



INDIGENOUS GAMES AND THE ACQUISITION OF MULTIPLE INTELLEGENCES AMONGST AFRICAN CHILDREN

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ABSTRACT

Intelligence may be conceived in different ways in different cultures. Such differences are important, because cultures evaluate their members, as well as members of others cultures, in terms of their own conceptions of intelligence. Almost all of the judgments of intelligence that are made in the world are made on the basis of people's implicit theories, not on the basis of tests, whether or not they are based on psychological (explicit) theories. An evaluative criterion with which African parents determine intelligent behaviour is social responsibility. Therefore, the onus to understand the social cognition and intelligent behaviour of Africans lies in capturing shared routines and participatory learning, rather than in completing school-based instruments. This paper therefore examines the concept of multiple intelligences and how African indigenous games can facilitate the acquisition of intellectual skills in children. It is worthy to note that the Africentric conception of intelligent behaviour in children goes beyond academic success to embrace aspects of social, moral, environmental adaptation and development of intrapersonal skill. The current paper is underpinned by a study that was carried out amongst the Nso people of Cameroon. The purpose of the study was to investigate how Nso people perceive intelligent behaviours in children and the cultural strategy, namely, indigenous games for facilitating this behaviors' mixed research method was used for the study which called for both qualitative and quantitative methods of data collection, through the use of questionnaires, interviews and observations. The sample was composed of 33 children. The findings of the study revealed that through indigenous games children learned various aspects of academic, moral, social and interpersonal skills.

KEYWORDS

Multiple Intelligences, African Culture, Indigenous Games.



INTRODUCTION

The concept of Intelligence has witnessed a lot of psychological development. In the past, emphasis was laid on the psychometric approach to intelligence, dominated by the Intelligence Quotient (IQ) and General Intelligence Factor. Such intelligence quotient (IQ) tests include the Stanford-Binet, Raven's Progressive Matrices, the Wechsler Adult Intelligence Scale and the Kaufman Assessment Battery for Children. Spearman (1904) is generally credited with defining general intelligence. Development in psychometric intelligence has received a lot of criticisms in recent years and has given birth to theories of multiple intelligences championed by Howard Gardner and Robert Sternberg. Howard Gardner's (1983, 1999) theory of multiple intelligences led him to break intelligence down into at least eight different components: logical, linguistic, spatial, musical, kinesthetic, interpersonal, intrapersonal (Gardner, 1983) and naturalist intelligences (Gardner, 1999). He argues that psychometric tests address only linguistic, logical and some aspects of spatial intelligence. Sternberg (1985) proposed the triarchic theory of intelligence to provide a more comprehensive description of intellectual competence than traditional differential or cognitive theories of human ability. The triarchic theory describes three fundamental aspects of intelligence: analytic intelligence, creative intelligence and practical intelligence. The triarchic theory does not argue against the validity of a general intelligence factor; instead, the theory posits that general intelligence is part of analytic intelligence, and only by considering all three aspects of intelligence can the full range of intellectual functioning be fully understood.

How intelligent behavior is construed and how children acquire this knowledge varies across cultures. In some societies children learn in schools; in others, they learn from active involvement in the life of families and communities. Within African cultures the knowledge, skills, and values that constitute intelligent behavior, which children learn are massed together as integral to social interaction, cultural life, adapting to the local environment, economic activities, moral obligations and daily routines. With emphasis on theories of intelligence based on psychometric testing, that is, intelligence quotient (IQ) tests, most of what constitutes intelligence within African cultures have for the past years received little or no attention. Furthermore, as the African child grows, he or she begins to learn and practice these intellectual skills from active involvement in the life of families and communities. Paradoxically, most of these children find themselves in formal educational institutions, dominated by emphasis on the popular theory of intelligence which is based on psychometric testing, that is, intelligence quotient (IQ) tests. Hence, there is lack of continuity and thus most of what constitutes the perception of intelligent behavior within African cultures is gradually dying down due to continuous emphasis on academic intelligence. Moreover, most intelligence tests applied on African children often reflect Western ideas of intelligence; they fail to measure intelligence in non-Western cultures.

The Africentric notion and understanding of intelligent behaviour stresses social competence and responsibility rather than academic competence. For instance, Grigorenko (2001) have found that ideas about intelligence among the *Luo* people of Kenya consist of four broad concepts: *rieko*, which corresponds to the Western idea of academic intelligence, but also includes specific skills; *luoro*, which includes social qualities like respect, responsibility and consideration; *paro*, or practical thinking; and *winjo*, or comprehension. Only one of the four--*rieko*--is correlated with traditional Western measures of intelligence. Research on these differences provides support for some of the more diversified definitions of intelligence, such as those proposed by Sternberg (1985) in his Triarchic Theory of Intelligence and Gardner (1983, 1999) in his Theory of Multiple Intelligences. Peer culture in Africa plays a fundamental role in facilitating the acquisition of skills amongst children. It is not uncommon to find children, especially in rural settings engaging in a lot of collaborative play activities. Through participation in indigenous games, children develop a lot of academic, social, moral and interpersonal skills, necessary for survival in the society.

