

RATIONALITY IN THE NIGERIAN EARLY CHILDHOOD EDUCATION: FUNCTIONS, RELEVANCE, AND CURBING STRATEGIES FOR CHALLENGES IN LEARNING ENVIRONMENTS.

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Abstract

The study examined the Rationality in the Nigerian Early Childhood Education: Its functions, relevance, and strategies for curbing challenges in learning environments. The aim of the study is to under the rationality in Early Childhood Education in Nigeria: Its functions, relevance, and strategies for curbing challenges in learning environments. There are three specific objectives and three research questions are generated. Cognitive developmental theory supported the study. The study adopted the philosophical research design, content analysis, and speculative mode of philosophy, analytical mode of philosophy and prescriptive mode of philosophy. The study found out that rationality significantly enhances early childhood education by strengthening cognitive development, critical thinking, moral reasoning, decision-making, communication, creativity, self-regulation, and lifelong learning readiness through structured reasoning and dialogue. However, its development is hindered by cognitive limits, emotional and cultural influences, poor methods, memorization dependence, and limited exposure. Effective strategies include guided play, philosophical inquiry, shared thinking, metacognitive questioning, and collaborative problem-solving. The study recommended among others that policy makers should prioritize the strengthening of rationality components such as cognitive development, critical thinking, emotional control, communication and creativity to ensure that early childhood education systems effectively support pupils in developing essential skills for lifelong learning and adaptive functioning.

Keywords: Rationality, Early Childhood Education, Functions, Relevance, Strategies, Curbing, Challenges, Learning Environments.

Introduction

Rationality in Early Childhood Education (ECE) refers to young children's growing ability to think logically, make simple judgments, solve problems, and learn from their environment. It develops through observation, experience, and guided interaction, helping children understand cause-and-effect relationships and make sense of daily life. UNESCO (2024) emphasizes that quality ECE should nurture inquiry, critical thinking, and problem-solving from the early years. In this sense, rationality is not only intellectual but also supports curiosity, creativity, and independence in children's overall development. In Nigeria, rationality has become increasingly important due to the need for 21st-century skills in a knowledge-driven society. The National Policy on Education supports early intellectual development through learner-centred approaches, while UNICEF Nigeria (2024) highlights the impact of early learning experiences on long-term outcomes. Rational thinking helps children question, communicate, and make informed choices as they interact with teachers, peers, and learning materials, preparing them for formal schooling and lifelong learning.

Research shows that rationality improves children's reasoning, confidence, and problem-solving abilities. Li and Disney (2023) note that inquiry-based and problem-solving activities strengthen logical thinking in early learners. It also supports social development by helping children understand others' perspectives, resolve conflicts, and behave responsibly. However, in many Nigerian classrooms, rote learning, overcrowded environments, and limited teacher preparation restrict opportunities for meaningful reasoning and exploration. Studies further reveal a gap between policy intentions and classroom practice. While rationality is encouraged in theory, implementation remains weak due to

teacher-centred methods, examination pressure, and cultural expectations that prioritise obedience over questioning. Adebayo and Chukwu (2021) and Nwosu and Eze (2019) confirm that rote memorisation still dominates many ECE settings. This limits children's ability to think independently and critically, reducing the effectiveness of early education.

To address these challenges, strategies such as child-centred learning, play-based instruction, teacher training, and parental involvement are essential. Chen et al. (2023) stressed that interactive and inquiry-based teaching strengthens reasoning skills in children. The cognitive theory postulated by Piaget in 1954 explained that children go through four stages of cognitive development as they actively construct their knowledge and understanding of the world around them. Two processes underline the way the child constructs knowledge of his environment: organization and adaptation. To make sense of the world, an individual organizes his experiences; he separates essential ideas from less important ones and connects one idea to another. In addition to organizing observations and experiences, the individual adapts and adjusts to new environmental demands.

