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Forest in the Context of Social Change: Traditional Orientation and Forest Mystification in a Nigerian Forest-Reserve Setting

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ABSTRACT

This article exposits the mystification of forests among people residing in proximity to a forest reserve in southwestern Nigeria. The theory of material engagement and the ecology of human development support the position that the forest is a classical motivator of traditional culture. Still, socio-cultural change is prevalent. As an element of this change, forest-based social cognition warrants systematic examination in the interest of environmental sustainability. This is because the concurrent conveyance of sustainability-promoting immaterial culture across generations is a component of the pathway to a sustainable future. Moreover, systems theory posits that social events affect each other. Since social change is not solitary but encompassing, forest mystification was examined along with other indicators of traditional orientation including attitudes towards religion, ageing and gender, as well as cultural enthusiasm. The results indicate that forest mystification is still huge and connected with orientations towards ageing and cultural enthusiasm. This exemplifies the Yorùbá social context's manifestation of continuity as opposed to change in forest culture; and stands in solidarity with traditional African mentality.

KEYWORDS

social change, forest mystification, Africa, Yorùbá, traditional orientation, age, culture, religion, gender

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Introduction

From time immemorial, human's natural environment is the base of his subsistence and cultural progress, showcasing the interconnectivity and interdependence of humans and their persisting and evolving ecosystem. This presumption underlies the focal argument of the Material Engagement Theory (MET), which places the material world at the heart of human cognitive development and change. MET is a platform expounding the active function of material culture or things in the composition of the human mind (Roberts, 2016). It is a denunciation of the Cartesian dichotomic separation of the mind, which is regarded as active; and the material world, which is construed to be passive (Graham, 2019; Roberts, 2016). It promotes the ideology that there is a dynamic relationship between the material world and the cognitive world, with the former promoting the development of the latter. Material culture is therefore a tool of analysis for cognitive science (Malafouris, 2004) and of course, human social thought. It is an active determinant of culture and who we are. Material things ecologize and educate the mind of the individual and the collective (Graham, 2019). Further, MET is synonymous with Bronfenbrenner's (1977, 1979) ecology of human development, which canvasses principles and analytical traditions that underscore the interconnectedness of human lives/outcomes in changing ecological contexts. Social cognition is said to be ecological-context-dependent, making social thoughts develop *pari-passu* with human ecology (Kilanowski, 2017; Lyons et al., 2019).

The theoretical supposition of MET and the ecological perspective explicates the logic of the Yorùbá socio-cultural reality. The forest is a classical locale of traditional culture among many peoples including the Yorùbá of southwestern Nigeria. The Yorùbá people are typically referred to as *omọ kááárọ̀-òòjíire*, *omọ Oòduà* (literally, the one who greets themselves in the morning by asking how the other is faring, descendants of *Odùduwà*). The people are one of the three dominant ethnic groups in Nigeria (the others being the Igbo of the southeast and the Hausa/Fulani people of northern Nigeria). Being one of Nigeria's six geopolitical divisions, the southwestern region and its Yorùbá people constitute about 18% (Okolie et al., 2018) of Nigeria's population, which is over 200 million (Population Division, 2019). The term Yorùbá evolved as a nomenclature to describe the people in the early 19th century (Ajala, 2009). The need for such a nomenclature was borne out of the "internationalisation of political and economic forces, which favours generalization" (Ibrahim, 2020, p. 750). Prior to the 19th century, Yorùbá people were autonomous groupings and they recognized themselves according to different Yorùbá dialects such as the Ijebu, Ife, and Ọyọ (Ibrahim, 2020, p. 750). Despite the dialectic divisions, the Yorùbá share tremendous cultural features including myths regarding the origin of human being and the recognition of *Odùduwà* the prime ancestral figure (Ibrahim & Jegede, 2017a). This underscores the homogeneity of the cohorts that make up the Yorùbá people.

The Yorùbá see human being as being on a journey between *ayé* (the world) and *orun* (heaven). The world is perceived as a market place whereas heaven is human being's real home. At the same time, *orun* is projected as a very mystical place comprising supernatural bodies. Yet, the world is also believed to be a

strong manifestation of the supernatural bodies that ideally belong to *orun*. Hence, the world is perceived as being manoeuvred by supernatural forces. The Yorùbá strongly believe that there is “an interface of the visible and invisible, the tangible and intangible, the known and unknown[...]; the act of looking and seeing in Yorùbá culture is much more than a perception of objects by use of the eyes” (Lawal, 2001, p. 521). The people believe that “the invisible world is symbolized or manifested by visible and concrete phenomena and objects of nature” (Jegede, 2002, p. 323). For instance, in an interpretative analysis of Yorùbá proverbs, Ibrahim (2016) reported that forests and trees are “humanized” by the people. Yorùbá proverbs convey the idea that trees are seen and referenced like human beings in the culture. Further, the forest and its physical dynamics reverberate through the socially constructed knowledge of the Yorùbá. In this culture, the forest is a mystified cultural creation. Adeduntan asserted as follows:

To the Yorùbá, the bush or forest is not just the habitat of flora and fauna, but also of spirits – *iwin*, *ẹbọra*, *ànjò.ò.nú*, *seřankosèniyàn*, *òrò*, and so on. In other words, the bush or forest is a realm of the infinite where the giant rat may tie up the hunter’s dog, the *irókò* (a tree, the *Chlorophora excelsa*) might tell the hunter in which direction to seek game, and porcupines could perform in a concert. (Adeduntan, 2019, p. 2)

As noted earlier, mystification is generously featured in Yorùbá culture, not just the forest-related. Perhaps, the greatest indication of the mythological concentration of Yorùbá thoughts about forests is encapsulated in the writings of Daniel O. Fágúnwà (for instance, 1949, 1954), whose fictional expositions capture a true picture of cultural dynamics among the Yorùbá. Nobel Laureate Wole Soyinka asserted that Fágúnwà’s novels are robust projections of Yorùbá culture, which is supernaturalistic and “densely mythological” (Soyinka, 2010, p. 3). Smith (2001) also concurred that the novels purvey Yorùbá culture. The literal title of some of these novels including “*Ògbójú Ọde nínú Igbó Irúnmọlè*” (Fágúnwà, 1950, translated as *The Forest of a Thousand Daemons* by Soyinka, 1982), is a remarkable projection of how Yorùbá culture and mentality is shrouded around their material physical environment which is dominated by rich forestall vegetation. Certainly, the MET and the ecological perspective find vindication in the Yorùbá socio-cultural parlance.

