

Thematic Article

Teachers' Practices in Fostering Children's Critical Thinking at Pre-Primary Level in Kongwa District

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Abstract

Critical thinking skills is one of the most important 21st century skills and one of the most vital indicators of the quality of education children are receiving. In enhancing these important skills, it is very important to unfold teachers' practices in fostering children's critical thinking skills. Therefore, this study investigated teachers' practices in fostering children's critical thinking skills in pre-primary level in the Kongwa District of the Dodoma Region, Tanzania. The study employed a qualitative research approach with a phenomenography research design. The total sample of the study was 35 respondents, selected through the criterion purposive sampling technique. Data were collected through in-depth interviews and classroom observation. Data analyses were done through the thematic analysis framework of Braun and Clarke (2021). The findings revealed that teachers' practices which include teachers' preparations, the use of instructional strategies, social activities, teaching and learning materials, and creating classroom learning environment helps children to think critically. The study recommends the quality assurers should maintain monitoring and supervision of teachers' classroom practices in promoting the critical thinking skills of children.

Keywords: teachers' practices, critical thinking, pre-primary school children, teaching process

Introduction

Critical thinking has been recognized as one of the most important 21st century skills and one of the most vital indicators of the quality of education children are receiving (Alsaleh, 2020). Despite its importance in the learning process, there is less agreement about how critical thinking is defined. For instance, Ahmed and Ibrahim (2023) define critical thinking as an ability which is beyond memorization. Based on Ahmed and Ibrahim, we noted that children are frequently conditioned in their approach to learning by experiences in teacher-centered, textbook-driven classrooms. Alsaleh (2020) defines critical thinking as the use of those cognitive skills or strategies that increase the probability of a desired outcome. It is used to describe thinking that is purposive, reasoned, and goal-oriented. Furthermore, Papadopoulos and Bisiri (2020) view critical thinking as a mental tendency which helps children reflect on their thinking practices and views, and helps them investigate various perspectives in an attempt to improve their understanding. By considering the above definitions, critical thinking is a mental process which assists an individual in reasoning, making decisions, hypothesizing, testing, and investigating information in the world in which they live. Therefore, children's quality in critical thinking can also be nurtured through teacher practice during class time (Choi & Cheah, 2019).

The importance of promoting critical thinking skills in children has been deemed the most important 21st century skill which teachers can develop in children, because, they are not born critical thinkers (Thompson, 2011). Therefore, garnering in them critical thinking is one of the most essential goals of education across all grade levels nowadays. A child who is a critical thinker is expected to ask vital questions of the teacher about problems, to gather and assess relevant information, to come to conclusions and come up with solutions following the right reasoning. He or she should be open-minded, and be able to communicate his/her thoughts

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effectively (Sarwanto, Fajari & Chumdari, 2021). The student's critical thinking skills can be influenced by things such as level of concentration (physical and learning), intellectual development, level of learning motivation, culture, individual personality, and emotions as well as interactions during the learning process (Sarwanto et al., 2021). To promote this in youngsters, teachers must themselves become critical thinkers.

From a global point of view, teachers of the 21st century have the most important roles at every stage of education, from pre-primary education to higher education in developing 21st century skills (Kuloğlu & Karabekmez, 2022). According to Kuloğlu and Karabekmez, 21st century skills play an important role in the development of children and students' future life and career. Teachers' roles in the 21st century is more challenging because they are required to be competent; their classrooms, where they are required to use modern teaching technology, becoming the place of active student-centered learning (Geng, 2021). The modern teaching technology assists teachers in stimulating imagination, curiosity, and interest that in turn enhance children's critical thinking skills. Geng added that to succeed in today's dynamic environments, children must possess critical thinking skills such as innovative outlook, comprehension, and strong problem-solving abilities. This indicates that teachers' positions should be changed from that of a traditional information transmitter to that of a facilitator and organizer in order to create a situation in the classroom that allows children to develop these cognitive powers.

Furthermore, there are teacher factors that help stir up critical thinking skills in children, in school settings. These factors include teacher preparation, instructional strategies, flexibility and responsiveness, coaching ability, providing clear direction, team working, and ability to analyze learning experiences (Giaccomazzi, Zecca & Maggiuni, 2022). Robinson and Kay (2010) affirm that to improve children's critical thinking skills, teachers must use learning methods that motivate children to be more active rather than passive during class time and that help improve critical thinking through various activities. It is confirmed that critical thinking skills significantly correlate with a child's competences such as the ability to communicate and to care for the environment, and that it is also associated with their academic performance (Kumala, Yasa & Samudra, 2022). This implies that teachers are the basis for promoting children's critical thinking skills. For they use various indoor and outdoor activities, active teaching strategies, and demonstration of good facilitation skills, all in the interest of developing the abilities of the students (Gul, Khan, Ahmed, Cassum, Profetto-McGrath & Shopfrocher, 2014).