Conceptual considerations

Intelligence

Numerous definitions of and hypotheses about intelligence have been proposed even before the twentieth century, with no consensus yet reached by scholars. Within the discipline of psychology, various approaches to human intelligence have been adopted. In the past the psychometric approach has been especially familiar to the general public, dominated by the Intelligence Quotient (IQ) and General Intelligence Factor. The IQs of a large enough population are calculated so that they conform to a normal distribution. Despite the variety of concepts of intelligence, the approach to understanding intelligence with most supporters, and published research over the longest period of time is based on psychometric testing. Such intelligence quotient (IQ) tests include the Stanford-Binet, Raven's Progressive Matrices, the Wechsler Adult Intelligence Scale and the Kaufman Assessment Battery for Children.

Charles Spearman (1904) is generally credited with defining general intelligence. Based on the results of a series of studies collected in Hampshire, England, Spearman concluded that there was a common function (or group of functions) across intellectual activities including what he called intelligence (that is school rank, which Spearman thought of as "present efficiency" in school courses; the difference between school rank and age, which was conceptualized as "native capacity;" teacher ratings; and peer ratings provided by the two oldest students, which was termed "common sense") and sensory discriminations (that is, discrimination of pitch, brightness, and weight). This common function became known as "g" or general intelligence. To objectively determine and measure general intelligence, Spearman invented the first technique of factor analysis (the method of Tetrad Differences) as a mathematical proof of the Two-Factor Theory. The factor analytic results indicated that every variable measured a common function to varying degrees, which led Spearman to develop the somewhat misleadingly named Two-Factor Theory of Intelligence. The Two-Factor Theory of Intelligence holds that every test can be divided into a "g" factor and an "s" factor. The g-factor measures the "general" factor or common function among ability tests. The s-factor measures the "specific" factor unique to a particular ability test. Spearman's g-factor account for positive correlations among any cognitive ability tests.

Thurstone (1938) extended and generalized Spearman's method of factor analysis into what is called the Centroid method and which became the basis for modern factor analysis. Thurstone demonstrated that Spearman's one common factor method (Spearman's method yielded only a single factor) was a special case of his multiple factor analysis. Thurstone's research led him to propose a model of intelligence that included seven orthogonal (unrelated) factors (that is, verbal comprehension, word fluency, number facility, spatial visualization, associative memory, perceptual speed and reasoning) referred to as the Primary Mental Abilities.

In a critical review of the adult testing literature, Cattell (1943) found that a considerable percentage of intelligence tests that purported to measure adult intellectual functioning had all of the trappings of using college students in their development. To account for differences between children/adolescents and adults, which past theory did not address, Cattell proposed two types of cognitive abilities in a revision of Spearman's concept of general intelligence. Fluid intelligence (Gf) was hypothesized as the ability to discriminate and perceive relations (For instance, analogical and syllogistic reasoning), and crystallized intelligence (Gc) was hypothesized as the ability to discriminate relations that had been established originally through Gf, but no longer required the identification of the relation (commonly assessed using information or vocabulary tests). In addition, fluid intelligence was hypothesized to increase until adolescence and then to slowly decline, and crystallized intelligence increases gradually and stays relatively stable across most of adulthood until it declines in late adulthood.

Despite the developments of psychometric intelligence, it has received a lot of criticisms within recent years. Critics of the psychometrics point out that intelligence is often more complex and broader in conception than what is measured by IQ tests. Furthermore, skeptics argue that even though tests of mental abilities are correlated, people still have unique strengths and weaknesses in specific areas. Consequently they argue that psychometric theorists over-emphasized g, despite the fact that g was defined so as to encompass all inter-correlated capabilities and skills. A number of critics have challenged the relevance of psychometric intelligence in the context of everyday life. There have also been controversies over genetic factors in intelligence, particularly questions regarding the relationship between race and intelligence and sex and intelligence. Another controversy in the field is how to interpret the increases in test scores that have occurred over time. These criticisms gave birth to theories of multiple intelligences championed by Howard Gardner and Robert Sternberg.

Howard Gardner's (1983, 1999) theory of multiple intelligences, is based on studies not only of normal children and adults but also by studies of gifted individuals (including so-called "savants"), of persons who have suffered brain damage, and of individuals from diverse cultures. This led Gardner (1983) to break intelligence down into at least eight different components: logical, linguistic, spatial, musical, kinesthetic, interpersonal, intrapersonal and naturalist intelligences (Gardner, 1999). He argues that psychometric tests address only linguistic and logical plus some aspects of spatial intelligence. A major criticism of Gardner's theory is that it has never been tested, or subjected to peer review, by Gardner or anyone else, and indeed that it is unfalsifiable.

