

## **System Analysis of the Federal Directorate of Education with respect to Rational, Natural and Open System in Pakistan**

**Zafar Iqbal,\***  
**Mushtaq Ahamad Malik\*\***  
**Muhammad Rauf\*\*\***

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### **Abstract**

The study aimed to identify the Federal Directorate System of Education with respect to type of systems i.e. rational, natural and open. The major objective of the study was to identify the existing type of education system of Islamabad Capital Territory with respect to rational, natural and open. The study was survey based. There were four types of populations: Heads of Educational Institutions, Presidents of Parent Teacher Association (PTA) of educational institutions, Administrators of the Federal Directorate of Education (FDE) and Teachers. A questionnaire, for all the four population, was used for data collection consisting of 15 items, five for each Rational, Natural and Open systems. The collected data were analyzed through applying statistical methods i.e. means, SD, ANOVA and post hoc LSD. The major finding was that the system was inclined towards open system. It was recommended that social participation, in terms of PTA role, may be enhanced to make the system according to the peoples' aspirations and expectations.

**Key Words:** System analysis, Rational system, Natural system and Open System

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### **1. Introduction**

The education system of any country plays a very vital role in its development and progress. It moulds the attitude and behaviour of the people according to the national ideology. It represents aspirations and wishes of the people.

The education system is to promote national unity, meet the economic needs and prepare the children for the future challenges. It must provide opportunities for

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\* Assistant Director, Federal Directorate of Education, Islamabad, Pakistan

\*\* Vice Principal, Islamabad Model School for Boys F-8/3 Pakistan

\*\*\* Institute of Education & Research, University of Peshawar, Peshawar, Pakistan

social justice, equality and a sense of social responsibility. It should work for the overall development of the country (Azam, 2005).

According to the Constitution of Pakistan 1973, the Federal Government was entrusted with the responsibility of policy, planning and promotion of education facilities in the federating units. The Islamabad Capital Territory is not included in the jurisdiction of any province. The Ex-Federal Ministry of Education was responsible for the educational needs of the people of Islamabad Capital Territory. For this purpose, The Federal Directorate of Education (FDE), Islamabad, was introduced as an Attached Department of the Federal Ministry of Education in 1967. The structural hierarchy of the Federal Directorate of Education comprises of the Director General with the Director (Colleges), Director (Schools), Director (Planning and Development), Director (Model Colleges), Director (Training) and Director (Admn and Coordination).

The Federal Directorate of Education was started as a model for all the provincial education systems (Core Functions from FDE website). This education system has diverse nature. Five types of educational institutions i.e. F. G. Model Schools and F. G. Urdu Medium Schools, Islamabad Model Schools, Islamabad Model Colleges and F. G. Post-Graduate Colleges. These institutions are different in nomenclature, teaching staff, fee structure, syllabi, physical and transport facilities (FDE Documents).

A system analysis of the Federal Directorate of Education would be the base to suggest steps for removing the shortcomings in the present system and to align it with the day-to-day changes regarding system approach.

## **2. Statement of the Problem**

The study was designed to examine the Federal Directorate System of Education critically with respect to type of the system i.e. rational, natural and open. The focus of the study was futuristic, to investigate the type of system and analyzing it with respect to new needs and challenges in the overall system's context. The study would be guideline for the provinces to improve their systems of education.

## **3. Objectives of the Study**

The objectives of the study were to:

1. Identify the existing type of education system in Islamabad Capital Territory, with respect to rational, natural and open systems.
2. Suggest recommendations for improving the Educational System for the Islamabad Capital Territory.

#### **4. Hypotheses of the Study**

Research hypotheses for this study were:

- H01: There is no significant difference among the opinions of Heads of Institutions, PTA Presidents, FDE Administrators and Teachers regarding the type of overall system of FDE.
- H02: There is no significant difference among the opinions of Heads of Institutions, PTA Presidents, FDE Administrators and Teachers regarding the existence of rational system in FDE.
- H03: There is no significant difference among the Opinions of FDE Administrators, Heads of Institutions, PTA Presidents and Teachers regarding the existence of natural system in FDE.
- H04: There is no significant difference among the Opinions of FDE Administrators, Heads of Institutions, PTA Presidents and Teachers regarding the existence of open system in FDE.
- H05: There is no significant difference among the opinions of Heads of different types of Institutions regarding the overall system of education in FDE.

