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FACTORS INFLUENCING INDIGENOUS KNOWLEDGE SHARING AMONG RURAL FARMERS IN SOUTH-SOUTH NIGERIA

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ABSTRACT

The study assessed factors influencing sharing of indigenous knowledge among rural farmers in South-South Nigeria. Multi-stage sampling technique was used to select 360 farmers. Data collection was through structured questionnaire and analyzed using both descriptive and inferential statistics such as mean and Ordinary Least Square (OLS) regression. The result reveals that sharing between two or more farmers ($\bar{x} = 3.9$), parents/guardian/friends ($\bar{x} = 3.8$), participation ($\bar{x} = 3.8$), observation ($\bar{x} = 3.7$), farmer's groups ($\bar{x} = 3.7$), demonstration ($\bar{x} = 3.4$), social group gathering ($\bar{x} = 3.4$), village groups/age grades ($\bar{x} = 3.4$), village meetings ($\bar{x} = 3.4$) among others were the major ways farmers share knowledge. The study also revealed that farm income ($\bar{x} = 4.05$), access to information ($\bar{x} = 4.01$), land tenure system ($\bar{x} = 3.91$), literacy level ($\bar{x} = 3.88$), awareness of knowledge sharing need ($\bar{x} = 3.83$), access to credit ($\bar{x} = 3.79$), farming experience ($\bar{x} = 3.72$), age ($\bar{x} = 3.46$), gender ($\bar{x} = 3.40$) and marital status ($\bar{x} = 3.26$) were perceived factors that influenced indigenous knowledge sharing. The Ordinary Least Square regression analysis revealed that participation (2.978***), social network (3.096***), infrastructure (2.423**) and farm income (2.105**) significantly influenced the sharing at 1% and 5% significance levels respectively. From the findings, it was concluded that indigenous knowledge sharing was influenced by participation, social network, and infrastructure and farm income. The study recommended State Ministries of Agriculture and extension agencies to assist the rural farmers by organizing demonstrations and coordinating farmer groups which would enable them improve the sharing of their indigenous knowledge

Keywords: Activities, Factors, Indigenous, Knowledge, Livelihood, Sharing

INTRODUCTION

In many developing countries, the majority of the population reside in rural areas, with many engaging on agriculture as livelihoods (Mustafa, Mabhaudhi, Avvari and Massawe, 2021; Dengerink, Dirks, Likoko and Guijt, 2021). According to Goncalves, Schindwein and Martinelli (2021), the high prevalence of poverty required the expansion of food production and sustainable livelihoods along with rural communities in particular, where more helpless populations live and poor livelihoods are irritated. Therefore, exploring the potentials of indigenous knowledge in contributing significantly to socioeconomic prosperity and improved livelihood cannot be overemphasized. Local peoples' knowledge focuses on elements of significance for local livelihoods, security and well-being (Yohannes, 2018). Indigenous/native knowledge submits to the understanding, skillfulness, and viewpoints developed by societies with long histories of communications with their natural environs for local people, which informs decision making about fundamental aspects of human life and enable them achieve stable livelihoods

(Yusuf and Olusegun, 2015). It is the knowledge that emanates from life experience and is conceded down from one generation to the other using words of mouth in the form of idioms, songs, folklore, proverbs, rite of passage and rituals. Research studies (Lwoga, 2013; Nwachukwu, 2014; Ugboma, 2014) have also established that indigenous knowledge was generally shared and distributed in the rural communities through avenues such as initiation rites, apprenticeships, storytelling, drama, village organizations, demonstrations, farmer groups and wherever people meet and interact.

Every farmer has and moderates available pool of indigenous knowledge to suit peculiar needs of his/her micro environment (Odoemelam, 2015). Indigenous knowledge is developed and passed down from generation to generation even though several indigenous knowledge systems are at risk of becoming extinct because of rapidly changing environments and fast pacing economic, political and cultural changes (Nwakwasi, 2013). Uwem, Asa and Adautin (2013) also noted that there are certain characteristics and factors that are unique to indigenous knowledge which

in turn influence its sharing or communication pattern among rural people. In this regard, it is pertinent to assess the factors influencing indigenous knowledge sharing for selected livelihood activities among rural farmers in South-South Nigeria. The study also hypothesized that sharing of indigenous knowledge created by farmers for selected livelihood activities is not influenced by selected socio-economic and environmental factors.

