

The elements in system analysis on principals' managerial effectiveness in public secondary school

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Abstract

The study which investigated the influence of system analysis on the principals' managerial roles in public secondary schools in Imo State was aimed at identifying the elements of systems analysis and the factors bedeviling its utilization. The study was guided by two research questions and two hypotheses. The study adopted a descriptive research survey design. The population of the study comprised all the principals and teachers of public secondary schools numbering 268 and 5628 respectively. A random sampling technique was used to select 134 principals while a stratified random sampling technique was adopted to draw 563 teachers from the randomly selected schools which yielded a total of 697 participants. The instrument for data collection, the 'Influence of Systems Analysis on Principals' Managerial Effectiveness Questionnaire' (ISAPME), was used to elicit information from the respondents. The validity of the instrument was certified through scholarly reviews. The internal consistency of the instrument was ascertained using the Pearson Moment Correlation Coefficient method which gave rise to the coefficient value of 0.84 which was adjudged appropriate for the study. Mean and standard deviation were used for data analysis while *t*-test statistics was used to test the hypotheses at 0.05 level of significance. It is the findings of this study that setting goals and stating procedures for their attainment are elements of system analysis that have an influence on the principals' managerial effectiveness among others. It is therefore recommended that the principal should be proactive in exercising his systematic administrative functions for managerial effectiveness.

Keywords

Influence, principals' managerial effectiveness, system analysis.

INTRODUCTION

The school is an organization that functions systematically to realize its set objectives. All the school programs and events are carried out by the human elements that perform interrelated tasks to ensure goal attainment which basically influences on the principals' managerial effectiveness. Managerial effectiveness involves getting things done using people who perform interdependent roles for goal realization [1], [2]. The ability of the school administration to

coordinate and control all the various interdependent parts of the actions of the workforce leading to goal attainment highly influences managerial effectiveness. When the interdependent functions are cordially linked together and well controlled, the managerial effectiveness of the school principal is strengthened making goal achievement possible. On the opposite side, when the links are thwarted by the uncooperative workforce or incompetent



workforce, the managerial effectiveness is weakened thus goal achievement becomes delusional.

A system can be defined as an organized whole that consists of interrelated parts while sustaining some degrees of internal coherency and unity [3], [4]. It is an entity with different but interconnected components that work together to realize a predetermined objective. A system is an organized unitary whole that composed of two or more interdependent parts, components of sub-systems, and delineated by identifiable boundaries from environmental suprasystem [5].

From the above definitions, it could be understood that a system according to Ikheloa [6] has a common denominator. This common index consists of two threads which are: (a) elements, parts or components, objects or sub-systems; (b) the use of the words or terms, interdependent and interrelatedness indicate that the different parts of a system are tied together in time and space through a working bound. This shows that though there are various parts of a system, the viability of the entity is maintained through their bonding.

The idea of looking at a school or an organization as a system and treating it accordingly defines therefore the concept of system approach. Ikpatt [7] defines the system approach to educational administration as viewing or looking at the school as a unified, purposeful, and organized setting or system that consists of interrelated parts. Taking redundantly, the system approach could be explained as a 'wide' entity that contains different parts or sections that work together to achieve a set goal. This thesis is anchored on the premise that the activities of any part of the education system go on to influence or affect the operations or activities of other parts. The process of explaining the components of a system can therefore be said to be system analysis.

System analysis is the process or art of breaking down the intricacies of a system [8]. The essence as he continued is to identify the definite units of the system and to know the role of each unit or component in the entire entity. This suggests that system analysis has to do with the dissecting of a concept, an organization or a system in order to first know what the component units or parts look like and to ascertain the contribution of each of these component parts to the existence and access of its whole system.

In carrying out system analysis, Arnold and Wade [9] suggested that such detained analysis or

breaking down of the system or an organization should be logical, deductive, and objective. He, therefore, opined that: (a) the system should first of all be defined, and the definition of the system is in terms of the name, what it does, and what it produces; (b) the problem in the system should also be defined in specific or identifiable terms; (c) the system should be considered as a whole; (d) the different components or parts should be identified and defined; (e) the relationship between the various parts should be identified and explained; (f) the trade-offs among competing criteria and values should equally be identified and defined; (g) finally, predicting the performance of the system as whole should be based on observations made.

