

Innovative Leadership Styles and Human Resource Management in Artificial Intelligence Era as Correlates of Principals' Administrative Effectiveness in South East, Nigeria

J. P. Nwachinaemere, Ph.D

Department of Educational Administration and Planning
Abia State University, Uturu
Jamespaul8669@yahoo.com

P. O. Ogedi, Ph.D

Department of Educational Management
Michael Okpara University of Agriculture, Umudike
seonstonez@gmail.com

Abstract

This study adopted a correlational design to investigate innovative leadership styles and human resource management as correlates of principals' administrative effectiveness in South East, Nigeria. Two research questions and two null hypotheses guided the study at 0.05 level of significance. The population of this study was 1483 principals from 1483 public secondary schools in five states in South East Nigeria. The sample size for the study was 400 principals, drawn using simple random sampling. The instruments for data collection were researchers developed three sets of structured questionnaires. These are Innovative Leadership Style Questionnaire (ILSQ), Human Resources Management Questionnaire (HRMQ) and Principals Administrative Effectiveness Questionnaire (PAEQ). They were validated by five experts. The reliability index of the instruments, established using Cronbach alpha, were .75 for ILSQ, .92 for HRMQ and .77 for PAEQ. The data collected were analyzed using Pearson Product Moment Correlation Coefficient (r) and linear regression. The findings of the study revealed, among others, that innovative leadership styles significantly relate with principals' administrative effectiveness in public secondary schools in Nigeria. It was recommended, among others, that human capital development should be encouraged by secondary school principals in order to assist teachers improve in their professional endeavours.

Keywords: Artificial intelligence, leadership styles, innovative leadership, human resources management, administrative effectiveness

Introduction

Society is constantly evolving in the presence of emerging technological and artificial intelligence software for quality human interaction. The inclusion of artificial intelligence in educational administration tends to facilitate efficiency in the administrative responsibilities of school principals. AI programmes are designed to enhance job task in diverse disciplines. This could also assist leaders innovatively in problem-solving skills, high-tech thinking, manipulative skills as well as have high sense of inclusiveness in contemporary educational leadership. Alagbe et al. (2021) viewed AI as the ability of a computer or machine to mimic the capabilities of the human mind - learning from examples and experience, recognizing objects, understanding, responding to language, decision-making, and solving problems to perform functions a human might perform.

Saliently, the involvement of artificial intelligence in innovative leadership and human resources management involves the use of various technological techniques and medium like robotics, mobile application technologies, deep learning, computers, natural language processing, machine learning, and 3D designs to replace human functions and assignments for effective and fast results. Ogunode and Ahaotu (2021) defined AI as programmes designed with human-like intelligence and structured in forms of computer, robot, or other machines to aid in provision of any kind of service or tasks to improve social, economic and political development of the society. In different dimensions, Artificial Intelligence is regarded as technologically innovative applications, programming and software developed to carry out assigned human responsibilities. Artificial intelligence also plays supportive roles in leadership, corporate organisations and educational settings as it helps in analyzing quantum of data, pattern recognition, making predictions and commanding instructions for processing complex information.

Leadership position is of great importance to every organization, as such leadership becomes a drive to organizational success. Ogedi and Nwialu (2019) defined leadership as an interpersonal influence that could be expressed directly or indirectly using communication measures and strategies to achieve a given goal. Nwokoji (2017) defined leadership as a body of people who lead and direct the activities of group towards a shared goal. Leadership therefore could be defined as the process of guiding and controlling human activities in a given organization for the purpose of achieving sustainable stated goals. In essence, leadership entails being in charge of organizations or group affairs as well as possess the power, ability and will to control, command and compel such followers to use resources available to arrive at the expected results. Diverse leadership styles have

been identified by scholars; some of these leadership styles are not in use again, thus may likely not support effective administrative performance. A study by Goh et al. (2012) indicated that leadership style is significantly influenced by the leader's immediate and extended family, clan and tribe. These leadership styles include autocratic, democratic, situational, and laissez-faire style of leadership. Leadership styles thus remain the technique or approach employed by a leader in influencing the behaviour of organizations workforce towards putting their best of energy and creativeness in achieving the set goals of the firm. This can be achieved through innovative leadership application.

