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Emergence of African Traditional Medicine: Understanding the Learning Process and Pedagogic Implications for Adolescents of the North West Region of Cameroon

Tani Emmanuel Lukong [a*]

[a] *Department of Educational Psychology, Faculty of Education, University of Buea, Cameroon.*

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The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

This article examines the global debates about indigenous knowledge and Africa's traditional medicine from the pedagogy perspective. This study investigated the emergence of African traditional medicine with keen attention on understanding the learning/apprenticeship process and deducing pedagogic implications for adolescents' learners in the North west Region of Cameroon. Specifically, the paper examined the extent, traditional medicine influence the development of cognitive skills in adolescents. The development of cognitive skills in late adolescents is marked by social competence, decision making, and problem solving. A conceptual review of the major concepts was done. Theoretically, the article was anchored on the social learning theory of

**Corresponding author: E-mail: elukongt@gmail.com;*

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Bandura (1977). A convergent parallel mixed method research design was used. The sample of the study emerged through purposive and convenient sampling techniques. A pilot study was done with 10 participants. Interviews were conducted with 15 elders and a questionnaire for 150 adolescents drawn from 6 villages in Oku Subdivision, namely: Elak, Jikijem, Lui, Manchok, Keyon and Simonkoh. Quantitative data was entered using EpiData Version 3.1 (EpiData Association, Odense Denmark, 2008) and analysed using the Statistical Package for Social Sciences (SPSS) Standard version, Release 21.0 (IBM Inc. 2012). Interviews and focus group discussions were transcribed verbatim. Each interview or focus group was prepared as a single primary document and assigned for coding and analysis in Atlas.Ti 5.2 software (Atlas.ti Scientific Software Development GmbH, Berlin, Germany). Statistically the weight of traditional medicine = 80.3%; Traditional medicine (R=0.382; P=0.000);. These are marked by alertness, critical thinking, decision making, social competence, problem solving, imagination, mathematical abilities, etc. From the study it is recommended that indigenous practices be taught formally in schools and that indigenous medicines be studied more keenly and upgraded.

Keywords: Emergence; African traditional medicine; learning process; pedagogic implications.

1. INTRODUCTION

"Indigenous Knowledge Systems and Practices have developed over centuries of experimentation by African ancestors and are passed from generation to generation. These knowledge systems connect the past, the present and the future. With modernization and globalization, some of these systems and practices are fast disappearing. Many studies have been carried out on these systems and practices in the African context. Most of these studies concentrate on spirituality and ancestral relations with humanity" [1]. A lot of these studies tend to limit the African experience to the world of legends, mythology, and religion. In fact, some European thinkers like Wilhelm Hegel (1770-1831) had opined that the African is not a rational being but rather confined him to the province of myths, legends and emotions.

Succeeding [1], indigenous knowledge entails knowledge, rules, standards, skills and mental sets that are held by local people in certain areas. According to [2], 'indigenous knowledge refers to the understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings'. An example of indigenous knowledge is herbal medicine, practiced by local people. [2] say, herbal medicine that encompass using plant's seeds, berries, roots, leaves, bark or flowers for medicinal purposes has a long tradition of use outside of conventional medicine. Ensuing [3], "traditional medicine encompasses various health practices, approaches, knowledge and beliefs that involve plant, animal, 'mineral based medicines, spiritual therapies, manual techniques and exercises applied singularly or in combination to maintain well-being, as well as to treat, diagnose or prevent illnesses".

Certain types of Africa's traditional medicines used for the treatment of different forms of sickness encompass associated knowledge in the form of spiritual rituals that is considered mostly by religious leaders as 'devilish in nature' [4], following that spiritual rituals are considered as the embodiment of evil as they pact with evil spirits [5]. Some African traditional medicines are associated with supernatural powers [6], that coerce traditional healers to perform divination that carries them into the spiritual world to ascertain, for example, the cause and possible cure of an illness [5], as it is believed that every illness has a purpose or cause (Ross, 2010).

According to [6], "African traditional medicine aims to get rid of the symptoms of an illness, to identify and remove the causes of an illness, and maintain a holistic balance including spiritual in a patient". African traditional medicines encompass mental and spiritual guidance [4]. This is contrary to conventional medicine that only exonerates the symptoms of an illness in a patient. Following that spiritual elements embrace Africa's traditional medicine; it may be difficult to document this aspect of the medicine as traditional healers consider it top secret. [5] say, traditional healers employ powers from the spirit world to detect and treat various forms of sickness as 'illness may be caused by the breaking of sacred tribal taboos… or by witchcraft'. The non-documentation of the spiritual rituals that form part of the traditional medicine is tantamount to documenting certain elements and not the entire process of the medicine. This study investigated the emergence

of African traditional medicine: understanding the learning process and pedagogic implications amongst adolescents in Oku Subdivision, North Western Region of Cameroon. Specifically, the paper examined to what extent traditional medicine influence the development of cognitive skills in late adolescents. The development of cognitive skills in late adolescents is marked by social competence, decision making, and problem solving.

1.1 Understanding African Indigenous Medicine

[7] in a study titled "Healers and witches in Oku: an occult system of knowledge in Northwest Cameroon," investigated the presence and work of healers, practitioners of traditional medicine. The various forms of knowledge and the transmission of this knowledge from one generation or one person to another were analysed. In the qualitative study carried out by Bartelt [2016] mainly through interviews, focused group discussions, and observation among the Oku indigenes, the cognitive developmental aspects of the traditional medicines were understood better. In the study on traditional medicine, [7] came to the realization that every healer passes all of his knowledge and secrets on to one of his sons, lest this knowledge be lost forever. Included in this transfer of knowledge is the concept of 'calling the spirit' in which the healer's spiritual gifts are also transmitted. This could occur with or without the receiver's awareness in a method likened to sending and receiving visions.

[7] "realized that the resilience of tradition in the face of modernity is hardly exceptional. The paradox of globalization is that while the world market increases consumer conformity, idiosyncratic cultural traits are grafted upon the processes of commodification, resulting in new forms of 'traditional' traits that are reproduced on a wider scale". The traditional healers according to [8] "discover new knowledge in the process of learning the old ways, thus making traditional medicine dynamic rather than static. The extensive use of spiritual practice is also an important feature of traditional African medicine, underscoring the difficulty in defining such medicines according to western concepts". For the people of Oku, [9] opines, "medicine is more than the tools, techniques and substances concerned with the maintenance and restoration of human health. Rather, it should be viewed as an area of knowledge concerning relationships betwixt and among humans (both living and deceased) and everything on earth, including flora, fauna, and the cosmos, that impacts individuals and society at large, as well as the applied practice of that knowledge".