Piaget once asserted that the child undergoes four stages of cognitive development and in his construction of knowledge. Interestingly, each stage is related to age and consists of a peculiar way of thinking and a distinct way of understanding the world. To him, the child's cognition is qualitatively different in the different stages. However, the present study is interested in the first two stages: sensorimotor and preoperational stages. The sensorimotor stage, lasts from birth to about two years of age; it is the first stage of cognitive development of the child. Children at this stage have a cognitive system that is limited to the motor reflexes. They learn from their parents and care-givers and imitate what they see and hear; and experiment with muscle movements and sounds that the mouth makes. At this stage, infants construct an understanding of the world by coordinating sensory experiences such as seeing, hearing and touching. The Sensorimotor stage is further grouped into six sub-stages which explain the stage-by-stage development of the infant from birth to 2 years when the child gains the mental ability to represent reality. From here, the child then progresses to the preoperational stage (Wopara, 2020). In all, rationality is vital for developing independent, creative, and socially competent learners. Strengthening its practice in Nigerian ECE will improve learning outcomes and prepare children for future academic success and societal contribution.

Statement of the Problem

Rationality in Early Childhood Education in Nigeria is meant to develop children's thinking skills, helping them reason, solve problems, and make simple decisions. Its relevance lies in building a strong foundation for creativity, independence, and lifelong learning. However, several major problems hinder its effectiveness. First, there is a shortage of trained early childhood educators who understand how to teach reasoning skills. Second, overcrowded classrooms reduce individual attention needed for cognitive development. Third, inadequate instructional materials limit practical and play-based learning experiences. Fourth, cultural beliefs often emphasize rote learning over critical thinking at early ages. In addition, poor government funding and weak policy implementation further weaken rational teaching practices. The gap lies in the limited integration of child-centred, culturally relevant rationality approaches in Nigerian classrooms. In conclusion, improving teacher training, learning resources, and policy support is essential for strengthening rationality in early childhood education and enhancing children's overall intellectual development in Nigeria effectively.

Aim and Objectives of the Study

The aim of the study is to examine the rationality in Early Childhood Education in Nigeria: Its functions, relevance, and strategies for curbing challenges in learning environments. Specifically, the objectives are to:

- i. Examine the rationality function in Early Childhood Education.
- ii. Examine the relevance of rationality in Early Childhood Education.
- iii. Examine the strategies to curb challenges of rationality in Early Childhood Education.

Research Questions

- What is the rationality function in Early Childhood Education?
- What is the relevance of rationality in Early Childhood Education?
- What are the strategies to curb challenges of rationality in Early Childhood Education?

Methodology

The study has utilized the philosophical research design. The study utilized secondary sources. In the course of this study various materials have been sourced data collected from text books, unpublished works, journal articles, and materials from the internet have been obtained. Influence libraries, bookshops and colleagues have also contributed to enriching this study. The speculative, analytic and the prescriptive mode of philosophy have been applied in analyzing the data which was the relevant philosophical tools for the study. The study adopted speculative method of philosophy. To speculate ordinarily means to cogitate, ruminant, think, mediate, reflect and deliberate to make an inference. The speculative method of philosophy involves reflection about the existence of things so as to arrive at the absolute truth about them. The study also anchored on prescriptive mode of philosophy. This method of philosophizing is also regarded as the normative method. It focuses on the problem what is good and beautiful or bad and ugly, what is separate from what ought to be. The prescriptive/normative method is vital mostly when making value judgment, judging conduct and apprising situations. The study used analytic philosophy. Analytic philosophy requires the application of logical techniques to reach conceptual clarity. Analytical philosophy has been considered by scholars as one of the most modern modes of philosophy.

Results and Discussion

Research Question One: What is the relevance of rationality in Early Childhood Education?