Innovative leadership and human resources management are vital means that propel administrative effectiveness among educational and corporate organizational sector leaders. Leadership in an organization has taken different styles in ensuring that human capital and other resources in an organization are judiciously provided and utilized for the purpose of attaining educational goals. Poonam and Arvind (2014) contended that innovation leadership involves synthesizing different leadership styles in organizations to influence employees to produce creative ideas, products, services and solutions. The innovative practices in an organizational leadership remains the sole responsibility of an innovative leader. The evolution of innovation in human society is often misunderstood. Mumford and Licuanan (2014) stated that adapting to new changes and the need for innovation in organizations have resulted in a new focus on the role of leaders in shaping nature and success of creative efforts. Budiningsih and Soehari (2021) indicated that innovative leadership has been integrated with a strong network of value system, comprising of integrity, tenacity, curiosity, courage and humility similar to the five fingers of a hand, which when united forms a power punch of an innovative leader.

Some traditional leadership styles such as democratic, autocratic and laissez-faire styles which were used by most organizational administrators have not actually resulted to effective administration in the present organizational settings. These traditional leadership styles in use by principals are democratic leadership, autocratic and laissez-faire leadership styles. These three leadership styles are still in use by majority of today's educational administrators but have failed in total goal attainment as a result of their weaknesses and wrong applications by the leaders. Unachukwu (2014) noted that in between autocratic and democratic leadership is laissez-faire leadership style which essentially is seen as a situation where there is no leader. However, it depends on how these leadership styles are managed. In this study, the researchers reviewed some sub-variables of innovative leadership style such as instructional leadership, supervisory leadership, transformative leadership, cultural leadership and community-based leadership.

Instructional leadership is all about guiding, supporting, and influencing teachers to enhance their skills and improve the school curriculum. It plays a crucial role in helping educators deepen their subject knowledge and meet the overall goals of the school. As noted by Heck in the work of Muhammad et al. (2017), instructional leadership includes both direct and indirect activities that impact students' learning experiences. Essentially, it fosters a collaborative environment where principals and teachers share the responsibility for steering students' academic progress, achieving curriculum objectives, and motivating teachers to contribute to the school's success.

Supervision is of importance in school administration, and it is primarily the responsibility of the principal. The way a principal supervises can significantly impact both teacher performance and student outcomes. Supervisory leadership is all about fostering a collaborative and ongoing process aimed at enhancing teachers' instructional skills and overall competence. According to Ibiam (2015), effective supervisory leadership involves providing guidance, support, sharing ideas, and facilitating improvements to help teachers create better learning environments and boost the quality of education in schools. As the head administrator and chief supervisor, the school principal offers professional leadership and support to teachers, helping them refine their teaching techniques to foster effective instruction and promote students' overall growth and learning.

Transformational leadership plays a crucial role in enhancing leadership effectiveness within an organization. It fosters the development of essential workforce behaviours, boosts commitment to organizational goals, and promotes job satisfaction among employees. According to Nanjundewaraswanmy and Swamy (2014), this leadership style focuses on nurturing followers and addressing their needs. Malik et al. (2017) highlights four key components of transformational leadership: individual consideration, intellectual stimulation, inspirational motivation, and idealized influence.

In the realm of cultural leadership, the ways in which leaders impact their followers can be understood through the lens of sense-giving. This process helps followers better internalize the organization's culture. Research by Saran et al. (2023) suggests that indicators of cultural leadership such as authentic, charismatic, ethical, servant, spiritual, and value-based leadership have a significant and positive effect on workforce productivity. This indicates that cultural leadership is all about fostering deep commitment, aligning values, creating a sense of collective identity, and building strong cohesion among team members.

School-community based leadership emphasizes the relationship between school management and the surrounding community. It is crucial for school leaders to involve the community in their administrative processes to foster cooperation and support. Nnachi (2018) pointed out that effective leadership aimed at building quality community relations also focuses on environmental development. This development is broad, touching on all aspects of human life. The social dimension of school-community leadership is particularly important, as it promotes strong human connections.