The cognitive powers of the adolescents therefore develop with the apprenticeship or tutelage he is submitted to. The ability to combine 100 herbs and various animal parts without a book or extra means of storing the various leaves or plants bespeaks the ability to memorize and reproduce the knowledge obtained from mere observation. The methods of preparation too are equally observed and memorized and reproduced.

In a study on Herbal Medicines in African Traditional Medicine (Ezekwesili-Ofili and Okaka 2019) through qualitative studies came to the understanding that African traditional medicine is a form of holistic health care system organized into three levels of specialty, namely: divination, spiritualism, and herbalism. The traditional healer provides health care services based on culture, religious background, knowledge, attitudes, and beliefs that are prevalent in his community. Illness is regarded as having both natural and supernatural causes and thus must be treated by both physical and spiritual means, using divination, incantations, animal sacrifice, exorcism, and herbs. Herbal medicine is the cornerstone of traditional medicine but may include minerals and animal parts. "Herbal medicine was once termed primitive by western medicine but through scientific investigations there is a better understanding of its therapeutic activities such that many pharmaceuticals have been modelled on phytochemicals derived from it. Major obstacles to the use of African medicinal plants are their poor-quality control and safety. Traditional medical practices are still shrouded with much secrecy, with few reports or documentations of adverse reactions. However, the future of African traditional medicine is bright if viewed in the context of service provision, increase of health care coverage, economic potential, and poverty reduction. Formal recognition and integration of traditional medicine into conventional medicine will hold much promise for the future" [9].

African traditional medicine, with herbal medicine as the most prevalent form, continues to be a relevant form of primary health care despite the existence of conventional Western medicine. Improved plant identification, methods of

preparation, and scientific investigations have increased the credibility and acceptability of herbal drugs. On the other hand, increased awareness and understanding have equally decreased the mysticism and "gimmicks" associated with the curative properties of herbs. As such, a host of herbal medicines have become generally regarded as safe and effective. This, however, has also created room for quackery, massive production, and sales of all sorts of substandard herbal medicines, as the business has been found to be lucrative.

More so, in another study by [10] on "Traditional Medicine and Healing among the Dagomba of Ghana, the value of indigenous medicine is highlighted. Above all, it indicates that Traditional Medicine and Healing (TMH) is a major contributor to the healthcare needs of citizens of many countries, especially in developing countries and among the rural poor. This study on traditional medicine and healing among the Dagomba of Ghana sought to answer the following questions: How is traditional medicine and healing practiced among the Dagomba of Ghana? What influences people to choose traditional medicine and healing? And how do different actors think traditional medicine and healing can be included in the formal Ghanaian health system? Through in-depth individual interviews, focus group discussions and the use of a qualitative questionnaire and personal observation, the study revealed that traditional healing among Dagomba is largely influenced by their culture and health philosophies".

They theorize that *doro* (illness) has both internal and external dimensions with multiple causal factors and that *alaafee* (good health) is having *suhudoo* (peace of mind) and a balanced relationship with: oneself, others, the environment and the spiritual world. People's choice for traditional healing is based on the nature of the illness, its perceived cause and other socio- cultural factors. "Secrecy" is used both as a psychological and political tool by healers to protect their intellectual property rights and to promote *suhudoo* among patients. Finally, the study found that to ensure the inclusion of traditional medicine and healers in the formal health system, there must be a very strong collaboration between practitioners of both health systems and a shared understanding of traditional healing practices among western medical practitioners and secondly, a framework for mutual referral of patients should be established as the most viable option for inclusion of TMH.

All of these studies touch on the value of traditional medicine but not on the aspect of cognitive development. The aspect of cognitive development based on the practice of traditional medicine has hardly been an area of interest. It is in this vein that the present study has its relevance, since the practice of traditional medicine does not only bring healing and wholeness but also enhances cognitive development for those who practice it.

1.2 African Indigenous Practices (AIP)

The African is a community-based individual especially with the socialism which is the main way of living in African. According to Tchombe and Tani [11], "the term indigenous describes specific groups of people who are grouped under the criteria of ancestral territory, collective cultural configurations, and historical location. Through socialization they gain knowledge peculiar to their culture or society". The knowledge gained from this kind of socialization is the basis for local-level decision making in agriculture, healthcare, food preparation, education, natural resource management, and a host of other activities in the rural community [12]. Worthy of note is the fact that in the process of generating indigenous knowledge, indigenous people take into account their cosmos, spirituality, ontological realities, land, socio-cultural environment and historical contexts. African indigenous practices therefore refer to the beliefs, customs, cultural activities, and things considered traditional to the people.

[13], "on indigenous people says 'indigenous communities, peoples, and nations are those that, have a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing in those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop, and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems.' Indigenous practices are therefore, those engaged in by the indigenous peoples who are the aborigines or first peoples of a particular region".

According to [14], "the practices are: holistic learning, co-participation in major activities, apprenticeship and peer mentoring, formal process of learning through rites of passage, puberty rites, spiritual learning (traditional priests diviners and healers)". These practices help the adolescents to grow and develop cognitively. Other practices by Africans would include the following according to [14] in their study of the indigenous knowledge systems in view of child socialisation: proverbs, indigenous games, African traditional medicine, folktales, peer mentoring, etc. It is worth noting therefore, that the African finds himself in a setting where he is capable of developing intellectually or cognitively without the aid of the western systems of education.

1.3 Importance of African Indigenous Practices on Adolescent Development

African indigenous practices forge an education of their own. The African indigenous knowledge systems therefore enhance cognitive development in adolescents within their cultural set up even in the absence of formal educational institutions. This kind of education has and continuous to address the physical, emotional and social aspects of child development with the community as a backdrop for the educational content. Through learning by doing, adolescent learns to take responsibility for himself and for others in his group. He learns virtues such as hard work, friendship and truthfulness through play, story-telling sessions and practical assignments. The practical assignments include tasks in the family that the child effectively accomplishes such as caring for a sibling, helping an older sibling or parent clean up or even prepare a meal. Assisting in the preparation of traditional medication for a sick person, drumming, carving.

In the traditional African society, the noteworthy aspect of the indigenous motivational and care-giving curriculum is that the learning objectives are achieved through sequential cultural skills that an adolescent is expected to acquire through active participation in goal-oriented activities. The educational tasks are set in a progressive manner from relatively simple to more challenging assignments. The adolescent achieves the objectives of the tasks through active participatory engagements in them. Such programmes motivate the child to engage in life-long learning and help him to adapt to changing times in the world. The programme also develops the child holistically and results in well-rounded members of the community able to actively participate in community processes over the years [15,16].

