# ADVANCED DIPLOMA IN SCHOOL SUPERVISION AND INSPECTION (SSI)

## SSI 201: EDUCATIONAL MANAGEMENT AND INFORMATION SYSTEM

### UNIT ONE: MEANING, SCOPE AND PURPOSES OF EDUCATIONAL MANAGEMENT INFORMATION SYSTEM (EMIS)

### INTRODUCTION

Education in Nigeria is regarded as the key to overall national development. Consequently, quality education enjoys a high priority in Nigeria's development planning. The high rate of growth in the population of the country has led to an increase in the number of educational institutions at all levels so as to meet the growing demands for education. A wide range of decisions are being taken in these institutions. For rational decisions to be taken, the school managements must have at their disposal adequate and accurate information. In order to achieve the objectives of the educational system at any level, Management converts information into action. Due to the tremendous needs of educational organizations for reliable information on a continuous basis, it is often necessary to develop an information system (EMIS). You will learn about the scope and purposes of the EMIS in the school system. The continual improvement of the efficiency and effectiveness of information system is an ongoing challenge to administrators in educational institutions as they manage information daily. As an administrator, your diverse information needs, resources and their use have also increased in all the areas where you function.

### OBJECTIVES

At the end of this unit, you should be able to:

1. understand the meaning of educational management information system;

2. describe the scope of educational management information system;

3. explain the purpose of management information system in educational setting.

**MEANING, SCOPE AND PURPOSES OF M.I.S. IN EDUCATIONAL SETTING**

*Meaning of Educational Management Information System (EMIS)*

In order for you to better understand the concept and definition of M.I.S., it will be better to describe each term separately first "Management" in M.I.S. consists of the activities carried

out by managers or administrators. In this context the school head is referred to as Manager or Administrator. These activities are: planning, organizing, controlling and initiating action.

"Information" consists of classified and interpreted data that are being used for decision making. "System" is a set of two or more elements, such as people, things and concepts which are joined together to attain a common objective.

Thus, the M.I.S. is defined as a group of people, a set of manuals and data processing equipment (that is, a set of elements) which select, store, process and retrieve data (operate on data and matter) to reduce the uncertainty in decision-making (seek a common goal) by yielding information for administrators and managers at the time they can most efficiently use it (yield information in a time reference).

An M.I.S., in simple words, is a processor of information (input) so as to yield decisions (out-put). Due to the managerial functions for each of which the manager or administrator takes decisions, the M.I.S. becomes a facilitating system for developing decisions in planning, organizing, controlling and initiating.

Another definition states that the M.I.S. is an organised assembly of resources and procedures required to collect, process, and distribute data for use in decision making. In addition, the M.I.S. is said to be a data processing system that is designed to provide a management with information to assist in making decisions.

The M.I.S. is also defined as a communication process in which information (in-put) is recorded, stored and retrieved (processed) for decisions (output) on planning, operating and controlling. The M.I.S. is a tool that provides various forms of information that facilitates adjusting to the changing demands of one's environment. Thus in order for a school to be changed, information must be available about what is happening inside as well as outside the system.

All we are saying is that "Management" has become systems oriented and more sophisticated in management techniques. "Information" is planned for and made available to administrators (managers) as needed; and a "system" of information ties planning and control by administrators (managers) to operational systems of implementation. The combined result of these concepts is the management information system (M.I.S.)

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### ACTIVITY I

1.      Define the concept management information system.

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Scope of M.I.S. covers six main areas of activities, namely:-

(i)      capture of information

(ii)     storage of information,

(iii)    retrieval of information,

(iv)     reproduction of information,

(v)      presentation of information and

(vi)     communication of information.

These will be described below:

(i)     Capture of information is a preliminary activity in the process of M.I.S. it involves collecting information from external and internal sources.

(ii)    Storage of Information is the second area of activity in the M.I.S. process. At this stage, information gathered is stored for safe keeping in a data bank for use at a later time.