Management is an important measure to ensure that work is effectively carried out in an organization. Management could be defined as the process of designing an environment in which individuals working together in groups effectively accomplish selected goals. It could be defined as a functional process involving sequence of coordinated event of planning, organizing, coordinating and leading in order to use available resources to achieve desired outcome in the fastest and most efficient way. Klonny and Green in Douglas and Duru-Uremadu (2016) defined management as the process of designing an environment in which individuals working together in groups, effectively accomplish selected aims. Agreeing to this definition, Ejeh et al. in Anuonye (2023) defined management as a functional process involving sequence of coordinated event planning, organizing, coordination and leading in order to use available resources to achieve desired outcome in the fastest and most efficient way. To do this requires effective human resource management.

Human resource management can be seen as the design of formal systems in an organization to ensure effective and efficient use of human talents to accomplish organizational goals. Chike-Okoli (2014) defined human resources management as a strategic and coherent approach to the management of an organization's most valued assets (people working in an organization who individually and collectively contributes to the achievement of its objectives). Griffin in Omebe (2014) defined human resource management as the set of organizational activities directed at attracting, developing and maintaining an effective workforce. Human resources management is an essential aspect of every organization; be it social, or corporate organization.

Human resource management is concerned with the procurement, recruitment, staffing, welfare, maintenance, training and retraining, placement, promotion, motivation, relationship, compensation or rewards, transfer and discipline of staff in an organization. In this regard, the importance of human resources input (HRI) in the institutions of learning, teaching, learning and educational administration cannot be over emphasized.

Castetter (2016) argued that there is no organization that can function properly without adequate and qualified personnel. He maintained that the quality of personnel in an organization determines the quality of its product. Some variables of human resources management include knowledge management, human capital management and management-staff relations.

Human resource is a business outfit and most vital assets that are for the profitability and survival of an establishment. Aja-Okorie (2014) argued that human resource is concerned with the activities of production, profit and distribution of production benefits. The ability of the school principals to manage available human resources determines the administrative effectiveness of the school principals. Human resources management in educational system deals on how to manage human beings in educational organization. However, there could be similar studies on leadership styles and human resources management but to the researchers' knowledge, there has not been study on innovative leadership styles and human resource management in artificial intelligence era as correlates of principals' administrative effectiveness in South East, which is what the study seeks to determine.

Knowledge management among teachers is often seen as a key part of human resources management in the education sector. Zaim et al. (2018) aver that knowledge management is a vital component of HRM that principals need to focus on to improve administrative outcomes. Many secondary school teachers bring a wealth of diverse skills and knowledge that can significantly enhance the quality of the educational system. Therefore, it is crucial for principals to involve these teachers in their administrative processes. With their innovative ideas and modern skills that align with 21st-century management practices, including teachers in decision-making not only empowers them but also gives principals a valuable advantage in their roles.

Human capital development is an aspect of human resources management, that addresses a critical area of school management. This involves ensuring that all human resources are effectively utilized and coordinated for the growth and advancement of the school system. Teachers are recognized as the cornerstone of this system, playing a pivotal role in shaping and preparing for the next generation. As Sairmaly (2023) pointed out, society relies on education to cultivate the human capital necessary for a thriving economy. It is important to remember that human society is made up of three key elements: human capital (the

educational workforce), the environment (natural resources), and the various institutions that help maintain social order and guide human behaviour.

Management-staff relations, as a key aspect of human resources management, focus on the collaboration between supervisors and their teams, all aimed at creating a positive environment that fosters effective goal achievement. This means that the principal, as the school's administrative leader, should prioritize clear communication and cultivate an atmosphere that enables staff to perform their duties effectively. Onyali (2016) emphasized that a solid human relations strategy is crucial for considering human factors before implementing any innovations or changes within an organization's operations. Essentially, this highlights the importance of involving the educational workforce in the school's decision-making processes, giving them a sense of belonging, including teachers in committees, and delegating tasks and responsibilities to them.

Research questions

The following research questions guided the study:

1. To what extent do innovative leadership styles jointly relate to administrative effectiveness in secondary schools?
2. To what extent do human resources management styles jointly relate to principals' administrative effectiveness in secondary schools?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance to guide the study:

Ho1: There is no significant relationship between innovative leadership styles and principals' administrative effectiveness in secondary schools.

