THE NEXUS OF KNOWLEDGE SHARING AND INNOVATIONS IN THE INFORMAL SECTOR: the case of Otigba Hardware Cluster in Nigeria

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Introduction

- Otigba computer village in Lagos Nigeria
- Clustering and Industrial districts
- Clustering and Innovation
- Proximity and Knowledge sharing
- Knowledge sharing and Absortive capacity
- Informal sector and Microenterprises

Research methodology

- Multistage research design was adopted
- Otigba cluster in Lagos state, Nigeria was purposively selected for the study
- A survey of two hundred (200) purposively selected business units in the cluster (out of about 4000 business) units representing about 5%.
- **Businesses were into: (i)** networking services, (ii) production/installation, (iii) branded computer/equipment, (iv) sales of hardware and software of computer, (v) IT services/marketing, (vi) general IT maintenance and repairs, (vii) assemblage of computer& accessories, and (viii) sales of peripherals & other ICT-related items.

Variables capturing knowledge sharing include:

- daily task rotation,
- internal training programme,
- hiring employees with experience,
- allotting task to new employees with close supervision by experienced employees and
- engaging all employees (senior and junior) to collectively undertake task.

Nature of innovation include:

- adoptive innovation,
- adaptive innovation and
- breakthrough innovations

Type of Innovation include:

- Product,
- Process,
- Organisation,
- Marketing

Chi-square was used in support of cross tabulation analysis to test the significant differences of the categorical variables

Results and discussion

Table 1: Number of Employees engaged in the businesses in the cluster

		Frequency	Percent
Valid	1-9 employees	171	85.5
	10-49 employees	21	10.5
	50-249 employees	3	1.5
	250 and above	4	2.0
	Total	199	99.5
Missing	System	1	.5
Total		200	100.0

Table 2: Initial Start-up Capital for the Business

		Frequency	Percent
Valid		4	2.0
	Less than ₦100,000	44	22.0
	₦100,000-₦ 1,999,999	103	51.5
	₦2,000,000 - ₦ 3,999,999	8	4.0
	₦4,000,000 - ₦ 5,999,999	20	10.0
	₦ 6,000,000 - ₦ 7,999,999	5	2.5
	₦ 8,000,000 - ₦ 9,999,999	3	1.5
	₦ 10,000,000 - ₦ 11,999,999	3	1.5
	₦ 12,000,000 and above	10	5.0
	Total	200	100.0

Table 3: Knowledge sharing processes in the Enterprises	Yes	No	Total
Knowledge sharing culture	197(98.5%)	1(0.5%)	198(99%)
Employees' daily task/job rotation	40(20%)	158(79%)	198(99%)
Internal training programmes are in the enterprise	134(67%)	64(32%)	198(99%)
Hiring employees who worked in a major computer firm before	52(26%)	146(73%)	198(99%)

Table 4: Process of Knowledge acquisition process in the enterprises in the cluster

	Freq	Percent
Types of Training Programmes in the cluster		
Formal trainings paid for by the employer	10	5.0
Formal trainings paid for by the employees	5	2.5
Informal form- learning by doing and using only	124	62.0
No response	61	30.5
Total	**200**	**100.0**
Type of Knowledge sharing platform in the cluster		
Allotting task with close supervision	111	55.5
In-house training	53	26.5
Allowing the employees to collectively undertake task	33	16.5
Others	1	.5
No response	2	1.0
Total	**200**	**100.0**

Table 5: Type and Nature of Innovations in the Enterprises

Innovations	**Nature of innovation**		
	Adaptive (%)	**Adoptive (%)**	**Non-innovative (%)**
Product innovation	0.5	60.0	39.5
Process innovation	4.5	69.0	26.5
Marketing innovation	24.5	6.5	69.0
Organisational innovation	46.2	53.8	-

Table 6: Association between Knowledge dynamics and innovativeness in the cluster

		Types of innovation in the cluster				Total	; P<5%
		Product	Process	Marketing	Others		
Knowledge sharing is encouraged in the cluster	No	-	$1_{a(}$0.5%)	-	-	1(0.5%)	= 0.480 = 0.923
	Yes	$7_{a(}$3.6%)	131_{a}(67.2%)	55_{a}(28.2%)	1_{a}(0.5%)	194(99.5%)	
Total		**7(3.6%)**	**132(67.7%)**	**55(28.2%)**	**1(0.5%)**	**195(100.0%)**	
Employees daily task involve rotation is encouraged in the cluster	No	$5_{a, b}$(2.6%)	99_{b}(50.8%)	52_{a}(26.7%)	$1_{a, b}$(0.5%)	157(80.5%)	= 10.070 **= 0.018**
	Yes	$2_{a, b}$(1.0%)	33_{b}(16.9%)	3_{a}(1.5%)	-	38(19.5%)	
Total		**7(3.6%)**	**132(67.7%)**	**55(28.2%)**	**1(0.5%)**	**195(100.0%)**	
Internal training programme is encouraged in the cluster	No	$1_{a, b}$(0.5%)	11_{b}(5.6%)	49_{c}(25.1%)	$1_{a, c}$(0.5%)	62(31.8%)	= 119.900 **= 0.000**
	Yes	$6_{a, b}$(3.1%)	121_{b}(62.1%)	6_{c}(3.1%)	-	133(68.2%)	
Total		**7(3.6%)**	**132(67.7%)**	**55(28.2%)**	**1(0.5%)**	**195(100.0%)**	
Preference to hiring employees with relevant experience in the cluster	No	1_{a}(0.5%)	100_{b}(51.0%)	43_{b}(21.9%)	$1_{a, b}$(0.5%)	145(74.0%)	= 13.915 **= 0.003**
	Yes	6_{a}(3.1%)	33_{b}(16.8%)	12_{b}(6.1%)	-	51(26.0%)	
Total		**7(3.6%)**	**133(67.9%)**	**55(28.1%)**	**1(0.5%)**	**196(100.0%)**	

