



**A CRITICAL ANALYSIS OF KEY PHILOSOPHICAL,
METHODOLOGICAL AND ETHICAL RESEARCH ISSUES
IN RELATION TO TEACHER'S PERCEPTION ON THE EFFECT
OF ASSESSMENT ON COGNITIVE DEVELOPMENT OF THREE
TO FIVE YEARS CHILDREN IN ENGLAND**

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Abstract:

The study critically analysed key philosophical, methodological, and ethical research issues related to teachers' perceptions of the effect of assessment on the cognitive development of three to five years of children in England. The study revealed philosophical issues such as tensions between positivist and interpretivist paradigms in understanding assessment's impact and debates around the nature of childhood, learning, and development. Methodological issues such as challenges in measuring cognitive development in young children chosen methods' potential impact on finding and interpretation. Ethical issues include concerns about labelling, stigma, and potential long-term consequences. Balancing accountability with development sensitivity and equity. The findings showed that teachers' perceptions are influenced by philosophical beliefs, methodological approaches and ethical consideration.

Keywords: philosophical, methodological, ethical research issues, teacher's perception, assessment, cognitive development, England

1. Introduction

The importance of assessment in learning cannot be over-emphasised. Specifically, assessment has a role to play in the cognitive development of learners. It gives feedback on learning to the teachers, parents, as well as the learners. According to Alfonson, Bracken and Nagle (2020), the assessment of preschool children focuses on gauging the children's overall functioning, which will enable the teacher to highlight the strengths

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and weaknesses of the children; thereby, evidence-based intervention can be used to improve their performance.

Cognitive development in children can be described as children's capacity for thought, inquiry, and problem-solving. It is important that, as children grow in age, their ability to understand their environment also grows. The enhancement of knowledge, abilities, problem-solving abilities, and dispositions helps with this. Simply put, cognitive development involves the maturity of the brain. David (2014) asserted that Intelligence, reasoning, language acquisition, information processing, and memory are all characteristics of cognitive development. According to Burger (2009), early years learning, and assessment are crucial for the development of foundational abilities that will help children deal with challenges later in life, both within and outside the academic environment. Gilles (2021) opines that children's cognitive skills development entails the gradual augmentation of learning aptitudes like focus, memory, and reasoning.

Claire (2021) opines that assessment in pre-school enables educators to understand the children and identifies ways in which their learning and development can be supported. Jan (2021) noted that most of the time, the mention of the word 'assessment' in early years can sometimes evoke an unpleasant image of children being judged or measured and labelled, but it yields positive results of understanding the children better when it is properly and expertly understood and used. The result of the assessment enables the teacher to understand the strengths and weaknesses of the child and find ways to support such a child.

2. Statement of the Problem

The rapid cognitive development of children between the ages of three and five years presents a critical period for laying the foundation of future learning, socialization and emotional intelligence.

2.1 Research Questions

The following research questions were raised in the study:

- 1) Is assessment important for three to five years old children?
- 2) How does assessment aid the cognitive development of three to five years old children?
- 3) What assessment methods are effective for three to five years old children?
- 4) What positive effect does assessment have on the cognitive development of three to five-year-old children?

3. Literature Review

3.1 Concept of Cognitive Development

According to Claire (2021), cognitive development refers to the process by which individuals acquire, refine and use mental processes such as perception, attention, memory, language, problem-solving and thinking. It encompasses the development of various cognitive abilities such as the ability to interpret and organize sensory information, the ability to selectively focus on certain stimuli or tasks, the ability to encode, store and retrieve information, the ability to understand, produce and use verbal and nonverbal symbol, ability to identify, analyze and solve problem, the ability to engage in logical reasoning, decision-making and metacognition. According to Travers (2010), cognitive development occurs across the lifespan, from infancy to old age and is influenced by a combination of genetic, environmental and cultural factors.

3.2 Overview of Assessment Structure in England

The study area of this enquiry is England. Therefore, in order to give accurate information about assessment practices in England's preschools, appropriate documents from the appropriate bodies were carefully read and reviewed. According to the Department for Education (DFE, 2021), the most appropriate type of assessment to be employed in preschool education and key stage 1 in England is formative assessment. Without formative evaluation, it is not likely that the learning process can be successfully achieved. Early years practitioners are expected to know the academic readiness and interest of each child. This will enable them to adapt teaching and learning opportunities for each child. Practitioners should respond to whatever parents and other caregivers observe in the course of their interaction with the children during their day-to-day activities.