Ho2: There is no significant joint relationship between human resources management styles and principals' administrative effectiveness in secondary schools.

Methodology

Quantitative research approach with focus on correlational research design was employed in this study. The design helped to ascertain the extent in which innovative leadership styles and human resources management correlates with principals' administrative effectiveness in South East, Nigeria. Maduabum (2014) opined that correlation design determines the relationship between variables which enables a researcher to ascertain the extent to which variation in one variable are associated with variation in another. The correlational research design was appropriate for this study as the study seeks to find out the relationship between the two independent variables (innovative leadership styles and

human resources management) and the dependent variable (principals' administrative effectiveness). Dimensions of innovative leadership styles investigated include instructional leadership style (ILS), supervisory leadership style (SLS), transformational leadership style (TLS), cultural leadership style (CLS) and school-community based leadership style (SCBLS). On the other hand, the dimensions of human resources management investigated include knowledge management style (KMS), human capital development (HCD), and management-staff relation (MSR)

The population of this study was 1,483 principals from 1483 public secondary schools in five states in South East Nigeria. This comprised of 231 principals from Abia state, 333 principals from Anambra state, 181 principals from Ebonyi state, 282 principals from Enugu state and 456 principals from Imo state. The sample size for the study was 400 principals. This comprised 62 principals from Abia state, 90 principals from Anambra state, 49 principals from Ebonyi state, 76 principals from Enugu state and 123 principals from Imo state. This sample size was determined using Yamane mathematical formula for sampling estimation. All the five states of South East Nigeria were sampled and used for the study. Proportionate stratified random sampling technique was used to select a sample of 400. A sampling fraction of 0.2 was used to multiply the population of the study of each stratum to obtain the sample size of each state. This sampling fraction was obtained by dividing the population by the sample size thus $S.F = 400/1483$. The principals were drawn using simple random sampling.

The instruments for data collection were the researchers developed three sets of structured questionnaires. These are Innovative Leadership Style Questionnaire (ILSQ), Human Resources Management Questionnaire (HRMQ) and Principals Administrative Effectiveness Questionnaire (PAEQ). The questionnaires consisted of 5 items for ILSQ, 5 items for HRMQ and 10 items for PAEQ. The items were built on a four-point rating scale response including Very High Extent (VHE) 4points, High Extent (HE) 3points, Low Extent (LE) 2points, and Very Low Extent (VLE) 1point.

The instruments were validated by three experts from the Department of Educational Management and two experts from the Department of Science Education who specialized in Measurement and Evaluation. The essence of these experts' validation was to ensure the general test format, relevance, suitability, clarity and content coverage of the items of the instrument as well as ethical consideration.

To ascertain the reliability of the instrument for this study, 30 copies of the questionnaires were administered to 30 principals from 30 private secondary schools in South East Nigeria which were not part of the study respondents. The coefficient of the relationship was obtained using Cronbach alpha method to determine the internal consistency of the cluster items for reliability index. The reliability of the three instruments yielded an index of .75 for ILSQ, .92 for HRMQ and .77 for PAEQ, which was considered reliable.

The data collected from the field were analyzed using Pearson Product Moment Correlation Coefficient (r) to answer the research questions while linear regression analysis was used to test the null hypotheses at 0.05 level of significance. The strength of the relationship was established using Creswell (2008) correlation coefficient scale thus, ± 0.70 to 1.00 Strong/High Extent relationship, ± 0.40 to 0.69 as Moderate/Medium Extent relationship and ± 0.00 to 0.39 no correlation/weak/Low Extent relationship. Creswell (2008) opined that correlation coefficients can range from -1.00 to +1.00 with positive number used to identify a positive relationship and negative numbers being used to identify a negative relationship, while linear association is indicated with a correlation coefficient of 0.00. More-so, null hypotheses were accepted and the alternative rejected, where the F-ratio was less than the F-critical.

