

# Innovations

## **Leavitt's Wheel and Circle Communication Patterns as Correlates of Principals' Administrative Effectiveness in Public Secondary Schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria**

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**Abstract :** *This study was carried out mainly to investigate the impact of Leavitt's wheel and circle communication patterns on principals' administrative effectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria. The descriptive research design of correlational study was used for the study. The population for this study consisted of 16 public secondary schools and 1,480 teachers. Two sets of validated instruments tagged, "Leavitt's Wheel and Circle Communication Patterns Questionnaire" (LWCCPQ) and "Principals' Administrative Effectiveness Questionnaire" (PAEQ) were employed to collect data from a sample of 200 teachers. Proportionate simple random sampling technique was used to select 200 teachers from seven public secondary schools in the Local Government Area of Ado-Ekiti. The reliability co-efficient ( $r$ ) obtained for LWCCPQ and PAEQ through test-re-test method were 0.73 and 0.81 respectively. Pearson product moment correlation statistics was used to analyse the data. The null hypotheses formulated were tested at 0.05 level of significance. The study revealed that the level of principals' administrative effectiveness as well as the level of the use of Leavitt's wheel and circle communication patterns were satisfactory; and there were significant positive relationship between Leavitt's wheel and circle communication patterns and principals' administrative effectiveness.*

**Keywords:** *Leavitt's Wheel Communication, Leavitt's Circle Communication, Communication Patterns, Administrative Effectiveness, Effectiveness*

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## **Introduction**

In the school system, the duty of administration falls upon the principal. He coordinates and organises the entire school towards the accomplishment of the stated school goals. Akomolafe (2012) looked at the administrative effectiveness as the positive response to administrative efforts and actions with the intention to accomplish stated goals. Similarly, Mbipom (2006) cited in Alademomi (2021) stated that principals assume all routine jobs to accomplish all administrative tasks as leaders for achieving school objectives for posterity. Principals' role performance to a great extent, determines the effectiveness of the teachers in the performance of their skills. Their administrative roles include planning, organising, directing, controlling, coordinating, communication, supervision of staff and students, decision making and so on.

Administrative effectiveness can be measured through school performance improvement, curriculum improvement, effective resources management and monitoring, appropriate delegation of work and so on. Biech (2010) stressed that administrative effectiveness of the school system requires an atmosphere of mutual trust and understanding between the principals and their subordinates in developing school goals, creating a unity of purpose, facilitating communication and managing instruction. Alademomi (2021) opined that monitoring performance, regular staff meeting, interaction, encouraging staff participation in decision-making are evidence of administrative effectiveness but when the principal is all-wise, seems more knowledgeable, there is bound to be a disparity in the school and as such, principals' administrative effectiveness in such situation amount to nothing.

Meanwhile, most of the above assertions seem to be principals' administrative ineffectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria which could be attributed to lack of effective wheel and circle communication pattern of Harold Leavitt of 1951. Other Leavitt's communication patterns are: Chain (line), Y, and network.

School principals carry out their management functions through effective communication. Akinwale and Okotoni (2018) said that secondary school principals plan, organise, control, coordinate and perform other related administrative functions through communication. The vision and mission of the school, the decision-making process, the delegation of responsibilities, school planning, and other related matters are being communicated by the principal to the stakeholders through effective communication, and so, communication plays prominent roles in the administration of school and in the achievement of the school goals. It can be deduced that in the absence of an effective communication in the school system, it may become difficult for the school to attain its goals. Therefore, communication system in any organisation like the school is very vital

to the survival and smooth running of the organisation. According to Akinwale and Okotoni(2018), no administrative functions can be carried out in schools without good and effective communication. Communication patterns are ways of communication that the principals employ to convey vital information to their subordinates (Akpawusil,2002).

Communication patterns can be applied to groups as all-to-one and as one-to-all communication. When many people give information to one person, this can be referred to as all-to-one communication but if one person gives information to many people (when one gives speeches), it can be termed, one-to-all communication pattern. Sometimes, there are types of communication channels that are taken to be patterns of communication. These are: verbal, horizontal, diagonal and grapevine. It also has different forms such as: interpersonal, intrapersonal, group and mass communication.