(iii)   Retrieval of information is the process of recovering a piece of information which had already been stored earlier for use in the process of problem solving or and decision making.

(iv)    Reproduction of information takes place when the information that had been retrieved is processed and made available to current users.

(v)     Presentation of information refers to the activity of making available to current users pieces of information to enable them make appropriate decisions in a prevailing situation.

(vi)    Communication of information refers to getting information across to those who require it.

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### ACTIVITY II

1.     Identify the main areas of activity of M.I.S.

2.     Briefly describe these with examples

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**PURPOSE OF E.M.I.S.**

Informationh is very crucial to effective management of schools. Students go in and out of schools. Keeping accurate information (data) on them during their school years is imperative. Information is required on students' enrolment, and their academic performance while in school. Institutions of higher learning and employers of labour often require information on individuals' past academic and moral standing in order to make quality decisions in respect of the persons concerned.

The main objective of an educational M.I.S. is to provide information for decision making on planning, organizing and controlling major activities of the organization, and initiating action – all in order to attain organizational benefits.

Another specific purpose of an educational management information system is to raise managing (administering) from the level of piecemeal, spotty information, intuitive guesswork, and isolated problem-solving to the level of systems insights, systems information, sophisticated data processing and systems problem-solving. Hitherto, administrators have also had "sources" of information; such as rumours and gossips. However, the M.I.S. now provides a system of information. Thus, the educational management information system is a powerful method for aiding educational administrators in solving problems and making rational decisions.

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### ACTIVITY III

1.     Describe two specific purposes of the educational management information system.

## SUMMARY

- The unit you have just studied centres on the meaning, scope and purposes of the educational management information system (E.M.I.S.). The E.M.I.S. has been defined as a system to convert data from internal and external sources into information and to communicate that information in an appropriate form to educational administrators at all levels in all functions to enable them make timely and effective decisions for planning, directing and controlling the activities for which they are responsible. The scope of the EMIS involves six distinct activities namely, capture of information, storage of information, retrieval of information, reproduction of information, presentation of information and communication of information. The main purpose of the EMIS is to provide adequate information for decision making on planning, organizing and controlling the major activities of the organization.

## REFERENCE

1.    Lucey, T. (2000 ed.) **Management Information Systems**.  London: Continuum.

# UNIT TWO: TYPES AND CHARACTERISTICS OF EDUCATIONAL MANAGEMENT INFORMATION SYSTEM

## INTRODUCTION

This unit deals with the nature and characteristics of educational management information system (EMIS). It describes the main characteristics of EMIS and explains the features of an effective EMIS.

## OBJECTIVES

At the end of this unit, you should be able to:

(i)     understand the nature and types of EMIS;

(ii)    describe the characteristics of EMIS;

(iii)   explain the features of EMIS;

(iv)    apply the EMIS to your school organization.

## NATURE OF EDUCATIONAL MANAGEMENT INFORMATION SYSTEMS

An educational management information system encompasses the development, use and management of information in organizations. It is designed to support the management of organizational functions at the managerial level of the organization. It facilitates access to information and is usually designed for administrative purposes.

It is an organised assembly of resources and procedures which are required to collect, process, and distribute data for use in decision making. Information is critical to effective management. Running an efficient educational organization requires information on students, staff performance, financial resources available, academic programmes and the requirements of the labour market. The EMIS has the capabilities to enable our school organizations to survive and thrive.

There are several distinct types of management information tools to consider.

These are:

(i)     Pre-defined reports – which are really structured views of information that have been designed and built in a manner that makes it easy to generate them on a regular basis, such as once a month e.g. register of attendance.

(ii)    Adhoc queries – these are tools that allow fast, interactive development of new views of information that are customized to a specific question or need.

(iii)   On-line analytical processing (OLAP) – when in-depth research is needed on a specific issue, OLAP is a specialized data access method that enables people to quickly zero in on the issue, and then follow their stream of thought to quickly look at the issue from many perspectives. These are investigatory (analytical) tools rather than traditional "reporting" tools.