Ethical process of application for data collection was in line with the Nigerian system. Respondents were fully informed about the purpose, scope, and procedures of the study. A clear and concise informed consent letter was provided, and participation only proceeded once voluntary, written consent was obtained from all individuals. All researchers ensured that the study does not cause any psychological, emotional, or reputational harm to respondents. In addition, respondents were informed in advance that their participation is entirely voluntary, and they may withdraw from the study at any time without any consequences. Lastly, the results of the study were reported honestly, accurately, and without manipulation. Information privacy was ensured and were treated with utmost confidentiality.

Presentation of results

Research question 1: To what extent do innovative leadership styles jointly relate to administrative effectiveness in secondary schools?

Table 1: Correlation matrix between innovative leadership styles (instructional leadership, supervisory leadership, transformational leadership, cultural leadership and school-community based leadership) and principals' administrative effectiveness

		ILS	SLS	TLS	CLS	SCBLS	PAE
ILS	Pearson Correlation	1					.430
	N	400					400
SLS	Pearson Correlation		1				.745
	N	400					400
TLS	Pearson Correlation			1			.594
	N	400					400
CLS	Pearson Correlation				1		.635
	N	400					400
SCBLS	Pearson Correlation					1	.736
	N	400					400

Table 1 indicated a correlation coefficient (r) of .430, which is positive and within the coefficient limit or range of +/-0.40 to 0.69, indicating positive moderate extent relationship. This result shows that instructional leadership style to a positive moderate extent relate to principals' administrative effectiveness in public secondary schools. The Table also shows a correlation coefficient (r = .745) which is positive and within the coefficient range of +/-0.70 to 1.00, and indicates very high extent relationship. This result indicates that supervisory leadership style to a positive high extent relates to principals' administrative effectiveness in public secondary schools. The result further shows a correlation coefficient (r) of .594, which is positive and within the coefficient range of +/- 0.40 to 0.69, indicating positive moderate extent relationship. This result indicates that transformational leadership style to a very high extent relates to principals' administrative effectiveness in public secondary schools. Also, the Table revealed a correlation coefficient (r) of .635, which is positive and within the coefficient range of +/-0.40 to 0.69, indicating positive moderate extent relationship. This result indicates that cultural leadership style to a positive moderate extent relates to principals' administrative effectiveness in public secondary school. It was found from the Table a correlation coefficient (r) of .736 which is positive and within the coefficient range of +/- 0.70 to 1.00, indicating high extent relationship. This result indicates that school-community based leadership style to a positive high extent relates to principals' administrative effectiveness in public secondary schools.

To determine the relative contribution of innovative leadership styles (instructional leadership, supervisory leadership, transformational leadership, cultural leadership and school-community based leadership) to principals' administrative effectiveness, a Scheffe test was carried out, and the predictive index of innovative leadership styles are presented as shown in Table 2.

Table 2: Scheffe test on relative contributions of innovative leadership styles to principals' administrative effectiveness

		ILS	SLS	TLS	CLS	SCBLS	PAE (%)
ILS	Pearson	1					
	Correlation						.430(13.694)
	N	400					400
SLS	Pearson		1				
	Correlation						.745(23.726)
	N	400					400
TLS	Pearson			1			
	Correlation						.594(18.917)
	N	400					400
CLS	Pearson				1		
	Correlation						.635(20.223)
	N	400					400
SCBLS	Pearson					1	
	Correlation						.736(23.440)
	N	400					400

Table 2 shows that the predictive indices of innovative leadership styles (instructional leadership, supervisory leadership, transformational leadership, cultural leadership and school-community based leadership) are .430, .745, .594, .635 and .736 respectively. These, however, represent 13.69, 23.73, 18.92, 20.22 and 23.44 percentages of relative contribution of instructional leadership style, supervisory leadership style, transformational leadership style, cultural leadership style and school-community based leadership style respectively on principals' administrative effectiveness. In other words, supervisory leadership style had the highest contribution of 23.73%, followed by school community-based leadership style with percentage contribution of 23.44, followed also by cultural leadership style with percentage contribution of 20.22%, transformational

leadership style with percentage contribution of 18.92% and lastly instructional leadership style with percentage relative contribution of 13.69%.

Ho1: There is no significant relationship between innovative leadership styles and principals' administrative effectiveness in secondary schools.