Table 1: Secondary Source Appraisal on the Relevance of Rationality in Early Childhood Education

<i>Aspect</i>	<i>Core Meaning</i>	<i>Educational Expression</i>	<i>Role of Teacher</i>	<i>Role of Learner</i>	<i>Likely Outcome</i>
Enhances Cognitive Development	Improves mental processes such as thinking and understanding	Structured learning, counting, and concept formation	Provides guided instruction and learning materials	Engages in thinking and understanding concepts	Improved intellectual ability and comprehension
Promotes Critical Thinking	Encourages questioning and evaluation of ideas	Inquiry-based learning and questioning	Stimulates thinking through probing questions	Analyzes and questions information	Development of analytical and evaluative skills
Supports Moral and Ethical Understanding	Builds awareness of right and wrong	Moral lessons, storytelling, and role-play	Models good behaviour and reinforces values	Practices and reflects on moral actions	Development of good character and ethical behaviour
Facilitates Problem-Solving Skills	Enables children to find solutions to challenges	Practical activities and puzzles	Presents tasks and supports solution processes	Attempts and tests solutions	Increased ability to solve everyday problems
Enhances Decision-Making Ability	Improves ability to make informed choices	Choice-based classroom activities	Provides options and explains consequences	Makes choices and evaluates outcomes	Better judgment and responsible choices
Encourages Self-Regulation and Emotional Control	Develops ability to manage emotions and behaviour	Behavioural guidance and reflective activities	Supports emotional expression and control	Regulates emotions and behaviour	Emotional stability and positive conduct
Supports Language and Communication Skills	Strengthens expression and understanding of ideas	Discussions, storytelling, and group interaction	Encourages communication and active listening	Speaks, listens, and interacts	Improved language proficiency and communication skills
Prepares Children for Lifelong Learning	Builds foundation for continuous learning	Exploration, discovery, and independent tasks	Encourages curiosity and independent learning	Explores and seeks knowledge	Sustained interest in learning and adaptability

Enhances Social Interaction	Promotes cooperation and relationship building	Group work and collaborative activities	Facilitates interaction and teamwork	Collaborates and shares ideas	Improved social skills and teamwork
Encourages Creativity within Reason	Combines imagination with logical thinking	Creative tasks with guided structure	Provides creative opportunities with direction	Creates and expresses ideas logically	Balanced creativity and rational thinking

<i>Aspect</i>	<i>Core Meaning</i>	<i>Educational Expression</i>	<i>Role of Teacher</i>	<i>Role of Learner</i>	<i>Likely Outcome</i>
Rationality & reasoning in early childhood	Emphasizes the development of logical thinking and decision-making abilities in children.	Use of reasoning activities, problem-solving tasks, and guided discovery learning.	Facilitates cognitive growth through structured and inquiry-based instruction.	Engages actively in thinking, questioning, and reasoning activities.	Improved cognitive development and logical understanding.
Argumentation & rational dialogue in preschool learning	Encourages communication, discussion, and justification of ideas among children.	Classroom discussions, storytelling, collaborative play, and interactive questioning.	Creates opportunities for dialogue and respectful exchange of ideas.	Learners' express opinions, listen to peers, and defend viewpoints appropriately.	Enhanced communication skills and social understanding.
Computational thinking & structured reasoning	Focuses on systematic problem-solving and logical sequencing of ideas.	Use of puzzles, games, pattern recognition, and step-by-step learning activities.	Guides learners in organizing thoughts and solving problems systematically.	Participates in analytical and structured reasoning activities.	Development of analytical and problem-solving skills.
Critical thinking	Promotes reflective judgment, evaluation of information, and independent thought.	Inquiry-based learning, exploration, and reflective classroom activities.	Encourages learners to ask questions and examine ideas critically.	Learners evaluate information and make informed judgments.	Increased creativity, independence, and intellectual confidence.
Long-term learning success	Rationality supports sustainable intellectual growth and lifelong learning abilities.	Continuous skill development, adaptability, and learner-centered instruction.	Provides supportive learning experiences that build foundational competencies.	Learners develop positive attitudes toward learning and self-improvement.	Academic success, adaptability, and lifelong learning capacity.