The principal of a secondary school is the administrative head of the school. (S)he is the chief executive and he makes decisions with his subordinates on the day-to-day running of the school. Under his leadership or administration are the personnel which consists of staff and students record management, budgeting, planning and finance administration. Creating a good school climate conducive to teaching and learning, managing relationships with the host community through community-based management, making decisions on the admission and graduation of students and interfacing with the Ministry of Education are parts of the jobs of the principal [10].

In carrying out his managerial functions, the principal periodically carries out the analysis of the school. This analysis is conducted unit by unit depending on the nature of the problem prevalent in the school within a given period or time. Such analysis may not be holistic as it is sometimes difficult to carry out a cursory analysis of the whole school system at a time. Clarkson et al. [11] stated that the principal who does this with his subordinates conducts the analysis of each of the components that make up the parts of the school system. Such holistic analysis of the different parts of the school comes up at the beginning of the school academic system.

It is however important to state that a peer review panel could be set up to look at the performance of the school in the previous year. Aggrawal [12] stated that such a review could be important to enable the principal to identify the contributions of each of the parts of the system to the viability of the system. Going forward, it will also help the principal identify the weaker parts of the system with a view to strengthening them.

Beyond knowing the strengths and weaknesses of the system, analyzing the activities of the different components of a system will help the principals make predictions on the performance of the various interrelated parts of the system and in most cases on the whole system itself. The ability to do this by the principal explains his managerial effectiveness [13]–[15]. Managerial effectiveness is in terms of using available human and material resources to accomplish organizational set objectives. To a school principal, it is making the optional use of resources that constitute the interrelated components of a school system to achieve or realize educational objectives. Onuoha and Onuoha [2] explained it as the principal's use of what is available in a school system in terms of human and material resources to achieve predetermined educational objectives.

As part of the school operations, the principals adopt various aspects of system analysis such as goal setting, communication effectiveness, and decision-making among others to ensure synergy of the interrelatedness of the school as a system. This assertion was supported by Camp [16] and Cheruiyot et al. [17] that goal setting is essential in the organizational work environment so as to provide a focal point for the employees. Having a center of attraction enables the workforce to play their parts interrelatedly for goal realization.

There is however incidences where these aspects of system analysis are challenged by uncooperative staff, insufficient/lack of school facilities, non inclusion of staff in the decision-making syndicate among others. Kolawole [18] gave credence to the above expression and posited that the secondary school principal has the duty to coordinate the web of instructional relationships concerning all the school human elements that function as a system to achieve goal accomplishment. The author noted with dismay that where there is uncooperative, the system analysis is negatively affected which is counterproductive.

Public secondary schools are schools established and administered by the government. They could be federal or state but they are financed by the government. The staffers are government employees. They are therefore answerable to the government through the principals. They are employed, promoted and could be disengaged by the government [19].

Statement of the problem

Managerial effectiveness is the outcome of principals' ability to adequately utilize the elements of the system analysis for goal attainment which is the focus of all organizational setup. This is the reason in a school system, an in-depth system analysis assists principals in uncovering mistakes or errors in methods of teaching, assessment of performance and in record management and general curriculum implementation to ensure that the whole system delivers results effectively. System analysis in most cases, requires expertise on the part of the school heads or principals so that they can effectively carry out a detailed analysis of the interrelated components that make up the system [20]. Ideally, the capacity to do this comprehensively defines the effectiveness of principals' managerial functions.

However, it appears that many principals do not carry out a thorough analysis of the school system, especially that of their schools. This in most cases results in routine job performance which only maintains the status quo and does not enhance principals' managerial performance and results. In addition, there seem to be the dearth of empirical research work on system analysis and its impact on principals' managerial job performance in the study area. Victor [21] affirmed the aforementioned claim when the scholar recommended in his study that principals should strive to utilize the elements of systems analysis such as involving teachers in decision-making and provision of material resources for managerial effectiveness. It is against this background that this study investigated the elements of system analysis and its influence on principals' managerial effectiveness in public secondary schools in Imo state.

Purpose of the study

The study is aimed at ascertaining the influence of system analysis on the principals' managerial effectiveness. Specifically, the study sought to: (1) determine the influence of system analysis on principals' managerial effectiveness in public secondary schools in Imo State; (2) evaluate the problems that affect system analysis on principals' managerial effectiveness in public secondary schools in Imo State.