Table 3: Regression analysis of relationship between innovative leadership style and principals' administrative effectiveness

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	222.164	1	222.164	385.033	.000 ^b
	Residual	230.406	399	0.577		
	Total	452.570	400			

a. Predictors: (Constant), ILS b. Dependent Variable: PAE; Df = degree of freedom, F = F-calculated, correlation is significant at 0.05 level (2tailed)

Table 3 revealed an F-calculated value of 385.0332 at 0.05 level of significance. The table also showed the P-value of .000 which is less than the alpha value at 0.05. Therefore, the null hypothesis which stated that there is no significant relationship between innovative leadership styles and principals' administrative effectiveness in public secondary schools in South East, Nigeria was rejected. This means that innovative leadership styles significantly relate to principals' administrative effectiveness in public secondary schools in South East, Nigeria.

Research question 2: To what extent do human resources management styles jointly relate to principals' administrative effectiveness in secondary schools?

Table 4: Correlation matrix between human resource management (knowledge management style, human capital development, management-staff relation) and principals' administrative effectiveness.

		KMS	HCD	MSR	PAE
KMS	Pearson Correlation	1			.479
	N	400			400
HCD	Pearson Correlation		1		.834
	N	400			400
MSR	Pearson Correlation			1	.713
	N	400			400

Table 4 indicates a correlation coefficient (r) of .479, which is positive and within the coefficient limit or range of +/-0.40 to 0.69, indicating positive moderate extent relationship. This result shows that knowledge management style, to a moderate extent, relate to principals' administrative effectiveness in public secondary schools. The table also revealed a correlation coefficient (r) of 0.834, which is positive and within the coefficient range of 0.70-1.00, indicating high extent relationship. This result implies that human capital development, to a high extent, relates to principals' administrative effectiveness in public secondary schools. The result further shows a correlation coefficient (r) of 0.713, which is positive and within the coefficient range of 0.70-1.00, which indicates high extent relationship. This result indicates that management-staff relation, to a high extent, relates to principals' administrative effectiveness in public secondary schools.

To determine the relative contribution of Human Resource Management approaches (knowledge management style, human capital development, management-staff relation) to principals' administrative effectiveness, a Scheffe test was carried shown in Table 5.

Table 5: Scheffe test on relative contributions of human resource management and principals' administrative effectiveness

		KMS	HCD	MSR	PAE %
KMS	Pearson Correlation	1			.479(23.643)
	N	400			400
HCD	Pearson Correlation		1		.834(41.165)
	N	400			400
MSR	Pearson Correlation			1	.713(35.192)
	N	400			400

KMS= Knowledge Management style, HCD= Human Capital Development, MSR= Management-staff Relation, PAE= Principals Administrative Effectiveness.

Table 5 shows that the predictive indices of Human Resource Management (knowledge management style, human capital development and management-staff relation) are .479, .834, and .713 respectively. These, however, represent 23.64, 41.17, and 35.19 percentages of relative contribution of knowledge management style, human capital development and management-staff relation respectively to principals' administrative effectiveness. In other words, human capital development made the highest contribution of 41.17%, followed by management-staff relation with percentage contribution of 35.19%, and lastly knowledge management with percentage relative contribution of 23.64%.

Ho2: There is no significant relationship between human resources management styles and principals' administrative effectiveness in secondary schools.

Table 6: Regression analysis of relationship between human resources management and principals' administrative effectiveness

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	148.971	1	148.971	381.000	.000 ^b
	Residual	155.886	399	0.391		
	Total	304.857	400			

a. Predictors: (Constant), HRM b. Dependent Variable: PAE

Df = degree of freedom, F = F-calculated, correlation is significant at 0.05 level (2 tailed)

Table 6 revealed an F-calculated value of 381.000 at 0.05 level of significance. The table also showed a P-value of .000 which is less than the alpha value of 0.05. This means that the null hypothesis which states that there is no significant relationship between human resources management styles and principals' administrative effectiveness in secondary schools was rejected. Therefore, human resources management styles significantly relate to principals' administrative effectiveness in public secondary schools in South East, Nigeria.