The findings in Table 1 show that rationality is central to early childhood education as it supports children's overall development. It strengthens cognitive abilities by helping pupils think clearly, understand concepts, and process information effectively. It also promotes critical thinking and problem-solving, enabling children to analyse situations and respond appropriately in daily learning activities. Beyond cognition, rationality contributes to moral understanding, emotional regulation, and responsible behaviour, helping learners relate well with others. It further improves communication skills, decision-making, curiosity, independence, and adaptability, all of which are important for lifelong learning. The results also highlight its role in enhancing creativity, social interaction, and structured reasoning through dialogue and reflection. Computational and critical thinking skills help children develop systematic and independent learning habits. In conclusion, rationality in early childhood education fosters well-rounded development by preparing children to think logically, act responsibly, communicate effectively, and adapt confidently to their environment and future learning experiences.

Research Question Two: What are the challenges of rationality in Early Childhood Education?

Table 2: Appraisal on the Challenges of Rationality in Early Childhood Education

<i>Challenge</i>	<i>Core Meaning</i>	<i>Educational Expression</i>	<i>Role of Teacher/Leader</i>	<i>Role of Learner</i>	<i>Likely Impact</i>
Cognitive Limitations	Immature mental capacity	Difficulty understanding complex ideas	Simplifies concepts and provides guidance	Struggles but gradually	Slow development of reasoning skills

Emotional Influences	affecting reasoning ability Emotions interfering with logical thinking	Impulsive reactions during tasks	Provides emotional support and guidance	develops understanding Reacts emotionally, learns control gradually	Inconsistent decision-making
Lack of Critical Thinking Skills	Inability to analyze or evaluate information	Reliance on given answers	Encourages questioning and guided thinking	Accepts information without evaluation	Weak analytical abilities
Peer Pressure and Social Influences	Influence of peers on behaviour and thinking	Imitation of peers' actions	Monitors interactions and guides behaviour	Conforms to group behaviour	Reduced independent thinking
Cultural and Societal Norms	Traditional beliefs shaping reasoning patterns	Acceptance of norms without questioning	Balances cultural values with rational inquiry	Adopts societal beliefs	Limited flexibility in thinking
Limited Exposure to Diverse Perspectives	Lack of varied experiences and viewpoints	Narrow understanding of concepts	Introduces diverse materials and experiences	Learns within limited scope	Restricted cognitive development
Inadequate Teaching Methods	Ineffective instructional strategies	Teacher-centred and passive learning	Needs to adopt interactive and learner-centred methods	Remains passive in learning	Poor development of rational thinking
Overdependence on Memorization	Focus on rote learning rather than understanding	Recitation without comprehension	Encourages understanding over memorization	Memorizes without deep thinking	Superficial knowledge acquisition
Environmental Factors	External conditions affecting learning	Distractions, lack of resources	Creates supportive learning environment	Adapts to or is hindered by environment	Reduced learning effectiveness
Technological and Media Influences	Media shaping thinking and attention	Short attention span and imitation of media content	Regulates media use and guides interpretation	Consumes media content	Distorted reasoning and reduced focus
Cognitive Biases and Prejudices	Preconceived ideas affecting judgment	Stereotypical thinking	Corrects misconceptions and promotes fairness	Forms biased opinions	Faulty reasoning and unfair judgments
Motivational Deficits	Lack of interest or willingness to learn	Low participation in activities	Motivates and engages learners	Shows little effort	Poor learning outcomes
Language and Communication Barriers	Difficulty in expressing and understanding ideas	Limited participation in discussions	Supports language development and communication	Struggles to express thoughts	Weak interaction and reasoning expression
Limited Real-Life Applications	Lack of connection between learning and real situations	Abstract teaching without practical examples	Links lessons to real-life contexts	Finds it hard to apply knowledge	Poor transfer of learning
Parental and Teacher Influence	Adult attitudes shaping children's reasoning	Over-guidance or restriction of thinking	Encourages independence and balanced guidance	Relies heavily on adults	Reduced autonomy and critical thinking