At the same time, the omnipresence of socio-cultural change in human communities globally is resounding. Analysing data from four waves of the World Values Survey conducted between 1984 and 2004 with participants from 72 countries, Li and Bond (2010) reported evidence indicating that people are globally becoming more modern or secular in their orientation which is independent of socio-economic development. Social change is prevalent everywhere including among the Yorùbá due to several factors, especially western contact (Lawal, 2001; Olurode & Olusanya, 1994). Notwithstanding, cultural survival is also prominently featured especially in African contexts. For instance, Opefeyitimi (2009) asserted that, despite modernity and change, Yorùbá people subscribe to paranormal explanations, which populate their worldview. Jegede (2002) similarly reported how supernatural entities are

important aspects of the perception of disease aetiology, making people engage in cultural practices such as charm-use and scarification to earn health. In the report of a qualitative study conducted among smallholder farmers to explore beliefs regarding climate change in northwestern Nigeria, Jellason et al. (2020) expounded how participants dominantly practised socio-cultural adaptation to climate change such as making sacrifices and praying to God. Indeed, traditional orientation is still reckoned with. This orientation is premised on being connected with pristine culture. However, this orientation is also a continuum that features modernistic orientation at one of its ends. Determining the connection between traditional orientation (using specific indicators) and the traditionality of orientation towards the forest is the prime goal of this study. This goal is consequential for sustainability especially from socio-ecological and MET's perspectives.

Forest-Based Social Cognition to Track Social Change in the Interest of Sustainability

Borrowing from the much-referenced Bruntland Commission's definition of sustainability, the current generation ought to consider the needs of future generations and decline from defiling future generation's capacity to fulfil such needs (World Commission, 1987). Invariably, sustainability is a proposal for continuity or change, whichever is in favour of responsible use of environmental resources. From the socio-ecological perspective and MET's conception of the mind and material synergy, people think amidst rather than a detached environment. Consequently, sustainability ought to necessarily encompass the conveyance of immaterial culture/mindset of sustainability in addition to material resources. Both variables are essential elements of sustainability, which direct any pathway to a sustainable future. Sustainability entails the ecology of the mindset of current and future generations. In other words, people's persisting and evolving mindset or community psychology, which developed in the context of certain material entities such as forests, deserve to be focused. Examining prevailing forest mystification in the interest of tracking change in social thought is therefore justifiable.

Moreover, it is established that social change is the outcome of changing human cognition, which is generated in an ecological context (Alwin & McCammon, 2003; Bandura, 2001, 2004). While mystification manifests itself in individual behaviour, it originates from a forest-ecological context. Examining forest mystification is therefore tantamount to examining the relationship between the individual and society, which is a classical question of all time. This examination is a potential indicator of the social change being created in the Yorùbá social context. Further, social change entails a shift in the pattern of people's behaviour, a difference in their ways of participating in the world. This behavioural component of social change is preceded by the cognitive and emotional components of change (Graham, 2019). Still, cognitive, emotive and behavioural components exist interconnectedly. Social change is manifested in social practices and multiplied through mindsets. Social cognitions regarding forest, the emotions that forests emit and people's forest-

related behaviour are therefore intertwined. Forest mystification is the quintessence of cognitive-emotive components, which precedes forest-related behaviour whose examination is therefore warranted.

The criticisms against evolutionary theories have shown that social change is not unilinear (de Vries, 2017; Gedeon, 2018). Instead, social change encompasses several aspects of society. The focal contribution of systems theory, which undertones material engagement theory and the ecological perspective is simply that one thing affects the other (Mandavilli, 2018; Strain, 2007). Human social life occurs by the ongoing interaction among forces including physical and cognitive, as well as cognitive versus cognitive phenomena. It is virtually impossible to fully appreciate changing or continuing forest mystification for instance, without taking into account other elements of traditional orientation in the Yorùbá social context. Social phenomena are complex because of their interconnectedness. This complexity must be acknowledged by considering forest mystification in the context of other traditional social thought. Developing a model of traditional orientation to examine its influence on forest culture or mystification is therefore apposite. Hence, the articulation of social change on the premise of forest culture is appealing especially in a forest-shrouded Yorùbá social context. A speculative model of traditional orientation featuring attitude to—religion, ageing, gender; and cultural enthusiasm—to establish influencers of forest culture or mystification was therefore developed. The correlations between each element of this model and forest mystification were examined.