Sternberg (1985) proposed the triarchic theory of intelligence to provide a more comprehensive description of intellectual competence than traditional differential or cognitive theories of human ability. The triarchic theory describes three fundamental aspects of intelligence. Analytic intelligence comprises the mental processes through which intelligence is expressed. Creative intelligence is necessary when an individual is confronted with a challenge that is nearly, but not entirely, novel or when an individual is engaged in automatizing the performance of a task. Practical intelligence is bound in a sociocultural milieu and involves adaptation to, selection of, and shaping of the environment to maximize fit in the context. The triarchic theory does not argue against the validity of a general intelligence factor; instead, the theory posits that general intelligence is part of analytic intelligence, and only by considering all three aspects of intelligence can the full range of intellectual functioning be fully understood.

More recently, the triarchic theory has been updated and renamed the Theory of Successful Intelligence by Sternberg. Intelligence is defined as an individual's assessment of success in life by the individual's own (idiographic) standards and within the individual's sociocultural context. Success is achieved by using combinations of analytical, creative, and practical intelligence. The three aspects of intelligence are referred to as processing skills. The processing skills are applied to the pursuit of success through what were the three elements of practical intelligence: adapting to, shaping of, and selecting of one's environments. The mechanisms that employ the processing skills to achieve success include utilizing one's strengths and compensating or correcting for one's weaknesses.

The African Cultural Content of Intellectual Behaviour

There is growing interest on what each culture defines as intelligent behavior. In Africa, studies have exposed ideas about intelligence that differ fundamentally from those that have shaped Western intelligence tests, and find support of recent multidimensional theoretical perspectives of intelligence by Sternberg (1985) and Gardner (1983, 1999). Serpell (1994) have found that in rural Zambia people tend to mix up the Western distinction between intelligence and social competence. For instance, the concept of (*nzelu*) intelligence, includes the two, but favours more of responsibility (*tumikila*) than cleverness (*chenjela*). For instance, in Zambia, adults keep some mental tally of the proportion of errands that a given child performs adequately, and this serves as

an index of how '*tumikila*' the child is. In the short term, this attribute is used to choose which child to send on another such errand

A study was carried out by Sternberg, Grigorenko, Nokes, Geissler, Prince, Okatcha and Bundy, in 1996 in Usenge, Kenya, near the town of Kisumu. With a sample of 85 children, the researchers were interested in school-aged children's ability to adapt to their indigenous environment. A test of practical intelligence for adaptation to the environment was devised. The test of practical intelligence measured children's informal tacit knowledge for natural herbal medicines that the villagers believe can be used to fight various types of infections. More than 95% of the children suffer from parasitic illnesses. Children in the villages use their knowledge of these medicines at an average frequency of once a week in medicating themselves and others. Thus, tests of how to use these medicines constitute effective measures of one aspect of practical intelligence as defined by the villagers, as well as their life circumstances in their environmental contexts. Their well-being hinges upon their being able to self-medicate. The researchers measured the Kenyan children's ability to identify the natural herbal medicines, where they come from, what they are used for and how they are dosed.

To test this hypothesis, the researchers also administered to the 85 children the 'Raven coloured progressive matrices test' (Raven et al., 1992), which is a measure of fluid or abstract-reasoning based abilities, as well as the 'Mill Hill vocabulary scale' (Raven et al., 1992), which is a measure of crystallized or formal knowledge-based abilities. In addition, children were given a comparable test of vocabulary in their own Dholuo language. The Dholuo language is spoken in the home, English is spoken in the schools.

After correlating the scores, the researchers found out that all correlations between the test of indigenous tacit knowledge natural herbal medicines and scores on fluid-ability tests (i.e., tests of flexibility in thinking) and crystallized ability tests (i.e., tests of accumulated knowledge of words and related concepts) were negative. The correlations with the tests of crystallized abilities were significantly so. For example, the correlation of tacit knowledge with vocabulary (English and Dholuo combined) was $-.31$ ($p < .01$). In other words, the higher the children scored on the test of tacit knowledge, the lower they scored, on average, on the tests of crystallized abilities (vocabulary). These results suggest that those who tended to learn practical knowledge learned less academic knowledge, and vice versa.

These results could be qualitatively interpreted in various ways, but based on the ethnographic observations of the anthropologists on the team, namely, Geissler and Prince; the researchers concluded that a plausible scenario takes into account the expectations of families for their children. Many children drop out of school before graduation, for financial or other reasons. Moreover, many families in the village do not particularly value formal western schooling. There is no reason why they should, since the children of many families will, for the most part, spend their lives farming or engaged in other occupations that make little or no use of western schooling. Few, if any, will go to universities. These families emphasize teaching their children the indigenous informal knowledge that will lead to successful adaptation to the environments in which they will really live. Children who spend their time learning the indigenous practical knowledge of the community generally do not invest heavily in doing well in school, whereas children who do well in school generally do not invest as heavily in learning the indigenous knowledge: hence the negative correlations.