"There is generally lack of documentation on African Indigenous knowledge systems. This lack of documentation makes some of them to fade into oblivion. Given that indigenous knowledge is handed over or transmitted orally, much of it is lost in the process and much more adulterated with the encroachment of 'modernisation.' There is need therefore, to document these practices which form part and parcel of the African cultural heritage. For example, early childhood care - as commonly provided by parents, especially mothers, or other designated caregivers, such as house helps, grandmothers and older siblings" [17, 18] - is grounded in these important indigenous motivational practices and processes across the lifespan that remain largely undocumented for posterity. Some of these practices which we consider for our study are: traditional medicine, indigenous games and proverbs.

1.4 Traditional Medicine as an Indigenous Practice

The [5] "defines traditional medicine (TM) as 'the sum total of knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, that are used to maintain health, as well as to prevent, diagnose, improve or treat physical and mental illnesses.' Therefore, African traditional medicine (ATM) would be the TM indigenous to the different African cultures. Traditional medicine has been used by humankind for the treatment of various diseases since long before the advent of orthodox medicine, and to this day, serves the health care needs of the majority of the world population. According to the WHO, trends in the use of TM and complementary medicines have been increasing. Complementary medicine or alternative medicine (CAM) refers to a broad set of health care practices that are not part of a country's own tradition or conventional medicine and are not fully integrated into the dominant health care system of that country. The terms are used interchangeably with TM in some countries. Other terms sometimes used to describe these health care practices include 'natural medicine', 'non-conventional medicine' and 'holistic medicine'. Traditional medicines (TMs) include herbal medicines, which may be herbs, herbal

materials, herbal preparations and finished herbal products".

"The use of traditional, complementary and alternative medicine (TCAM) is widespread in many countries of the world, specifically amongst patients with chronic or long-term illnesses [5]. In Western societies, more and more people have been using TCAM to treat their ailments, as a complement or substitute to more bio-medical treatment regimens" [19]. This has been due in part to the philosophical orientation of TCAM practitioners who actively engage with patients in their treatment which results in a more holistic approach to health [20,21]. Conventional Western bio-medicine is increasingly regarded as expensive, inaccessible, depersonalized and not completely effective, especially for those patients with chronic diseases [22]. The World Health Organization (WHO) defines traditional medicine (TM) as "health practices, approaches, knowledge, and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singular or in combination, to treat, diagnose and prevent illnesses or maintain well-being" [22]. "Traditional healing practices have existed in Africa long before conventional medicine, and attempts by colonial governments and early religious missionaries to suppress it did not succeed. Traditional medicine (TM) is not only an untapped reservoir of knowledge, philosophy and history that offers the possibility of cures, but also provides a national heritage and a means of linking the land and its people" [23].

Apart from the socio-cultural features of TM, its accessibility, client /community orientation and low cost had made it popular amongst Africans [24,25,26]. In African traditional medicine, the curative, training, promoting and rehabilitative services are referred to as clinical practices. These traditional health care services are provided through tradition and culture prescribed under a particular philosophy. The philosophical clinical care embedded in these traditions, culture and taboos have contributed to making traditional medicine practices acceptable and hence highly demanded by the population [27]. All aspects of western perception of oral health like aesthetics, comfort and function are applicable in African traditional medicine. For example, amongst the Fulani tribe of West Africa, healthy, beautiful teeth were attributes of beauty and elegance, enhanced by tattoos and crafted crowns [28]. Their health problems were generally managed by healers or traditional practitioners who based their practices on empirical and 'handed down' knowledge; for example, Socio-anthropological meanings were given to children with neonatal teeth [28]. For these reasons, it has been proposed that the socio-cultural aspects of health care and the place of herbal medicine in dentistry which are highly linked to African traditional medicine are important in the formulation and implementation of oral health projects and programmes in most African countries [28].

Koloss (2000) indicates that "everyone in Oku has some knowledge of *kefuh kejonghe* (good medicine) and can readily identify certain leaves and grasses that cure common ailments. There is also the concept of *Kefuh Kebeh* (bad medicine) which concerns leaves and grasses believed to have some supernatural impact. The mental activity involved in the choice of grasses, the knowledge acquired, and the use of this knowledge enhances the cognitive development of adolescents. The cognitive aspects deal with the identification of the grasses and the combination of the various herbs". According to Bartelt (2006) medicine produced by the healers in Oku range from the very simple (one or two plants mixed with water or palm wine) to the complex (up to one hundred various grasses, leaves, herbs and animal parts can be combined). For *kefuh kejonghe*, combinations of 5 to 20 ingredients seem to be the rule, and are distinguished accordingly:

Soaked: fresh herbs are soaked in a calabash with either water or palm wine; the liquid is either consumed and /or the herbs can be used to wash a patient. Cooked: fresh herbs are boiled in water inside a clay pot; for drinking only.

Ash: ingredients are cooked in large cauldron until they become ash; is consumed along with palm or castor oil or inserted directly into the blood stream via small cuts on the body.
Paste: fresh herbs are ground into a paste and eaten.

Powder: ingredients are dried and ground into a fine powder; rarely consumed, it is often used topically or applied to objects.

Kefuh kebeh (bad medicine) is constructed according to [3] primarily in powder form, involving various herbs, insects, and animal parts, resulting in 'spiritual powder' considered both sacred and dangerous. This is used for

protection from witchcraft and hostile forces and can be activated to bring said forces to bear on an individual, a phenomenon known as 'Chiese'. The ability to do these is learned as pointed out by [3], 'the transference of such gifts is not only possible, but necessary for any assistant or apprentice under the tutelage of a gifted healer: "after all, you need to be empowered in order to empower the medicine. Who can empower you? Someone who has been empowered (by God) [29].

2. THEORETICAL FRAMEWORK

2.1 The Social Learning Theory by Albert Bandura [10]

In social learning theory, [30] agrees with the behaviourist learning theories of classical conditioning and operant conditioning. However, he adds two important ideas:

1. Mediating processes occur between stimuli and responses.
2. Behaviour is learned from the environment through the process of observational learning.

Through observational Learning Children observe the people around them behaving in various ways. This was illustrated during the famous Bobo doll experiment [30].

Individuals that are observed are called models. In society, children are surrounded by many influential models, such as parents within the family, characters on children's TV, friends within their peer group and teachers at school. These models provide examples of behaviour to observe and imitate. Children pay attention to some of these people (models) and encode their behaviour. At a later time, they may imitate the behaviour they have observed. They may do this regardless of whether the behaviour is 'gender appropriate' or not, but there are a number of processes that make it more likely that a child will reproduce the behaviour that its society deems appropriate for its gender.