The main goal of pre-primary education in Tanzania is to promote children's holistic development, including critical thinking, and to prepare them for primary school education (United Republic of Tanzania [URT], 2014). To achieve this intended goal, the curriculum is organized into six main competences, namely, the ability to relate to each other, the ability to communicate, the ability to protect their health, the ability to care for the environment, the ability to master artistic skills, and the ability to master mathematical concepts (Tanzania Institute of Education [TIE], 2016). This implies that it is important for teachers to help children acquire these vital skills that enhance development of critical thinking. Their involvement in this process would be via teacher practice during the teaching and learning processes. Even though teachers are carrying out their teaching duties in order to meet the demands of the pre-primary school education curriculum which emphasizes the acquisition of critical thinking, there have still been complains of low critical thinking skills among children (URT, 2014). Therefore, this study aimed to explore teachers' practices in fostering children's critical thinking in pre-primary level in Kongwa District to fill this knowledge gap. The research question is, what are the pedagogical practices of teachers used to cultivate critical thinking skills in children?

Research design and Methods

The research approach I took was qualitative research, which aimed to explore teachers' pedagogical practices in fostering children's critical thinking skills. This approach helped to uncover teachers' perspectives, beliefs, and attitudes toward their practices. The study was guided by phenomenography design which aimed to understand different ways in which respondents experience the aforementioned teacher practices. Phenomenography is a research design for mapping the qualitatively different ways in which people experience, conceptualize, perceive, and understand various aspects of phenomena in the world around them (Khahn, 2014). It also allows for the capture of the critical differences between teachers' pedagogical practices. The study was undertaken in Kongwa District due to the fact that the district has one of the highest rates of malnourishment in the country, with nearly one out of two children suffering from stunting (Makoye, 2017). Stunting affects the child's development socially, physically, psychologically, and mentally-the latter meaning inability to think

critically. In-depth interviews with classroom teachers and head teachers were used to gather information on the promotion of critical thinking skills among children. Purposively, 10 teachers were interviewed, five class teachers and five head teachers. The criteria used to select them was that teachers must instruct the early grade classes in order to qualify for the interview, and the head teachers are to be involved in the study by the virtue of their positions. These interviews went deeper into the practices teachers utilized to encourage critical thinking. I conducted them in an open, friendly environment, in a natural setting, allowing respondents the time and space to reflect on their own experience and views on those teacher habits. The interview guides were developed based on the research question, and data from interviews were tape-recorded for further analysis. On average, each interview lasted 35 minutes, time sufficient for eliciting rich data. The qualitative data arising from interview transcripts were analyzed thematically according to the recommendations of Braun and Clarke (2021). First, the researcher familiarized himself with the data through listening to the audio-tapes several times, and jotting down initial ideas. The researcher would then read and re-read the transcripts to create meaning. Second, the researcher generated initial codes; this was done manually. Data were coded by writing notes on the text and analyzing those notes using highlighters to indicate potential patterns. Third, searching for themes, the researcher used tables to sort different codes into themes. This led to the fourth phase, reviewing the themes. In this phase, the researcher read the entire data set to find out whether the themes were appropriate to the data set. Any additional and/or missing data from within the themes were also coded. Following this, the themes were defined and named. At this point, the researcher identified the essence of each theme and determined what aspect of the data was captured by each theme. This was done with the themes' accompanying narratives standing in relation to the research questions so as to avoid theme overlap. Lastly, a report was produced about the whole process; the researcher provided sufficient evidence for the theme's presence within the data by supplying data extracts.

Limitation of the Study

During the actual data collection process of this study, two major limitations were observed: time constraints and access to respondent information. Due to the tight teaching schedule, teachers had little time for interviews; therefore, I had to wait until the end of the period to sit down with them. The head teachers also had managerial responsibilities that limited my access to them. I decided, therefore, to look for them on weekends, to elicit the information needed for the current study.