Illumined by Gardner's theory of multiple intelligences and Sternberg's triarchic theory of intelligence and based on studies carried out by Serpell (1994) in Zambia, Grigorenko (2001) and Sternberg (2001) in Kenya, we shall review four major components of intellectual behavior within cultures in Africa. These include; the child's acquisition of moral values, ability to perform daily routines, ability to sustain interpersonal relationships and ability to adapt to the local environment.

Moral values

Moral development can be defined as a change in people's sense of justice and of what is right and wrong, and in their behaviour related to moral issues. (Feldman, 2003). This involves how people reason, behave and feel when confronted with moral problems. It can therefore be inferred that moral development is not limited to one particular domain; rather it embodies tenets of the cognitive, behavioural and emotive theories of human development. (Santrock, 2004).

In African Society, like other societies in the world, ethical principles are of two types: positive and negative. The positive values include justice, gratitude, honesty, loyalty, truthfulness, tolerance, responsibility, hard work, cooperation, generosity, kindness, fidelity to one's duty (Ayantayo, 1999). The society expects its members to apply these values to all social relations. Conversely, negative values, which are just direct opposites of positive values, consist of actions and ways of behaviour which are considered wrong and which people should abstain from. They include idleness, laziness, injustice, selfishness, greed, avarice, intolerance, stealing, exploitation, oppression, hatred, falsehood, dishonesty, irresponsibility and many other social vices (Brandt, 1961).

According to Kohlberg (1984) moral development is embedded in moral thinking (reasoning) and unveils itself in stages. His studies are based on interviews made primarily with male children, adolescents and adults on their responses to what he terms moral dilemmas. Kohlberg insists that changes in cognitive development, give and take relationship with parents and peers are essential factors that promote and develop advanced moral thinking in children. Kohlberg further suggests that moral development takes place in three levels. These include the pre-conventional, conventional and post-conventional levels of moral development. Each of these levels is composed of two stages, making a total of six stages.

Kohlberg's theory is practically applicable within the African context because just as the child within Kohlberg's framework needs to think through moral dilemmas, the child within the African context needs to think and make moral judgments from cultural folktales and proverbs so as to understand and practice what is generally accepted by society to be morally right or wrong. Within cultures in the African context, society is free to pass judgment on behaviour of people in the society. This is done to protect and foster ethical values of the society. Ethical judgments of these values are concerned with actions or kinds of actions that seek to uphold or destroy the moral values. Ethical judgment is possible after a careful ethical analysis of an action. Ethical analysis according to Niebuhr (1963) embraces evaluating moral values, goals, purpose and moral claims and aspirations, underlying human thought or actions. (Niebuhr, 1963). Ethical analysis goes hand in hand with ethical dimension of an action in which a person seeks to know ethical content of or ethical values inherent in an action such as speech, communication, etc. The major concern of ethics is the examination of implications which an action has on individuals and the entire society; hence, such ethical questions: Who is performing an action, what action does he perform, why is he performing it and what are the implications of the action for him (the performer) and for others (that is, people whom the action is directed to)? In all, every society expects its members to conform to the approved standards of behaviours.

Within cultures in Africa, Ethics and Morality are highly valued as important aspects of intellectual behavior. The virtues of respect for community hierarchy, obedience to parents and elders, sharing with others, good dressing habits, morning salutations and care for ageing parents are greatly upheld within the African context. These moral values are culturally transmitted to children through oral language by the use of cultural folktales, proverbs, riddles and metaphors out of which the child is expected to draw out moral significances.

Daily routines

A child's participation in family life through the performance of daily routines is of capital importance to African parents and elders. In the light of Sternberg (1985) the child ability to perform daily routines can be considered practical intelligence, which involves the ability to grasp, understand and deal with everyday tasks. Yatta (2007) highlights two main categories of daily routines: household chores and farming duties. Household chores include the child's ability to perform activities such as cleaning duties, running of errands, fetching of objects like wood and water for the family and cooking. Children are socialized into these intelligent behaviors through observation and imitation of parents and older siblings.

Farming is another aspect of intellectual behavior. According to Yatta (2007) from an early age, children accompany adults to the farms where they participate by observing and emulating what adults did. From about age six, children can be seen with tiny blunt utensils digging the soil, planting seeds, chasing birds away from crops, and harvesting. Over the years, boys are expected to know how to clear while girls are socialized into hoeing and weeding. Through interaction with parents and elders children acquire necessary knowledge about the land, the soil, different seasonal crops, and trees that were imbued with spirits and therefore not cuttable. It is important that children, especially girls learn how to take care of their families and how to balance household chores with those of farming.

Interpersonal skills

This involves the child's ability to make and sustain healthy relationship with peers and other members of the community through the exhibition of pro-social intelligent behavior. Commenting on interpersonal relationships as an aspect of intellectual behavior Gardner (1983) considers interpersonal relationships as the ability to communicate and engage in effective social relationships with others.