First, the child is more likely to attend to and imitate those people it perceives as similar to itself. Consequently, it is more likely to imitate behaviour modelled by people of the same gender. Second, the people around the child will respond to the behaviour it imitates with either reinforcement or punishment. If a child imitates a model's behaviour and the consequences are rewarding, the child is likely to continue performing the behaviour. If a parent sees a little girl consoling her teddy bear and says "what a kind girl you are," this is rewarding for the child and makes it more likely that she will repeat the behaviour. Her behaviour has been reinforced.

Reinforcement can be external or internal and can be positive or negative. If a child wants approval from parents or peers, this approval is an external reinforcement, but feeling happy about being approved of is an internal reinforcement. A child will behave in a way which it believes will earn approval because it desires approval.

"Positive (or negative) reinforcement will have little impact if the reinforcement offered externally does not match with an individual's needs. Reinforcement can be positive or negative, but the important factor is that it will usually lead to a change in a person's behaviour. Third, the child will also take into account what happens to other people when deciding whether or not to copy someone's actions. A person learns by observing the consequences of another person's (models) behaviour. For instance, a younger sister observing an older sister being rewarded for a particular behaviour is more likely to repeat that behaviour herself. This is known as vicarious reinforcement" [10].

This relates to an attachment to specific models that possess qualities seen as rewarding. Children will have a number of models with whom they identify. These may be people in their immediate world, such as parents or older siblings, or could be fantasy characters or people in the media. The motivation to identify with a particular model is that they have a quality which the individual would like to possess.

Identification occurs with another person (the model) and involves taking on (or adopting) observed behaviours, values, beliefs and attitudes of the person with whom you are identifying. The term identification as used in the Social Learning Theory [31] is similar to the Freudian term related to the Oedipus complex. For example, they both involve internalizing or adopting another person's behaviour. However, during the Oedipus complex, the child can only identify with the same sex parent, whereas with Social Learning Theory the person (child or adult) can potentially identify with any other person. Identification is different to imitation as it may involve a number of behaviours being

adopted, whereas imitation usually involves copying a single behaviour.

An important aspect of the social learning theory is what is known as meditational processes. Mediational Processes of the social leaning theory is often described as the 'bridge' between traditional learning theory (behaviourism) and the cognitive approach. This is because it focuses on how mental (cognitive) factors are involved in learning.

Unlike Skinner, Bandura [31] believes that "humans are active information processors and think about the relationship between their behaviour and its consequences. Observational learning could not occur unless cognitive processes were at work. These mental factors mediate in the learning process to determine whether a new response is acquired".

Therefore, individuals do not automatically observe the behaviour of a model and imitate it. There is some thought prior to imitation, and this consideration is called mediational processes. This occurs between observing the behaviour (stimulus) and imitating it or not (response).

There are four mediational processes proposed by Bandura [31]:

1. **Attention**: The extent to which we are exposed/notice the behaviour. For a behaviour to be imitated, it has to grab our attention. We observe many behaviours on a daily basis, and many of these are not noteworthy. Attention is therefore extremely important in whether a behaviour influences others imitating it. This is important in the learning process of the identification, preparation and administration of traditional medicine. It is the same with traditional games, the learning of songs and stages or how the game is played requires attention. The process of learning proverbs requires attention.
2. **Retention:** How well the behaviour is remembered. The behaviour may be noticed but it is not always remembered which obviously prevents imitation. It is important therefore that a memory of the behaviour is formed to be performed later by the observer. Much of social learning is not immediate, so this process is especially vital in those cases. Even if the behaviour is reproduced shortly after seeing it, there needs to be a memory to refer to. Traditional medicine processes are retained just like the rules and the way games are played and also proverbs. Without retention it is not possible to reproduce these practices.
3. **Reproduction:** This is the ability to perform the behaviour that the model has just demonstrated. We see much behaviour on a daily basis that we would like to be able to imitate but that this not always possible. We are limited by our physical ability and for that reason, even if we wish to reproduce the behaviour, we cannot. This influences our decisions whether to try and imitate it or not. Imagine the scenario of a 90-94year-old-lady who struggles to walk watching Dancing on Ice. She may appreciate that the skill is a desirable one, but she will not attempt to imitate it because she physically cannot do it. Reproduction is common to all the main variables of our study. The adolescents who learn with regard to traditional medicine, games or proverbs have to reproduce these in different circumstances and environments.
4. **Motivation:** The will to perform the behaviour. The rewards and punishment that follow a behaviour will be considered by the observer. If the perceived rewards outweigh the perceived costs, then the behaviour will be more likely to be imitated by the observer. If the vicarious reinforcement is not seen to be important enough to the observer, then they will not imitate the behaviour [32]. With regard to the social learning theory, it is to be noted that through the various processes there is learning on-going. The child learns through observation and through the various processes of attention, retention and reproduction, there is growth in the learning endeavour.

This theory therefore, is able to depict the various meditational processes that take place among the Oku late adolescents who engage in learning through traditional medicines, proverbs and games. In medicines, the adolescents learn the types of herbs administered for various illnesses through observation of their parents or herbalists, they retain them and are able to reproduce them.

With regard to games, the various games are learned through observation, retention of roles,

reproduction then follows and the winning or cheering in the game serves as a kind of motivation. The process of acquisition of proverbs is through attention to discussions and discourses, then follows retention and reproduction at various moments.

All of these signals cognitive development in the late adolescents who are able through the various processes to acquire knowledge and reproduce it. The social learning theory was later renamed Social cognitive theory [10] as a better description of how we learn from our social experiences. The cognitive aspect seeks to explain how we develop a range of behaviours including thoughts and feelings.

3. METHODS

3.1 Area of Study

Oku is a subdivision in North West Region, (formerly North West Province), Cameroon. The term Oku also refers to the people who live in this region and the primary language that they speak (although English is also widely spoken). Oku is a rural area with 35 villages according to the Elak-Oku Council Development Plan, 2012).

Historically the People of Oku and their Nso brothers originated from somewhere around Egypt. Due to harsh climatic conditions, they left and settled in Belbele, where they lived a wandering life of hunting. Later on, the Oku people and their Nso brothers moved and settled at the savannah land of Tikari in an area called Rifem as one family where their population grew tremendously. The united family at Tikari later broke up as a result of a succession dispute. Nso, the elder brother left with some traditional belongings of his father to the other side of the river with his supporters where they found a new home.