Attitude towards Religion, Ageing, Gender and Cultural Enthusiasm as Traditional Orientation

Religion is a ubiquitous social phenomenon that permeates virtually all facets of human society (Ives & Kidwell, 2019), and reflects people's identity construction and decision-making (Kose & Cinar, 2020). About 84% of mankind is associated with a religion (The Changing Global Religious Landscape, 2020). Meanwhile, there is a great diversity of beliefs and practices across and within world religions. In pre-colonial Africa, people were engrossed with the traditional religion, which has deep connections with the culture and practices of the people. Contemporary religions especially the Abrahamic ones are precariously practised by the people. Attitude towards religion is a focal indicator of traditional orientation because religious orientation and supernaturality becomes attenuated with increasing modernity (Durkheim, 1912/1976; Hardy et al., 2020; Weber, 1946). Secularization, science and increasing rationality is associated with modernity (Berger, 1999; Edgell, 2006; Norris & Inglehart 2004; Wuthrow, 2007).

In addition, increasing change in human societies characterized by urbanization and westernization is concomitantly associated with increasing negative attitudes towards ageing. Youthfulness is prized in modern contemporary society while ageing is linked with poor health, reliance on others and lonesomeness (Black, 2009; Kalfoss, 2017). Fealy et al. (2012) reported that older people are collectively

stigmatized with several negative identities like fragility, infirmity, vulnerability, etc. Yet, in more traditional societies such as in precolonial Yorùbá society, age is revered. The anthropological study reported by Schwab (1955) indicated that everyday life in Yorùbá society features the principle of seniority tremendously. Gerontocracy is generously featured in the socio-political life of the Yorùbá (Fadipe, 1970). Hence, the traditional attitude towards ageing is, by all means, an indicator of traditionality.

The attitude towards gender is crucial signification of traditional orientation or otherwise. Perhaps the most typical phenomenon characteristic of all human societies in their historical past is the subservient position of women as opposed to men (Ibrahim, 2019). Yet, the egalitarian positioning of women bears positive consequences for national economies (World Bank, 2012). Social values hardly advocate women empowerment, especially in more traditional settings. Egalitarian gender roles underlie societal advancement and such equity becomes vivid with increasing development. No wonder gender inequities are more characteristic of less developing countries (Duflo, 2012) like Nigeria. Such countries tend to demonstrate unequal attitude towards gender, thus marking the commitment towards traditional orientation.

Cultural enthusiasm is people’s keenness and excitement regarding their traditional, pristine culture. It is very conceptually close to cultural conservatism, which is about protecting ancient culture (Crowson, 2009). Studies have shown that cultural conservatism/enthusiasm is positively related to self-esteem (Crowson, 2009; van Hiel & Brebels, 2011). Cultural enthusiasm represents traditionalism (van Hiel & Kossowska, 2007) and is, therefore, a prime indicator of traditional orientation.

These variables—attitudes towards religion, ageing, gender and cultural enthusiasm—collectively constitute the model of indicators of traditional orientation in this study (see Figure 1). Each of these variables is expected to influence forest mystification in the target population. Invariably, the major objective of this study is to examine the influence of each variable on forest mystification. Forest mystification was highlighted as a variable, while the effects of respondents’ sex, education, age, religion and ethnicity on this mystification were also determined.

Figure 1
Traditional Orientation and Its Indicators



Materials and Methods

The Study Sites

The study sites include eight communities within a 1–5 km radius (see Table 1) of the Onigambari forest reserve. The reserve is located in Oluyole local government area (LGA) of Oyo state, southwestern Nigeria. Nigeria's southwestern region is the homeland of the Yorùbá people. Oyo state is one of the six states constituting the southwestern region while Oluyole LGA is one of the 33 LGAs in the state. The Onigambari forest reserve is located on latitude 7°8'N and 7°3'N longitude 3°49'E and 3°22'E. It was declared a reserve in 1899 by Ibadan city council—the British-colonially created unit that included indigenous chiefs in the administration of Ibadan. The reserve occupies a land area of 13932.18 hectares.

Table 1
Projected and Sampled Population of Study Sites

Study sites	1991 population	Projected population (2000) @ 2.5% growth rate	Projected population (2010) @ 2.6% growth rate	Projected population (2020) @ 2.6% growth rate	Proportionally sampled population
Olubi	297	372	482	625	22
Onigambari	600	751	974	1,263	44
Oloowa	95	119	154	200	07
Busogboro	532	666	864	1,121	39
Onipe	410	513	665	862	30
Dalli	351	439	569	738	25
Olonde	215	269	349	453	16
Seriki	102	128	166	215	07
Total	2,602	3,257	4,223	5,477	190

Study Design/Sampling Procedure

This study is a snap-shot, non-experimental cross-sectional survey targeting members of communities around the Onigambari forest reserve, Nigeria. Eight communities adjoining the reserve were identified. The population of each community as at the year 2000, 2010 and 2020 were projected. These projections were based on the population of the communities as declared at the end of the 1991 national census (National Population Commission, 1998), using the formula:

$$P = P_0 \times e^{rt}$$

Where: P = final population, P_0 = initial population, r = growth rate (at varying growth rates, see Table 1), t = time interval (varying time interval, see Table 1). The projected population of the communities is 5477 and was taken as total population (N) for the study. The following modified version of the Cochran formula was then used to calculate sample size:

$$n = \frac{Npqz^2}{l^2(N-1) + pqz^2}$$

Where n is the sample size, N , the population size = 5477, p , the (estimated) proportion of the population that has the attribute in question at assumption of $50\% = 0.5$; q is $1-p$; z is the z-value obtained from z-table for 95% confidence which is 1.96; and l is the desired level of precision (i.e., the margin of error) which is set to 7% or 0.07. The required sample size was $189.3 \approx 190$. The selection of respondents from the eight sampling units was based on proportional representation: the projected population of each community was divided by the total population of the eight communities (5477) and multiplied by 190. The number of samples drawn from each community is shown in Table 1.