Research questions

The study is guided by the following research questions: (RQ1) What are the system analyses

that influence principals' managerial effectiveness in public secondary schools in Imo state?; (RQ2) What are the problems that affect systems analysis on the principals' managerial effectiveness in public secondary schools in Imo State?

Hypotheses

The study was aided by the following null hypotheses: (H01) There is no significant difference between the mean scores of the principals and teachers on the influence of systems analysis on the principals' managerial effectiveness in public secondary schools in Imo State; (H02) There is no significant difference between the mean scores principals and teachers on the problems that affect systems analysis on the principals' managerial effectiveness in public secondary schools in Imo State.

RESEARCH METHOD

The study investigated the influence of system analysis on principals' managerial effectiveness. The study adopted a descriptive survey research design. Two research questions and two hypotheses guided the study. The population of the study comprises 268 Principals and 5,286 teachers of public secondary schools in the study area while 134 Principals (50%) and 5,286 teachers (20%) were randomly and stratified randomly selected from the population made up the sample size of the study. A 20-item instrument that consisted of two clusters was used to elicit responses from the respondents. The researchers designed an instrument named "Influence of Systems Analysis on Principals' Managerial Effectiveness Questionnaire" (ISAPME). The instrument consisted of two clusters; the components of the system and the method of coupling the system for development. The instrument was validated by three experts. The indicators for assessing the elements of system analysis are; input, process, and output. In order to evaluate the Principles, elements of the system analysis like the goal identification, and steps involved for its accomplishment among others were incorporated. The reliability of the instrument was obtained through Pearson Moment Correlation Coefficient which yielded the value of 0.82 which was considered high enough for the study. Mean and standard deviation was used to answer the research questions while a *t*-test was used the test the

hypothesis at 0.05 level of significance. In testing the hypotheses, when the the *t*-critical ($t_{crit.}$) is greater than *t*-calculated ($t_{cal.}$), it is accepted but when it is less than 1.96 the $t_{cal.}$ is rejected.

RESULT AND DISCUSSION

Table 1 shows the responses of the respondents on the system analysis that influences principals' managerial effectiveness in public secondary schools in Imo State.

Analysis of results in Table 1 concerning the influence of system analysis on principals' managerial effectiveness in public secondary schools in Imo State showed that all the public secondary school teachers with items with serial numbers 1-10 agreed that setting goals, stating procedures for goal attainment, evenly distribution of duties to staffers, stipulating deadlines, involving the staff in decision-making, encouraging teamwork, effective communication network, receiving feedback, implementing feedback and timely resolution of conflict systems analysis components that have influence on principals' managerial effectiveness with all the mean scores fallen above the criterion mean of 2.25. On the reverse side, most teachers aligned with the principals except on items with serial numbers 5 and 9: involving teachers in decision-making and implementing feedback with the mean scores of 2.30 and 2.23 which is below the criterion mean of 2.5. Teachers' disagreement on being involved in decision-making and implementing feedback by the principals could be the reason for poor managerial effectiveness. This is because when teachers are not part of decision-making, they are not cooperative thus affecting their job performance negatively. The grand mean gave rise to 2.83 with the SD of 0.42 and 2.74 with the SD of 0.34 for teachers and principals respectively. The closeness observed in the SD is an indication of homogeneity of the responses.

Table 2 shows the difference in the mean scores between the responses on the influence of systems analysis on the principals' managerial effectiveness. The mean scores of 2.83 and 2.74 with SD of 0.42 and 0.32 for teachers and principals respectively. Since the $t_{crit.}=1.96$ is greater than the $t_{cal.}=1.23$, the null hypothesis is not rejected. It upheld that the mean scores of principals and teachers on the influence of systems analysis on principals' managerial effectiveness show no significant difference.