Each subscript letter denotes a subset of Is your firm involved in any kind of innovation? categories whose column proportions do not differ significantly from each other at the .05 level.

Table 7 Association between Knowledge acquisition and innovation in the enterprises (Cont.d)

		Types of innovation in the cluster				Total
		Product	Process	Marketing	Others	
Knowledge exchange mechanism in the cluster	Allotting task with close supervision	1_a(0.5%)	81_a(41.5%)	26_a(13.3%)	1_a(0.5%)	109(55.9%)
	in-house training	5_a(2.6%)	42_a(21.5%)	5_b(2.6%)	-	52(26.7%)
	Allowing the employees to collectively undertake task	$1_{a,\ b}$(0.5%)	9_b(4.6%)	23_a(11.8%)	-	33(16.9%)
	Others	-	-	1_a(0.5%)	-	1(0.5%)
Total		**7(3.6%)**	**132(67.7%)**	**55(28.2%)**	**1(0.5%)**	**195(100.0%)**
Types of training in the cluster	Formal trainings paid for by the employer	5_a(3.6%)	2_b(1.5%)	3_a(2.2%)	-	10(7.3%)
	Formal trainings paid for by the employees	1_a(0.7%)	3_a(2.2%)	-	-	4(2.9%)
	Informal form- learning by doing and using	-	119_b(86.9%)	4_a(2.9%)	-	123(89.8%)
Total		**6(4.4%)**	**124(90.5%)**	**7(5.1%)**	**-**	**137(100.0%)**

Summary, Conclusion and Implications of the study

- The cluster encourages knowledge sharing, internal training programme and did not give preference to the experience employees while hiring them.
- The employees in the cluster have both formal and informal forms of learning and tasks were allotted to them with close supervision.
- Adoptive innovation was prominent in the cluster. There were no significant differences in the innovation types of firms that shared knowledge and those that did not share knowledge in the cluster.
- This may be due to the benefits attributed to clustering of businesses.
- Contrarily, there were significant differences in innovation types of firms that encouraged “employee daily task rotation”, “internal training programmes”, and “preference for hiring employees with relevant work experience” in the businesses that did not carry out these activities

Summary, Conclusion and Implications of the study (2)

- The variables representing knowledge sharing mostly didn't have significant impact on the innovation types among the enterprises in the cluster.

- This is because knowledge sharing in the cluster happened in two broad ways – spill over and transfer.

- It was observed that deliberate knowledge transfer takes place among the enterprises in the cluster though **regular internal training programs, rotation of jobs, hiring of experience workforce and young apprentice,** and developing **a culture of exchanging information** within an enterprise.

- On the other hand, knowledge sharing also takes place spontaneously through knowledge spill over outside of each enterprise but within the cluster. **Knowledge spill over is inevitable within the cluster due to enterprises proximity to each other**, all due to the fact that the enterprises are into related businesses hence they **share same suppliers of raw materials, equipment, customers and industry association amongst others self-help platforms they share**.
- This relationship enables **spontaneous and uncontrollable knowledge flows** from enterprise to enterprise within the cluster.

Summary, Conclusion and Implications of the study (3)

While enterprises engage actively in deliberate knowledge transfer among their employees, there was spontaneous knowledge spill over from enterprise to enterprise due to proximity.

This may be the reason why variable capturing knowledge transfer didn't have much significance in the differences in the innovation outcomes due to externalities such as the massive knowledge spill over occurring within the cluster which remains organic and spontaneous.

Another new knowledge advanced in this work is that knowledge spill over in the cluster may have limited effect on the enterprises' innovation capability.

Even though knowledge spill over may have significantly help the production (routine) capability in the cluster it hasn't had significant positive impact on the ability of the enterprises to implement technological innovations (innovation capability).

Limitations and further studies

- This study put much emphasis on knowledge sharing mainly from the point of view of knowledge transfer variables however the results showed that knowledge spill over may have stronger effect on knowledge sharing than deliberate knowledge transfer.

- The statistics in the study shows that externalities (knowledge spill over variables) may actually be more important determinant of innovation outcome differences.

- The authors thus recommend that further studies should explore knowledge spill over variables as much as knowledge transfer variables.

- Also, further studies can compare the effects of knowledge sharing in clustered firms against standalone enterprises. Furthermore, further studies on knowledge sharing are extended to other clusters that are not technology based.

- Although, this study used only questionnaire, further studies should used mixed methods in data collection (questionnaire and interview for triangulation view of effect of knowledge sharing on innovation in clustered firms).

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Thank you

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