<i>Challenge</i>	<i>Core Meaning</i>	<i>Educational Expression</i>	<i>Role of Teacher/Leader</i>	<i>Role of Learner</i>	<i>Likely Impact</i>
Bounded rationality & decision-making limits	Refers to limitations in human reasoning caused by insufficient information, time, and cognitive capacity.	Difficulty in making fully informed instructional and administrative decisions.	Makes decisions based on available knowledge and limited classroom realities.	Learners may struggle to process complex information effectively.	Reduced instructional effectiveness and inconsistent learning outcomes.
Cognitive biases & irrational beliefs	Involves personal assumptions,	Biased classroom expectations,	Must identify and minimize	Learners may internalize	Poor academic confidence and

	stereotypes, and misconceptions that influence judgment.	unfair assessment practices, and misconceptions about children's abilities.	subjective judgments in teaching and leadership.	stereotypes or irrational beliefs.	unequal learning opportunities.
Cultural & psychological barriers (African context)	Refers to traditional beliefs, societal norms, and psychological factors that shape educational practices.	Preference for rigid authority, resistance to innovation, and culturally influenced teaching methods.	Balances cultural expectations with modern educational principles.	Learners may experience restricted participation and limited critical thinking.	Slow educational transformation and reduced learner creativity.
Emotional influences on decision	Recognizes that emotions can affect reasoning and educational judgment.	Emotional reactions influencing discipline, classroom interaction, and instructional choices.	Expected to regulate emotions and maintain professional objectivity.	Learners' emotions influence attention, motivation, and participation.	Classroom tension, inconsistent discipline, and unstable learning environments.
Complexity of operationalizing rationality in research	Refers to challenges in measuring and applying rationality concepts in educational studies.	Difficulty in defining variables, collecting accurate data, and interpreting findings.	Researchers and educators attempt to simplify abstract concepts for practical use.	Learners indirectly contribute through observable behavior and responses.	Limited generalization of findings and methodological inconsistencies.

The findings in Table 3 reveal that several factors hinder the effective development of rationality in early childhood education. Cognitive limitations and emotional influences show that pupils' thinking is still developing and often inconsistent. Challenges such as lack of critical thinking skills, overdependence on memorization, and inadequate teaching methods indicate that instructional approaches can either support or restrict rational growth. Social and cultural influences, including peer pressure and societal norms, further shape children's thinking, sometimes limiting independent reasoning. Environmental factors, technological exposure, and language barriers also affect how pupils process and express ideas. Additionally, limited real-life applications and motivational deficits reduce engagement and meaningful learning. Bounded rationality limits effective decision making due to inadequate information and cognitive constraints, while cognitive biases distort educational judgment and classroom practices. Cultural and psychological barriers, particularly within the African context, may hinder innovation and critical engagement in learning. Emotional influences also affect teaching effectiveness and learner participation, whereas the complexity of operationalizing rationality in research creates difficulties in measuring and interpreting educational phenomena accurately. These challenges collectively influence the quality of teaching, learning, and educational research. In conclusion, these challenges highlight the need for supportive teaching strategies, enriched learning environments, and guided experiences. Addressing these barriers will enhance pupils' ability to think logically, act independently, and apply knowledge effectively in real-life situations. The appraisal reveals that rationality in Early Childhood Education faces several interconnected challenges related to cognition, culture, emotions, and research methodology. Addressing these limitations through reflective practice, cultural sensitivity, emotional regulation, and improved research approaches is essential for achieving effective and balanced educational outcomes.

Research Question Three: What are the strategies to curb challenges of rationality in Early Childhood Education?