In 1951, Harold Leavitt described communication patterns and its types which were taken to be most common categorisation. This is also known as Leavitt Experiment where five people had to play a game similar to clue (a word or words giving an indication as to what is to be inserted in a particular space in a crossword). In the experiment, each of the five people had a symbol with them and need to look for which symbol they had in common. If all the information could be gathered, the puzzle could be solved. Five people were positioned in cubicles with slots, six switches to exchange information. The cubicles were positioned in different shapes: Y, circle, star (wheel), and chain (line); and people had slots in which they could write messages and send according to these patterns. This was done to look for which pattern could be better to communicate quickly and effectively.

#### *Wheel (Star) Communication Pattern*

Here, there is a boss at the center of all communication. All other members stand at the same level in the structure. All members can communicate with the boss and the boss can communicate with all the members but members cannot interact or communicate with each other. Sometimes, members do not even know of the existence of other members of the group. This pattern of communication is taken to be the best for any organisation as the boss can have direct link with all the members. Communication problems are less and the method is quick; there is no distortion of information by other members of the group when passing the message; and prompt and simultaneous feedback is encouraged.

In wheel example of communication, all subordinates get direction from one prevalent. This is exceptionally brought together kind of communication

arrangement where each subordinate gets direction or guidelines from a solitary specialist or prevalent "an" and needs the quick input. Exceedingly brought together hierarchical structure will repress the advancement of wide casual communications systems in light of the fact that most communication was constrained "through legitimate channels" (Lee, Kozlenkova and Palmatier, 2015).

Lunenburg (2011) studied on wheel examples and examination: Underused sources to enhance communication adequacy. Other than wheel designs, school executives examine communication streams and examples is organised examination. In wheel designs, a two level progression is the most organised and unified of the examples in light of the fact that every part can speak with just a single other individual. For example, an administrator of schools and the individuals who are his or her prompt subordinates (collaborator director for business, guidance, faculty, and right hand to the director), most likely frame a wheel organise. The director is A and his right hand administrators are B,C,D, and E individually. The four subordinates send data to the administrator, and the director sends that data back to them, ordinarily as choices.

In a study conducted by Ramos (2012) on the effects of wheel pattern on staff's performance in the North West Region of an insurance company, it was indicated that wheel pattern was good at solving problems among company's staffs. Makatoris (2009) was to identify if communication and organisation culture influence project staff's performance in NGOs in South Sudan. It was found out that communication is a key influence of project performance. A study by Kibet (2018) on communication patterns on performance of County Government funded projects in Kenya: A case study of UasiGishu County funded projects found out that wheel pattern problems are less and the method is quick.

### *Circle Communication Pattern*

Here, there is a leader and hierarchies in the group members. They can only communicate to the members who are next to him or her like their direct subordinates. He or she cannot discuss with any other members like the lowest level employees. For instance, if an office assistant needs to discuss with the leader, he or she needs to send the message to his or her seniors who finally reaches the boss. According to the above analysis, it means, all group members cannot communicate with the boss; lower level staffs e.g. office assistants cannot be allowed to criticise anything to the upper level and they do not have a role to play in decision-making; and the process of sending messages takes a lot of time

as the message must move from one person to another before it reaches the desired recipient.

This is a three-level hierarchy which is very different from the wheel and other Leavitt's communication patterns. It is horizontal and decentralised communication network. It gives every member the opportunity to communicate. Members can communicate to another member in their right and left hand sides. Members of other networks have the same restrictions but circle network is less restricted. For instance, the circle network has more two-way routes accessible for solving problem. That is, it has five more than the other Leavitt's communication patterns. Every one becomes a decision maker in the circle communication network.