Within the African context, Nyota and Mapara (2008) reveal that through games and play songs with peers, children socialize themselves into acceptable interpersonal relationships. These include the child's ability to; give and receive help from peers, keep friends and playmates, manage conflict, learn future gender roles, manage success and failure, live and work together with others, participate in community tasks, celebrate with others and feel for others in times of worry and distress.

Adaptation to the local environment

The ability of a child to adapt to his/her environment has been considered by Gardner (1999) in his theory of multiple intelligences. As one of the components of intelligence, Gardner considers naturalistic intelligence as ability to identify patterns in nature and to determine how individual objects or beings fit into them (Gardner, 1999). It is important that within the African context, the child is able to know how to make use of the natural environment around him or her. This is the contextual and practical aspect of intelligence and reflects how the child relates to the external world about him or her. Sternberg (1985) states that it is adaptation to, shaping of, and selection of real-world environments relevant to one's life.

Nature intelligence is highly valued amongst cultures of Africa. In this regard, a child growing up in typical African indigenous context is required to be able to; identify medicinal plants, do basic plant concoctions that cure basic illnesses, produce play objects and house furniture like chairs and brooms out of natural (bamboos) and waste material, identify cultural symbols and objects like trees, rivers, insects, plants, animals that are of spiritual value and even identify poisonous plants (Sternberg, 2001; Yatta, 2007; Nyota&Mapara, 2008)

Culture

Culture encompasses the values, traditions, art, language and beliefs that mediate a given social group's behavior (Parsons, 2003). Berry and Dasen (1994) described six uses of culture: descriptively to characterize a culture, historically to describe the traditions of a group, normatively to express rules and norms of a group, psychologically to emphasize how a group learns and solves problems, structurally to emphasize the organizational elements of a culture, and genetically to describe cultural origins.

Children grow and acquire culturally acceptable knowledge through the process of socialization. Each society and culture has different ways by which it socializes children into what is considered as intelligent and socially acceptable behaviors. According to Elam (1968) in the primitive non-literate African community, as the child grows, he becomes aware that he is part of a family group. As maturation occurs, he learns that he is one of a group of children within the family compound, and later he becomes aware that he is one of a group of children in the village. The child in a non-literate community learns primarily by direct observation of his parents, siblings, peers and elders, who are his teachers, and whom he will admire for the possession of skills which he is anxious to acquire. He learns this from his participation through and with various members of the household in the extended family. The purpose of non-literate education is to sharpen the intellect of the child and to develop the potential for future mental growth. Teaching is largely done by story-telling, particularly in the form of various myths, folktales and proverbs.

Within the African context, culture influences the child's intellectual behaviour through his experiences with his parents, his family and/or those adults closely associated with him. In addition, his siblings and his peers, as well as the physical and social world around him, contribute to this process (Elam, 1968). These social interactions are aspects of cultural influences on the intellectual behaviours of children within African cultures. This paper focuses on the role of indigenous games in facilitating the acquisition of intellectual skills amongst children in African cultures.

Vygotsky's socio-cultural theory and the role of peer culture in intellectual development

One of the first attempts to consider intellectual or cognitive development as a construct of socialization was made by the Russian psychologist Lev Semyonovich Vygotsky. According to Vygotsky (1978), individual intellectual development cannot be understood without reference to the social milieu in which the child is embedded. For Vygotsky, children's cognitive development must be understood not only as taking place with social support interaction with others, but also as involving the development of skill with socio-historical development tools that mediate intellectual activity. Hence, where Piaget looked at developing children and saw junior scientists, working by themselves to develop an independent understanding of the world, Vygotsky saw cognitive apprentices, learning from master teachers the skills that are important in the child's culture (Feldman, 2003).

Vygotsky argued that children's efforts to understand their world are embedded in a social context. They strive to understand their universe by asking questions. For instance, "How do machines work?" "Why is the sky blue?" "Why does the weather change?" In answering such questions, adults guide a child's growth in important ways. They not only provide instruction but also foster the child's motivation and interest. Adults present challenges for new learning. Thus, in many respects, the young child is an *apprentice in thinking*. Parents, child-care workers, and older siblings act as mentors stimulating intellectual growth. Children learn to think through *guided participation* in social experiences that explore their world. Vygotsky argued that what children can do with the help of others may be more indicative of their mental development than what they can do alone.

Vygotsky maintained that for each developing individual there is a *zone of proximal development*, a range of skills that the child can perform with assistance but not quite independently. How and when children master important skills is partly linked to the willingness of others to provide *scaffolding*, or sensitive structuring of children's learning encounters. The definition of zone of proximal development according to Vygotsky is, "*the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers*" (Vygotsky, 1978). In other words ZPD is the level at which a child can almost, but not fully, perform a task independently, but can do so with the assistance of someone more competent (Feldman, 2003). As understood by Vygotsky, a child usually follows or imitates an adult's example for acting and reacting, and gradually develops the ability to perform tasks without any assistance. Hence, zone of proximal development is the difference between what a child can do with help and cannot do without assistance or guidance.