Furthermore, Nso and his wandering party moved and finally settled at kovifem where he was officially crowned the fon of kovifem. At kovifem, Nso had four children with his wife Yeafon, the first Tatah who is the founder of Oku. The second son is the founder of Nso, the founded Takum in Nigeria and the last, a lady who was to put to birth the future fon of Mbiame. As the fon grew older in his fondom, conflict arose as who will be the next successor to the throne and so he presented two life plants, one to the hunter (Tatah) and the other to the younger brother (the musician) to plant. The one that had grown taller than the other should be crowned as the Fon. Since the elder brother was always doing hunting in the forest, his own life plant was tortured to death and during inspection after the death of their father, it was discovered that the elder brother ‘s life plant was dead, while that of the younger brother is thriving. Accordingly, the throne was passed to the younger brother. Later on, Tatah who had been duped of his birth right went and settled in the Ngongba forest, found between Oku and Nso today. Tatah′s mother Yeafon went in search for Tatah in the forest and finally died at a cave where she was buried by other hunters. When Tatah got the information, he rushed and saw the grave. He took from the grave a plant called Nkeng in Oku, a stone and some soil which he went and reburied in a more befitting ‘way. Tatah and his family mourned for four weeks, and it is still the tradition in Oku today that the fon′s mother′s death is usually celebrated for four weeks.

In his wandering profession of hunting, Tatah discovered to his greatest surprise that there are people living in scattered settlement of huts called the Ntul people who were on the present site of Lui village in Oku. Tatah was welcomed and properly taken care of as he was given kola-nuts, water and food. From then up till today it became a custom in the Oku village that the first thing a host offers his guest is kola -nuts. Tatah was later introduced to the fon of Ntul where he used to pay regular visits and usually went alongside with bush meat. The fon of Ntul was very impressed with him as a personality of great responsibility, and called all his subjects and introduced Tatah to them as a capable man who can lead the people in his absence. That is why up till today no body objects whatever the fon says in Oku. With Tatah‘s advice to the fon of Ntul, the palace was removed from Tangkoh to Ebkem. Finally when the fon of Ntul died, he was succeeded by Tatah whose nick name was fon Nyanya meaning to be on the move. That finally marked the end of the Ntul dynasty because Nyanya′s was succeeded by his son. The name Oku was given by a man from Nso because, Oku people were invited for a plastering project in Nso and when they were not fed after the work, they removed all the mud so the name was given Veku in Lam Nso meaning plaster removers‘. Later on English corrupted it to Oku.

According to the third-generation population and housing census (BUCREP), Elak municipality has a population of 144,800 inhabitants on a

surface area of 3750.50km2 distributed in 35 villages. Women constitute 51.6% while men constitute 48.4% of the population. The population of the council area is stratified into children, youths, adults and the old. The council area has a vibrant active population which consists of youths between the ages 15 to 35. The majority of the population within the council area comprises children within the ages of 0-5 and 6-16years. The rate of emigration is high amongst the youthful population between 18 to 35 years.

Oku is a very mountainous region, around 1,200 metres (3,900 ft) above sea level, and thus rather cool considering its latitude. Mount Oku, a stratovolcano, reaches a height of 3011 metres (9880 feet) and is the second highest mountain of Cameroon after Mount Fako. The broader Oku or Foumbot volcanic field also includes many scoria cones and maars, several of which are filled by crater lakes. Lake Oku, a magnificent crater lake of 10.000 m2 is also a worthy tourist attraction. The region is an important one for biodiversity, especially the Kelum mountain Forest.

Oku is surrounded by neighbouring subdivisions like Noni, Babessi and Kumbo central. Oku is characterized by subsistence farming. There is also a lot of bee farming in Oku and Oku is the only area in the whole of Cameroon that produces the natural white honey and has an Oku Honey Cooperative to manage and sell what bee farmers harvest. One of the first three products is Oku white honey from the Republic of Cameroon (Cameroon), which is produced in the nationally protected forest of Kilum Ijim near Mount Oku (French Agricultural Research Centre for International Development (CIRAD), 2013)

The religion of the region is predominantly a mixture of assorted local traditional beliefs (chiefly ancestor worship, also animism and paganism) with diluted forms of Christianity (mostly Baptist and Catholic, but also Lutheran and the Pentecostal). There are also shrines where sacrifices are offered. These are Lumetu, Yicham, Wuchia. The map below represents the Oku Sub Division.

3.2 Research Design

This study utilized a mixed method. For the qualitative aspect, the ethnographic research design was used and for the quantitative aspect, the correlational survey research design was used. The two were then triangulated with the aid of the convergent parallel mixed method design. This study used the Convergent Parallel Mixed method also termed concurrent triangulation design to gather data with the aim of finding out the influence of African indigenous practices on cognitive development.

The convergent mixed method approach is probably the most familiar of the basic and advanced mixed methods strategies. According to Cresswell (2014), Researchers new to mixed methods typically first think of this approach because they feel that mixed methods only consist of combining the quantitative and qualitative data. In this approach, a researcher collects both quantitative and qualitative data, analyses them separately, and then compares the results to see if the findings confirm or disconfirm each other. The key assumption of this approach is that both qualitative and quantitative data provide different types of information often detailed views of participants qualitatively and scores on instruments quantitatively and together they yield results that should be the same. It builds off the historic concept of the multi-method, multi-trait idea from (34), who felt that a psychological trait could best be understood by gathering different forms of data. Although the Campbell and Fiske conceptualization included only quantitative data, the mixed methods researchers extended the idea to include the collection of both quantitative and qualitative data.

Data collection. The qualitative data can assume any of the following forms: key information interviews, observations, documents and records. The qualitative data can be instrument data, observational checklists, or numeric records, such as census data. The key idea with this design is to collect both forms of data using the same or parallel variables, constructs, or concepts. The Quantitative data is then collected and the two kinds of data are compared or related. It is assumed that the results should be the same.

3.3 Sample size and Sampling Techniques

A minimum of 15% of the villages will be sampled for the study, which aligns with the standard for clustered sampling (Nana, 2018). But in this study 6 villages were sampled which is even above the 15%. From the 6 villages considered, a total of 165 participants were sampled. 150 for the questionnaire and 15 for the interviews.

According to Cherry (2016), a sample is a subset of a population that is used to represent the entire group as a whole. When doing research, it is often impractical to survey every member of a particular population because the sheer number of people is simply too large. That notwithstanding, in qualitative research, because of the time required to collect the process data, the sample size is generally nominal but the selection of the participants is always highly purposive and convenient so as to make sure that those interviewed can provide sufficient information about the subject matter and provide in-depth and sufficient information. The snow ball technique was equally employed to get those to interview especially with the herbalists. With regard to the questionnaire, the purposive and convenient sampling techniques were used for adolescents who are between 16-22 years old. The stratification of the sample consisted mainly in including both male and female members of the community. The participants from the sampled villages are presented in the tab le below.

Demographic Characteristics: This involves the Adolescents, Herbalists and elders:

Adolescents: The demographic situation of the adolescents in the study is expressed in the tables below:

Sex: The gender distribution of the participants was as follows.