Table 4: Secondary Source Appraisal on the Strategies of Rationality in Early Childhood Education

Strategy	Core Meaning	Educational Expression	Role of Teacher	Role of Learner	Typical Outcome
Sustained Shared Thinking (SST)	Extended dialogue where adult and child work together to solve a problem	Working on puzzles, discussing story outcomes,	Engages as co-thinker, asks open questions, extends child's ideas	Contributes ideas, listens, responds, reasons aloud	Deeper understanding, improved communication, stronger reasoning

	or understand a concept	exploring cause-effect together			
Philosophical Inquiry (P4C)	Group discussion of philosophical questions arising from stories or daily life	"What is fairness?", "How do we know something is real?", "Should we always share?"	Facilitates dialogue, listens philosophically, resists providing answers	Poses questions, gives reasons, considers others' views	Critical thinking, empathy, intellectual confidence
Guided Play with Structured Choices	Play activities with embedded reasoning opportunities and limited decision-making	Building with constraints, sorting games, pattern completion	Designs play environment, offers choices, observes without interrupting	Makes selections, tests ideas, revises approaches	Problem-solving skills, autonomy, logical thinking
Metacognitive Questioning	Questions that prompt children to think about their own thinking	"How did you know that?", "Why do you think that worked?", "What would you do differently?"	Models thinking aloud, pauses for reflection, validates effort	Articulates strategies, reflects on process, learns from mistakes	Self-awareness, strategic thinking, learning adaptability
Collaborative Problem-Solving	Peer interaction focused on reaching a shared solution	Group puzzles, negotiation during dramatic play, building projects together	Sets up collaborative tasks, mediates conflicts, encourages turn-taking	Shares ideas, negotiates, evaluates peer suggestions	Social reasoning, perspective-taking, consensus-building
Visual and Physical Representations	Using concrete objects and body movements to represent abstract ideas	Number lines with objects, shape sorting, gesture use for mathematical language	Provides manipulatives, models gestures, connects physical action to concept	Manipulates objects, uses gestures, creates representations	Concrete understanding, memory support, concept transfer

The findings in Table 4 revealed that the development of rationality in early childhood education is effectively supported through a range of complementary instructional strategies such as sustained shared thinking (SST), philosophical inquiry (p4c), guided play with structured choices, metacognitive questioning, collaborative problem-solving, visual and physical representations. Sustained Shared Thinking and Philosophical Inquiry emphasize dialogic engagement, where reasoning emerges through continuous interaction, questioning, and joint exploration of ideas. These strategies promote depth of understanding and encourage children to articulate and justify their thoughts. Guided Play with Structured Choices and Metacognitive Questioning further strengthen rational development by embedding thinking processes within purposeful activities. While guided play fosters autonomy and logical reasoning through exploration and decision-making, metacognitive questioning enhances learners' awareness of their own thinking, promoting reflection and adaptability. Collaborative Problem-Solving highlights the social dimension of rationality, enabling children to negotiate, share perspectives, and arrive at collective solutions. In addition, Visual and Physical Representations support the translation of abstract concepts into concrete experiences, thereby improving comprehension and retention. In conclusion, these strategies collectively create an interactive and reflective learning environment that enhances critical thinking, problem-solving, communication, and conceptual understanding among early childhood learners.

Discussion of Findings

In research question one, the findings revealed that rationality that play significant role in enhancing various dimensions of early childhood education are enhances cognitive development, promotes critical thinking, supports moral and ethical understanding, facilitates problem-solving skills, enhances decision-making ability, encourages self-regulation and emotional control, supports language and communication skills, prepares children for lifelong learning, enhances social interaction, encourages creativity within reason, rationality and reasoning in early childhood, argumentation and rational dialogue in preschool learning, computational thinking and structured reasoning, critical thinking, long-term learning success. It supports cognitive development by strengthening pupils' ability to think, understand, and process information effectively.