METHODOLOGY

The study was carried out in South-South geo-political zone of Nigeria. The South-South region encompasses six (6) States namely Akwa Ibom, Bayelsa, Cross River, Delta, Edo and Rivers States (National Bureau of Statistics, 2014). The South-South also comprises the major oil producing areas which is the economic mainstay of the country's oil and gas.

Multistage random sampling procedure was adopted for the study. Three (3) States were randomly selected out of the six (6) States that make-up South-South Nigeria for the study; the States were Akwa Ibom, Bayelsa and Delta States respectively. In the first stage, one agricultural zone was randomly selected from each of the sampled three States; furthermore, two (2) Local Government Areas were randomly selected to represent each of the sampled Agricultural Zones from the three (3) States for the second stage. In the third stage, six (6) communities were purposively selected to represent each of the sampled Local Government Areas from the various Agricultural Zones selected for the study. This gave a total of thirty-six (36) communities from the sampled Agricultural Zones in the three (3) States respectively. In the fourth stage, ten (10) registered farmers were selected from each of the sampled communities which gave the study three-hundred and sixty (360) respondents as the sample size.

Data collection was through structured questionnaire and analyzed using both descriptive and inferential statistics such as mean and Ordinary Least Square regression analysis.

Ways by which indigenous knowledge is shared among rural farmers and the perceived factors influencing indigenous knowledge sharing among rural farmers were realized using a 5-point rating scale. A mean of 3.0 and above was regarded as a factor influencing indigenous knowledge sharing, while a mean less than 3.0 was regarded as a non factor. The study used Ordinary Least Square (OLS) regression to determine the factors that influence indigenous knowledge sharing by rural farmers. The model is implicitly stated as;

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, \dots, X_{19}, e_i) \dots \dots \dots (1.0)$$

Where;

- Y = Knowledge sharing (mean response of the respondents on a 5 point Likert scale rating);
- X_n = selected factors
- X₁ = age (years)
- X₂ = gender (male =1, female = 0)
- X₃ = marital status (married =1; unmarried =0)
- X₄ = educational level (number of years spent in school),
- X₅ = household size (number of people living/feeding from the same pot),
- X₆ = farm income (Naira)
- X₇ = non-farm income (Naira)
- X₈ = access to credit (always = 4, often = 3, seldom = 2 and never = 1)
- X₉ = farming experience (years)
- X₁₀ = access to information (always = 4, often = 3, seldom = 2 and never = 1)
- X₁₁ = market access (always = 4, often = 3, seldom = 2 and never =1)
- X₁₂ = social network (always accessible = 4, often accessible =3, seldom accessible = 2 and not accessible = 1)
- X₁₃ = land tenure system (always = 4, often = 3, seldom = 2 and never = 1)
- X₁₄ = language (native language =1; others = 0),
- X₁₅ = social norms, values and initiation (very useful = 4, useful = 4, some impact =2, not useful = 1)
- X₁₆ = time (hours),
- X₁₇ = relationship with community leaders (good =1; poor = 0),
- X₁₉ = power (favorable =1; unfavorable = 0),
- e_i = error term.

RESULTS AND DISCUSSION

Ways by which farmers share indigenous knowledge

The result in Table 1 reveals that sharing between two or more farmers ($\bar{x} = 3.9$), parents/guardian/friends ($\bar{x} = 3.8$), participation ($\bar{x} = 3.8$), observation ($\bar{x} = 3.7$), farmer's groups ($\bar{x} = 3.7$), demonstration ($\bar{x} = 3.4$), social group gathering ($\bar{x} = 3.4$), village groups/age grades ($\bar{x} = 3.4$), village meetings ($\bar{x} = 3.4$), women meetings ($\bar{x} = 3.3$) and apprenticeship ($\bar{x} = 3.0$) were the major ways farmers share knowledge in South-South Nigeria. This finding is in agreement with that of Lwoga (2013) which reported that indigenous knowledge was mainly acquired through local sources such as family or parents (93.9%), neighbours or friends (86.2%) and personal experience (85%). This finding is also in consonance with those of Uwem, Ubong and Adautin (2013) which noted that indigenous knowledge was shared in

local communities using village meetings, storytelling, markets, women meetings, drinking spots and parents.