Results

This section presents the findings on teacher practice to further children's critical thinking skills. From the results, one main theme emerged, namely factors that contribute to the formulation of critical thinking skills. From this theme, five sub-themes were discovered: teacher preparation, instructional strategies, social activities, teaching and learning materials, and creating classroom learning environments.

Teacher Preparation

In this sub-theme, the conclusions indicated that teacher preparation practices help to promote critical thinking skills among children. In the analysis of their practices, the key arguments were identified as presented in Table 1 below;

Table 1. Teacher Preparation in Promoting Critical Thinking Skills

Sub-theme	Respondents	Key arguments
Teacher preparations	Teachers	Preparing teaching aids that stimulate critical thinking
		Planning classroom activities that help to motivate children to think critically
	Head teachers	Monitoring and supervising teachers' daily teaching preparations
		Facilitating play, and teaching and learning proficiencies

(Source: Field Data, 2022)

From the table above, the results show that teachers prepare local teaching aids from their surrounding environments that stimulate critical thinking skills for children. Also revealed was the fact that teachers tend to plan various classroom activities before going to the classroom, these activities help to motivate children to think through things logically during their learning process. For example, teachers plan the questions to be asked to children based on the subject content. They then plan homework to be given. Head teachers are responsible for monitoring and ensuring teachers are well prepared before going to the class, and that the practice truly assisted children in rational thinking. Head teachers also crosscheck teachers' lesson plans and work schemes to confirm that the planned activities will help pupils to acquire the intended competencies. Moreover, head teachers provide materials which supports the learning of logical processing skills during learning and play. One of the head teachers had this to say, *"Based on the government circulars on the use of school capitation grants, there are 30 percent of the non-textual materials, which we normally use to buy teaching and learning facilities. Also, there are 10 percents allocated for buying sports facilities that help to promote critical thinking skills among children."* This statement depicted that teacher preparation is irreplaceable in developing critical thinking skills among children.

Classroom Instructional Strategies

Another sub-theme is teachers' classroom instructional strategies. We found that instructional strategies used by teachers in the classroom advance critical thinking skills among children. The key arguments for it are presented in Table 2 below.

Table 2. Classroom Instructional Strategies in Promoting Critical Thinking Skills

Sub-theme	Respondents	Key arguments
Classroom instructional strategies	Teachers	Collaborative learning Asking oral and written questions
		Using song strategy
		Using role play Using peer teaching
		Using various educational games and outdoor activities to stimulate thinking
	Head teachers	Monitoring the teaching process Discussing with teachers their in-class instruction during staff meetings

(Source: Field Data)

The table above shows that teachers use various classroom instructional strategies to promote critical thinking skills among children. Teachers use collaborative learning, asking oral and written questions, and use songs and role play in the classroom. Results showed that classroom instructional strategies assisted children in exploring, questioning, observing, and experimenting, while the practice phase helped them hone their critical thinking skills further. Teachers also use peer teaching as a strategy to help children scrutinize various things. Furthermore, teachers use different kinds of educational games and outdoor activities to reinforce skills learned in the classroom. Similarly, to the previous topic, head teachers do educational quality control through monitoring the in-class teaching practice. The findings revealed that head teachers made certain that interactive strategies were utilized in the classroom so that students could learn to think rationally. What is more, during staff meetings, head teachers discussed classroom practice with the teachers, emphasizing the use of professional skills to make classes more active, and to enhance the intended skills learned by students. The teacher from school "S₃" commented the following;

There are various classroom instructional strategies I use to foster critical thinking skills among children. I usually ask children to work in pairs to discuss concepts or find solutions to a problem and at other times I use songs as a technique to develop critical thinking skills among children (Interview, Teacher "S₃", 21st, July 2022).

It can be seen therefore that classroom instruction strategies are the cornerstone of promoting critical thinking skills among children because it helps them to be active, inquisitive, and to feel that they are valued in the teaching and learning process.

Social Activities

To continue, findings indicated that teachers and head teachers use social activities to promote critical thinking skills among children. The details of those results can be seen in Table 3 below;

Table 3. Social Activities in the Promotion of Critical Thinking Skills

Sub-theme	Respondents	Key arguments
Social activities	Teachers	Planning play activities
		Observing school norms
		I instruct children when they are at home, they should make playing materials with the support of their parents I use playing materials to foster critical thinking skill in children
	Head teachers	Daily conversation with children
		Giving them group activities

(Source: Field Data, 2022)

From the table above, we found that teachers plan play activities for children such as singing, educational games, and arts and crafts. It was discovered that teachers insist children observe school norms such as rules and regulations. These also help them shape critical thinking. Moreover, teachers instruct children to make play materials with the help of their parents, a practice that aids them in rational thinking. Teachers also use these play materials. In contrast, head teachers cultivate critical thinking in students through having daily conversations with them, and giving them group activities during play and learning. An “S₅” teacher said this regarding social activities:

I use different playing activities such as show and tell games, pointing directions and play phone to reinforce critical thinking skills. School norms help children to think critically because they fear if they fail to obey them, they are going to be punished (Interview, Teacher “S₅”, 21st, July 2022).