Instrument of Data Collection

A structured questionnaire was used to collect data. The questionnaire was translated into the Yorùbá language to ease its administration among respondents who do not speak the English language. The questionnaire was administered through structured interviews. The aim of the study was explained to every potential respondent while their anonymity was assured. They were enjoined to offer their consent to participate in the study. Respondents indicated their informed consent by appending their signature in an informed consent form.

Definition/M Measurement of Variables

- *Attitude to religion* was defined in this context as the degree to which respondents are confident in their religion. It was measured with the four-item turning to religion sub-scale of the multidimensional coping inventory, assessing how people deal with stress (Carver et al., 1989). Samples of items include: “I put my trust in God”, “I try to find comfort in my religion”. Responses were “totally true (2)”, “fairly true (1)” and “not true at all (0)”. Cronbach’s alpha was 0.745.
- *Attitude to ageing* was defined as the respondent’s evaluation of the extent to which pleasurable things and respect are attracted to older age. This was assessed using four of the eight-item psychological growth sub-scale of the attitude to ageing scale (Laidlaw et al., 2007)¹. Responses were “totally true (2)”, “fairly true (1)” and “not true at all (0)”. Cronbach’s alpha was 0.734. Examples of items are: “there are many pleasant things about growing older”, “I am more accepting of myself as I have grown older”.
- *Attitude to gender* was operationally defined as the degree of respondent’s acceptance of egalitarianism in the assignment of social roles between men and women. It was measured with the eight-item gender-linked sub-scale of the social role questionnaire (Baber & Tucker, 2006). Responses included “strongly agree (4)”, “agree (3)”, “disagree (2)” and “strongly disagree (1)”. Cronbach’s alpha was 0.676. Examples of items are: “for many important jobs, it is better to choose men instead of women”, “mothers should work only if necessary”.

¹ The four selected items are reflective of peoples’ attitude to ageing irrespective of their age, unlike other items.

- *Cultural enthusiasm* was defined as respondent's zeal regarding their culture and was assessed with the four-item tradition sub-scale of the personal cultural orientations (Sharma, 2010). Responses were also "totally true (2)", "fairly true (1)" and "not true at all (0)". Cronbach's alpha was 0.736. Samples of items include: "I am proud of my culture", "traditional values are important for me".
- *Forest mystification* was defined as the respondent's evaluation of the forest as a supernatural and paranormal spatial entity. It was assessed with a seven-item author-constructed scale whose response categories were "strongly agree (4)", "agree (3)", "disagree (2)" and "strongly disagree (1)". The scale was reliable (Cronbach's alpha was 0.885). There was a significant and positive correlation ($r = 0.193, p < 0.05$) between summary scores of the transcendence conviction sub-scale of the aspects of spirituality questionnaire (Büssing et al., 2014) and the author-constructed scale of forest mystification. This is taken as an indication of the convergent validity of the author-constructed scale (see Table 3 for items of this scale).

All items were scored such that the higher the score, the more traditional the attitude to religion, ageing and gender; the more traditional the cultural enthusiasm, the stronger the forest mystification. Respondent's scores were simply aggregated.

Study Hypotheses

The general null hypotheses tested are as follows:

- H_1 : There will be no significant difference in the mean score of forest mystification across sub-groups of age, religion, ethnicity, sex and education.
- H_2 : There will be no significant relationship between pairs of attitude to religion, attitude to ageing, attitude to gender, cultural enthusiasm and forest mystification.

Statistical Analyses

Descriptive analyses of distributions of socio-demographic characteristics were conducted using frequencies and percentages. Means and standard deviations were used for the descriptive analysis of items in the author-constructed scale of forest mystification. The one-sample Kolmogorov-Smirnov test was used to assess the normalcy of distribution of all interval-measured variables. Homogeneity of variance across sub-groups of sex, education, age, religion and ethnicity was tested using Levene's test. When homogeneity was confirmed across sub-groups of age, religion and ethnicity, equality of mean scores of forest mystification were tested using one-way ANOVA. When homogeneity was not confirmed across sub-groups of sex and education, the Mann-Whitney U test and the Kruskal-Wallis test with the pairwise multiple-comparison post-hoc test were used to assess the effects of sex and education on forest mystification. Epsilon and epsilon² were measures of effect sizes. Pearson correlation coefficient (r) was used to examine the nature of the relationships between pairs of attitude to religion, attitude to ageing, attitude to gender, cultural enthusiasm and forest mystification. Data were analyzed using the IBM SPSS (Statistical Package for Social Sciences) version 23.0.

Results

Distribution of Respondents’ Socio-Demographic Characteristics

Most respondents were male (64.7%) while females constituted 35.3%. The mean±SD age of respondents was 37.13±11.21 (minimum = 19, maximum = 64). The distribution of respondents’ age category resembles an inverted U, which reached a peak at the 36–45 age sub-group. Most respondents (53.2%) had secondary education, while a noticeable proportion (14.5%) had no formal education. Another noticeable proportion (10.8%) had post-secondary education while 3 respondents were holders of the first degree. More than half of respondents (52.6%) were Christians while Muslims were also vast (42.6%). Nine respondents (4.7%) identified themselves as practitioners of traditional religion. Yorùbá were expectedly predominant (82.1%). Hausa respondents were noticeable (10.5%) while other ethnic nationalities including Igbo, Igbira, Igede and Idoma were marginally represented in the study. The distributions of respondents’ socio-demographic characteristics are shown in Table 2.