#### **5. Conceptual Framework of the Study**

Education is one of the major change agents in human life, especially of students. There are so many concepts and ideas for an ideal education system. There are three types of educational systems: rational, natural and open (Senge, 1992). In the organizations having rational system there are specific goals and highly formalized social structures while the organizations with natural system have the informal relations of employees to guide their behaviour. On the other hand in the organization with open system are influenced by the surrounding environment, dependent on the flow of personnel, information and resources from outside (Scott, 2003).

In this study, the Federal Directorate System of Education, working under the Capital Administrative and Development Division (CADD) to cater to the educational needs of the Islamabad Capital Territory, was analyzed to identify its type i.e. rational, natural or open.

Due to time and financial constraints the study will be delimited to the educational system of Federal Directorate of Education, Islamabad including F.G Higher Secondary Schools, Secondary Schools, Middle Schools, Primary Schools and Islamabad Model Colleges whereas F. G. colleges and Post Graduate Colleges were not included in the study.

## **6. Method of the Study**

Research methodology used in this study was descriptive; it was survey based.

### **6.1 Population of the Study**

There were four types of population to cover the whole system. These were as follows:

1. The Heads of Educational Institutions
2. The President of Parent-Teacher Associations of every Educational Institution
3. The Administrators of the FDE
4. All the Teachers of three types of institutions i.e. Islamabad Model Colleges, F.G. Model (English Medium) Schools and F.G (Urdu Medium) Schools.

### **6.2 Sampling**

Populations of Heads of Institutions and PTA Presidents were taken as whole in the sample; excluding those who were included in the pilot testing. Whole the Population of FDE Administrators was taken in the sample because its members were only 20. While from population of Teachers, two teachers from each school were taken randomly by picking the slips of the names, excluding those who were included in the pilot testing.

### **6.3 Research Instruments**

A questionnaire for all the four populations i.e. Heads of Institutions, Presidents of Parent Teacher Associations, FDE Administrators and Teachers was used to collect data (Appendix).

Research instrument was validated through discussion with five peers (having qualification of M.A. Education and Ph. D. scholars) to check face validity and relevancy of the items. After discussion with peers and experts the questionnaire was pilot tested. It was administered to 40 Heads of the institutions, 40 Teachers and 40 Presidents of Parent Teacher Associations. These respondents were not included in the sample. The questionnaire was finalized in the light of results of pilot testing.

The questionnaires for the Heads of Institutions, the PTA Presidents and Teachers were sent to educational institutions through the Receipt and Issuance (R & I) section of the FDE. The researchers personally administered the questionnaires to the administrators.

### **6.4 Data Analysis**

Data collected through questionnaires were analyzed; mean and standard deviation were calculated. To find out the difference of opinion, ANOVA and post hoc test LSD were also applied through Statistical Package for Social Sciences (SPSS) version 15.

## **7. Review of Related Literature**

A system consists of different parts which contribute to the features and functions of the system as a whole to fulfil the set tasks (Varshney, 2003). A system is a set of interconnected elements that functions as one unit for the achievement of explicit purposes. In education, the system refers to a learning organization (Lunenborg & Ornstein, 2004). It is apparent from the discussion that system works as one unit and considered as a whole.

In the same way Senge (1992) describes school as learning organization where people utilize their capacities for attainment of desired results. The new thinking patterns are developed and people learn how to learn together.

The elements of the system are integrated in such an effective and efficient pattern that the goals of the system are obtained completely. The education system, from academic to administration, is like a hollow shell of boxes and lines if each and every element of it does not function properly (Gerlach & Ely, 1980). The analysis of the system helps in understanding of the type of an existing system and desired beneficial changes can be introduced in plan of action to avoid rigidity (Sampath, Panneerselvam, & Santhanam, 2003). Different systems concept can be applied to an Education System for the analysis of its different aspects.