The provision for assisted performance by parents, elders, older siblings, child care givers and more competent peers to a child, is known as scaffolding. It is the support for learning and problem solving that encourages independence and growth (Feldman 2003). Common elements of scaffolding include

- task definition
- direct or indirect instruction
- specification and sequencing of activities
- provision of materials, equipment and facilities
- other environmental contributions

Scaffolding may include assistance with planning, organising, doing and/or reflecting on the specific task. Such assistance is best made available in a timely manner matched to the learning needs and interests of the learner. Within the African context, scaffolding is seen as when parents give assistance to their children in cooking duties and farming. Furthermore, during games and play songs, more experienced peers and older siblings scaffold children to a mastery of games and draw out appropriate social meanings from them. Effective scaffolding makes two major contributions

- Scaffolding makes it easier for the learner to undertake a task successfully and thus expands the possible learning activities and experiences
- Scaffolding increases the rate at which learning may be achieved and extends what is possible for a learner to perform and thus expands the ZPD since the provision of powerful tools and well-formed instructions enable higher order problems to be solved more rapidly.

Indigenous games and intellectual development

The importance of play in the development of intellectual abilities has been emphasized in developmental psychology. Play is more than what children do to pass the time. Instead, play serves an important purpose, helping children to develop socially, cognitively and physically (Power, 2000). According to Piaget (1962) play is derived from the child's working out of two fundamental characteristics of his mode of experience and development. These are accommodation and assimilation- the attempts to integrate new experiences into the relatively limited number of motor and cognitive skills available at each age. In Accommodation, the child attempts to imitate and interact physically with the environment. In Assimilation, the child attempts to integrate externally derived precepts or motor actions in a limited amount of schemata. For Piaget children especially at the preoperational and concrete operational stages grow cognitively by observing sequences of play. Piaget considered that children primarily learn through imitation and play as they build up symbolic images through internalized activity.

The pioneering social constructivist developmental psychologist Lev Vygotsky (1978) thought that, in the preschool years, play is the leading source of development. Through play children learn and practice many basic social skills. They develop a sense of self; learn to interact with other children, how to make friends, how to lie and how to role-play. Bronfenbrenner's (1979) ecological model provides an important framework for considering play as part of a child's development in the midst of various social systems, with the family occupying a central role.

Between the ages of 4 and 11 the child engages in physical play like being able to walk and run, to jump, kick, catch, and skip. Large-muscle skills take over and lay the foundation for even more sophisticated activities, including bicycle riding, roller-skating, wrestling, swinging, swimming, and other sports. Physical play gives a child the chance to practice previously learned motor skills and to develop new ones as he repeatedly challenges himself and gradually pushes back the limits of the ability and endurance.

Play can be categorized into two. Functional play that involves simple, repetitive activities typical of early childhood and constructive play in which children manipulate objects to produce or build something typical of middle childhood (Feldman, 2003). Furthermore the social aspects of play reveal that children engage in parallel play in which children at early childhood play with similar toys, in a similar manner, but do not interact with each other. At this stage children also engage in onlooker play where they simply watch others play by looking silently or making comments of encouragement, but do not actually participate themselves. As children grow older into middle childhood, they engage into more sophisticated associative play where two or more children actually interact with one another by sharing or borrowing toys or material, although they do not do the same thing. Later on in life children engage in cooperative play in which children genuinely interact with one another, taking turns, playing games, or devising contests (Feldman 2003).

By participation in social games and play the child is able to develop intellectual behaviours that are both cognitive (numbering, imagination, problem solving, language, understanding, comprehension, attention etc.) and social (child's ability to; give and receive help from peers, keep friends and playmates, manage conflict, learn future gender roles, manage success and failure, live and work together with others, participate in community tasks, celebrate with others and feel for others in times of worry and distress).

In African cultures, as the child grows, his/her social world is not as limited as the child's from the western culture. His/her general learning is beyond the immediate family circle. At this age period too, particularly if weaning has been instituted, the environment of a child is much less mother-centered. He is brought into the group in the area of play. By the time he is fully weaned, somewhere between two and two and a half years, the African child spends a great deal more time with his or her siblings and/or other children in the total family compound. In this way he is exposed to areas of socialization and complex social interaction at an early age. During this age period, social gains begin to come into the foreground (Elam, 1968).

Nyota and Mapara (2008) highlight two important ways by which the African child interacts with peers and siblings. This is done through African traditional games and play songs. Berger (2000) has remarked: If a child's learning is not aroused by his or her parents, it may be aroused – and powerfully – when the child begins to compare his or her skills with those of other children of the same age. Berger (2000) emphasizes the fact that older African elder children who have mastered the skill or graduated from apprenticeship so to speak normally give the apprentice child guidance. The critical element of these games is guided participation. The older child who has mastered the skill and the learner child interact in order to accomplish a task. As they do so, the mentor is both sensitive and responsive to the needs of the learner. Through these traditional games and play songs, children learn how to handle interpersonal relationships and develop more social and cognitive competences.