Table 2

Distribution of Respondents’ Socio-Demographic Characteristics (N = 190)

Socio-demographic characteristic	Sub-groups	Frequency	Percentage
Sex	Male	123	64.7
	Female	67	35.3
Age*	16–25	31	16.3
	26–35	57	30.0
	36–45	61	32.1
	46–55	28	14.7
	56–65	13	6.8
Highest education attained	No formal education	27	14.5
	Primary	37	19.9
	Secondary	99	53.2
	Post-secondary	20	10.8
	First degree	3	1.6
	No response	4	2.1
Religion	Islam	81	42.6
	Christianity	100	52.6
	Traditional	9	4.7
Ethnicity	Yorùbá	156	82.1
	Hausa	20	10.5
	Igbo	7	3.7
	Others**	7	3.7

Note. * The mean±SD of age was 37.13±11.21, minimum = 19, maximum = 64. ** Igbira, Igede, Idoma.

Univariate Analysis of Forest Mystification/Items in the Author-Constructed Scale of Forest Mystification

The mean score of forest mystification was 23.70 ± 3.62 (range was 18 to 28). This mean is high and indicative of a strong manifestation of forest mystification in the study area. The item statistics on Table 3 shows that respondent's rating of items on the scale of forest mystification were generally similar and their agreement with items was high because the mean score of these items were all above 3 while the maximum score was 4. The generic item maintaining that forest is not just the habitat of flora and fauna but also of spirits attracted the strongest rating (mean = 3.65), followed by the item which upheld that there are creatures in the forest that cannot be seen with ordinary eyes (mean = 3.55). Interestingly, the item affirming that there are some animals in forests that are spiritual and should not be consumed attracted the weakest agreement (mean = 3.17), suggesting that mystification weakens in the face of consumable things. The idea that there are mysterious trees in forests also attracted weak agreement (mean = 3.31), suggesting weaker mystification of trees when compared with spirits and other invincible creatures.

Table 3

Item Statistics, Indicators of Reliability and Validity of the Author-constructed Scale

Forest mystification	Mean \pm SD	Minimum	Maximum	Indicator of reliability (Crobach's alpha)	Indicator of validity (Pearson's r)
Forest is not just the habitat of flora and fauna but also of spirits	3.65 \pm 0.57	2	4		
Special creatures that are neither humans nor animals are there in forests	3.43 \pm 0.73	1	4		
There are creatures in the forest that cannot be seen with ordinary eyes	3.55 \pm 0.63	2	4		
Trees like <i>irókò</i> can provide directions to hunters in the forest	3.29 \pm 0.76	1	4	0.885	0.193, $p = 0.008$
There is no deity (orisa) that does not have connection with forest	3.29 \pm 0.73	1	4		
There are some animals in forest that are spiritual and should not be consumed	3.17 \pm 0.66	1	4		
There are mysterious trees in forest	3.31 \pm 0.64	1	4		

Effect of Age, Religion, Ethnicity, Sex and Education on Forest Mystification

Information contained in Table 4 shows that the oldest age sub-group made up of respondents aged between 56 and 65 years held the strongest forest mystification (mean±SD = 25.6±2.5). This was followed by the next age sub-group (46–55) whose mean±SD was 24.2±2.6. The 26–35 age sub-group held stronger forest mystification (mean±SD = 24.0±3.8) when compared with 36–45 sub-group (mean±SD = 23.1±3.9) while weakest mystification was exhibited by the youngest age sub-group of 16 to 25 years (mean±SD = 22.9±3.2). These descriptive statistics generically suggests that forest mystification strengthens with increasing age. There is homogeneity of variance across sub-groups of age regarding forest mystification ($p > 0.05$) while the result of one-way ANOVA shows that these means are not significantly different ($p > 0.05$). Hence, age had no significant effect on forest mystification. Forest was most strongly mystified among Muslims (mean±SD = 24.0±3.1). The extent to which Christians (mean±SD = 23.4±4.0) and practitioners of traditional religion (mean±SD = 23.3±3.2) mystified forest was very comparable. However, there was no significant difference in means across sub-groups of religion with regard to forest mystification ($p > 0.05$). Hence, respondents’ religion also had no significant effect on forest mystification. Respondents who belonged to the Yorùbá ethnic group held the strongest extent of forest mystification (mean±SD = 24.0±3.6) while Hausa respondents were stronger in terms of this mystification (mean±SD = 23.1±2.7). Igbo respondents held the weakest extent of forest mystification (mean±SD = 22.9±4.0). However, there was no significant difference in these means ($p > 0.05$). The results in Table 5 indicate that male respondents exhibited a stronger extent of forest mystification (mean rank = 102.73)

Table 4
Effects of Age, Religion and Ethnicity on Forest Mystification

Socio-demographic variable	Sub-groups	Mean±SD	Levene’s test for homogeneity of variances		ANOVA	
			Levene’s statistic	p value	F statistic	p value
Age	16–25	22.9±3.2	1.665	0.160	1.848	.122
	26–35	24.0±3.8				
	36–45	23.1±3.9				
	46–55	24.2±2.6				
	56–65	25.6±2.5				
Religion	Islam	24.0±3.1	2.691	0.070	0.695	0.500
	Christianity	23.4±4.0				
	Traditional	23.3±3.2				
	Yorùbá	24.0±3.6				
Ethnicity	Igbo	22.9±4.0	1.454	0.218	1.090	0.367
	Hausa	23.1±2.7				

Table 5
Influence of Sex and Education on Forest Mystification

Socio-demographic variable	Sub-groups	Mean rank	Mann-Whitney U test		Kruskal Wallis test		Epsilon	Epsilon ²
			Statistic	<i>p</i> value	Chi-Square	<i>p</i> value		
Sex	Male	102.73	3144.50	.008	–	–	0.188	0.035
	Female	80.93						
Education	No formal Education	89.44	–	–	11.729	0.019*	0.259	0.067
	Primary	98.42						
	Secondary	98.70						
	Post-secondary	51.98						
	First degree	12.00						