Circle communication is a structure of group exchange that builds a network of relationships, a sense of community. Through practice of active listening, intentional speaking, and conscious self-monitoring, circle communication emphasises individual contribution while building consensus to satisfy the reason of the group. In such manner, circle communication supports a shared leadership in which all individual and unique perspectives are engaged to create the common ground for action. Circle communication emerges from a shared humanity, which can balance the "division of labour" and people only being known by their specific organisational roles. Both are needed to sustain an organisation. By nurturing the human side, regardless of role and function, circle communication intersects with delivery or the uniqueness of each individual, storey telling, coaching, guiding, and mentoring as well as discovering and responding to conflict (Wellman and Gulia, 2018).

Studies of Mathieu, Maynad, Rapp and Gilson (2008) on observational and simulation studies confirmed the relationship between communication frequencies and patterns with team effectiveness in organisations and in teams; Mulder (1960) in his study, confirmed that in the Leavitt's research on communication structures in task-performance groups, it was found that so-called wheel or star group worked faster, needed a smaller number of messages and made less errors than circle groups and that the results were exactly similar in a replication of Leavitt's experiment by with Dutch subjects; and an experiment conducted by Leavitt (1951) on different patterns of communication (circle, chain, Y-shaped, and wheel/star-shaped) communication patterns were found to affect the behaviour and performance of working groups. Star-shaped communication pattern was found to be more efficient than the circle.

Study conducted by Otieno, Waiganto and Njeru (2015) on effect of employee communication on organisation performance in Kenya's horticultural sector. It was found out that there was significant positive relationship between circle

communication, individual commitment, and social networks and staff's fulfilment. Study conducted by Karimi (2014) on the impact of communication on employee motivation in the Kenya public service: A case study of Postal Corporation of Kenya indicated that communication patterns play an important role in determining project staff's satisfaction and whether a project succeed or not. It was discovered that using circle communication pattern motivates project. Kube (2014) conducted a study on the impact of communication patterns on organisational performance in Kenya Port Authority. It was found out that communication patterns play a central role in high-performance. A study by Kibet (2018) on communication patterns on performance of County Government funded project in Kenya: A case study of UasinGishu County funded projects found out that circle communication supports a shared leadership in which all individual and unique perspectives are engaged to create the communication ground for action.

### *Leavitt Diamond Theory*

Leavitt's Diamond proposes that each organisational system is made up of four main components: People, work, structure, and technology. It is the interaction between these four components that determine the fate of an organisation. All the four factors have mutual interaction, which means they always need to be brought into accord. It is an interactive approach in which the four factors mentioned above are mutually coherent and influence one another.

This study is based on the above theory. In the school setting, Leavitt's Diamond theory applies to a situation where the principal, through communication, interacts with the teachers for administrative effectiveness which in turn, may lead to teachers' effectiveness.

### **Research Questions**

The following research questions were raised for the study:

1. What is the level of principals' administrative effectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria?
2. What is the level of the use of Leavitt's wheel communication pattern by principals of public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria?

3. What is the level of the use of Leavitt's circle communication pattern by principals of public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria?

### **Research Hypotheses**

The following hypotheses were formulated for the study:

1. There is no significant relationship between Leavitt's wheel communication pattern and principals' administrative effectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria.
2. There is no significant relationship between Leavitt's circle communication pattern and principals' administrative effectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria.

### **Methodology**

Descriptive research design of correlational study was employed for this study. This is because, it focuses on the observation and perception of the existing situation, describes and interprets what is concerned with issues, conditions, practices or relationships that exist; views, beliefs and attitudes that are held, processes that are going on and the trends that are developing.

The population comprised 16 public secondary schools and 1480 teachers in Ado-Ekiti Local Government Area of Ekiti State, Nigeria (Source: Ministry of Education, Science and Technology, Ekiti State, Nigeria). The sample was selected using proportionate simple random sampling technique to select 200 teachers from seven public secondary schools in the Local Government Area of Ado-Ekiti because; the number of teachers in each school is not the same. Leavitt's Wheel and Circle Communication Patterns Questionnaire (LWCCPQ) and Principals' Administrative Effectiveness Questionnaire (PAEQ) were designed and adopted to collect data for this study. A 4-point rating scale was employed for the instrument. The reliability co-efficient ( $r$ ) calculated were 0.73 and 0.81 for LWCCPQ and PAEQ respectively through the test-re-test method which was high enough to ensure the reliability of the instruments. The two sets of instruments were administered with the help of two trained research assistants. The hypotheses formulated were tested at 0.05 level of significance using Pearson's product moment correlation statistics.