In a qualitative study carried out by Nyota and Mapara (2008) amongst the Shona people of Zimbabwe, it was discovered that Shona traditional children's games and songs lead to and provide a rich environment or social context that sustains the flowering of children's curiosity and exploration of their immediate world as they play. The children explore the social context of games and play songs through guided apprenticeship that is greatly rewarding and motivational. The virtues and values learnt are varied and practical. Some of them are good behaviour, hard work, competition, handling success and failure and leadership. The researchers carried out the through the use of observation of Shona children as they played with their peers. The following findings were registered. It was observed that the young Shona child learns to play games through guided participation in a mentor-mentee relationship with more experienced peers. The steps observed during the teaching of a game may include the following:

- Arousing the learner's interest in a new task
- The mentor simplifies the task so that the child thinks of best strategies.
- The mentor scaffolds the particular tasks so that they are within the learner's ability, for instance by doing some steps jointly.
- The mentor interprets the activity so that cognitive understanding will facilitate mastery.
- Solving the problem – anticipating mistakes and guiding the learner to minimise or correct them.
- The mentor instills in the learner enthusiasm by encouraging the desire to achieve and by reducing boredom and self-doubt.

The researchers observed that many social skills can be learnt through Shona traditional children's games. For example, the children learn to share tools used for the games such as *nhodo* (a game similar to Jacks) and *ndondo* where necessary. They learn to manage conflict such as to respond to a playmate's accusation, for example, when a playmate says, "*Wabira*" (You have cheated), especially when the accuser has been beaten in a competitive game. They can also learn to keep friends and playmates. They can learn to manage and deal with those playmates who are not always understanding and self-sacrificing, for instance one who is always quick to denounce friendship, "*Hausishamwariyangufuti*" (You are after all not my friend). These skills have consequences that teach the children about social interaction from youth to their adult years.

Indigenous games and children's ability to develop intellectual skills: Analysis of some Nso cultural games.

Based on observations and interviews with Nso children in the Northwest Region of Cameroon, it was realised that children engage in indigenous games like *mbang*, *shique*, *quakilar*, *quang*, *kuse*, and *yaya woni*. Through these games they acquire skills like

- Counting
- Gross and fine motor skills
- Respect
- Conflict resolution through self-examination
- Sustenance of Friendship through honesty in play
- Honesty and acceptance of defeat
- Responsibility and compassion towards one another
- Performance of future roles like cooking and care for younger ones (see appendix 15 for future roles that children learn from games)
- Cooperation and interaction with friends

Some selected games and the development of interpersonal and cognitive skills

Game one: *Shigwe*

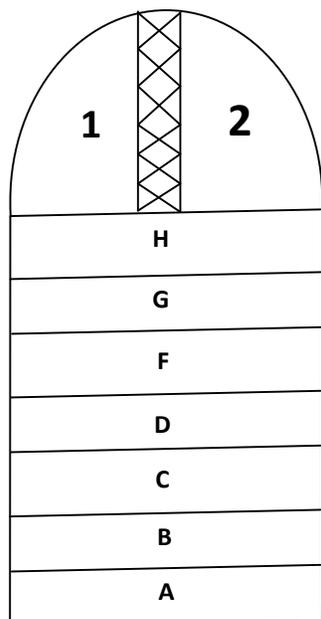


Figure 1: The *Shigwe* game

The above game is a common cooperative play that is engaged in by mostly by female children but equally some male children. It is played in turns. A player begins by throwing a play seed on house A. He or She then has to skip on one leg through all the other houses A – H, into houses 2 and 1 and then when he or she reaches house A, he/she plays the seat out. If the player succeeds to this without his/her foot touching the line and without the seed touching the line then he or she is promoted to house two. The essence of the game is to play the seed, skipping on one leg through all the houses. Neither the seed nor your leg has to touch the line. If any of these happens then you need to restart. At the end the first person to play through all the houses has the opportunity to own any of house A – H, where he or she can take a rest on two feet but no one else has a right to rest in the house. The more houses you keep the stronger you are amongst the other children.

Table 1: Content analysis of the *shigwe* game

Game	Interpersonal Skills	Cognitive Skills
<i>Shigue</i>	Ability to accept error, defeat and correction since at times the player may not know that he or she has touched the line.	The game helps in the mastery of motor skills and muscle coordination since the player skips on one leg.
	Honesty in human relationships	Develops skills of calculation and thinking since one needs to calculate the distance of throwing the seed on a particular house and make show that in playing the seed it does not touch the line.
	Perseverance in task and doing task correctly.	Children develop their counting skills. Since there are ten houses involved most pre-schoolers who play the game learn how to count at least from one to ten.
	Conflict resolution, since there are bound	

	to be arguments and counter arguments	
	Human relationship is bound by rules and regulations	
	Hard work is rewarding since one definitely owns a house if play is completed correctly.	
	Only one person plays at a time, thus all children are able to explore their capabilities. Hence no child is taken for granted. This shows that everyone is valued in the society and each and everyone has a role to play.	