### **7.1 Types of System**

According to Scott (2003), organization can be defined with one of the three perspectives: the rational, natural, and open system. Rational System is dominant system in the present day educational institution. However if there is Natural System in some schools; some are running as a Social System. The Rational System is the oldest and most popular of all the three systems. It is also fact that all the three systems exist in the practices and functions of school as an organization in different proportions. No one from these can be discarded or replaced because their demand and necessity. In short, some combination of all the three systems can provide an effective model system in the field of education (Rao, 2003).

### **7.2 The Rational System**

The most prevalent and oldest among the three systems is Rational System. According to Scott (2003) in this system, all actions in an organization are designed to achieve the pre-determined goals. According to Taylor (1947) in this system there is hierarchy of authority; the division and specialization of labour; formal rules and regulations; formulization of work; narrow span of control; and standardization of work performance and the people related to work.

In an education institution, the rational approach can be observed in the specific length and number of periods allotted to each teacher, the method of teaching adopted by teachers, and the grading system in examination. Also, the teachers are

authority in and outside the classroom. The administrative control of heads of Education institutions, are well defined. The Education Policy and plans are imposed by the Ministry of Education. In rational system, organizations are designed in such a way to achieve specified and predetermined goals with maximum efficiency (Scott, 2003).

The rigidity in Rational System can cause conservatism in an organization and it hinders to renewal or change. The system can be creative if rationality is there as guiding principle. It should not be misused as an excuse for inflexibility, and resistance to critical change or essential reforms.

### **7.3 Natural System**

The Natural System was introduced and developed in a reaction to the Rational System. According to Scott (2003), in natural system; the organization is the first and foremost entity. According to Barnard, (1938), in natural system organizations are cooperative systems, based on contributions and involvement of individuals. The willingness of employees is necessary to make contributions in any organizations. Bennis (1966) differentiates between Rational and Natural Systems, with the former being “Structure without People”, and the latter as “People without Organization”. Natural system organizations are more than near attaining of defined goals, there are social groups in them attempting to live and survive together in their particular environment. Survival is more important than attaining of goals. The natural system analysts argue that in such organizations participants generate informal norms and behaviour, power system and status, working arrangements and communication network (Scott, 2003).

### **7.4 Open (Social) System**

The Social System was a reaction to the false theory that a system process could be set apart from the external environment (Hoy & Miskel, 2008). In this system, organizations are viewed as not only influenced by the external environment, but also dependent on it.

Quoting Gatzels and Guba (1957), Scott (2003) describes Schools as Social Systems, for the following reasons:

- Social and environmental forces affect schools.
- The parents and social demand also affect the school heads and teachers.
- Schools are people based.
- Schools are to prepare students for their future roles and responsibilities. In schools there is a hierarchy of authority, roles and responsibilities and formal rules and regulations to guide.
- There are social relations among teachers, students and other employees of schools.

According to Norlin (2009), schools are open or social systems in which different kinds of persons work in mutual collaboration for the attainment of common goals. This interaction with the environment may vary from school to school and society to society.

In the traditional Rational System, social relations and individual needs were feared to be at the stake. On the other hand, in Natural System, due to dominant factors of human relations, formal structure was made secondary. Both of these systems were limited and incomplete. To meet the shortcomings of Natural and Rational System, the social system perspective was introduced. In this system, both formal and informal aspects as well as structure and people were given due weightage. It is an eclectic combination of the Rational and Natural System, keeping in view the importance and influence of both the individual and the environment in view. The organizational structure is always influenced by the environmental forces (Mintzberg, 1979).

According to Lunengurg and Ornstein (2004), school as social system refers to interactive activities of group members who are working together for a common purpose. According to Norlin (2009), schools are open or social systems in which different kinds of persons work in mutual collaboration for the attainment of common goals. It refers to the fact that schools consist of peoples; goals oriented in nature; goals are attained through combined efforts and they also have interaction with the outer environment. This interaction with the environment may vary from school to school and society to society. According to Azam (2005), the most suitable is the Social System as a subsystem of the National System, in order to serve the supreme National Ideology through the National Interest. In the case of Pakistan and other Muslim countries Islam is the National Ideology.