Male and female adolescents were equally represented in the sample. This was good for the stratification and validity of the sample. Sex and age served as extraneous variables because the age and gender affect the indigenes 'affiliation to the practices.

Age: The average age of adolescents was 19 years, the median age was 18.00 years indicating that half of them were aged less than 18 years and the other half 18-23 years. All of them fall within the required age range with some deviation from the central value, and this diversity is good for the representativeness and quality of the data.

3.4 Research Instruments

The instruments used for data collection in this study were an interview guide for the qualitative process and a questionnaire for the quantitative process. The interview guide and the questionnaire were designed by the researcher, scrutinized and approved by the research supervisor. The main objective of the interview guide and the questionnaire was to find out the influence of African indigenous practices on the cognitive development of adolescents. The interview guide was divided into two sections of A, and B. Section A, handled the demographic information relating to the sex, age range and the village of the respondent. The rest of the sections handled questions relating to the research questions. Sections B was a section to be answered by herbalists only. It treated issues relating to the various herbs used in treating some common illnesses, the methods of transmitting knowledge to adolescents and an appreciation of the adolescents with regard to their relation with traditional medicine.

Table 1. Distribution of sampled participants

	Participants	Number chosen	Instrument used
1	Herbalists	5	Interview
2	Elders (Women)	5	Interview
3	Elders (Men)	5	Interview
4	Adolescents	150	Questionnaire

Table 2. Distribution of participants with respect to sex

Sex	Frequency	Per cent
Male	78	50.0
Female	78	50.0
Total	**156**	**100.0**

Table 3. Distribution of respondents with respect to age

N	Mean	Median	Minimum	Maximum
156	19	18.00	16	23

3.5 Findings

Adolescents generally agreed that traditional medicine impact on the development of their cognitive skills with weight of 80.3%. They mostly agreed to the fact that they know what medicinal plant to give someone who has fever 89.7% (140), followed by 84.6% (132) that could identify medicinal plants from other plants with ease, 81.4% (127) knew the various kinds of ways of preserving the various concoctions made, those that knew plants that can be used to chase away reptiles from the house were 79.5% (124). Equally, 78.8% (123) could independently harvest and process herbs for clients, the same proportion could discriminate among herbs and facilitate the healing process of clients or could use the knowledge gained from dealing with herbs in other areas. Then 75.0% (117) knew plants that can be used against witchcraft, the same proportion understand and master herbs of all kinds or I understand the quantity of herbs needed to treat particular illnesses.

3.6 Have Been Taught how to Use Traditional Medicine to Treat Illnesses

Most adolescents stated that they have been very often taught traditional medicine with proportion of 47.4% (74), 36.5% (57) were often taught, 11.5% (18) rarely while 4.5% (7) were never taught. Cumulatively, just 16% were never or rarely taught traditional medicine.

3.7 Research Hypothesis One: There is No Significant Relationship between Adolescents' Exposure to Traditional Medicine and the Development of Cognitive Skills

There was statistical enough evidence that youth exposure to the teaching and practice of traditional medicine significantly and positively impact the development of their cognitive skills. (R=0.382; P=0.000). The null hypothesis here stated is then rejected.

Table 4. Adolescents characterization of their knowledge of traditional medicine

Items	Stretched			Collapsed		
	Strongly Disagree	Disagree	Agree	Strongly Agree	Disagree	Agree
I can identify medicinal plants from other plants with ease	3.2% (5)	12.2% (19)	62.8% (98)	21.8% (34)	15.4% (24)	84.6% (132)
I know what medicinal plant to give someone who has fever	1.3% (2)	9.0% (14)	58.3% (91)	31.4% (49)	10.3% (16)	89.7% (140)
I know plants that can be used to chase away reptiles from the house.	12.2% (19)	8.3% (13)	53.2% (83)	26.3% (41)	20.5% (32)	79.5% (124)
I know plants that can be used against witchcraft	10.3% (16)	14.7% (23)	43.6% (68)	31.4% (49)	25.0% (39)	75.0% (117)
I understand and master herbs of all kinds	7.7% (12)	17.3% (27)	46.8% (73)	28.2% (44)	25.0% (39)	75.0% (117)
I understand the quantity of herbs needed to treat particular illnesses	3.8% (6)	14.7% (23)	46.2% (72)	35.3% (55)	25.0% (39)	75.0% (117)
I can independently harvest and process herbs for clients	8.3% (13)	12.8% (20)	46.8% (73)	32.1% (50)	21.2% (33)	78.8% (123)
I can discriminate among herbs and facilitate the healing process of clients	6.4% (10)	14.7% (23)	47.4% (74)	31.4% (49)	21.2% (33)	78.8% (123)
I can use the knowledge gained from dealing with herbs in other areas	4.5% (7)	16.7% (26)	41.7% (65)	37.2% (58)	21.2% (33)	78.8% (123)
I know the various kinds of ways of preserving the various concoctions made	2.6% (4)	16.0% (25)	45.5% (71)	35.9% (56)	18.6% (29)	81.4% (127)
MRS	6.0% (94)	13.7% (213)	49.2% (768)	31.1% (485)	19.7% (307)	80.3% (1253)

Table 5. Traditional medicine and illnesses treatment

Adolescents have been taught how to use traditional medicine to treat illnesses	Frequency	Per cent	Cumulative Per cent
Not at all	7	4.5	4.5
Rarely	18	11.5	16.0
Often	57	36.5	52.6
Very often	74	47.4	100.0
Total	156	100.0	

Table 6. Traditional medicine and the development of cognitive skills of adolescents

	Spearman's rho	Cognitive development from traditional medicine
Have been taught how to use traditional medicine to treat illnesses	Correlation Coefficient	.382**
	Sig. (2-tailed)	.000
	N	156

***. Correlation is significant at the 0.01 level (2-tailed).*

3.8 Herbalists Perspectives on Traditional Medicine and Development of Cognitive Skills

Adults could identify up to 12 different herbs including honey treating various health problems either alone or in combination with other ingredients. They could give both the English and the Oku name for some of them, but they were mostly vested with Oku names, which is the language through which they were taught traditional medicine.

They identified herbs like Aloe vera, commonly known as Langom in Oku. They said this grass could treat a diversity of illnesses, ranging from gastritis to digestive problems and is combined with other herbs to treat gynaecological disorders. Another plant used to treat stomachache was Yaro whereby the leaves are eaten directly. Nchannchan was another plant used to treat stomach ache. It was described that it is combined with other herbs and that it is considered harsh and with some mystical connotation. Nchanchan cures all sorts of stomach diseases.