Social activities allow for interaction among students thereby developing their learning interests and making them enjoy coming to school. These interactions are also creating an environment for further improvement of their logical capacities.

Teaching and Learning Materials

Another category is that teachers identified teaching and learning materials used as tools to build critical thinking skills among children. Table 4 below lists these details.

Table 4. Teaching and Learning Materials in Promoting Critical Thinking Skills

Sub-theme	Respondents	Key arguments
Teaching and learning materials	Teachers	Using pictures to stimulate logical thinking
		I normally use real objects to motivate reasoning skills
		Alphabetical charts are used during teaching
		Drawing colors are used to reinforce cognitive skills
		We use papers for drawing and writing
		Textbooks are used to motivate critical thinking
		Picture books are used to encourage logical trains of thought
		Story books are used to reinforce critical thinking

(Source: Field Data)

The table above demonstrates that teachers use various teaching and learning materials to promote the development of critical thinking skills. Disclosed herein is the fact that teachers use pictures and real objects (realia) such as fruits, water and sand to reinforce critical thinking. For, pictures and realia aid children in investigation, testing, observation and exploration. Furthermore, teachers use alphabetical charts during teaching and learning. They also employ drawing colors to help children with critical thinking. The use of colors helps

children compare and contrast, and hence further expand their critical thinking skills. Lastly, teachers use textbooks, picture books, and story books to promote critical thinking skills. An “S₃” teacher declared that

I use real objects like flours, stones, and sand during exploration to enhance critical thinking skills and I provide multiple opportunities for children to read and see textbooks, and picture books and read story books in the classroom (Interview, Teacher “S₃”, 21st, July 2022).

The above narrative illustrates that visual materials are very important in supporting the development of critical thinking skills among children in pre-primary school.

Classroom Learning Environments

Another sub-theme emerged from the findings is classroom learning environments. The findings showed that teachers and head teachers create enabling classroom learning environments in their efforts of promoting critical thinking skills among children. In the analysis of their practices, key arguments were established as presented in Table 5 below;

Table 5. Classroom Learning Environments in Promoting Critical Thinking Skills

Sub-theme	Respondents	Key arguments
Classroom learning environment	Teachers	Plenty of playing materials
		Enticing classroom
		Plenty of learning materials
		Full of pictures, letter and attached children’s work
	Head teachers	Enough classroom space for children to explore
		Availability of playing materials
		Availability of the corners of learning in the class
		A class with sufficient teaching and learning materials

(Source: Field Data, 2022)

From the table above, the results indicated that teachers and head teachers are creating a classroom environment that enables learning. In most of the schools visited, the purchased and locally-made play materials were seen in the classroom. Moreover, these play materials influence development among children of such critical thinking skills as socialization, communication, and collaboration. The classroom being full of pictures, drawings, and letters, students’ works, encourage children’s mental capacities. Additionally, classroom spaces help children to explore, interact with, and share the available play and learning materials, and thus develop critical thinking skills. Furthermore, a class with the corners of learning such as artistic corner, literacy corner as well as drama corner, and sufficient teaching and learning materials stimulates children’s interests and promotes their rationality. One class teacher had the following to say:

The needed classroom learning environment is that entices a child to learn with plenty of playing materials that will help him or her to build up curiosity. I would like the class to have enough space with playing materials like other private schools; this will help a child to develop critical thinking skills (Interview, Teacher “S₃”, 16th, July 2022).

To summarize the above, children are explorers who need a good classroom setting with plenty of materials which aid them in learning and reinforcing their critical thinking skills.