The Islamic Education System is based on egalitarian, humanitarian and democratic values. It entitles every citizen to get education. It has very flexible and adaptable curriculum which helps in achieving religious and cultural objectives. Material and secular education, and development of spiritualism go side by side. According to Khan (1987), the essential elements of Islamic Education are beliefs, fundamentals of Islam, rights and duties of individuals, equality, physical and spiritual development, and such subjects through which honest livelihood can be earned respectably. These views show that Islamic system of education is based on the combination of religious and secular curricula; rational teaching learning process; continuous research process; cordial relationship between teacher and student; attractive and more modern disciplines of study.

After a detailed review of these systems, it can be concluded that schools function in all the three Systems models, simultaneously. They affect all levels of the

school, from teaching-learning process to the administrative level. The presence of three systems at a time provides flexibility and a desirable degree of freedom to the educational system that one system cannot achieve. According to Scott (2003), the characteristics of three types of system are necessary for the survival of an organization. There must be induction of employees with a variety of traits, so that they can contribute their time and energy in a better way for organization wellbeing and development, working in a mixed system i.e. combination of rational, natural and open system.

### 8. Data analysis

**Table 1: Comparison of Opinions of Heads of Institutions, PTA Presidents, FDE Administrators and Teachers regarding overall systems**

Types of Respondents	Overall System	
	Mean	SD
Overall mean of all the respondents	49.26	6.17
Means of Heads	49.53	6.23
Mean of PTA Presidents	48.90	6.18
Mean of FDE Administrators	48.75	4.77
Mean of Teachers	49.42	7.73

Table 1 shows that the overall mean score of all the respondents about overall system was 49.26 with SD 6.17; whereas Heads of the Institution mean score for overall system 49.53 with SD 6.23 and Teachers mean score 49.42 with SD 7.73 was negligible above the overall mean score whereas PTA Presidents mean score 48.90 with SD 6.18 and FDE Administrators mean score 48.75 with SD 4.77 were slightly below the overall mean score. It shows that the four types of respondents are not clear about the system of FDE whether it is rational, natural or open.

**Table 2: One Way ANOVA on types of the respondents regarding overall system**

All System	Sum of Squares	df	F	Sig
Between Groups	68.696	3		
Within Groups	64332.439	1291	.460	.711
Total	64401.135	1294		

Table 2 reflects that  $F = .460$  is not significant at  $\alpha = 0.05$  and the hypothesis that "There is no significant difference among the opinions of Heads of Institutions, PTA Presidents, FDE Administrators and Teachers regarding the type of overall system of FDE" is accepted and hence it can be concluded that the respondents are not clear about the educational system under FDE whether it is rational, natural or open.



**Table 3: Comparison of Opinions of Heads of Institutions, PTA Presidents, FDE Administrators and Teachers on analysis of rational system**

Overall mean of all the respondents	15.86	2.89
Means of Heads	15.9	2.95
Mean of PTA Presidents	15.87	2.85
Mean of FDE Administrators	14.95	2.14
Mean of Teachers	16.62	2.98

Table 3 shows that the overall mean score of all the respondents about rational system was 15.86 with SD 2.89; whereas Heads of the Institution mean score for rational system 15.9 with SD 2.95 was negligible above the overall mean score likewise PTA Presidents mean score 15.87 with SD 2.85 was equal to the overall mean score. FDE Administrators with the mean score 14.95 SD 2.14 were slightly below the overall mean score, while mean score of teachers 16.62, SD 2.98 is a bit higher than overall and all other mean scores. The analysis reflects that the four types of respondents are not clear about the existence of the rational system in schools.