Note. *The B.Sc./HND sub-group is significantly difference from the no formal education ($p = 0.017$), the primary ($p = 0.007$) and the secondary ($p = 0.005$) sub-groups. However, the B.Sc./HND sub-group is not significantly different from the NCE/OND/HSC/A Level sub-group ($p = 0.068$).

when compared with female respondents (mean rank = 80.93). The result of the Mann-Whitney U test shows that these mean ranks are significantly different ($p < 0.05$). Hence, sex has an effect on forest mystification. Epsilon was 0.188 while epsilon² was 0.035. Therefore, 3.5% of the variance in forest mystification is explained by sex. Forest mystification was very similar between, and most strongly held by the holders of primary (mean rank = 98.42) and secondary education (mean rank = 98.70). Forest mystification became weakened a little among respondents having no formal education (mean rank = 89.44) and was even weaker among those having post-secondary education (mean rank = 51.98) while it was weakest among first-degree holders (mean rank = 12.00). These mean ranks generically suggest weakening forest mystification with increasing formal education. Kruskal Wallis test shows that the means are significantly different ($p < 0.05$). Hence, education has an effect on forest mystification. Epsilon was 0.259 while epsilon² was 0.067. As a result, 6.7% of the variation in forest mystification is explained by education.

Relationship between Forest Mystification and Indicators of Traditional Orientation

The results on Table 6 indicate that attitude to religion is positively but insignificantly related to forest mystification ($r = 0.085$, $p = 0.244$). There is a positive and significant relationship between attitude to ageing and forest mystification ($r = 0.335$, $p = 0.000$). There is a negative and insignificant relationship between attitude to gender and forest mystification ($r = -0.033$, $p = 0.663$). Cultural enthusiasm is positively and significantly related to forest mystification ($r = 0.213$, $p = 0.003$).

Table 6
Relationship between Forest Mystification and Indicators of Traditional Orientation

		Forest mystification
Forest mystification	Pearson's <i>r</i>	1
	<i>p</i> value	.000
Attitude to religion	Pearson's <i>r</i>	.085
	<i>p</i> value	.244
Attitude to ageing	Pearson's <i>r</i>	.335*
	<i>p</i> value	.000
Attitude to gender	Pearson's <i>r</i>	-.033
	<i>p</i> value	.663
Cultural enthusiasm	Pearson's <i>r</i>	.213*
	<i>p</i> value	.003

Note. * Significant correlations.

Discussion

The univariate analysis of items in the author-constructed scale of forest mystification shows that the respondents' agreements with items were notably high, signifying the embossment of continuity as opposed to change in forest culture of mystification in the target population. This is very instructive about people's sense of solidarity with their culture, whether they are conscious about same or otherwise. As propounded by Crow (2002), social events and manifestations are typically in pursuance of solidarity. The strong exhibition of forest mystification among respondents strongly suggests that people are rather motivated and are psychically attuned with their cultural dictates of forest mystification. Indeed, this finding upholds the popularity of the African environmental theory, "eco-humanism" (Eze, 2017, p. 626) which upholds the sacredness and humanity of nature. In this African perspective, sacred nature "means that everything on Earth—rivers, mountains, trees, plants, seas, the sun, moon, stars, et cetera—has embedded force and spirit. The environment is not just inconsequential, it is part of life and constitutive of humanity" (Eze, 2017, p. 627). Indeed, this stands in favour of respectful attitude and behaviour towards the environment and its elements. In the light of these descriptive findings, proclaiming secularity as a global identity constitutes global injustice (Wilson, 2017).

Descriptive findings indicate increasing forest mystification with increasing age. This is quite expected considering that older persons have experienced and assimilated the culture for much longer. However, age was not a significant determinant of forest mystification. This suggests the strength of the continuity of forest culture: with no significant difference in younger and older people's extent of forest mystification, the survival of this culture is staunch. This is in favour of cultural survival across generations. Quite similarly, Azong (2020) reported that belief in witchcraft was prevalent among farmers of Bamenda Highlands, Cameroon of which the age

of participants expressing this belief was diverse (39 to 63 years). Respondents' religion and ethnicity have no effect on the extent to which they mystify forests. These are indications of the voidness of contemporary religions and ethnic affiliations on the traditionality of people's orientation towards the forest. These suggest that in matters of supernaturality, Africans tend to be united in orientation without reference to religion and ethnicity. Finding that men hold a significantly stronger extent of forest mystification than women is definitely an interesting piece. Although women's subordinate positioning across all facets of life in developing and developed social contexts are generously acknowledged, substantial evidence showcases the power-holding status of women in African traditional contexts. For instance, in her much-referenced book titled "The Invention of Women: Making an African Sense of Western Gender Discourse", Oyeronke Oyewumi (1997) argued passionately that gender was largely egalitarian among the Yorùbá. The stratification of gender, she argued, was colonially entrenched. Oyewumi cited the fact that Yorùbá language is not gendered to drive home her thesis. Ibrahim and Jegede (2017b) asserted that custodians of *Ifá*, the most central of Yorùbá people's frame of reference, include Babaláwo (male) and Iyanifa (female). In African contexts, women served as priestesses and diviners (Amaechi & Amaechi, 2019). Nevertheless, there are tremendous bases to the claim that women experience constraints and domination, which are informed by African social structures and norms including in the Yorùbá context. Among the Yorùbá, some taboos are instituted to exclude women from participating in traditional rites. For instance, menstruating women do not get involved in sacrificing to *Obàtálá*, a Yorùbá god. Women are also excluded from *orò*, a popular Yorùbá festival (Familusi, 2012). The report of Azong (2020) shows that women are often accused of being witches and using the same for destructive purposes including causing poor rainfall and harvests in Bamenda Highlands, Cameroon. Further, there is an abundance of language and social thoughts that dehumanizes women in African culture (Oduyoye, 2001). It is probable, therefore, that negative human-social dynamics are propelling women to be more daring to cultural dictates and indifferent rather than reverential towards cultural knowledge. As it is, the current finding asserts men as opposed to women as significantly better champions of traditional forest culture. This is an interesting focus for further research. The significant effect of education on forest mystification such that increasing formal education accompanies weaker forest mystification is consonant with expectation considering that the degree of western education correlates very strongly with secular orientation irrespective of material security (Braun, 2012; Zuckerman, 2009). This buttresses the position that formally educated people are better champions of social change.

