquire knowledge about education. Such knowledge is vital for the advancement of education. This output is given as input to the school level (see Figure 2), as university and teachers' college graduates are the teachers and leaders in the schools (Garira, 2015). Research findings that may help improve education and innovation outputs are also generated at this level (see Figure 2). Therefore, the tertiary level should play a leading role in ensuring the collaboration of education experts for the systemic perspective of education to be realized. The output of this level in terms of its quality is mostly felt in class- rooms where students, teachers, and material resources interact in the process of executing all the policies formulated for the enhancement of education.

The Classroom as an Essential Constituent in the Realization and Improvement of Quality of Education in Schools

Most teaching and learning processes happen in classrooms. Teachers make a lot of decisions on issues to do with teaching and learning, planning of work, and identifying students with special needs and exceptional ones so as to effectually help them all (see Figure 2). The processes at this level are vital for the realization of the quality of education in schools as well as the overall quality of an education system. Garira (2020) indicates that the classroom level is where tangible evidence of the quality of an education system can be seen mainly through student academic achievement. It is, there- fore, essential for education personnel at the classroom level to cooperate within schools and between schools as well as with others from the other levels in order to improve education. Such joint efforts may help to improve education for the whole education system which should not only be thought of in terms of student academic achievement but should also involve students' social skills, and their future educational pathways (Thijs & Van den Akker, 2009) (see Figure 2).

Figure 2 indicates a bidirectional influence of quality among the levels of an education system (Garira, 2020). This means that all the levels of the education system and the cooperation of all stakeholders therein play a crucial role in the realization of the quality of education. Therefore, there is no privileged level at which to understand the quality of education in schools. So, there should be collaboration both within and between all the levels of an education system for the realization and improvement of education quality in schools. Collaboration should also be among students, teachers, school administrators, university lecturers, researchers, parents, international education bodies, and other education stakeholders to advance education.

Discussion and Conclusion

This article explores how quality of education may be realized and improved in schools from a systems perspective. It acknowledges the existence of various levels of organization in an education system where several processes happen for quality to be realized and improved. Each of the levels contributes to the overall education system's quality. As such, there is no privileged level where the quality of education may be determined due to the bidirectional influence of quality among the levels (see Figure 2). We note with concern the essence of collaboration among education experts, personnel, and other stakeholders if learners are to be offered high-quality learning opportunities for effectiveness to be realized in education systems. This teamwork approach places the quality of education realization and improvement on a comprehensive theoretical foundation. The central idea of this slant is that, at any level of organization of the education system, various processes happen, and produce a certain quality that contributes to the overall quality of the education system. If systems theory is excellently applied to education, we may have noteworthy success in dealing with issues of education in education systems.

Achieving educational quality may not be very simple as can be thought. What is essential for attaining and improving the quality of education is still insufficient to present it as an established sub discipline of education. Formerly, efforts to improve education quality have mainly been concentrated on improving single aspects of education quality. For example, education systems have tried to improve teacher

quality, leadership quality, and curriculum quality among other components of the quality of education (Garira, 2020). Such efforts have not managed to yield the desired results because of the complexity of education systems as is the case with any system as opined by Meadows (2008). Providing an intervention for problems at one level often affects the other levels in one way or the other because of the interdependence of the levels (see Figure 2). Therefore, if there is a bad quality in an education system, the cycle of influence will continue, and hence poor quality continues.

This article attempts to present a systems approach to the realization and improvement of education quality in schools. The information presented here may add to a board of knowledge on the systems approach to achieving education quality. It may also be a basis for well-organized research activities that may result in multi-disciplinary approaches to realizing quality in education systems. Although it cannot be claimed to be inimitable and final, it may be a good starting point useful as a basis for further refinement in dialogues concerning realizing education quality. Extensive collaboration among the education levels and the various education experts and stakeholders may seem difficult an agenda to achieve. However, if we should take advantage of the windows of opportunity to develop a systemic and inter-disciplinary standpoint to the realization of education quality. Only then may we be able to achieve educational goals that may have profound and long-term benefits for both schools and education systems.

Despite the fact that there has been significant progress toward the realization of the quality of education globally, this has been encumbered due to various challenges. We identified a lack of collaboration among education experts and other stakeholders as a hindrance to fully realizing education quality. This problem has never been solved in a holistic manner before. It requires collaborative research among education experts and researchers with different skills for it to be fully resolved. The challenge is how we can effectively apply a systems approach to education as a tool to break blockades among education experts with different skills. This may provide a venue for collaborative research to synthesize knowledge about realizing the quality of education in a way that establishes systems theory as an indispensable tool for such an exercise. Our efforts to have an interdisciplinary approach to realizing education quality are also hindered because of the lack of a systemic conceptual framework for the quality of

education. Such a framework may help researchers and education stakeholders to apply a systems approach to realizing the quality of education that we have attempted to provide here.

We recommend education systems to apply systems theory as a fundamental theory on which educational issues should be understood. With systems theory in place, we expect that the realization of the quality of education and its improvement thereof will evolve and expand in scope. The information presented in this manuscript may be applicable to education systems which may need to embark on a systems approach to realizing education quality in schools. This may be particularly appropriate in some developing countries where effective ways of realizing and improving education quality may not be readily available. Therefore, the information presented here may ingeniously be applied to education systems in their quest to understand effective ways of realizing and improving the quality of education in schools.

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