**Table 4: One Way ANOVA on types of the respondents regarding rational system**

Rational System	Sum of Squares	df	F	Sig
Between Groups	201.962	3		
Within Groups	11190.815	1291	7.76	.000*
Total	11392.777	1294		

\* Significant at  $\alpha=0.05$

Table 4 reflects that  $f = 7.76$  is significant at  $\alpha=0.05$  and the hypothesis that "There is no significant difference among the opinions of Heads of Institutions, PTA Presidents, FDE Administrators and Teachers regarding the existence of rational system in FDE" is rejected and hence it can be concluded that Heads of Institutions, Presidents of PTA, Administrators of FDE and Teachers have different opinion about the educational system under FDE whether it is rational or not.

**Table No 5: Post Hoc Tests LSD for Multiple Comparisons of overall opinions of FDE Administrators, Heads of institutions, PTA Presidents and Teachers regarding FDE system**

(I) respondent	(J) respondent	Mean Difference (I-J)	Std. Error	Sig.
FDE	Teacher	-1.670(*)	.668	.013
Heads	Teacher	-.716(*)	.194	.000
PTA	Teacher	-.741(*)	.224	.001

\* The mean difference is significant at the .05 level.

Table 5 shows the results of post hoc test (LSD) that mean scores of opinions of Teachers is significantly higher than all other respondents i.e. FDE administrators, Heads of institutions, and PTA Presidents with mean difference 1.67, 0.716 and 0.741 respectively.

**Table 6: Comparison of Opinions of Heads of Institutions, PTA Presidents, FDE Administrators and Teachers on analysis of natural system**

Types of Respondents	Natural System	
	Mean	SD
Overall mean of all the respondents	14.93	3.59
Means of Heads	14.99	3.80
Mean of PTA Presidents	14.73	3.30
Mean of FDE Administrators	16.3	2.65
Mean of Teachers	16.04	3.65

Table 6 shows that the overall mean score of all the respondents about natural system was 14.93 with SD 3.59 whereas Heads of the institution mean score for natural system 14.99 with SD 3.80 and PTA Presidents mean score 14.73 with SD 3.30 were somewhat equal to the overall mean score whereas FDE Administrators mean score 16.3 with SD 2.65 and Teachers' mean score 16.04 with SD 3.65 was above the overall mean score. These differences from the overall means of the four respondents reflect that the respondents are not clear about the existence of the natural system in FDE.

**Table 7: One Way ANOVA on types of the respondents i.e. FDE Administrators, Heads of Institutions, PTA Presidents and Teachers regarding natural system**

Natural System	Sum of Squares	df	F	Sig
Between Groups	1386.802	3		
Within Groups	15817.690	1291	37.73	.000*
Total	17204.491	1294		

\* Significant at  $\alpha=0.05$

Table 7 reflects that  $f = 37.73$  is significant at  $\alpha=0.05$  and the hypothesis that "There is no significant difference among the Opinions of FDE Administrators, Heads of Institutions, PTA Presidents and Teachers regarding the existence of natural system in FDE" is rejected. It can be concluded that Administrators of FDE, Heads of Institutions, Presidents of PTA and Teachers are not clear about the educational system of FDE, whether it is natural or not.

**Table 8: Post Hoc test LSD for Multiple Comparisons of overall opinions of FDE Administrators, Heads of Institutions, PTA Presidents, and Teachers on analysis of natural system**

(I) respondent	(J) respondent	Mean Difference (I-J)	Std. Error	Sig.
Heads	Teacher	-1.984(*)	.231	.000*
PTA	Teacher	-2.244(*)	.266	.000*

\* The mean difference is significant at the .05 level.

Table 8 shows the results of post hoc test (LSD) that mean scores of opinions of Teachers is significantly higher than Head of institutions and PTA Presidents with mean difference 1.984 and 2.244 respectively.

**Table 9: Comparison of Opinions of Heads of Institutions, PTA Presidents, FDE Administrators and Teachers on analysis of open system**

Types of Respondents	Open System	
	Mean	SD
Overall mean of all the respondents	18.46	3.08
Means of Heads	18.63	2.97
Mean of PTA Presidents	18.29	3.21
Mean of FDE Administrators	17.5	3.26
Mean of Teachers	17.03	4.00

Table 9 shows that the overall mean score of all the respondents about open system was 18.46 with SD 3.08 whereas Heads of the Institutions mean score for open system was 18.63 with SD 2.97 and PTA Presidents mean score 18.29 with SD 3.21 were somewhat equal to the overall mean score. Whereas, FDE Administrators mean score 17.5 with SD 3.26 and teachers mean score was 17.03 with SD 4.00 was slightly below the overall mean score. These differences from the overall means of the three respondents reflect that the four types of respondents are not clear about the existence of the open system in FDE.