People's orientation about ageing and having respect for culture are positively and significantly related to the extent to which they mystify the forest. Hence, the more people regard older age as attracting pleasurable things and respect, the more they exhibit zeal towards their culture, the more they perceive the forest as a supernatural and paranormal spatial entity. These findings are consonant with expectation. They indicate that people are more traditional about ageing and they are zealous about their culture. Among the Yorùbá people who are dominant in the target population, age

is superfluously revered. This society is a gerontocratic society by every standard. Everyday attitude and behaviour in the Yorùbá context are typically driven by the ideology of seniority (Schwab, 1955). Older age automatically confers authority among the Yorùbá, though this might be limited in exceptional situations where an older person's character is questionable (Fadipe, 1970). It is also in order, that cultural enthusiasm is related to forest mystification in a significantly positive manner.

On the contrary, attitude to religion is not significantly related to the extent to which forest is mystified in the target population. This can be understood in the context that attitude to religion in this study was defined in terms of respondents' devotion to conventional rather than traditional African religious practices. The insignificance of the relation between the variables under consideration can be seen as reflective of the rather conflictual relationship between them: Swidler (2013, p. 682) contended that "the axial religions [Islam, Christianity and Judaism], and especially the Pentecostal churches, devote their ritual power to a fierce war on demons, witchcraft". The attitude of the axial religions usually makes adherence to traditional Yorùbá religions to seem "heathen" and "unholy" (Ajuwọn, 1980, p. 66). The insignificance of the relation between attitude to religion and forest mystification in this study is another indication of cultural survival in the target population. African ideologies are at the heart of Africans even as they identify themselves as Christians and Muslims. For instance, Olurode and Olusanya (1994, p. 91–92) asserted that "while the Yorùbá may profess Islam or Christianity because it is the mark of a "civilized" man to do so, at heart he is a traditionalist in the sphere of the supernatural". In addition, attitude to gender is not significantly related to forest mystification in the target population, implying that people are no longer traditional about gender, at least when compared with their orientation concerning forests. Gender dynamics have been changing from traditional to modern/egalitarian even in developing nations. For instance, Hewett and Lloyd (2005, cited in Psaki et al., 2018) reported that 45% of girls and 66% of boys in twenty-four sub-Saharan African nations ever attended school by 1960. By 1990, these proportions increased to 73% of girls and 78% of boys. This kind of rapid change cannot be said to have been recorded in matters of supernaturality. It is even interesting that attitude to gender is the only of the four indicators of traditional orientation which yielded an inverse relationship with forest mystification, suggesting that attitude to gender and forest mystification traverse opposing directions. It appears that the character of attitude to gender is modernistic while that of forest mystification is traditionalistic in the study area. Hence, modernistic attitude to gender is not deterring of traditional attitude to the forest.

Conclusions

There is a strong continuity in the forest culture of mystification in the study area. This bares the popularity of supernaturality and eco-humanism thereby standing in favour of solidarity to traditional African orientation as opposed to the modern orientation. Age, religion and ethnicity are not significantly relevant in matters of forest mystification. Forest cultural survival transcends divisions along age, religion and ethnic affinities. Being male as opposed to being female, and having reduced

education rather than otherwise are significantly predisposing to holding a greater extent of forest mystification. The greater the extent to which people are traditional in their outlook to ageing, the greater the extent to which they are zealous about their culture, then the greater is the degree of their forest mystification. In contrast, attitude to religion and attitude to gender are indeterminate of forest mystification.

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Appendix

**TRADITIONAL ORIENTATION AND FOREST MYSTIFICATION:
A STUDY AMONG RURAL DWELLERS OF ONIGAMBARI FOREST RESERVE
OF OYO STATE NIGERIA**

Dear Respondent,

I represent a group of researchers at the Federal College of Forestry, Forestry Research Institute of Nigeria, Ibadan, working on the above-named project. The aim of the research is to understand differential attitudes associated with forests in communities around Onigambari forest reserve. Your anonymity is highly guaranteed. This means that your responses will not be traced back to you, your name or any other means of identification. The estimated number of participants is one hundred and ninety. This means that you and 189 other people will be required to respond to this questionnaire. This should not take more than 25 minutes. Your contribution will go a long way in helping to generate information about the study.

Thank you very much for your cooperation.

Dr. (Mrs.) F. M. Ibrahim 08055822100

Instructions:

- Please answer the questions from your own perspective. It is about you, not someone else.
- Express your own personal views and not those prevalent in the society.
- Please feel free to provide true information, this is only an academic exercise.
- Nobody can challenge you about your responses.
- Tick your response like this √. Thank you very much for your cooperation. God bless you.

