UNIJERPS
Unizik Journal of Educational Research and Policy Studies VOL.17 (1); ***January-June, 2024*** https://unijerps.org
2023 Impact Factor: 6.834; 2022 ***Impact Factor***: 5.156; ***2021 Impact Factor: 5.641;***
2020 Impact Factor: 5.355. *Indexing and Impact Factor URL: http://sjifactor.com/passport.php?id=21363*

THE ROLE OF SYSTEMS APPROACH IN EDUCATIONAL MANAGEMENT

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ABSTRACT

System approach can be defined as the gamut of all strategies designed to manage, control and manage the process and output of education. It is meant to accommodate and conceptualize all efforts made administratively and operationally to realize educational set objectives by synergizing all operational procedures and efforts in education as a system. In educational management, system approach can be explained to mean a compact whole with interrelated parts. The various sections or parts may differ in activities but are connected through a singular or common purpose. The absence of a part creates a lacuna and weakens the corporate existence and operation of the entire system. This paper is therefore discussed or explained the workings of a system as its divers operations are harmonized to achieve management or administrative pre-determined objectives. Its target is to ensure that educational output responds to the expectations of the various stake holders. The idea of productivity is that input and output ratio is not only at equilibrium but that resources invested into production process are accounted for through maximum outcome and profit maximization. This therefore presupposes that system approach is an integrated technology that brings operational departments in an organization to a point of tailoring their actions, programmes and efforts to realize or achieve the holistic aims or goals of the organization into fruition. In the case of education, it is directed at ensuring that educational programmes as enunciated by the ministry satisfy the yearnings and aspirations of parents, students, development partners and other stakeholders.

Keywords: System Approach, Education, Management

Introduction

Systems approach is not new in the field of educational management. It was much prevalent in educational, economics and administrative work systems. The first application and development of this concept was done in the area of mechanics and military science but it later impacted a lot of physiology and ideologies in sociological and educational sciences. It is therefore good to suggest that systems approach has produced methods like the fundamental principle of which is to believe, not in small parts, but as a whole. System approach presents an accurate and effective picture of a problem and its solution and as a result it has become very popular in the present age.

Before now, as Laiyanti and Vikrant (2019) stated, systems approach was first introduced during the Second World War, then it came into use in industry and management, and finally it arrived in the field of education and particularly in educational management. It consists ot the strategy to manage, control and improve the process and products of education.

Concept of a System

The word 'system' indicates arrangement, in the context it means the organization of the systematic whole where each part is related to other parts clearly, and this forms the whole. According to Wilson (2021) "System is an organized complex whole that forms together a complex unitary whole."The etymological meaning of the word 'system' is the combination of things that are controlled and operated by a continuous interaction or mutually dependent processes. A system is an extensive process which consistss of many concepts in a systematic manner.

Wagner (2021) stated that "System is an object which is connected to some activity, and establishes a type of integration and whole in that activity".In talking about its features, it is a procedure or process, which is a systematic arrangement of different elements, and in which these elements are interrelated and interdependent. Basically it consists of a systematic arrangement of elements working in a specific manner.

Basic Elements of a System

Every system has the following four basic elements.

1. Input
2. Process
3. Output and
4. Environment

Input: Input simply means the raw materials or things which are used in a system in order to manufacture a something. It is what is put into a system.

Process: Process consists of all activities that turn raw material used as input into the product with the help of available technology. Input is changed into output by a process. It is concerned with what goes on in a system.

Output: The changed form of input by a process is called product or output.

Environment: Environment connotes the circumstances in which a system functions. The basic elements of a system are displayed by the following diagram:

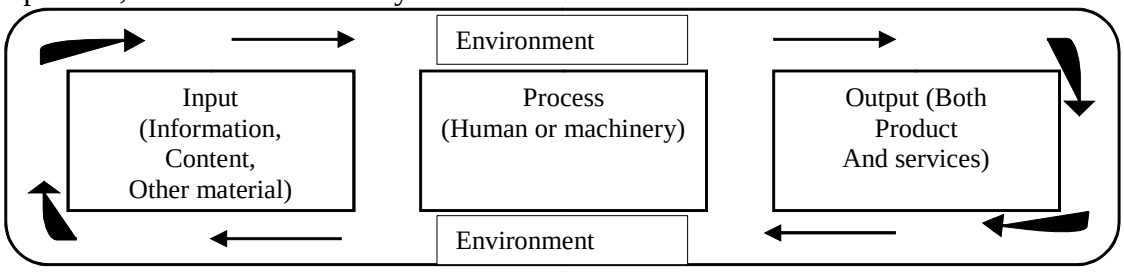


Figure 1. Basic Elements of System

A system picks inputs from the environment and supplies output to the environment. A system has to operate within the confines of the environment and

it cannot work against environmental constraints.