Nchannchan was also presented as an anti-poison agent and causes victims of poison to vomit the poison. Dian was described as a very strong antibiotic but which should be handled cautiously when dealing with pregnant women. They said the herb is used in the treatment of chronic pile, gastritis, hernia. Primus Africana was called Eblaah in Oku and was characterized as an antibiotic. Fegiss was the Oku name of the plant used to treat headache. They described medicine for headache is prepared from Fegiss. The leaves are harvested, squeezed and sniffed. The client sneezes and gains relief.

The common Fever grass was also called fever grass by adults in this cultural context. They said it is used in the treatment of fever. Also a combination of guava leaves, pineapple, eucalyptus, blackjack and honey cures fever. Let us bear in mind that fever is a common name traditionally given to any health problem that causes increase in temperature and is generally referred to malaria which is one of the common health problems in their community. They also refer to typhoid as fever and the treatment though more complex often involves the ingredients of malaria treatment.

Knowledge in traditional medicine was mostly transferred through Practical experience/Apprenticeship among the Oku, as the child learns when working with the expert who trains, the youth gains knowledge and experience along the line as explained by these elders

> *"Practice by working with the young person to be trained", "Apprenticeship- a learner comes under a master for training, acquires skills and graduates as a herbalist".* This also involved a lot of field work "*Visit the forest with them when harvesting the herbs*".

It could also be through inheritance as the child inherits the knowledge from the father and some initiation rituals are done for the spiritual transfer of knowledge to be effective, or it could simply be an inborn talent or natural gift as the child incarnates the knowledge spiritually without being trained or without learning from anyone.

Table 7. Herbs, illnesses and treatment

Herbs		Illnesses treated
English name	**Oku name**	
Aloe vera	Langom	Gastritis Digestive problems Combines with other herbs to treat gynaecological disorders
	Dian	A very strong antibiotic and dangerous for pregnant women. Used in the treatment of chronic pile, gastritis, hernia.
Primus Africana	Eblaah	Used as an antibiotic
	Fegiss	Used in treating headache. The leaves are harvested, squeezed and sniffed. The client sneezes and gains relief
	Yaro	Treats stomach ache. The leaves are eaten directly
	Nchannchan	Used in treating stomach ache. Often used in combination of many herbs. It is considered harsh and with some mystical connotation. It cures all sorts of stomach diseases and causes victims of poison to vomit the poison.
Fever grass		Used in the treatment of fever. Also a combination of guava leaves, pineapple, eucalyptus, blackjack, honey, cures fever
Eucalyptus		
Guava leaves	Fetam	
Pineapple	Nanas	
Blackjack	Ebluu	
Honey		

Table 8. Transmission of traditional medicine to the younger generation

Code	Code Description	Grounding	Quotation
Practical experience/Apprenticeship	Working with a trained person or an expert the adolescent gains knowledge and experience.	7	"Practice by working with the young person to be trained" "Let them experience initiation through practice" "Apprenticeship- the learner spends time with a practitioner to learn the art." "Apprenticeship- a learner comes under a master for training, acquires skills and graduates as a herbalist."
Inheritance	The child inherits the knowledge from the father and some initiation rituals are done for the spiritual transfer of knowledge to be effective	2	"Father to son- inheritance. The son inherits from the father and may at times entail sacrifice for the deeply spiritual people." "The child inherits from the parents. The willing child is taught by the parents and then he/she takes over the trade"
Initiation rites	Initiation rites are performed to transfer the knowledge from a practitioner to the youth	2	"From a practitioner to another who wishes to practice. There are rites of initiation performed."

Code	Code Description	Grounding	Quotation
Field work	Take the youth along to the forest when harvesting herbs	1	"Visit the forest with them when harvesting the herbs"
Inborn talents	Inborn talents or natural gifts as the child incarnates the knowledge spiritually without being trained or without learning from anyone.	1	"Inborn talents"

Table 9. Training the younger generation to practice traditional medicine

Code	Code Description	Grounding	Quotation
Practical experience /Apprenticeship	Working with the expert the youth gain knowledge and experience.	12	"They should spend time with herbalists" "They will learn the harmful and useful or helpful herbs through association with the herbalists"
Herbs differentiation	Youth are taught how to differentiate between harmful and useful herbs	1	"They will learn the harmful and useful or helpful herbs through association with the herbalists"
Dosage	Youth are taught the quantity of herbs to be administered	1	"They will learn the quantity to be administered through participation in the process of administration of the medications"
Rituals	Youth are trained on rituals and incantations that go with treatment	1	"Learning of language and the special incantations where necessary"
Language	Youth are initiated into the professional language of traditional medicine	1	"Learning of language…"

The most common processes involved in training the younger generation to practice traditional medicine were practical experience/ apprenticeship "They should spend time with herbalists". The child learns harmful and useful herbs through the process "They will learn the harmful and useful or helpful herbs through association with the herbalists." Herb differentiation "They will learn the harmful and useful or helpful herbs through association with the herbalists", the dosage, that is the quantity of herbs to be administered "They will learn the quantity to be administered through participation in the process of administration of the medications", rituals and incantation going with treatment "Learning of language and the special incantations where necessary" and the Oku language.

The aspect of learning the Oku language is very important, because this traditional knowledge could only be transmitted through the village language which is the bearer of such high and secular scientific, cultural and spiritual knowledge.

Youth were perceived by elders as not knowledgeable in traditional medicine, just few of them as emphasized by this elder "Many young people nowadays are not very keen on traditional medicine".

However they said there was an increase interest of the youth in traditional medicine for various reasons such as scarcity of modern medicine, socio-political crisis that raise awareness on the risk of being too dependent on others, the protective power that it incarnates and which is one of the limitations of modern medicine "With the socio-political crisis, many more young people are into herbs for various reasons: scarcity of modern medications, seeking the protective power of traditional medicine."

They were roughly averagely satisfied with the performance of the youth "About 40% of adolescents can effectively prescribe herbs for some illnesses". They however highlighted some limitations such as modern medicine is perceived to have hindered youth interest in traditional medicine and the perception that the complexity of traditional medicine could be a barrier to youth interest in traditional medicine "The process of sourcing, harvesting, preparation and use of traditional herbs is long and can be boring for some of the young people".

Elders suggested that to engage more youths in the practice of traditional medicine, they should increase awareness on the importance of traditional medicine "let them realize the health benefits of natural medicines as opposed to modern medications". Formal teaching was also emphasized as a way to create opportunities for formal learning of traditional medicine as explained by this elder "expert teachers could be trained to teach the adolescents on the practice of traditional medicine".