1	Age [Please write your specific age]		2	Marital Status	Single _____ 1 Married _____ 2 Divorced _____ 3 Widowed _____ 4
3	Highest educational qualification [Please select your highest educational qualification]	No formal education 1 Primary school cert. 2 Secondary school cert. 3 NCE/OND/HSC/A Level 4 B.Sc./HND 5 Postgraduate Diploma 6 Masters degree 7 Doctorate (PhD) 8	4	Religion	Islam _____ 1 Christianity _____ 2 Traditional _____ 3 Others _____ [Please state it]
5	Ethnicity	Yoruba _____ 1 Igbo _____ 2 Hausa _____ 3 others _____ [Please state it]	6	Sex	Male _____ 1 Female _____ 2
7	Employment (You may select more than one option)	Unemployed 1 Farming 2 Trader 3 Artisan 4 Civil servant 5 Student 6 Others _____ [Please specify]	8	Age	16-25 _____ 1 26-35 _____ 2 36-45 _____ 3 46-55 _____ 4 56-65 _____ 5 66-above _____ 6

ATTITUDE TO GENDER

Kindly indicate how well you agree with these statements. Provide only one response (✓) for each statement

	CODE	ITEMS	RESPONSES		
9	ATG1	A father's major responsibility is to provide financially for his children	Strongly agree ⁴	Disagree ²	Strongly Disagree ¹
10	ATG2	Men are more sexual than women	Strongly agree ⁴	Disagree ²	Strongly Disagree ¹
11	ATG3	Some types of work are just not appropriate for women	Strongly agree ⁴	Disagree ²	Strongly Disagree ¹
12	ATG4	Mothers should make most decisions about how children are brought up	Strongly agree ⁴	Disagree ²	Strongly Disagree ¹
13	ATG5	Mothers should work only if necessary	Strongly agree ⁴	Disagree ²	Strongly Disagree ¹
14	ATG6	Girls should be protected and watched over more than boys	Strongly agree ⁴	Disagree ²	Strongly Disagree ¹
15	ATG7	Only some types of work are appropriate for both men and women	Strongly agree ⁴	Disagree ²	Strongly Disagree ¹
16	ATG8	For many important jobs, it is better to choose men instead of women	Strongly agree ⁴	Disagree ²	Strongly Disagree ¹

ATTITUDES TO AGEING

Kindly indicate how well these statements are correct. Provide only one response (✓) for each statement

	CODE	ITEMS	RESPONSES		
17	ATA1	As people get older, they are better able to cope with life	Totally true ²	Fairly true ¹	Not true at all ⁰
18	ATA2	Wisdom comes with age	Totally true ²	Fairly true ¹	Not true at all ⁰
19	ATA3	There are many pleasant things about growing older	Totally true ²	Fairly true ¹	Not true at all ⁰
20	ATA4	I am more accepting of myself as I have grown older	Totally true ²	Fairly true ¹	Not true at all ⁰

ATTITUDES TO RELIGION

Kindly indicate how well these statements are true. Please provide only one response (✓) for each item

	CODE	ITEMS	RESPONSES		
21	ATR1	I seek God's help	Totally true ²	Fairly true ¹	Not true at all ⁰
22	ATR2	I put my trust in God	Totally true ²	Fairly true ¹	Not true at all ⁰
23	ATR3	I try to find comfort in my religion	Totally true ²	Fairly true ¹	Not true at all ⁰
24	ATR4	I pray more than usual	Totally true ²	Fairly true ¹	Not true at all ⁰

CULTURAL ENTHUSIASM

How truly do these statements apply to you? Kindly avoid sharing opinions with anyone. Please, kindly respond to the questionnaire carefully

	CODE	ITEM	RESPONSES		
25	COR1	I am proud of my culture	Totally true ²	Fairly true ¹	Not true at all ⁰
26	COR2	Respect for tradition is important for me	Totally true ²	Fairly true ¹	Not true at all ⁰
27	COR3	I value a strong link to my past	Totally true ⁰	Fairly true ¹	Not true at all ²
28	COR4	Traditional values are important for me	Totally true ⁰	Fairly true ¹	Not true at all ²

FOREST MYSTIFICATION

Kindly indicate how well you agree with these statements. Provide only one response (✓) for each statement

	CODE	ITEMS	RESPONSES			
29	MYS1	Forest is not just the habitat of flora and fauna but also of spirits	Strongly agree ⁴	Agree ³	Disagree ²	Strongly Disagree ¹
30	MYS2	Special creations that are neither humans nor animals are there in forests	Strongly agree ⁴	Agree ³	Disagree ²	Strongly Disagree ¹
31	MYS3	There are creations in the forest that cannot be seen with ordinary eyes	Strongly agree ⁴	Agree ³	Disagree ²	Strongly Disagree ¹
32	MYS4	Trees like <i>irókò</i> can provide directions to hunters in the forest	Strongly agree ⁴	Agree ³	Disagree ²	Strongly Disagree ¹
33	MYS5	There is no deity (orisa) that does not have connection with forest	Strongly agree ⁴	Agree ³	Disagree ²	Strongly Disagree ¹
34	MYS6	There are some animals in forests that are actually spiritual and should not be consumed	Strongly agree ⁴	Agree ³	Disagree ²	Strongly Disagree ¹
35	MYS7	There are mysterious trees in forests	Strongly agree ⁴	Agree ³	Disagree ²	Strongly Disagree ¹

SPIRITUALITY

Kindly indicate how well these statements are true. Kindly respond to this questionnaire carefully

	CODE	ITEMS	RESPONSES		
36	ATS1	I am convinced of a rebirth of man (or his soul)	Totally true ²	Fairly true ¹	Not true at all ⁰
37	ATS2	I am convinced of existence of higher powers and beings	Totally true ²	Fairly true ¹	Not true at all ⁰
38	ATS3	I am convinced that soul has his origin in a higher dimension	Totally true ²	Fairly true ¹	Not true at all ⁰
39	ATS4	I am convinced that man is a spiritual being	Totally true ²	Fairly true ¹	Not true at all ⁰