Features of a System

The following are the important characteristics of a system:

1. A system is an integrated and dynamic whole.
2. It is a set of mutually related and mutually interdependent elements.
3. The elements work together to realize the main aims of the system.
4. A system has its specified aims and objectives.
5. The result of the integrated system is always more than the contribution of its constituent elements. This is a combination of different sub-systems.
6. The parts and sub-parts of a system are mutually related. They are naturally integrated into a whole.
7. A system is not a mere combination of its different sections and sub-sections; but an arrangement in which they are constructed into a whole.
8. Each system has boundary that is not visible in social system, but guides in establishing proper relationship between the system and environment.
9. Each system can be divided into two parts by its boundary: (a) closed system and (b) open system.

Meaning of Systems Approach

The term 'systems approach' has been formed by two words: systems + approach. By systems is meant the entirety or wholeness, in which all elements, factors, organs or components are mutually related, knit together and selfcontrolled. The systems approach believes in the entirety. This approach considers teaching and training as social and technological process. In educational sphere this approach is a method to arrive at solutions to problems, and it helps to carry forward and develop the teaching and training system as per the new changes.

Education in this systems approach is considered good, in which some elements function as input. Then these elements pass through a process and then emerge as output. The output is the product or the realization of objectives. This approach provides education with the level of active product system, and tries to establish education as a product.

Definitions of Systems Approach

Systems approach can be defined as a groups of combinations, interrelated and interacting components forming a collective whole that is called a system (Arnold and Wade, 2015). Experts have explained systems approach in a variety of ways, but their main idea remains the same. Aggarwal (2010) explained it as common sense by design, which means a systematic arrangement for the analysis and solution of a problem. In his words: "Systems approach to instructional design is regarded as common sense by design', a systematic way of deductively analyzing a problem and solving it."

Clarkson et al. (2017) said that "Systems approach is a management tool that allows individuals to examine all aspects of a problem, and inter-relate the effects of one set of decisions with another, and optimally use the resources at hand to solve the problem. Kumar (2009) added that "Systems approach is a term used to

describe the systematic application of educational management to an educational or training problem, starting with the input (entering behavior) and output (terminal behavior). It is a system of how best to progress from the former to the latter."

Johnson (2016) equally added that "The systems approach involves the accurate identification of the requirements and problems of setting of objectives after identifying their needs in performance oriented terms, the application of logic and analysis techniques to the problems, the development of procedure for the solution of the problems and the detailed measurement of the product against specific performance objectives. "In systems approach, education is a rational problem-solving process and it is also known as the approach for getting systematic knowledge on the teaching-learning process.

Features of Systems Approach- According to Aggrawal (2019), the following are the characteristics of Systems Approach

1. It provides a suitable basis for the determination of objectives from analysis of environmental system.
2. Instructional objectives are so set by which their accomplishment can be observed easily.
3. It is a complete and interdisciplinary approach.
4. Selection of instructional strategies and transmission procedure plays an important function in the approach.
5. It is applicable to almost in every situation whether academic or administration.
6. The systems approach is integrated and dynamic.
7. The systems approach is a systematic arrangement of elements that operate in a specific pattern.
8. It makes use of resources like, human, finance, machinery and materials for problem solving in an effective manner.

Steps of Systems Approach

The main methods of systems approach according to Alagboso (2019) are considered as follows**:**

1. **Systems Analysis:** This requires the analysis of the needs, means, elements, functions; processes of the system.

   This analysis is done in the context of input, output, process and environment. The main functions are.

   A) To determine what objectives the system will accomplish.

   B) To analyze the methodology of each component through the needs and elements of the system as per the objectives.

   This analysis is done as per the available environment
2. **Systems Design**: This is the stage of item synthesis. At this step, the goal of system is kept in view. At this level, different methods are suggested as per the objectives by which the system can present output in a most effective manner. Three main processes at this step are:

   A) Determining objectives and goals of the system.