**Results**

**Table 1: Level of principals’ administrative effectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria**

	Frequency	Percentage	
Low	(15-20)	45	22.5
Moderate	(21-40)	95	47.5
High	(41-60)	60	30.0
<b>Total</b>		<b>200</b>	<b>100.0</b>

Table 1 shows the level of principals’ administrative effectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria. The result shows that out of 200 respondents sampled, 45 representing 22.5 percent of those who responded to low level of principals’ administrative effectiveness. Those who had moderate level were 95 representing 47.5 percent while those with high level were 60 representing 30.0 percent. This shows that the level of principals’ administrative effectiveness in public secondary schools in AdoEkiti Local Government Area of Ekiti State was relatively moderate.

**Table 2: The level of the use of Leavitt’s wheelcommunication pattern by the principals of public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria**

	Frequency	Percentage	
Low	(8-10.67)	40	20.0
Moderate	(10.68-21.33)	100	50.0
High	(21.34-32.00)	60	30.0
<b>Total</b>		<b>200</b>	<b>100.0</b>

Table 2 shows the level of the use of Leavitt’s wheel communication pattern by the principals of public secondary schools in Ado-Ekiti Local Government Area of Ekitit State, Nigeria. The result shows that out of 200 respondents sampled, 40 representing 20.0 percent responded to low level of the use of Leavitt’s wheel communication pattern by the principals of public secondary schools in Ado-Ekiti Local Government Area of Ekiti State. Those who had moderate level were 100 representing 50.0 while those with high level were 60 representing 30.0 percent. This shows that the level of the use of Leavitt’s wheel communication pattern by the principals of public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria was relatively moderate.



**Table 3: The level of the use of Leavitt’s circle communication pattern by the principals of public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria**

		Frequency	Percentage
Low	(10-13.33)	30	15.0
Moderate	(13.34-26.67)	105	52.5
High	(26.68-40.00)	65	32.5
<b>Total</b>		<b>200</b>	<b>100.0</b>

Table 3 shows the level of the use of Leavitt’s circle communication pattern by the principals of public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria. The result shows that out of 200 respondents sampled, 30 representing

15.0 percent responded to low level of the use of Leavitt’s circle communication pattern by the principals of public secondary schools. Those who had moderate level were 105 representing 52.5 percent while those with high level were 65 representing 32.5 percent. This shows that the level of the use of Leavitt’s circle communication pattern by the principals of public secondary schools in Ado-Ekiti Local Government Area of Ekiti State was relatively moderate.

**Table 4: Test of relationship between Leavitt’s wheel communication pattern and principals’ administrative effectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria**

Variable	N	Mean	SD	Cal value	r-	P-value
Leavitt’s wheel communication pattern	200	1.57	0.63	0.404		0.000
Principals’ administrative effectiveness	200	12.47	5.64			

Table 4 shows the relationship between Leavitt’s wheel communication pattern and principals’ administrative effectiveness. The result obtained from the analysis shows that the value of r-calculated (0.404) is greater than p-value (0.000) at 0.05 level of significance. Therefore, the null hypothesis earlier formulated is rejected. That is, there is significant relationship between Leavitt’s wheel communication pattern and principals’ administrative effectiveness. This implies that Leavitt’s wheel communication pattern has positive impact on principals’ administrative effectiveness.

**Table 5: Test of relationship between Leavitt’s circle communication pattern and principals’ administrative effectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria**

Variable	N	Mean	SD	Cal r-value	P-value
Leavitt’s circle communication pattern	200	1.71	0.60	0.691	0.000
Principals’ administrative effectiveness	200	12.49	5.64		

Table 5 shows the relationship between Leavitt’s circle communication pattern and principals’ administrative effectiveness. The result obtained from the analysis shows that the value of r-calculated (0.691) is greater than p-value (0.000) at 0.05 level of significance. Therefore, the null hypothesis earlier formulated is rejected. That is, there is significant relationship between Leavitt’s circle communication pattern and principals’ administrative effectiveness. This implies that Leavitt’s circle communication pattern has positive impact on principals’ administrative effectiveness.