(iv)    Decision support systems – a decision support system is a comprehensive set of information tools intended to support major policy decision making. They combine

pro-defined reports, ad hoc query capabilities and sometimes even OLAP features together with extensive statistical analysis features that support scientific study of policy issues. The main emphasis here that the EMIS must be appropriate to the organization and to the persons receiving the information; it must be tailored to suit organizational and personal needs otherwise it will be of little value. Organisations face different types of environment with varying rates of change. If an educational organization operates in a placid, relatively unchanging environment it will evolve a structured and mechanistic control system with a need for more formal information in prescribed forms. In a turbulent and volatile environment, information inputs and outputs cannot be rigidly defined and an adaptive and responsible information system is necessary. Successful organizations are those that retain a significant level of informality in their organizational structure and the way they handle information.

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### ACTIVITY I

1.      Briefly describe the nature of an Educational Management Information System.

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## CHARACTERISTICS OF EDUCATIONAL MANAGEMENT INFORMATION SYSTEM

The educational management information system is made up of five systematic loops that feed information to a decision making (control) mechanism. These loops are:

(i)      an internal feedback, quality control loop;

(ii)     an external feedback loop;

(iii)    a pending resources loop;

(iv)     an internal feedback, personnel support look; and

(v)      a labour market futures loop.

Based on the systematic information received from the five loops, the decision making control mechanism can carry out an ongoing process of change to direct a school towards a patterned equilibrium with its environment. The main characteristics making up the EMIS are described below:

1.      **The Internal Feedback, Quality Control Loop**

This information loop provides data about the effectiveness of the teaching-learning process. These data are derived from comparing test scores with pre-determined objectives. These tests are usually standardized or teacher-made tests. Evaluation of the teaching-learning process is important because it serves to inform teachers and administrators about how well students are learning what is being taught in the classroom. However, the evaluation does not tell educators if they are teaching the right things. For example, the quality control loop may provide data that say students are performing within the upper 10 percent of all students studying Ancient World History, Constructing of Tents (huts) and Traditional Music and Dance. But the question is: should these subjects be taught in the classroom? The market futures loop

would be depended upon to provide correct answers to the issues of programme content.

2. **The External Feedback Loop**

   This information loop informs the decision making mechanism about the level of success of the output on the labour market. Almost all organizations which generate a product for a market go to the extremes to obtain external feedback so as to guide the process of change. The school needs information on the success of its output (graduates) in the labour market (on the job or in the university) so that it can be obtained through old students' re-union meetings, discussions with graduates and dropouts who return to school for a visit, and on-site visits by educators to institutions that receive graduates or through interview sessions.

3. **The Pending Resources Loop**

   This information loop provides the control mechanism with a picture of the human and materials resources the school will receive over the short and long run. Data obtained from this information loop set parameters for what is economically feasible in the way of change – oriented projects for the students entering the educational system. For example, a desire to purchase and install computers to assist instruction does not make any sense as to whether such a school is located in a rural or sub-urban area where there is no electricity supply and where financial resources are not available and will not become available to purchase a power generating machine.

4. **The Internal Feedback Personnel Support Loop**

   In order for a programme of planned change to be successful, there usually is the need for support from people directly involved such as parents, teachers and students. The personnel support information loop provides data about the amount of support or resistance key groups will render to specific programmes of change. Programmes that seem desirable and feasibly, as determined by information assembled through the other information loops, may fail completely if sufficient backing from parents and teachers does not exist.

5. **The Labour Market Futures Loop**

   This information loop closely monitors the changing needs of the labour market (which receives graduates) by accumulating information such as specific workforce projection, new work technologies, changing university admission requirements and needed job skills. Because the loop draws in this information on the local, state and national scenes at projected time intervals (for example, two, five, ten fifteen years) hence the school has the capability of changing its academic programme at the appropriate points in time. Students then arrive at the labour market with the appropriate knowledge and skills that are in demand when they graduate.