Table 1: Mean score responses on the ways farmers share knowledge in the study area

Knowledge Sharing	Akwa-Ibom	Bayelsa	Delta	South-South
	(n=120)	(n=120)	(n=120)	(n=360)
	\bar{x}	\bar{x}	\bar{x}	\bar{x}
Interpersonal (between two or more farmers)	3.9	4.1	3.8	3.9
Parents/guardian/friends	3.9	3.9	3.7	3.8
Women meetings	3.4	3.3	3.2	3.3
Demonstration	3.6	3.5	3.2	3.4
Observation	3.8	3.6	3.6	3.7
Participation	3.9	3.8	3.7	3.8
Social group gathering	3.5	3.4	3.2	3.4
Village groups/age grades	3.3	3.6	3.2	3.4
Farmer's groups	3.7	3.9	3.4	3.7
Village meetings	3.5	3.5	3.1	3.4
Songs	2.6	2.4	2.6	2.5
Dance	2.4	2.3	2.5	2.4
Story telling	2.4	2.4	2.8	2.5
Drama shows	2.4	2.4	2.5	2.4
Plays	2.3	2.4	2.6	2.4
Debates	2.1	2.5	2.7	2.4
Poetry	2.4	2.1	2.7	2.4
Reciting proverbs	2.4	2.3	2.9	2.5
Initiation rites	2.9	2.6	3.1	2.8
Apprenticeship	3.0	3.2	2.9	3.0
Grand mean	3.1	3.0	3.1	3.1

Source: Field survey data, 2019

Perceived factors that influence indigenous knowledge sharing among rural farmers in South-South Nigeria

The result in Table 2 shows that farm income ($\bar{x} = 4.05$), access to information ($\bar{x} = 4.01$), land tenure system ($\bar{x} = 3.91$), literacy level ($\bar{x} = 3.88$), awareness of knowledge sharing need ($\bar{x} = 3.83$), access to credit ($\bar{x} = 3.79$), farming experience ($\bar{x} = 3.72$), participation in knowledge creation ($\bar{x} = 3.60$), age ($\bar{x} = 3.46$), gender ($\bar{x} = 3.40$) and marital status ($\bar{x} = 3.26$) were perceived factors that influenced indigenous knowledge sharing in the study area. This implies that age, gender, marital status, literacy level, farm income, access to credit, farming experience, access to information and participation in knowledge creation influenced indigenous knowledge sharing in the study area. This is because the mean ratings were above the bench mark mean score of 3.0. This finding is in line with Meijer *et al.* (2015) and Pulido and Bocco (2014) who observed that awareness of new ideas increases the ability of farmers to share such new ideas with others.

Hypothesis

The result of the Ordinary Least Square (OLS) regression model used to test the hypothesis that

sharing of indigenous knowledge created by farmers is not influenced by selected socio-economic and environmental factors is presented in Table 3. Four functional forms – linear, exponential, semi-log and double-log were tried for choice of a lead equation. Based on the magnitude of the coefficient of multiple determinations (R^2), the significance of the regression coefficients, the number of significant variables and the signs of the significant variables as they conform to *a priori* theoretical expectations as well as the significance of the entire model as shown by the F-statistic, the double-log model was chosen as the lead equation. The value of the coefficient of multiple determinations (R^2) was 0.936, implying that about 93.6% of the variations in the sharing of indigenous knowledge by farmers in South-South Nigeria was explained by the explanatory variables included in the model.

The regression coefficients of farm income and infrastructure of the respondents were positive and significant at 5%, implying that a direct relationship exists between farm income and infrastructure and the sharing of indigenous knowledge by farmers in South-South Nigeria. This implies that the availability of infrastructure and farm income in South-South Nigeria

increases sharing of indigenous knowledge among farmers. Availability of basic infrastructure would most likely create avenues for the sharing of indigenous knowledge by farmers. Similarly, the availability of infrastructure would provide support for the creation and sharing of technologies that would be relevant to the livelihood activities of rural farmers in the study area. Social network of the respondents was positive and significant at 1%, implying that a direct relationship exists between social network and sharing

of indigenous knowledge by farmers in South-South Nigeria. Therefore, social network among farmers in South-South Nigeria increases sharing of indigenous knowledge. Social network influences knowledge sharing by presenting different platforms to share knowledge. Nwachukwu (2014) posited that the use of radio and mobile phones for the sharing of knowledge among farmers was becoming extensive in the rural communities.