**Table 10: One Way ANOVA on types of the respondents regarding open system**

Open System	Sum of Squares	df	F	Sig
Between Groups	2274.984	3	53.004	.000*
Within Groups	18470.452	1291		
Total	20745.436	1294		

\* Significant at  $\alpha=0.05$

Table 10 reflects that  $F= 53.004$  is significant at  $\alpha=0.05$  and the hypothesis that "There is no significant difference among the opinions of FDE Administrators,

Heads of Institutions, PTA Presidents and Teachers regarding the existence of open system in FDE” is rejected and hence it can be concluded that Administrators of FDE, Heads of Institutions, Presidents of PTA and Teachers are not clear about the educational system in FDE whether it is open or not.

**Table 11: Post Hoc test LSD for Multiple Comparisons of overall opinions of FDE Administrators, Heads of Institutions, PTA Presidents, and Teachers on analysis of open system**

(I) Respondents	(J) Respondents	Mean Difference (I-J)	Std. Error	Sig.
Heads	Teacher	2.812(*)	.249	.000
PTA	Teacher	2.465(*)	.287	.000

\*The mean difference is significant at the .05 level.

Table 11 shows the results of post hoc test (LSD) that mean scores of opinions of Head of institutions and PTA Presidents was significantly higher than Teachers with mean difference 2.812 and 2.465, respectively.

## 9. Discussion and Conclusion

All the findings form analysis of the three system i.e. rational, natural and open, with respect to four types of respondents reveal that there is significant difference among the opinions of the Heads of institutions, PTA Presidents, FDE Administrators and Teachers. However, majority of the respondents showed their inclination towards open system. Conclusions drawn are as under:

1. The opinion of the Heads, FDE Administration and PTA Presidents is inclined towards rational system, however the Teachers are not clear whether the system is rational or not.
2. The opinion of the Heads, FDE Administration, PTA Presidents and Teachers is not clear about the system whether it is natural or not.
3. All the respondents i.e. Heads, FDE Administration, PTA Presidents and Teachers have very strong opinion towards open system.
4. All the findings form analysis of the three system i.e. rational, natural and open, with respect to four types of respondents reveal that there is significant difference between the opinions of the Heads of institutions, PTA Presidents, FDE Administrators and Teachers. Majority of the respondents have mixed opinion about informal leaders, the balance of power between formal and informal leaders, achievement of objectives, delegation of powers, social interaction, domination of rules and regulations, staff involvement in decision making and community participation of three systems i.e., rational, natural and open. However, the general trend is a shift from rational and natural to open system.

Individuals differ in terms of values and life styles, despite the basic similarities of human nature. Their needs, desires and working styles also vary from person to person. In any organization, especially educational, achievement depends upon team work. It is very difficult to develop a team from diverse natured persons. Education is a slow, gradual and long term process, requiring specifically specialized organization, having the characteristics of all the three systems i.e. Rational, Natural and Open systems.

The findings of this study show that the Federal Directorate system of Education has characteristics of the three type of systems at different levels which is a positive sign for a successful organization being established in 1967 to fulfil the needs of the people of Islamabad Capital Territory by providing them a favourable teaching-learning environment in view of the modern challenges, by developing a sense of purpose and high achievement. But it is still in the progressive process of evolution.

It can be recommended that the social participation in terms of PTA role may be enhanced to make the system according to the peoples' aspirations and expectations. Heads of the institutions should be aware of the social and technological changes and manipulate the existing learning environment accordingly. He should involve the teachers in administrative and academic decisions for the betterment of school as a social organization. The head should invoke the spirit of generosity among the civil society so that they actively participate in solution of financial problems of the institutions in providing technological gadgetry for better and quality learning.

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