Moreover, how and when children are evaluated depends on their ages. In England, three to five years old children are in Nursery, Reception and Year 1 classes. Summative assessment is also used in preschool. It is standardised and structured by the Department for Education of England. There are three main steps of summative assessment in the early years of foundation stage evaluation. They are referred to as Early Years Foundation Stage Three Statutory Assessments (DfE, 2021). Three assessments are made: 1. at age two (known as the Progress Check at Age Two Assessment), another at the beginning of the reception year (known as the Reception Baseline Assessment), and a third at the conclusion of the early year foundation stage (called Early Years Foundation Stage Profile). The early years' foundation stage profile is used as the entry-level assessment for aged 5, who want to be enrolled in year 1.

3.3 Ontological & Epistemological Assumptions

This research shall adopt a constructivist interpretivist approach; constructivism is an ontological approach that views knowledge as having been constructed. It is primarily

concerned with the analysis of discrete processes or functions. According to Stuart (2019), constructivism holds that all human knowledge is socially produced and that we are only able to have a mental image of the universe that has been created by our society. This paradigm is chosen because constructivist interpretivist paradigm enables data collection through interactions between the researcher and the research subjects.

Adom, Yeboah and Ankrah (2016) clearly explain that the constructivist interpretivist paradigm uses several techniques of collecting data to examine a subject under study through the perspectives or experiences of the participants. The researcher can also infer interpretations from the events being studied by drawing on personal experiences and those of the study's participants. After that, the researcher can assess the data gathered to determine the facts. Another ontological and epistemological philosophy that can be adopted is objectivist positivist. Dudovskly (2022) asserted that the primary distinction between positivist and constructivism philosophy is that positivism holds that knowledge is formed scientifically, whereas constructivism maintains that knowledge is constructed and opposes the idea that there is a single way to generate knowledge.

According to Travers (2010), the emphasis on the world of experience as it is lived, felt, and undergone by social actors is shared by constructivists and interpretivists. The concepts of objectivism, empirical realism, objective truth, and essentialism, however, serve as their specific antagonists. In other words, according to the objectivist, the universe is made up of facts and the aim of knowledge is to give a precise description of how the world is. Given the claims and viewpoints of these academics, it may be inferred that constructivists are fervently committed to the opposing theory that reality is the product of perspective and what we consider to be objective knowledge, thereby making it the most appropriate paradigm for this research enquiry. Constructivism emphasises that research findings are created, not discovered, in this way.

4. Theoretical Assumptions

This research interest is based on two theories of learning:

- 1) Piaget's Theory of Cognitive Development,
- 2) Bloom's Taxonomy Theory,
- 3) Bloom's Theory of Formative and Summative Assessment.

4.1 Piaget's Theory of Cognitive Development

The brain of everyone, including children, requires cognitive abilities to think, read, learn, remember, reason, and pay attention. The brain takes in information and adds it collectively to the knowledge bank that we use every day for jobs, education, and life. Cognitive development in children can therefore be simply described as how children think, explore and figure things out. That is the growth of the brain. Children's ability to consider and comprehend their environment is aided by the development of information

skills, problem-solving, and dispositions. McLeod (2022), in his analysis of Piaget's stages of cognitive development, presents that this theory suggests that children's intelligence develops throughout time. As part of their cognitive development, children must build a conceptual model of their environment if they are to accomplish more than merely learn new information. The interaction between innate abilities and environmental factors results in a number of cognitive developmental phases that children go through as they grow. The table below shows the stages of children's cognitive development, as propounded by Piaget.

Stage	Age	Expectation
Sensorimotor	Birth to 18-24 months	Object stability
Preoperational	2 – 7 years old	Symbolic reasoning
Concrete operational	7 – 11 years	Logical reasoning
Formal operational	12 years to adulthood	Scientific analysis

The children within the scope of this research fall in the Preoperational stage of Piaget's theory of cognitive development. Children at this stage develop memory and imagination (Ashley, 2018). For the children within the scope of this research, Piaget's theory aligns with the play-based learning approach. Piaget's theory of cognitive development was first published in 1952. Play-based assessment fits into this kind of learning environment, where the teacher observes the children as they learn while playing. Despite his interest in children's interactions with their environment, Piaget suggested that these interactions are more active than learning theory would have us believe. He held that schemas, which are fundamental knowledge constructions used to categorise previous experiences and offer a framework for understanding brand-new ones, form the foundation of a child's knowledge. Piaget's theory of cognitive development is an important theory upon which this research enquiry is based, as "Cognitive Development in Three to Five Years Old Children" is the dependent variable of this research topic.