## THE DECISION-MAKING CONTROL MECHANISM

The control mechanism of the school is the recipient of the data derived from the five systematic loops already described. Based on the accrued information, the educational administrator, supervisor and inspector determine where and how the educational process ought to be steered in a direction of change. This is the essence of the M.I.S.

> **ACTIVITY II**
>
> 1.    Describe the main characteristics of an educational management information system.

## FEATURES OF AN EFFECTIVE (M.I.S.)

In order for an EMIS to be effective, it should have the following features:

(1)    It should be easy to use, requiring relatively little training in order for people with basic computer skills to get worthwhile information out of the system.

(2)    It should provide meaning to data by aggregating it in useful ways and presenting it in the most effective format possible, such as using graphs or cross-tab formats rather than just a lot of rows and columns of numbers.

(3)    It should connect multiple levels of detail so that a user can start out looking at a high level issue, then easily dig into more detail where necessary.

(4)    It should be flexible, allowing the user to perform tasks such as sorting data in different orders or selecting very specific populations of clients to analyse.

(5)    It must be accurate so that there is never a question about the credibility of the information being produced by the system.

In the quest for the optimization of the EMIS other critical performance enhancement indicators include efficiency, effectiveness, reliability, productivity and quality.

Above all, the system should do an outstanding job of turning raw data into real information, leading to organizational learning that produces better results over time.

## SUMMARY

•    The unit you have just studied describes the nature and characteristics of an Educational Management Information System (EMIS).  An EMIS is the development, use and management of information in the educational system.  It is designed to support the management of organizational functions at the managerial level of the organization.  The main characteristics of the EMIS are: an internal feedback loop, an external feedback loop, a pending resources loop, an internal, personnel support loop, and a labour market futures loop.  For the EMIS to be effective it must be easy to use, it should provide meaning to data and should be flexible such that the user can perform diverse task with minimum difficulty if any at all.

## REFERENCES

Lucey, T. (2000 ed.) **Management Information Systems.**  London.  Continuum.

**Definitions of Management Information System (MIS) on the web**. March, 2004.

## UNIT THREE:  GENERAL SYSTEM AND SYSTEM APPROACH TO SUPERVISION AND INSPECTION

## INTRODUCTION

System theory is a way of looking at social organization as a whole.  The school is a good example of a social system because it has a number of persons who interact as they work within the organization to achieve a common goal.  This unit is a study on the general system and the system approach to school supervision and inspection.  You will learn about the meaning of system, types of systems, the characteristics of a system, what system approach is and the application of system approach to school supervision and inspection.

## OBJECTIVES

At the end of this unit, you should be able to:

1.     define system;

2.     state the types of system;

3.     describe the characteristics of a system;

4.     explain what the system approach is;

5.     discuss how you would apply the system approach to school supervision and inspection.

## GENERAL SYSTEM AND SYSTEM APPROACH TO SUPERVISION AND INSPECTION

### DEFINITION OF SYSTEM

A system is a complex of elements in mutual interaction.  A system includes something consisting of a set of entities among which a set of relations is specified, so that deductions are possible from some relations to others.  The different parts of a system are interdependent.