Table 1. Respondents' system analysis affects principals' effectiveness in public secondary schools

	SA	A	D	SD	Mean	SD	Remark
Teachers (N=163)							
1. Setting goals	204	102	156	101	2.70	0.35	A
2. Stating procedures for goal attainment	189	236	98	40	3.01	0.40	A
3. Evenly distribution of duties to staffers	196	200	89	78	2.91	0.44	A
4. Stipulating deadlines	286	1.5	145	27	3.10	0.56	A
5. Involving the staff in decision-making	99	165	109	190	2.30	0.28	D
6. Encouraging teamwork	215	189	99	60	2.99	0.48	A
7. Effective communication network	230	185	90	58	3.06	0.52	A
8. Receiving feedback	187	254	100	22	3.07	0.52	A
9. Implementing feedback	65	89	325	84	2.23	0.20	D
10. Timely resolution of conflict	243	158	85	77	3.00	0.48	A
Grand Mean, SD (Standard Deviation), and Remark					2.83	0.42	A
Principals (N=134)							
1. Setting goals	43	56	13	Nil	2.63	0.23	A
2. Stating procedures for goal attainment	63	23	28	20	2.96	0.48	A
3. Evenly distribution of duties to staffers	55	33	20	26	2.87	0.41	A
4. Stipulating deadlines	42	32	28	32	2.62	0.30	A
5. Involving the staff in decision-making	48	30	22	31	2.73	0.35	A
6. Encouraging teamwork	55	36	24	19	2.94	0.21	A
7. Effective communication network	46	30	35	33	2.66	0.31	A
8. Receiving feedback	33	49	20	32	2.61	0.30	A
9. Implementing feedback	63	26	19	26	2.94	0.47	A
10. Timely resolution of conflict	38	30	28	38	2.50	0.32	A
Grand Mean, SD, and Remark					2.74	0.32	A

Note: SA=Strongly Agree, A=Agree, D= Disagree, SD= Strongly Disagree.

Table 3 shows the mean scores of the principals and teachers on the problems that affect systems analysis on the principals' managerial effectiveness in public secondary schools. It reveals that most teachers agreed that the absence of technical knowledge, tedious nature of systems analysis, uncooperative staff, insufficient experts, inadequate provision of funds, poor orientation, time management, and lack of motivation are all challenges influencing system analysis on principals' managerial effectiveness. This is with all the mean scores above the criterion mean of 2.50. The same goes for the mean scores of the principals. While the teacher disagreed with item with serial number 1 that system analysis could be challenging, the

principals also disagreed that insufficient experts in the system are challenging with the mean scores of 2.39 and 2.48 for the teachers and principals accordingly. The teachers posited that utilizing the elements of the system analysis by the principal is not challenging which means the inability to employ them in their managerial role cannot be excused. The principals on the other hand opined that insufficient experts to utilize the components of system analysis does not influence managerial effectiveness. This is because they believe that they are experts and always deal with the elements of system analysis to attain educational goals. The grand mean stood at 2.91 with SD of 0.49 and 2.57 with SD of 0.33 in that order.

Table 2. The difference in mean scores on system analysis impact on principals' effectiveness

Category	N	Mean	SD	df	$t_{crit.}$	$t_{cal.}$	Remark
Principal	134	2.83	0.42	698	1.96	1.23	Not significant
Teachers	563	2.74	0.32				

Table 4 shows the mean scores difference between the principals' and teachers' responses on the influence of systems analysis on the

principals' managerial effectiveness. The mean scores of principals and teachers as 2.91 and 2.57 with the SD of 0.49 and 0.33 for both principals

and teachers respectively. The degree of freedom gave rise to 698 with $t_{cal.}=1.05$ as against $t_{crit.}=1.96$. Since the $t_{cal.}$ is less than $t_{crit.}$, the hypothesis testing is therefore not rejected. It is therefore concluded that there is no significant

difference between the mean scores of the principals and teachers on the influence of system analysis on the principals' managerial effectiveness.