4.2 Bloom's Taxonomy Theory / Bloom's Theory of Formative and Summative Assessment

Bloom's Taxonomy theory focuses majorly on learning. Bloom's Taxonomy theory comprises of three domains: cognitive, affective and psychomotor. The focus of this research shall be on the cognitive domain, where Bloom outlined 6 categories of cognitive domain which should be considered for designing learning experiences. Evaluation is the last on the list. By implication, a lesson taught without evaluation (assessment) is not completed. By extension, Bloom's theory of formative and summative assessment (Learning for Mastery) shall also be used as one of the assumptions upon which this research is based. Guskey (2005) clearly highlights Bloom's theory of formative assessment. According to him, "learning for mastery" (later shortened to "mastery learning" in 1971) is the name Bloom gave to a specific instructional technique that makes

use of this feedback and remedial procedure. With this method, teachers first divide the ideas and abilities they want their pupils to master into units of study that normally last a week or two.

Teachers do a quick "formative" assessment after the unit's initial lesson based on the learning objectives. This formative assessment's goal is to provide students with information, or feedback, about their learning rather than serving as a marker for the conclusion of the course. It aids pupils in determining what they have learnt so far and what they still need to study. This theory is of great value to this research enquiry because Assessment is the independent variable in the research topic, and formative assessment is the most done assessment in preschool through several methods. Silver (2022) supports the formative assessment theory as propounded by Bloom. According to him, children who participate in formative assessments can actively control and modify their own learning as well as keep track of their individual learning objectives. Children are given the opportunity to participate in their own learning, and it gives teachers enough time to routinely provide feedback to students.

5. Methodology

This research enquiry shall adopt a case study research methodology. Case study methodology is found to be the most appropriate for this topic of enquiry, among others. A case study is a type of research method that is used to develop a comprehensive, multifaceted comprehension of a difficult topic in its actual context. According to McLeod (2019), a case study is an in-depth analysis of a specific person, group, event, or community. Observations, interviews, and, in rare instances, questionnaires are used to gather data, which is normally done using a number of sources and methods. The purpose of a case study is to provide a comprehensive, multidimensional understanding of a complex matter in its true context. A case study, according to McLeod (2019), is an in-depth analysis of a specific person, group, event, or community. Observations, interviews, and occasionally surveys are used to gather data, which are typically obtained from a variety of sources and by applying a variety of methodologies.

When considering the most appropriate methodology to adopt, case study and ethnography were the available options. After an overview of key methodological considerations in relation to the design, planning, analysis, interpretation and reporting, it was concluded that a case study would be more appropriate. My aim in choosing a case study methodology is that it will enable me to provide insights into the subject matter. Moreover, the case study was chosen because, unlike ethnography, it will enable me to get an in-depth understanding of the subject matter within a short period of time. Lauren (2017) and McLeod (2019) highlight some of the strengths of a case study. As a research methodology, a case study provides detailed qualitative information and provides insight for further research. Due to their in-depth, multi-faceted characteristic, case studies frequently provide insight into facets of human thought and behaviour that

would be immoral or difficult to examine in other ways. In addition, case studies provide for a thorough evaluation. In contrast to single-facet research approaches, which provide more of an outline, a case study allows a researcher to use a range of methods on a single issue. This gives the time and opportunity to acquire a strong awareness of the issue, laying the groundwork for a more extensive examination of the factors influencing the case study.

As beneficial as the case study is, as a research methodology, it has limitations. Robert (2009), Dudocaky (2010), Choy (2014) and McLeod (2019) have identified some limitations of case study research in their various articles. The case study may be influenced by the researcher's own subjective feelings in case study research. Though not as time-consuming as ethnography, case study research still takes some time. Additionally, because a case study only examines one individual, event, or group, we can never be certain that the case study under investigation is an exact representation of the larger body of comparable situations. That is, it's possible that the lessons learned from a certain event cannot be used in other circumstances. Due to the fact that case studies are dependent on the examination of qualitative data, a lot also depends on the interpretation the researcher gives to the data they have collected. Although these limitations do not mean that a case study is not an acceptable research methodology, they only point out its weak side.