A system is a group of interacting parts or bodies forming a unified whole.  If one part of the sytem changes, the other parts will either change or force the deviant (subsystem) to conform to the existing system.  Because a system is characterized by inter-relationships, its parts can be understood only in relation to each other and to the whole, and the whole can be understood only in relation to its component and integral parts.  Within the educational set up, the school is seen as a system, existing in an environment, which is the supra-system and having within it a subsystem which is the administrative apparatus of the organization.  This is better explained in Figures 1 and 2 below.
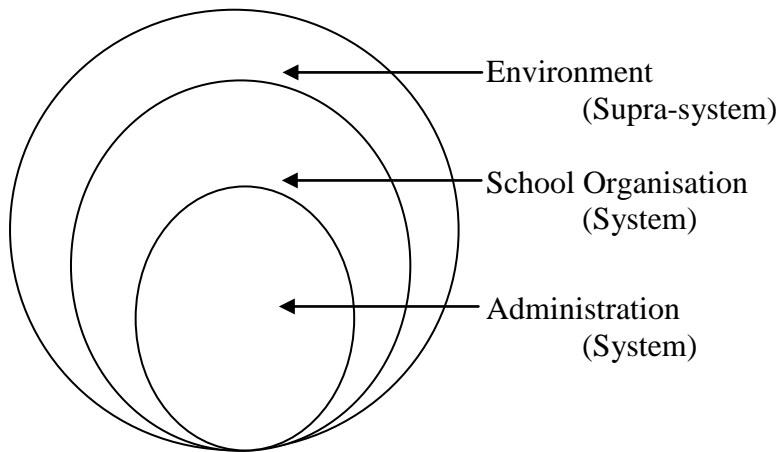
**Figure 1: A School Organisation viewed as a system**
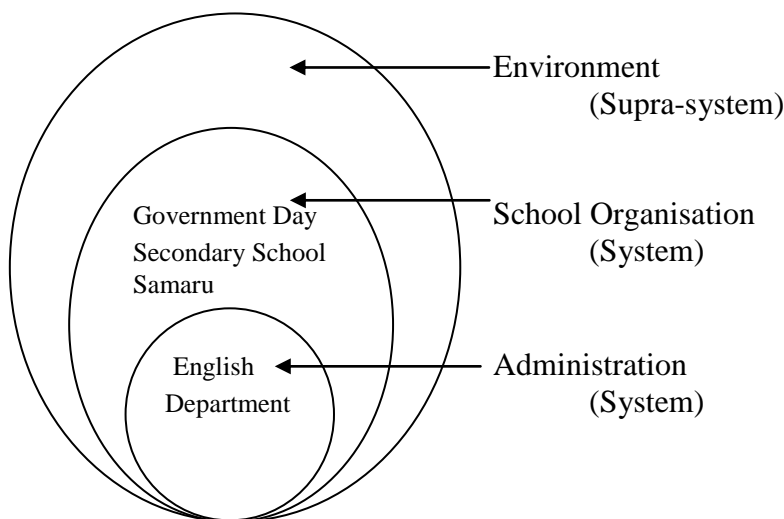


**Figure 2: Government Day Secondary School, Samaru viewed as a system**

The boundaries of the various systems of sub-systems are suggested in the figures by tangential circles; however, you must bear in mind that these boundaries are permeable, permitting interaction between the systems and their environments. A system is an organised whole, consisting of inter-relating and inter-dependent parts. A system is the sum total of parts working independently and working together to achieve required results or outcomes, based on needs. For example a school could be a system, if it had objectives, an educational zone could be a system, and an instructional programme could also be a system. Therefore, if an entity has purpose and organisation, it can be a system.

A system is an assembly of parts where:

1. the parts or components are connected together in an organised way;

2. the parts or components are affected by being in the system (and are changed by leaving it);

3. the assembly does something;

4. the assembly has been identified by a person as being of special interest.

Thus, from this comprehensive definition, any arrangement which involves the handling, processing or manipulation of resources of whatever type can be represented as a system.

## TYPES OF SYSTEM

There are two main types of system: the 'open' system and the 'closed' system. An open system is influenced by, and it influences its environment and reaches a state of equilibrium in this environment. A closed system is relatively uninfluenced by or is isolated from its environment. You should however note that completely closed systems are quite rare, if they exist at all; for even an alarm clock must be wound by, or receives energy from, an external source. Closed systems, if they exist, are easier to analyse than open system because all their constituent elements can be readily identified. Thus even relatively closed systems are still somewhat open.

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### ACTIVITY I

1.  Define the term system.

2.  Identify the types of system.

3.  What are the main features of each type of system?

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### Characteristics of a System

A system is an organised whole, consisting of inter-related and interdependent parts. The common characteristics or features of a system are described below.