Table 3. Principal and teacher mean scores on system analysis for school effectiveness

	SA	A	D	SD	Mean	SD	Remark
Teachers (N=563)							
1. Carrying out system analysis can be challenging	109	152	153	149	2.39	0.68	D
2. requires technical knowledge which could be lacking	200	109	156	98	2.77	0.36	A
3. Uncooperative staff	215	182	102	59	2.99	0.49	A
4. Insufficient expertise to carry out system analysis	322	189	23	29	3.42	0.65	A
5. Inadequate provision of fund to run the system analysis	284	199	31	49	3.27	0.63	A
6. Lack of material resources to be used for effective system analysis	206	231	40	59	2.94	0.38	A
7. Poor orientation of the systems analysis	189	259	26	44	2.89	0.45	A
8. Poor time management	198	245	27	20	2.84	0.32	A
9. Poor decision-making process	98	189	235	41	2.61	0.36	A
10.Lack of motivation of the workforce	215	199	100	49	3.03	0.54	A
Grand Mean, SD, and Remark					2.91	0.49	A
Principals (N=134)							
1. Carrying out system analysis can be challenging	32	56	23	23	2.72	0.30	A
2. requires technical knowledge which could be lacking	39	42	23	30	2.67	0.33	A
3. Uncooperative staff	43	36	32	23	2.73	0.36	A
4. Insufficient expertise to carry out system analysis	40	26	27	41	2.48	0.28	D
5. Inadequate provision of fund to run the system analysis	33	40	33	28	2.58	0.30	A
6. Lack of material resources to be used for effective system analysis	41	30	27	36	2.56	0.38	A
7. Poor orientation of the systems analysis	43	25	31	35	2.56	0.38	A
8. Poor time management	38	30	32	34	2.53	0.30	A
9. Poor decision-making process	32	37	42	23	2.58	0.30	A
10.Lack of motivation of the workforce	29	48	23	34	2.53	0.28	A
Grand Mean, SD, and Remark					2.57	0.33	A

Note: SA=Strongly Agree, A=Agree, D= Disagree, SD= Strongly Disagree.

Finding of the research

The first finding of this study revealed that most of the respondents agree that setting goals, stating procedures for goal attainment, evenly distributing duties to staffers, stipulating deadlines, involving the staff in decision-making, encouraging teamwork, effective communication network, receiving feedback, implementing feedback and timely resolution of conflict are components systems analysis that influences principals' managerial effectiveness. The study also revealed that teachers differ from the

principals in the involvement of staff in the decision-making as well as the implementation of feedback. System analysis has a lot of influence on the effective managerial acumen of the principals because they are completely linked together to achieve desired goals. This assertion has been observed by previous researchers the likes of Clarkson et al. [11] emphasized that the principal who organizes regular checks with his subordinates conducts the analysis of each of the components that make up the parts of the school system. To ensure that the system analysis

influences principals' managerial effectiveness positively, Camp [16], and Cheruiyot et al. [17] advocated for goal setting as a way to obtain

complete synergy that propels managerial effectiveness.

Tabel 4. The difference in mean scores on system analysis impact on principals' effectiveness

Category	N	Mean	SD	df	$t_{crit.}$	$t_{cal.}$	Remark
Principal	134	2.91	0.49	698	1.96	1.05	Not Significant
Teachers	563	2.57	0.33				

Another finding of the study unveiled that enormous problems affect systems analysis on the principals' managerial effectiveness in public secondary schools in Imo State. Challenges could be very devastating in achieving managerial effectiveness especially when it has to do with system analysis. Some of the respondents (principals) disagreed that there are adequate quality staff in the system which could disrupt the system analysis. This is the reason many school principals fail to attain the schools' predetermined objectives. It is in light of this that Kolawole [18] principals must synergize with the teachers for the overall success of the entire system. This implies that teachers should be cooperative so as to assist the school administration in achieving managerial effectiveness in the school as a system.

CONCLUSION

Following the findings of this study, it is concluded that; setting goals, stating goal path, and receiving feedback among others are elements of system analysis that influence the

principals' managerial effectiveness. However, the teachers disagreed that involving them in decision-making and implementing feedback is not among the elements of system analysis adopted by their principal while uncooperative staff, poor decision-making, and poor time management are the challenges that negatively influence system analysis on principals' managerial effectiveness in public secondary school in Imo State, Nigeria. The hypothesis testing declared that there is no significant difference between the mean scores of the principals and teachers on the elements in system analysis on principals' managerial effectiveness in the area under study.

Based on the findings and conclusion, it is recommended as follows: (1) that the secondary schools' principals should endeavor to involve the teachers in the decision-making process so as to make them develop a sense of belongingness that leads to team spirit, and (2) that the appropriate agency responsible for the recruitment of school personnel should deem it fit recruit experts so as to ensure the system works for goal realization.

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