Discussion of the findings

Table 1, 2 and 3 indicated that innovative leadership styles significantly, to a positive high extent, relate to principals' administrative effectiveness in public secondary schools in Nigeria. This result indicates that the extent principals involve different innovative styles like the instructional, supervisory, transformational leadership styles among others

determine their administrative effectiveness in public secondary schools. In other words, two or more of such innovative styles could be used at different occasions or situations. The result agreed with the earlier study by Tang et al. in Ogedi (2017) who found that different leadership styles such as authentic leadership, charismatic leadership, ethical leadership, servant leadership, spiritual leadership, and value-based leadership demonstrated having significant and positive impact on workforce productivity when each or more than one of them are applied. Poonam and Arvind (2014) in their definition concluded that innovation leadership involves synthesizing different leadership styles in organizations to influence employees to produce creative ideas, products, services and solutions.

Finally, the results in Table 4, 5 and 6 indicated that human resources management styles significantly, to a positive extent, relate to principals' administrative effectiveness in public secondary schools in South East, Nigeria. This result specifically indicated that the extent principals manage the human resources such as the staff and students in their respective schools to a very high extent determine their administrative effectiveness. The results corroborated Chike-Okoli (2014) who argued that human resources management is a strategic and coherent approach to the management of the organization most valued assets (people working in an organization who individually and collectively contributes to the achievement of its objectives). Also, Castetter (2016) argued that the quality of the personnel determines the quality of the school products. He went further to argue that human resources management promotes administrative effectiveness, since school administrators need quality human resources to succeed in their set goals. The results equally aligned with Griffin in Omebe (2014) who maintained that human resource management is the set of organizational activities directed at attracting, developing and maintaining an effective workforce. Onah (2018) concluded that human resources are the key to rapid socio-economic development and efficient service delivery.

Conclusion

In conclusion, the study highlights that innovative leadership styles and human resource management play a crucial role in the effectiveness of principals in public secondary schools across South East Nigeria, especially in this age of artificial intelligence. The findings specifically point out that innovative leadership styles indicators such as instructional, supervisory, cultural, community-based and transformational leadership are strongly linked to how effective principals are in their administrative roles. This suggests that principals who embrace and implement various innovative leadership strategies tend to excel in planning, coordinating, and reaching their school's objectives. Additionally,

the study shows that effective human resource management is also significantly tied to principals' administrative effectiveness. This means that how well principals manage their staff through knowledge management, human capital development, and management-staff relations greatly predict their effectiveness in running a school. Thus, in the era of AI, it's essential for principals to blend innovative leadership styles with human resource management to boost their administrative effectiveness and enhance instructional outcomes in public secondary schools in South East Nigeria.

Recommendations

1. Principals of secondary schools should adopt diverse innovative leadership styles for effective administration of schools.
2. Knowledge management should be improved upon by secondary school principals in order to use the best intellectual resources in the schools and for achieving quality and effective administration of schools.
3. There is need for regular leadership training and retraining of principals of secondary schools on the proper application of innovative leadership styles to ensure high administrative effectiveness.

References

- Aja-Okorie, U. (2014). *Personnel management in school administration. Educational management: the Nigeria perspective*. Anambra: SCOA HERITAGE Nigeria Ltd.
- Alagbe, J., Awodele, O. & Ayorinde, I. (2021). *Is Nigeria ready for Artificial Intelligence*. Retrieved on 23rd April, 2024 from <https://punchng.com/is-nigeria-ready-for-artificial-intelligence-in-schools/>
- Anuonye, J. A. (2023). Innovative leadership styles, human resources as correlates of principals' administrative effectiveness in public secondary schools in south east, Nigeria [Unpublished Ph.D dissertation]. Michael Okpara University of Agriculture, Umudike, Nigeria.
- Budiningsih, I., & Soehari, T. D. (2021). Strengthening innovative leadership in the turbulent environment. IntechOpen.
- Castetter, W. (2016). *The personnel function in educational administration*. New York: Macmillian Publishing Company.
- Chike-Okoli, A. (2014). Effective human resources management for quality educational outcome. In G. O. Unachukwu and P. N. Okorji (Eds.), *Educational management: the skill building approach*. Anambra: Rex Charles and Patrick Limited.