B) Selecting proper methods, strategies, approaches and devices.

C) Constructing a comprehensive programme for the working of system as related to its objectives and different elements. In this plan, the input, output and process and environment of the system are included and explained.

3. **Systems Operation and Evaluation:** At this stage, it is decided if the system has the capacity to accomplish its objectives or not. In view of this, the system is tested under simulated circumstances in order to ascertain its validity and utility. This is known as formative evaluation of the system. In this process, feedback is used to effect necessary changes, amendments and modifications to the structure, as a result of which (the system becomes more efficient. Therefore, this process of improvement continues until there is any possibility of improvement for the accomplishment of objective.

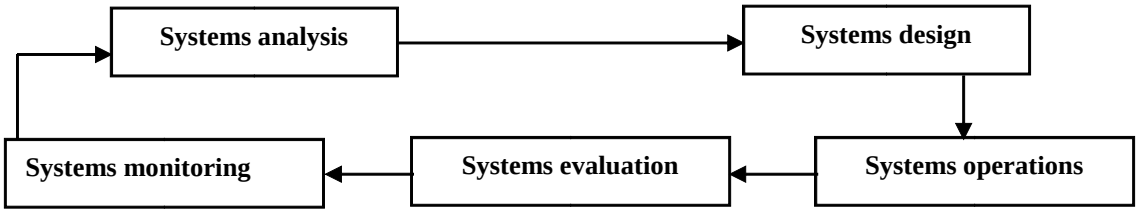


Figure. 2. Stages of Systems Approach

4. Systems Monitoring: Under this, the technique being executed is monitored from time to time and its value is examined.

Systems Approach as an Interdisciplinary Approach

The systems approach is a team work in which scholars in different subject areas like science, engineering, mathematics, statistics, economics, politics, sociology, accountancy and behavioral sciences work together. In his own contribution, Ikpat (2020) stated that it is a system concept and thinking is applied. This is a type of ideology in which a problem is looked at, understood and analyzed as an integrated whole. In this approach, predetermined objectives are parts of the components and sub-components for mutual interaction in organized mutual cooperation. In this approach, several sub-systems are interrelated such in a predetermined format or design that can work as an integrated system, and this goes on to achieve the systems objectives effectively. When the systems realize its set objectives, only then it is called a successful systems approach; else it or its components and sub-components are suitably modified in order to change and improve its format.

On the basis of above analysis, it can be said in the words of Johnson (2016), Systems approach is a concept or educational tool which makes educational

functions or challenges more successful, integrated, responsive, responsible, logical, systematic, automatic and flexible In it, the logical problem-solving method is used to analyze each aspect of the educational process, predetermined objectives are evaluated and then the analyzed elements (aspects) are synthesized in order to achieve integration.

Problem-solving is part of the systems approach. Typologically, the systems approach is a process in which needs and problems of a system are identified, then the problem is selected, and the most suitable alternative for problem-solving is selected. The obtained solution and outcome are evaluated, and necessary changes are effected, if necessary. The greatest characteristic of this system is that it does not analyze elements in isolation, it rather analyzes them as an integrated whole directed at problem-solving. Therfore, the process synthesis and the process of analysis are all essential. The systems approach takes an individual from the part to the whole.

Alagboso (2019) in his submission concluded that systems approach is a logical problem-solving mechanism which identifies and studies serious educational problems and their alternatives, and in other to profer their solutions. Taking redundantly, the systems approach is a tool which solves educational problems effectively and efficiently. It is an art of reflection which presents problem-solving in a scientific manner.

Education as a System

Education, as a system, consists of evaluation of students, teachers, curriculum, content and instructional objectives through different elements. In systems approach in education, there is the interaction of all these elements and the teaching-learning process is considered responsible for communication and control. In this context, the educational system is a component of teacher, student and instructional programme and a specific type of interaction pattern is developed among them.

Education usually use the most current ideology and pedagogy which are necessary to enhance the quality of teaching and learning. The systems approach is a methodology which assists in discovering most effective, cost efficient and intelligent means of solving educational problems. Clarkson and Dean (2018) have strongly agreed that education has systems approach.