Olalowo (2025) revealed that early childhood care and education (ECCE) policy reconceptualisation should prioritise critical thinking and reasoning from the earliest stages, suggesting that rational engagement enhances children's ability to inquire, question, and meaningfully interpret learning experiences as part of lifelong development. Ekeh and Venketsamy (2023) showed that adoption of critical thinking skills learning approaches in pre- primary and primary settings significantly develops self- reliance among early grade learners, indicating that fostering reflective thinking early helps children become autonomous problem solvers capable of navigating 21st- century demands. Furthermore, using storytelling and role- play methods at primary levels substantially improves pupils' critical thinking skill acquisition, showing the relevance of rational engagement through interactive and participatory practices in early childhood education.

The finding Adebayo and Chukwu (2021) revealed a significant pedagogical gap; instruction heavily emphasized rote memorization and social conformity, with little emphasis on fostering critical questioning, logical reasoning, or evidence-based problem-solving in young learners. Akinbote, Oduolowu and Lawal (2011) maintained that teacher-centred, rote-learning methods dominated classroom activities, significantly stifling opportunities for children to ask questions, problem-solve, or engage in critical thinking. Adegboye and Ogunnaike (2021) stated that while educators acknowledged the importance of rationality evidenced by encouraging question-and-answer sessions its implementation was superficial. Classroom practices heavily favoured rote memorisation and teacher-centred instruction over fostering critical thinking, logical reasoning, and evidence-based belief formation in young children.

Akinbote, Iroegbu and Eke (2021) supported that while educators acknowledged the importance of rationality evidenced through activities promoting questioning, problem-solving, and logical reasoning its implementation was inconsistent. Teacher-centred methods often dominated, limiting opportunities for children to exercise critical thought. Nzeadibe and Ede (2017) study supported that the children exposed to structured rationality skills training, which involved problem-solving and evidence-based reasoning activities, demonstrated significantly higher levels of critical thinking compared to the control group. These children showed improved abilities in asking insightful questions, evaluating simple causes and effects, and making logical connections.

Findings in research question two indicated that Challenges that hinder the effective development of rationality in early childhood education are cognitive limitations, emotional influences, lack of critical thinking skills, peer pressure and social influences, cultural and societal norms, limited exposure to diverse perspectives, inadequate teaching methods, overdependence on memorization, environmental factors, technological and media influences, cognitive biases and prejudices, motivational deficits, language and communication barriers, limited real-life applications, parental and teacher influence, bounded rationality & decision-making limits, cognitive biases and irrational beliefs, cultural and psychological barriers (African context), emotional influences on decision, complexity of operationalizing rationality in research.

Gummi and Yahaya (2024) revealed that outdated, memorisation- driven pedagogy limits students' development of critical thinking and problem solving, indicating that the dominance of rote learning suppresses rational inquiry and innovation. Atiku, Kankia, and AbdulKadir (2025) showed that critical thinking development in Nigeria is challenged by poor teacher preparation, lack of digital tools, and curriculum constraints, making reflective and analytical learning sporadic across levels of education. Additionally, Okpara et al. (2025) indicated that teacher inadequacies, examination pressure, and socio- cultural factors create environments where rational pedagogical practices are often neglected, ultimately diminishing learners' capacities to reason independently and critique assumptions within and beyond the classroom.

Molefe and Nkoana (2023) narrated the teacher-centric, rote-learning methods dominated, stifling critical questioning. Socio-cultural norms emphasizing obedience and respect for elders often discouraged children from voicing independent thoughts or challenging authority, large class sizes and a rigid, assessment-driven curriculum made facilitating individual reasoning impractical for teachers. Davies and Chen (2022) revealed that educators often conflated simple obedience with rational behaviour, prioritising compliance over

justification. While opportunities for reasoning arose during child-led play, structured teacher-led activities frequently suppressed questioning in favour of procedural correctness. A notable finding was the teachers' anxiety about managing unpredictable, reason-based discussions, viewing them as a challenge to their authority and classroom order.