Table 2: Mean responses of farmers on the perceived factors that influence indigenous knowledge sharing in the study area

S/N	Perceived factors influencing knowledge sharing	Akwa Ibom State		Bayelsa State		Delta State		South-South Region	
		\bar{x}	RM	\bar{x}	RM	\bar{x}	RM	\bar{x}	RM
1	Age	4.12	A	3.19	A	3.07	A	3.46	A
2	Gender	3.31	A	3.44	A	3.46	A	3.40	A
3	Marital status	3.89	A	3.01	A	2.90	R	3.26	A
4	Literacy level	4.07	A	3.79	A	3.77	A	3.88	A
5	Household size	4.07	A	3.74	A	3.77	A	3.86	A
6	Farm size	2.79	R	3.02	A	3.19	A	3.00	A
7	Farm income	4.44	A	3.88	A	3.85	A	4.05	A
8	Non-farm income	3.53	A	3.59	A	3.62	A	3.58	A
9	Access to credit	3.91	A	3.69	A	3.77	A	3.79	A
10	Farming experience	3.82	A	3.64	A	3.72	A	3.72	A
11	Access to information	4.00	A	3.97	A	4.05	A	4.01	A
12	Existing infrastructure	2.54	R	2.46	R	2.49	R	2.49	R
13	Distance to farmland	2.55	R	2.38	R	2.45	R	2.46	R
14	Land tenure system	3.92	A	3.93	A	3.88	A	3.91	A
15	Soil quality	2.77	R	3.00	A	3.18	A	2.98	R
16	Social network	3.84	A	3.51	A	3.54	A	3.63	A
17	Market access	2.50	R	2.63	R	2.66	R	2.59	R
18	Awareness of knowledge	3.82	A	3.87	A	3.82	A	3.83	A
19	Participation in knowledge creation	3.54	A	3.65	A	3.62	A	3.60	A
20	Language barrier	3.83	A	3.50	A	3.45	A	3.59	A
21	Social norms/values/initiation rites	3.95	A	3.12	A	2.86	R	3.31	A
22	Time	3.51	A	3.74	A	3.63	A	3.63	A
23	Relationship with community leaders/extension Agents	2.06	R	2.79	R	3.10	A	2.65	R
24	Power/ Leadership	3.58	A	3.74	A	3.77	A	3.70	A
25	Residency/native of a community	2.18	R	2.66	R	2.88	R	2.57	R
	Overall mean score	3.46	A	3.36	A	3.38	A	3.40	A
	Number of respondents	120		120		120		360	
	Bench mark mean score	3.00		3.00		3.00		3.00	

Source: Field survey, 2019

Note: \bar{X} = Mean score; Rm = Remark; A = Accepted; R = Rejected

Table 3: Ordinary Least Square (OLS) multiple regression result of the factors influencing the sharing of indigenous knowledge by farmers in South-South Nigeria

Variable	Linear	Exponential	Double-log+	Semi-log
Constant	10526.3 (9.679)***	7.561 (47.544)***	12.449 (6.105)***	390622.1 (2.983)***
Participation	203.152 (0.602)	0.178 (3.419)***	0.196 (2.978)***	2193.703 (0.596)
Social network	511.457 (2.325)**	0.026 (1.831)*	0.547 (3.096)***	3443.828 (2.202)**
Infrastructure	1800.197 (3.281)***	1.56E-05 (4.927)***	0.629 (2.423)**	1522.958 (0.131)
Language	-353.457 (-2.425)**	-0.006 (-2.109)**	-1.308 (-3.415)***	-83317.76 (-3.899)***
Educational level	1024.332 (3.160)***	0.027 (3.608)***	0.075 (1.592)	70042.41 (4.722)***
Farm income	-1208.031 (-1.635)	-0.039 (-1.099)	1.498 (2.105)**	-21354.69 (-2.579)**
Non- farm Income	425.759 (1.489)	0.012 (0.375)	1.654 (1.477)	20382.09 (1.881)*
R ²	0.841	0.882	0.936	0.791
Adj. R ²	0.838	0.877	0.924	0.787
F-statistic	65.846***	66.392***	98.204***	68.476***

Source: Field survey, 2019

Note: ***, **, and * indicates statistically significant at 1%, 5% and 10% levels of significance respectively. + = Lead equation.

CONCLUSION

The study concluded that sharing between two or more farmers, parents/guardian/friends, participation, observation, farmer's groups, demonstration, social group gathering, village groups/age grades, village meetings, women meetings and apprenticeship were the major ways farmers shared knowledge in South-South Nigeria. The study further concluded that participation, social network, infrastructure, language and farm income significantly influenced the sharing of indigenous knowledge by farmers in South-South Nigeria.