- Creswell, J. W. (2008). *Educational research, planning, conducting and evaluating quantitative and qualitative research*. Upper Saddle River: NJ Pearson.
- Douglas, P. & Duru-Uremadu, C. E. (2016). Development of educational administration and management. In M. N. Modebelu & J. C. Obunadike (Eds.), *Educational management: the Nigerian perspective*. Anambra: SCOA HERITAGE Ltd.
- Goh, Y., Sheng, V. & Geoffrey, N. S. (2012). The role of ethical behaviours in the relations between leadership styles and job performance. ANZMAC Conference: corporate responsibility, University of Western Australia.
- Ibiam, N. (2015). *Educational Administration Principles and Practice*. Cel-Bez Publishing Co. Nigeria Ltd.
- Maduabum, M. A. (2014). *Fundamentals of educational research*. Owerri: Versatile Printers.
- Malik, W. U., Javed, M., & Hassan, S. T. (2017). Influence of transformational leadership components on job satisfaction and organizational commitment. *Pakistan Journal of Commerce and Social Sciences*, 11(1), 147-166.
- Muhammad, A., Sobia K., & Abdurrahman İ. (2017). Development and validation of instructional leadership questionnaire. *International Journal of Organizational Leadership*, 6(17) 73-88.
- Mumford, M., & Licuanan, B. (2014). Leading for innovation: Conclusions, issues, and directions. *The Leadership Quarterly*, 15, 163-171.
- Nnachi, R. O. (2018). *Education in Nigeria and challenge of effective leadership: the psychological position*. Nigerian leadership and the psycho-socio issues. Okigwe: Fasmen Publishers.
- Nwokoji, M. N. (2017). Leadership corruption: a critical issue in Nigerian national development striving. A paper presented at the 15th international symposium organized by Whelan Research Academy on the theme “Ogu” the moral order and modern corruption, 4th -5th December, 2017.
- Ogedi, P. O. & Nwialu, C. (2019). Educational leadership. In U. P. N. Amadi (Ed.), *Curriculum making in 21st century: Trends, issues and challenges*. Abuja: Publishers Int'l Ltd.
- Ogedi, P. O. (2017). Strategic planning, conflict resolution and lecturers' instructional effectiveness in public universities in South East Nigeria [*Unpublished M.Ed thesis*]. Michael Okpara University of Agriculture, Umudike, Nigeria.
- Ogunode, N. J. & Ahaotu, G. N. (2021). The effects of incessant closure of schools on school administration in Northern Nigeria. *International Journal of Innovative Analyses and Emerging Technology*, 1(4), 98-103.

- Omebe, C. A., (2014). Human resource management in education: Issues and challenges. *British Journal of Education*, 2, 7- 26.
- Onah, F. O. (2008). *Human Resource Management*. Enugu: John Jacob's Classic Publisher Ltd.
- Onyali, L. C. (2016). *Change and innovation processes in formal organization*. Educational management: the Nigeria perspective. Anambra: SCOA HERITAGE Nigeria Ltd.
- Poonam, A. & Arvind, K. S. (2014). Innovative leadership: A paradigm in modern HR practices. *Global Journal of Finance and Management*, 6(6), 497-502.
- Sairmaly, F. A. (2023). Human capital development and economic growth: A literature review on information technology investment, education, skills and productive labour. *Jurnal Minfo Polgan*, 12(1), 679-693.
- Saran, E., Mishra, S., Nigam, S., & Kumar, K. (2023). The relevance of value-based leadership and spirituality in the workplace. *International Journal of Engineering, Management and Humanities (IJEMH)*, 4, 124-127.
- Unachukwu, G. O. (2014). Leadership in formal organization. In G. O. Unachukwu and P. N. Okorji (Eds.), *Educational management: the skill building approach*. Anambra: Rex Charles and Patrick Limited.
- Zaim, H., Keceli, Y., Jaradat., & Kastrati, S. (2018). The effects of knowledge management process on human resources: mediating role knowledge utilization. *Journal of Science and Technology Policy Management*, 9(3), 310-328.