Smith and Jones (2018) found that children's demonstration of logical reasoning, problem-solving, and justification for their beliefs was highly dependent on contextual and cultural factors. In the Montessori setting, rationality was often expressed through structured material use. Nwosu and Adeyemi (2018) states that teachers predominantly employed rote memorization and authoritarian instruction, stifling children's critical questioning and problem-solving abilities. The curriculum was found to be overly rigid, prioritizing academic outcomes over the development of logical reasoning and creative thought. Furthermore, a philosophical appraisal indicated that the classroom environment often failed to embody the Socratic principles of dialogue and inquiry essential for rational development. The findings Ofomola and Ojo (2023) revealed significant challenges to fostering rationality. Teachers heavily utilized rote memorization and authoritative instruction, suppressing critical questioning. The curriculum was overcrowded with facts, leaving little room for inquiry-based play and logical reasoning activities. Furthermore, a pervasive cultural belief that equates obedience with intelligence discouraged children from independent thought.

Findings in research question three, indicated that Development of rationality in early childhood education is effectively supported through a range of complementary instructional strategies such as sustained shared thinking (SST), philosophical inquiry (p4c), guided play with structured choices, metacognitive questioning, collaborative problem-solving, visual and physical representations.

Brown, Tan and Yusof (2019) found that play-based learning significantly improved number recognition and counting skills in early childhood pupils aged 4 to 6. The study observed that structured play activities increased understanding of basic math concepts by 45% over eight weeks, compared to traditional worksheets alone. Kaur, Rahman and Lim (2020) reported that storytelling with visual aids enhanced vocabulary comprehension among preschool pupils in rural Malaysian classrooms. Their findings showed that repeated interactive storytelling sessions helped young children understand abstract concepts like emotions and sequences, improving language test scores by 38%. Omar, Hassan and Zainal (2021) discovered that hands-on science exploration using everyday objects increased early childhood pupils' understanding of cause and effect. The study noted that simple sink-or-float experiments boosted curiosity and reasoning skills, with 52% better retention of concepts compared to picture-based lessons.

Conclusion

Based on the findings, the study concluded that rationality that play significant role in enhancing various dimensions of early childhood education **are** enhances cognitive development, promotes critical thinking, supports moral and ethical understanding, facilitates problem-solving skills, enhances decision-making ability, encourages self-regulation and emotional control, supports language and communication skills, prepares children for lifelong learning, enhances social interaction, encourages creativity within reason, rationality and reasoning in early childhood, argumentation and rational dialogue in preschool learning, computational thinking and structured reasoning, critical thinking, long-term learning success. It supports cognitive development by strengthening pupils' ability to think, understand, and process information effectively.

Challenges that hinder the effective development of rationality in early childhood education are cognitive limitations, emotional influences, lack of critical thinking skills, peer pressure and social influences, cultural and societal norms, limited exposure to diverse perspectives, inadequate teaching methods, overdependence on memorization, environmental factors, technological and media influences, cognitive biases and prejudices, motivational deficits, language and communication barriers, limited real-life applications, parental and teacher influence, bounded rationality & decision-making limits, cognitive biases and irrational beliefs, cultural and psychological barriers (African context), emotional influences on decision, complexity of operationalizing rationality in research. Development of rationality in early childhood education is effectively supported through a range of complementary instructional strategies such as sustained shared

thinking (SST), philosophical inquiry (p4c), guided play with structured choices, metacognitive questioning, collaborative problem-solving, visual and physical representations.

Recommendations

- i. Policy makers should prioritize policies that strengthen rationality components such as cognitive development, critical thinking, emotional control, communication and creativity to ensure that early childhood education systems effectively support pupils in developing essential skills for lifelong learning and adaptive functioning.
- ii. Parents should be sensitized to support rational development by providing supportive environments that reduce negative influences such as poor motivation, excessive media exposure and limited real life experiences so that children can develop balanced reasoning skills and positive learning behaviours.
- iii. Educational stakeholders should adopt and implement strategies such as sustained shared thinking, philosophical inquiry, guided play, metacognitive questioning, collaborative problem solving and use of visual representations to enhance rationality development and promote active engagement in critical thinking and meaningful learning among young learners.

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