RECOMMENDATIONS

- i The State Ministries of Agriculture and extension agencies should assist the rural farmers by organizing demonstrations and coordinating farmer groups which would enable them to improve on sharing their indigenous knowledge to enhanced living standard, as the study discovered that farmers groups and demonstrations influenced the sharing of indigenous knowledge by farmers in the study area.
- ii The study recommended that the State governments should also provide adequate infrastructure that would enable farmers share indigenous knowledge for sustaining their livelihood activities. This is because infrastructure was one of the major factors

that influenced the sharing of indigenous knowledge by farmers in the study area.

REFERENCES

- Dengerink, J., Dirks, F., Likoko E. and Guijt, J. (2021). One size doesn't fit all: Regional differences in priorities for food system transformation. *Food security and nutrition*, 13(6): 1455-1466.
- Goncalves, C. D. Q., Schlindwein, M. M. and Martinelli, G. D. C. (2021). Agroforestry systems: A systematic review focusing on traditional indigenous practices, food and nutrition security, economic viability, and the role of women. *Sustainability*, 13(20): 1-20.
- Lwoga, E. T. (2013). Knowledge management approaches in managing agricultural indigenous and exogenous knowledge in Tanzania. Research paper. pp. 1-23.
- Meijer, S. S., Catacutan D., Ajayi, O. C., Sileshi, G. W. and Nieuwenhuis, M. (2015). The role of knowledge, attitudes and perceptions in the uptake of agricultural and agroforestry innovations among smallholder farmers in sub-Saharan Africa. *International Journal of Agricultural Sustainability*, 13(1): 40-54.
- Mustafa, M. A., Mabhaudhi, T., Avvari, M. V. and Massawe, F. (2021). Transition towards sustainable food systems: a holistic pathway

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- towards sustainable development. *Food security and nutrition*, pp. 33-56.
- National Bureau of Statistics (NBS) (2014). Report of the National Bureau of Statistics Harmonized National Living Standard Survey.
- Nwachukwu, I. (2014). From Drumbeats to Gigabytes: Communicating Agricultural Technologies Effectively to Farmers in Nigeria. 20th Inaugural Lecture, Michael Okpara University of Agriculture, Umudike, Abia State. 56pp.
- Nwakwasi R. (2013). Indigenous knowledge in extension services in Nigeria. In: Nwachukwu, I. (Ed). *Agricultural extension and rural development: Promoting indigenous knowledge*. Lamb house publications, Umuahia, Nigeria, pp. 13–25.
- Odoemelam, L. E. (2015). Interactions between indigenous knowledge and scientific information: Implications for effective integrated pest management practices. In: Nwachukwu, I., Ifenkwe, G. E., Onumadu, F. N., Agbarevo, M. N. B., Apu, U., Odoemelam, L. E. and Nwaobiala, C. U., (Eds). *Contemporary issues in agricultural extension and rural development*. Published by the Department of Rural Sociology and Extension, Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria, pp. 144-148.
- Pulido, J. and Bocco, G. (2014). "Local Perception of Land Degradation in Developing Countries: A Simplified Analytical Framework of Driving Forces, Processes, Indicators and Coping Strategies. *Living Rev. Landscape Res.*, 8.
- Ugboma, M. U. (2014). Availability and Use of Indigenous Knowledge amongst Rural Women in Nigeria. *Chinese Librarianship Electronic Journal*, 38: 60-67
- Uwem, C., Ukpong, U. and Onumadu, F. N. (2012). Challenge of indigenous knowledge transfer in agriculture and food security in Nigeria. In: Nwachukwu, I. M. and Mbanaso, E. O. Ed(s). *Promoting Indigenous Knowledge for the Attainment of the Millennium Development Goals (MDGs)*. Proceedings of the 5th Annual Conference of Nigeria Society for Indigenous Knowledge and Development held at Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria, 5th - 7th June, 2012, pp. 128-141.
- Uwem C., Ubong A. and Adautin, S. A. (2013). Indigenous communication pattern and the transfer of innovation. In: Nwachukwu, I. (Ed). *Agricultural extension and rural development: Promoting indigenous knowledge*. Lamb house publications, Umuahia, Nigeria, pp. 174-183.
- Yohannes, A. Z. (2018). Indigenous knowledge of Rural Communities for Combating Climate Change Impacts in West Central Ethiopia. *Journal of Agricultural Extension*, 22(1): 181-195.
- Yusuf, T. I. and Olusegun, K. J. (2015). Management of Indigenous Knowledge (Ifa and Egungun) in Osun State, Nigeria. *Library Philosophy and Practice (e-journal)*. 1243.