Systems Approach in Education

Systems approach is becoming a veritable tool in the field of education. The educational system functions for the accomplishment of its predetermined objectives in every nation, and it is influenced by the super social system. Education gets all its inputs, outputs, resources and obstacles from the society. The educational system is interrogated in the context of social system. There are several sub-systems in a system, such as educational management, educational administration, educational guidance etc. These sub-systems Wilson (2021) suggested function as interdependent elements for the accomplishment of specific objectives and activities. Within educational management, Interactions

keep taking place among these sub-systems, and they contribute in the accomplishment of the wider goals of the supra educational system as a whole.

Systems Approach in Educational Managemnt

As stated earlier**,** systems approach is an integrated system for problem solving in education, In other words, it is a holistic effort directed at identifying and solving educational problems as a whole. Educational Management though a sub-system of education has its own systems. These are Economics of Education, Personnel Management in Education, Policy and Planning in Education and Institutional or Organizational Administration in Education. These sub-systems work together to identify and profer solutions to problems in Educational Management

Stages of System Approach in Educational Management

The different stages in systems approach in educational management as stated by Ikpat (2020) can be discussed as follows ;

(a) Considerion of the character of the target population and topic area

The range of backgrounds, knowledge, attitudes and sils of students coming for the course will have a strong influence on course design. Pre-knowledge and any common misconceptions will have to be catered for in the design of the course. This may, for example, affect sequence, structure and support mechanisms.

(b) Estimate relevant existing skills and knowledge of learners

There may be minimum standards of entry to the course, but this will not always be so. For example, the increasing number of non-standard and mature of student entrants to higher education will not necessarily have conventional paper qualifications, but may possess skills and qualities which will influence course design. This may have implications for teaching methods, bridging courses and support systems.

(c) Formulation of objectives or learning outcomes

The objectives and learning outcomes of the course or curriculum element will attempt to accomodate the new skills, knowledge or attitudes which are believed that the students will acquire. They may be formulated by the learners themselves, by employers, by teaching staff, by a validating, examining or professional bodies, or by some combination of these sources.

(d) Selection of appropriate instructional methods

Having specified the objectives and learning outcomes, we should be in a better position to select appropriate teaching/learning methods through which there are higher chances that objectives can be achieved .There are far more teaching methods available to choose from than most people can identify.

(e) Operating course or curriculum

The next element in the system is the actual implementation of the course. This involves all the logistic arrangements associated with operating the course, including overall structuring, pacing, implementing the selected teaching

strategies, using appropriate supportive media and materials, and ensuring that all aspects of the course run without hitches.

(f) Assessment and evaluation

The assessments should be closely related to the specified course objectives and learning outcomes. Poorly achieved objectives or learning outcomes will result in course designers to appraising the entire system in order to identify places where improvements might have been made. This could involve an amendement in the objectives and learning outcomes, a re-assessment of students' pre-knowledge and a critical review of teaching and learning process and the instructional methods used. These discussions, together with feedback on the course from staff, students, and employers, can be used in an evaluation of the entire concept of the course, which should, in turn, form the basis of an on-going cyclical course development process. If a teacher wants to apply the instructional systems approach in the field of education, then he will have to apply systematic methodology for each step. He will have to follow the eight steps as displayed below:

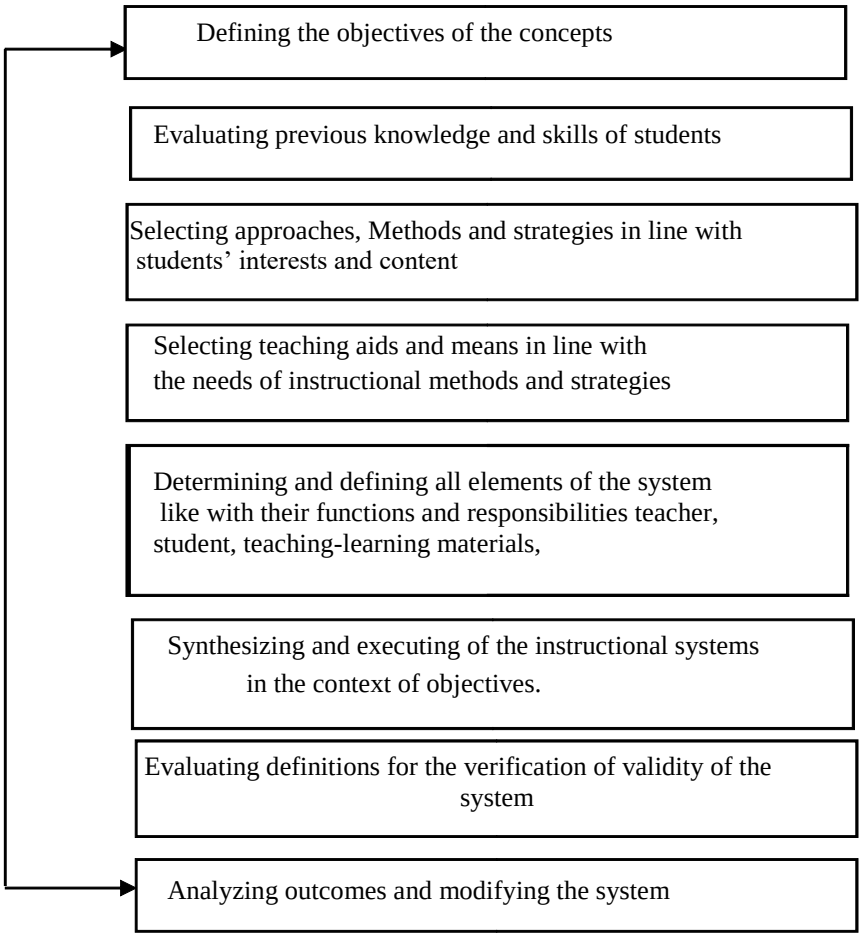


Fig.3 : Stages of System Approach in Educational Management

Importance of Systems Approach to Educational Mangement

In line with the submissions of Johnson (2016), the importance of system approach to educational management include but not limited to the following.

a). It brings the problems encountered by different sections and units as they conduct their operations together for a holistic analysis in other to provide their solutions**.**

b). It helps to direct the efforts of different units or sections in the department to the central purposeS of the school, which is to realize educational objectives.

c). As a system is an intergrated component, it enhances team spirit and efforts and that minimizes error in the technology of work. This can come up in the form of collaborative teaching.

b). It also brings about innovative teaching as staff synergize to get their work done. This is made possible as they engage in creative thinking in other to do their work better.

Conclusion

In the systems approach, the above eight steps can be considered to effectively control the entire teaching and learning process and educational input, then other related educational problems can be solved. In the educational sector, the systems approach is an important means to organize and select different programmes for the better training and development of teachers and students and assist in providing the required quality of education.

REFERENCES

Ikpat, S, U. (2020). System Analysis in Educational Management : A professional approach for employee job effectiveness. International Journal of Research in Education and Social Sciences PortHarcourt, River State. Vol. 1 pp45 – 57

Johnson P.E. (2016). The importance of Management on Principal's job Effectiveness. Unique Journal of Education and Social Sciences, India. Vol.6. pp 67 - 78

Alagbaso, A.S. (2019). The application of System Application to Education, Edumark publication Ltd, Ikeja, Lagos

Wilson, S. (2021). A case for a System Approach to EdTech. EdTech hub. https://doi.org/10.5281/zenodo. 5651995

Wagner, D.A and EdTech. Hub Team (2021). Problem Analysis and Focus of EdTech Hubs Work : Technology in Education in Law and Middle income countries. (working paper No. 7). The EdTech Hub. https://doi.org.105281/zenodo.4332693.

Arnold, R. & Wade J. (2015) "A Defintion of systems thinking". *Procedia computer science*. 44 669-678 Finn https://EdTech.202 blogspo In/2015/12/the-concept-of-system – approach-to.htini

Aggarwal, J.C. (2010). Essentials of Educational Tecnology (innovations in Teaching and Learning, Vikas Publishing Housing PVT LTD. New Delhi, Page No. 284 – 293.

Clarkson, P ; Bogle, D ; and Dean, J. (2017). Engineering Better Care : A system Approach to Health and Care Design. https »//www.raeng.org

Clarkson,J.and Dean, J (2018). A system approach to health care from thinking to practice. Futuer Health/2018.5151 – doi.7861/future hosp. 5 – 3

Kulshrestha, S. P. (2010). "Foundations of Educational Technology", R. Lall Book Depot Near government Inter College, Meerut.

Kumar A. (2009). "Operations Management: New Institutiona Pvt. Ltd.", Bangal

Laiyanti and Vikrant, B. (2019). Department of Pedagogical Sciences, Faculty of Education, Dayalbagh Educational Institute, Deemed University, Agra, India.