Having chosen to use a case study research methodology for the research enquiry, the researcher shall use a Nursery in England as the case study for this research. By the standard and policy of Early Years Foundation Stage (EYFS) in England, as earlier explained above, assessment is systematically practised, and properly reported, specifically for ages two years to five years (DfE, 2021). One of the limitations of the case study identified is the possibility of the researcher being biased due to his/her previous opinion about the subject matter. In order to prevent that from happening, my positionality on the subject matter will not be made known to the research participants so that it will not impact the way they will respond to the interview questions. The result of this research will help to investigate the effect of those assessments on the cognitive development of children (three to five years old). It will help to answer one major question that is being asked by many scholars and teaching practitioners: "Is learning assessment necessary in preschools?" Proximity shall be put into consideration in the selection of the Nursery to be used as my case study.

5.1 Methods of Data Collection and Analysis

Data collection and analysis is as important as the research methodology. For the purpose of having efficient and effective research, the method of data collection must be relevant to the research paradigm chosen. This research enquiry has adopted a constructivist interpretivist paradigm, qualitative research, where the methodology is a case study.

5.2 Data Collection Method

Interviews and observation were used for data collection. Case study research gives room for the use of multiple methods to achieve a holistic understanding of the case under study.

5.2.1 Interview Method

George (2022) claims that an interview is a qualitative research technique that consists exclusively of asking a question in order to obtain information. In interviews, there are typically two or more participants, including the interviewer who is asking the questions. According to Atkins & Wallace (2016), an interview is a qualitative research technique that consists primarily of asking questions in order to obtain data. The interview was an open-ended structured interview to collect data about the subject matter from the teachers of three to five-year-old children in my chosen nursery. In order to have an uninterrupted interview session, an audio recording of the interview. However, the participants would have been properly informed before the commencement of the interview. Another advantage of the audio recording was that it would enable me to concentrate on the interview rather than writing the responses of the participants. With the audio recording, no point will be missed.

5.2.2 Observation Method

Barbara (2015) explains the rationale for using observation to collect data in case study research; it enables researchers to check for gestural expression of emotions, identify those who interact with one another, understand how participants communicate, and measure the amount of time spent on particular tasks by watching participants.

The observation study to be used for the research enquiry was participant observation, where the researcher was actively involved in the observation process. The observation was carried out within a classroom setting. The teachers' assessment practices, the children's responses to the assessment practices, as well as the children's cognitive functioning during the assessment are my major focus during the observation. Supporting documents, such as the children's assessment records, may be required.

5.3 Data Analysis

Braun & Clarke (2014) opine that when discovering patterns across the dataset, the thematic approach underlines the active participation of the researcher and demands the researcher to be intentional, analytical, and comprehensive. Peel (2020) also explains that the key to the process is researcher mindfulness, which starts with comprehending and upholding the theoretical assumptions that structure a study and influence the methods chosen for the collection and analysis of data. Creswell (2013), Denzin & Lincoln (2011) and Merriam (2009), in their various research, assert that researchers who carry out qualitative research enquiry develop the detailed descriptions that emerge from the data

extracts through thematic analysis and interpretation by using the participants' own words to support their conclusions.

According to Peel (2020), the thematic analysis procedure involves coding the data collected, the generation of themes from the data in relation to the research questions, and addressing the research questions through the interpretation of the themes.

6. Conclusion

In conclusion, the study highlights the complex interplay of philosophical, methodological and ethical research issues in exploring teachers' perceptions of assessment's impact on cognitive development in early childhood education in England. The findings revealed that teachers' perception is shaped by their philosophical beliefs, methodological approaches and ethical considerations.

6.1 Recommendations

Based on the conclusion, the following recommendations were made:

- 1) There is a need for critical examination of assumptions and approaches in research and practices.
- 2) Teacher training and support are crucial for ensuring assessment practices prioritize children.
- 3) Further research is necessary to develop assessment approaches that balance accountability with developmental sensitivity, equity and ethical consideration.

Conflict of Interest Statement

The author declares no conflicts of interest.

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