Figure 2: Child tries to master body coordination and other skills from the playing of *Shigue*



Figure 3: Older child shows more mastery of body coordination and other skills from the playing of *shique*

Game two: *Mbang*

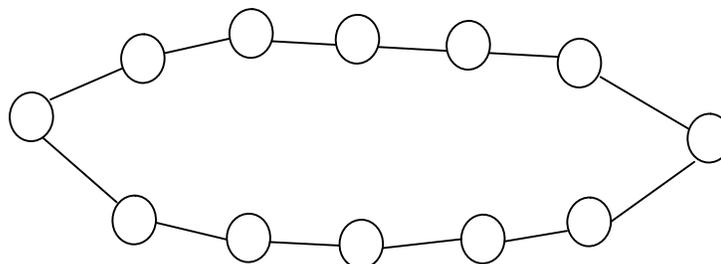


Figure 4.13: The *Mbang* game

The above game is a type of cooperative play in which children take turns to play. It is mostly played by male children but female children can equally play. The game is made on a piece of wood and the holes carefully calved into the wood. There are a total of 12 holes and each person possesses 6 of them. The game begins with each person having a total of eight seeds in a particular hole. A person is allowed to pick up seeds only from his/her own holes to fill in the other holes. If at the end the end of putting seeds round the holes, one ends with an even number (2, 4, 6, 8, 10 etc) in the hole, then one wins all the seeds in that particular hole and gains control of the hole. If it ends with an odd number (3, 5, 7, 9) then one does not win. Thus the more seeds you win the greater your chances of filling the empty holes at the start of a new round. And the less seeds you have the lesser your chances of filling the holes. At the end of the game anyone who is not able to fill in a single hole is defeated.

Table 2: Content analysis of the *mbang* game

Game	Interpersonal Skills	Cognitive Skills
<i>Mbang</i>	Conflict resolution: the game is played in a circular manner (anti-clock wise) and not dialectical. Thus conflict resolution is done by compromise due to the communalistic nature of the game which represents the communalistic culture of the Nso people.	High sense of calculation: when taking seeds from a particular house one must be able to know the number of seeds in that house and calculate where he/she will play the last seed so as to win. Thus the game develops the ability to calculate.
	Caution against strangers: in order to win the game, one must be very cautious and vigilant towards the play and actions of the opponent.	Counting skills: the game involves the counting of seeds and houses. By playing children develop their skills in numbers and mathematics. Children begin to know the difference between even and odd numbers.
	Protection: in order to win the game one must be able to protect the seeds found in one's own house and try to eat those of the stranger. Thus children grow up knowing that they have to protect what is theirs.	
	Honesty and sincerity are key to human relationships: the game is built on honesty and sincerity since one is bound to play the seeds according to the holes without cheating. Cheating disrupts the game and hence human relationships.	

Discussions

From the games played by children the findings revealed that children were able to learn both cognitive and interpersonal skills such as counting, calculation, thinking, conflict resolution through self-examination, sustenance of friendship through honesty in play, honesty and acceptance of defeat, responsibility and compassion towards one another, performance of future roles like cooking and care for younger ones, cooperation and interaction with friends. Commenting on interpersonal skills learned from games amongst the Shona children of Zimbabwe Nyota and Mapara (2008) observed that children learn to share tools used for the games such as *nhodo* (a game similar to Jacks) and *ndondo* where necessary. They learn to manage conflicts which arise from a playmate's accusation, for example, when a playmate says, "Wabira" (You have cheated), especially the when the accuser has been beaten in a competitive game. They can also learn to keep friends and playmates. They can learn to manage and deal with those playmates who are not always understanding and self-sacrificing, for instance one who is always quick to denounce friendship, "Hausishamwariyangufuti" (You are after all not my friend). These skills have consequences that teach the children about social interaction from youth to their adult years.

In order to buttress the learning of future roles from games Nsamenang (2005) states that much of children's play is imitating the social roles of adults, which is why most African children in the neighbourhood, are often seen playing mother and father during peer group activities. This anticipatory socialization has an important function of easing the transition from one stage in life to another.

Conclusion

Africentric perception of intelligence goes beyond the traditional psychometric conceptions of intelligence to embrace more recent theories of intelligence that deal with the development of practical skills. The development of these practical intelligent skills in children does not only depend on interaction with direct biological parents but equally on the whole social structure and entire community and environment in which the child finds himself or herself. The socialization of children into intelligent behaviours does not only happen through some formal education but equally informally through peer interaction guided participation, modeling, observation and imitation.

It is therefore recommended that children learn social and cognitive skills from indigenous games. School administrators and teachers should encourage children to participate and learn to play these indigenous games. Examples and illustrations used in and out of the classroom, as well as instructional materials like text books and charts, should reflect the cultural background of children.

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