Table 10. Evaluation of younger generation's ability to identify, understand and prescribe herbs

Code	Code description	Grounding	Quotation
Inadequate ability	A few Youths seen as not knowledgeable in traditional medicine	4	"Many young people nowadays are not very keen on traditional medicine"
Increase interest	The perception that there is increase interest of youth in traditional medicine because of scarcity of modern medications and the increase number of people seeking the protective power of traditional medicine	3	"With the socio-political crisis, many more young people are into herbs for various reasons: scarcity of modern medications, seeking the protective power of traditional medicine, etc."
Satisfactory ability	The perception that a good number of youth can prescribe herbs for some illnesses	2	""About 40% of adolescents can effectively prescribe herbs for some illnesses." "30% could easily be qualified as herbalists even if not professionally trained"
Influence of modern medicine	Modern medicine perceived to have hindered youth interest in traditional medicine	1	"Many young people nowadays are not very keen on traditional medicine because of the influence of modern medications that come already packaged"
Complexity of traditional medicine	The perception that the complexity of traditional medicine could be a barrier to youth interest in traditional medicine	1	"The process of sourcing, harvesting, preparation and use of traditional herbs is long and can be boring for some of the young people"

Table 11. Suggestions to engage more youths in the practice of traditional medicine

Code	Code description	Grounding	Quotation
Increase awareness	Increasing the awareness of youth on the importance of traditional medicine	4	"Teach them the importance of traditional medicine" "let them realize the health benefits of natural medicines as opposed to modern medications"
Formal teaching	To create opportunities for formal teaching and	3	"expert teachers could be trained to teach the adolescents on the

Code	Code description	Grounding	Quotation
	learning of traditional medicine		practice of traditional medicine"
Promoting indigenous language	The perception that youth should be trained in the Oku language as to be able to gain knowledge from the elders	3	"Learn the botany in Oku to understand the various plants present and what they could treat." "learn the language and use it to study the human body for better understanding."
Comparative benefit with modern medicine	To make youths understand the benefits of traditional medicine comparatively with modern medicine	1	"let them realize the health benefits of natural medicines as opposed to modern medications"
Writing of books	Writing books on traditional medicine to make knowledge available and accessible and for perpetuation	1	"write books in which pictures of various plants/herbs and their names are presented for easy identification."
Introduction to botany	The perception that getting youth involved in subjects like botany by teaching them scientific names of herbs will enhance interest in traditional medicine	1	"the scientific names of herbs need to be learned"

The need to promote indigenous language as it is suggested that youth should be trained in Oku language so as to be able to gain knowledge from the elders. In fact indigenous languages are the bearer of this traditional knowledge and the only channel through which knowledge can be transferred and the main solution for conservation. The conservation and dissemination of this traditional knowledge could also be done through books and introduction in school curriculum.

4. DISCUSSION

4.1 Research Question One: To What Extent Does Traditional Medicine Influence the Development of Cognitive Skills in Late Adolescents?

The first research question intended to find out the relationship between traditional medicine and the development of cognitive skills in late adolescents. The findings show that there is a great relationship between the practice of traditional or indigenous medicine and the development of cognitive skills in late adolescents. This takes place through the employment of their faculties and abilities in the various processes of harvesting, preparation, counselling, consultation and administration of various herbs or traditional medications to patients. In the whole process, there is development of cognitive skills because decision making, social competence and problem solving are all brought into use. There is decision making which is employed in the process of choosing the herbs, the kind method of preparation, dosage, etc. Social competence plays out in the relationship between the healer or herbalist and the patient and problem solving of course in the way the whole situation is handled by the herbalist. All of these portray a great connection between traditional medicine and the development of cognitive skills which are enhanced by the ability to discriminate between plants, exercise of the sense of caution, precision, and the use mathematical ability in estimation and calculation.

These findings are similar to those of Bartelt (2006) who opined that traditional medicine should be viewed as an area of knowledge concerning relationships betwixt and among humans and everything on earth, including flora, fauna, and the cosmos, that impacts individuals and society at large, as well as the applied practice of that knowledge. The study further confirms the findings of Ezekwesili and (Okaka, 2019) who found out that African traditional medicine is a form of holistic health care system organized into three levels of specialty: divination, spiritualism and herbalism. The services are thus provided based on culture,

religious background, knowledge, attitudes, and beliefs prevalent in the community. It is clear from the present study therefore, that there exists a strong connection between traditional medicine and the development of cognitive skills in late adolescents.

5. RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made:
Firstly, formal education should include indigenous practices like traditional medicine. These will help to promote and popularize these indigenous practices which are often considered primitive and thus relegated.

Secondly, there has to be promotion of culture and traditional practices especially by the ministry of arts and culture. The ministry in charge of arts and culture has to do more in terms of promoting indigenous arts and practices rather than importing foreign cultures which could help to inundate the dwindling indigenous practices in Cameroon.

Thirdly, to preserve and promote indigenous practices books have to be written to document present practices for future generations. Authors and publishing houses, researchers ought to write and publish works on indigenous practices, processes, meaning and relevance of these practices. Without a good understanding of these practices either by Cameroonians or foreigners, their value and relevance will continuously be relegated and replaced by other games considered modern [33-35].

6. CONCLUSION

Notwithstanding that Africa's traditional medicine can be standard, it is worth acknowledging that only certain types of the medicine can be documented in its entirety. It may be difficult if not impossible to document Africa's traditional medicine that is used to treat cases of witchcraft or tribal taboos. Traditional medicine used for the treatment of these types of cases encompasses spiritual rituals that are considered by traditional healers as secret. Traditional healers may not want to reveal the spiritual elements in the medicine as it serves as a means of livelihood. However, in order to possibly document all the elements in traditional medicine used to treat cases of witchcraft or tribal taboos for example, traditional healers have to be compensated financially through patents. Through patents traditional healers would be able to receive financial returns, possibly as they did when the secret knowledge of the medicine had not been released.

The purpose of this study was to find out the influence of indigenous practices (traditional medicine), on the development of cognitive skills in late adolescents marked by social competence, decision making and problem solving. It is palpable from the study that traditional or indigenous practices have a great impact on the development of cognitive skills. This is signalled by a mind that discriminates, a sense of caution, precision, development of mathematical abilities, problem solving, decision making, team spirit, multitasking, social competence, alertness, respect, critical thinking, imagination, language learning, speculation, morality, etc. these are all aspects of cognition.

These are quickly developed through the practice of traditional medicine, and other indigenous activities. The study was anchored on the social learning theory of Bandura,. The application of this theory shows the relationship between indigenous practices with the development of cognitive skills. The research design adopted was the convergent parallel mixed method design which incorporated the ethnographic research design for the qualitative study and the correlational survey design for the quantitative data. The findings showed that there is a significant relationship between indigenous practices such as traditional medicine and the development of cognitive skills in late adolescents.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

COMPETING INTERESTS

Author declared that no competing interests exist.

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