Discussion

The findings of this study point out that pedagogical practices that nourish pre-primary-level students’ critical thinking skills are essential to other future levels of learning and academic achievement. Moreover, it is critical for teachers to prepare themselves before going to class, gathering teaching aids, planning classroom activities that they might stimulate critical thinking among children. The study by Richardson and Roosevelt (2005) agrees with this. They suggest that teachers’ preparations can be done before, during, and after the teaching and learning process, to enhance a child’s competencies. Richardson and Roosevelt noted that teachers’ visual

preparation involves the provision of the appropriate learning experience to support learning of all children. This implies that it is principal for teachers to prepare so as to lead productive, engaging lessons for all children, and maximize effectiveness of time and resources.

Again, the findings indicated that teachers employ a variety of classroom instructional strategies to enhance the development of critical thinking skills among children. The strategies include questioning, collaborative learning, and peer teaching. However, the classroom instructional strategies vary from one teacher to another. They are the dominant pedagogical practice among teachers, as they give a child an opportunity to interact with learning materials, share ideas and concepts, reflect on what was taught, and, hence, develop mental capacities. According to Leon (2015), it is important for teachers to apply effectively the instructional strategies in order to reinforce critical thinking in children. Leon insists on the use of strategies such as questioning, problem-based learning, journaling, quiet games, and story mapping to foster children's critical thinking skills. Also, Sheau (2012) supports the fact that instructional strategies can be more effective when teachers create a favorable learning environment for thinking in the classroom, where children are given chances to formulate questions, share ideas, collaborate, and communicate with each other. Sharma and Priyamvada (2022) state that teachers can support critical thinking skills among children by making the teaching and learning process interesting. This can be achieved by using effective teaching strategies in the classroom.

Likewise, it was noted that teachers use a variety of social activities to enhance rational thinking among children. Such activities as play, school norms, and play materials aid in development of critical thinking. Social activities assist children in developing critical thinking skills such as communication skills, interaction skills, collaboration skills, and involvement in play and learning. A study by Muhasari (2017) affirmed that one of the social activities that teachers use to enhance critical thinking skills is play. Play is suitable for children as it provides opportunities for them to experience activities in a meaningful, purposeful, and fun way. Muhasari noted further that play gives children the chance to build physical skills and enjoy the outdoors, to know and make sense of their world, to interact with others, express and control emotions, to develop their symbolic and problem-solving abilities, and to practice emergent skills. Leon (2015) mentions that teachers support the promotion of critical thinking skills through classroom interactions with children. This involves the use of the language of thinking, curiosity, questioning, discussion, and reflection during learning time.

Teachers' use of the teaching and learning materials is part of the pedagogical practices that motivate children at the pre-primary level to expand their critical thinking skills. The findings indicated that in the classroom context, teachers use various teaching and learning materials such as pictures, realia, alphabet charts, and textbooks to enhance critical thinking ability among children. A study by Frimpong (2021) affirms that the use of these materials is very critical to early childhood education, as it gives children the opportunity to have hands-on experience, which increases and expands their knowledge and critical thinking skills. Sunder (2018) observes that teaching and learning materials help arouse the interests of children and help teachers to explain concepts easily and effectively to them. This is a situation that enables a child to develop thinking skills through connecting and associating ideas.

In addition, it was found that the respondents create classroom learning environments that enable children to think logically and process things rationally. Classroom learning environments allow children to observe, explore, test, and inquire, thereby helping them to acquire and develop critical thinking skills. The findings are consistent with a study by Leon (2015) who affirms that a safe, calm, and pleasant school and classroom motivate students to start improving their reasoning and rational thinking skills. A calm and well-designed classroom encourages them to think, question, collaborate, and share opinions. Mokuia (2012) adds that teachers should provide children with materials like pencils, glue, scissors, sticks, tapes and rulers. Materials like corn, flour, clay and water should also be provided to ensure that children can practice and master new skills, while also using their creativity and stretching their imagination. Furthermore, Mokuia suggested that using the learning environments as a teaching resource leads children to develop problem-solving skills needed for, interests in, and appreciations of the world.

Recommendations

The study states that teachers are very important people in helping children develop critical thinking skills. Therefore, it is important that they be provided with teaching materials and regular training to make them proficient in helping children develop critical thinking skills. Second, the study recommends that another study can be conducted to explore how teachers assess critical thinking skills in early grade classes.

Conclusion

Critical thinking skills are very important competencies in the 21st century, which enable children to face various challenges in life as well as to meet future career demands. In this regard, teachers must fulfill their professional roles in assisting children to improve productivity, creativity, and problem-solving skills rather than using teaching practices that limit their critical thinking capabilities. Therefore, the study concludes that teachers' pedagogical practices are essential, complex tools for fostering children's critical thinking skills in pre-primary school.

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