### Discussion

The result revealed that the level of principals’ administrative effectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State was relatively moderate during the period under study. This might be as a result of efforts being committed by the principals. This finding agrees with Mbipom (2006) cited in Alademomi (2021) who stated that principals assume all routine jobs to accomplish all administrative tasks as leaders for achieving school objectives for posterity. Principals’ role performance to a great extent, determines the effectiveness of the teachers in the performance of their skills. Their administrative roles include planning, organising, directing, controlling, coordinating, communication, supervision of staff and students, decision making and so on; Biech (2010) who stressed that administrative effectiveness of the school system requires an atmosphere of mutual trust and understanding between the principals and their subordinates in developing school goals, creating a unity of purpose, facilitating communication and managing instruction; and Alademomi (2021) who opined that monitoring performance, regular staff meeting, interaction, encouraging staff participation in decision-making are evidence of administrative effectiveness but when the principal is all-wise, seems more knowledgeable, there is bound to be a disparity in the school and as such, principals’ administrative effectiveness in such situation amount to nothing.

The result also revealed that the level of the use of Leavitt's wheel and circle communication patterns by the principals of public secondary schools in Ado-Ekiti Local Government Area of Ekiti State were relatively moderate. This might be as a result of the principals' skilful use of any means of communication for survival and smooth running of the school. This finding agrees with Akinwale and Okotoni (2018) who said that secondary school principals, plan, organise, control, coordinate and perform other related administrative functions through communication. The vision and mission of the school, the decision-making process, the delegation of responsibilities, school planning, and other related matters are being communicated by the principal to the stakeholders through effective communication, and so, communication plays prominent roles in the administration of school and in the achievement of the school goals. It can be deduced that in the absence of an effective communication in the school system, it may become difficult for the school to attain its goals; Akinwale and Okotoni(2018) who opined that no administrative functions can be carried out in schools without good and effective communication; and Akpawusil(2002) who asserted that communication patterns are ways of communication that the principals employ to convey vital information to their subordinates.

The result showed that there was a statistically significant relationship between Leavitt's wheel communication pattern and principals' administrative effectiveness. This means that Leavitt's wheel communication pattern will enhance principals' administrative effectiveness. This might be as a result of Leavitt's wheel communication pattern that permits the boss to communicate with all members of an Rapp and Gilson (2008) on observational and simulation studies confirmed the relationship between communication frequencies and patterns with team effectiveness in organisations and in teams; and an experiment conducted by Leavitt (1951) on different patterns of communication (circle, chain, Y-shaped, and wheel/star-shaped) communication patterns were found to affect the behaviour and performance of working groups. Star-shaped communication pattern was found to be more efficient than the circle.

The result also showed that there was statistically significant relationship between Leavitt's circle communication pattern and principals' administrative effectiveness. This means that Leavitt's circle communication pattern will enhance principals' administrative effectiveness. This might be as a result of orderliness in the passage of information in Leavitt's circle communication pattern. This finding agrees with an experiment conducted by Leavitt (1951) on different patterns of communication (circle, chain, Y-shaped, and wheel/star-shaped) communication patterns were found to affect the behaviour and performance of working groups; and Otieno, Waiganto and Njeru (2015) who found out that there were significant positive relationship between circle communication pattern, individual commitment, and social networks and staff' fulfilment.

## Conclusion

This paper reviewed various literatures that are relevant to Leavitt's wheel and circle communication pattern. Based on the finding of this study, the following conclusions were drawn: the level of principals' administrative effectiveness, the level of the use of Leavitt's wheel and circle communication patterns by the principals of public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria were satisfactory; Leavitt's wheel and circle communication patterns are necessary ingredients for enhancing principals' administrative effectiveness in public secondary schools in Ado-Ekiti Local Government Area of Ekiti State, Nigeria.

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