1.  **Importation of Energy from the Environments**

    Systems import energy from their environments. This may be information, materials and human resources. It is on this basis that the school, as an open system, recruits teachers, admits students and secures other resources from its environment.

2.  **Transformation of Resources**

    Systems transform the available resources of energy to create new products. For instance, the school trains the students for future services in the society.

3.  **Export of Products**

    Systems export products or outputs, such as engineers, doctors, teachers and lawyers trained in the school system to the environment or other institutions in the society.

4.  **Cycles of Events**

    Open systems have cycles of events. This accounts for the reason why schools have specific period for their programmes such as students' admission, resumption of classes and graduation.

5.  **Negative Entropy**

    Open systems are characterized by negative entropy. To survive, therefore, the system organises itself to minimize the possibility of its death or extinction thereby maintaining itself and ensuring its continuity. In schools, the input of new students

each year, the introduction of rules and regulations, the budget and employment cycles, all operate to energise the system.

6. **Feedback**

There is a feedback. That is, the inputs could be informative to the system and signal the reaction of the environment to the system. Therefore, the school system uses the opinion of the public on its input and output to assess the relevance of its programmes.

7. **Dynamic Equilibrium and Regulation**

Open systems have a steady state or dynamic homeostasis. This means that such system tend to restore balance or eliminate forces of imbalance. This is partly attained in schools through the process of admission and graduation of pupils.

8. **Equi-finality**

Open systems have equi-finality as they can reach their destinations through various conditions and ways. For example, the objective of inculcating national consciousness and promoting unity could be obtained in the schools through the teaching of subjects such as Social Studies, by encouraging students to work in harmony with one another, by encouraging team spirit during sports and through inter-schools visists or inter-state exchange of students.

9. **Interdependence**

The elements of a system interact with one another and they are interdependent..

10. **Multiple goal seeking**

Human organizations are established and operated to achieve goals. They rarely have single goals only. Rather they seek the attainment of various goals, which may be ordered in a priority ranking. In time these priorities may shift with circumstances.

11. **Wholism**

A system contains the principle that the whole of a structure or entity is more than simply the sum of its parts. In the school system for example, no one single subject is more important than the others. Every subject plays a vital role in building up the pupil to be academically, morally and spiritually sound and stable.

12. **Hierarchy of Systems**

A system is composed of subsystems of a lower order of size or complexity. Likewise the system itself may be part of a larger system. For instance, the school is composed of classes and departments; the school is one of the many such educational institutions in a local government area of a state of the country.

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### ACTIVITY II

1. Identify and describe, with vivid examples, five characteristics of a system.

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**WHAT IS THE SYSTEM APPROACH?**

The general system is a concept which emphasizes that not only is it necessary to examine and analyse the individual parts of the system or organisation but it is vital that the system is viewed as a totality where the whole is greater than the sum of the parts. Systems are composed of sub-systems, or expressed in commercial terms, organizations consist of departments and sections, and these parts interact and are interdependent. Thus, it is necessary to consider these inter-relationships otherwise the system or organisation as a whole will not function efficiently and will be slower to adapt to changing conditions, which is a primary requisite to survival.

The system approach is a process by which needs are identified, problems selected, requirements for problem solution are identified, solutions are chosen from alternatives, methods and means are obtained and implemented, results are evaluated and required revisions to all or part of the systems are made so that the needs are eliminated. The systems approach is a method of framework which helps us to analyse and explore the operation and interactions which exist in the system around us.

In other words, a system approach is a type of logical problem-solving process which is applied to identifying and resolving important educational problems. It is central to education system planning.

The system approach is both a process tool for more effectively and efficiently achieving required educational outcomes and a mode of thinking that emphasizes problem identification and problem resolution. The system approach utilizes a formulation of logical problem solving techniques which outcomes of the process depend on:

(a)     the validity of the data that are used to identify and resolve educational problems, and

(b)     the objectivity of the personnel using the system approach and its associated tools in planning.
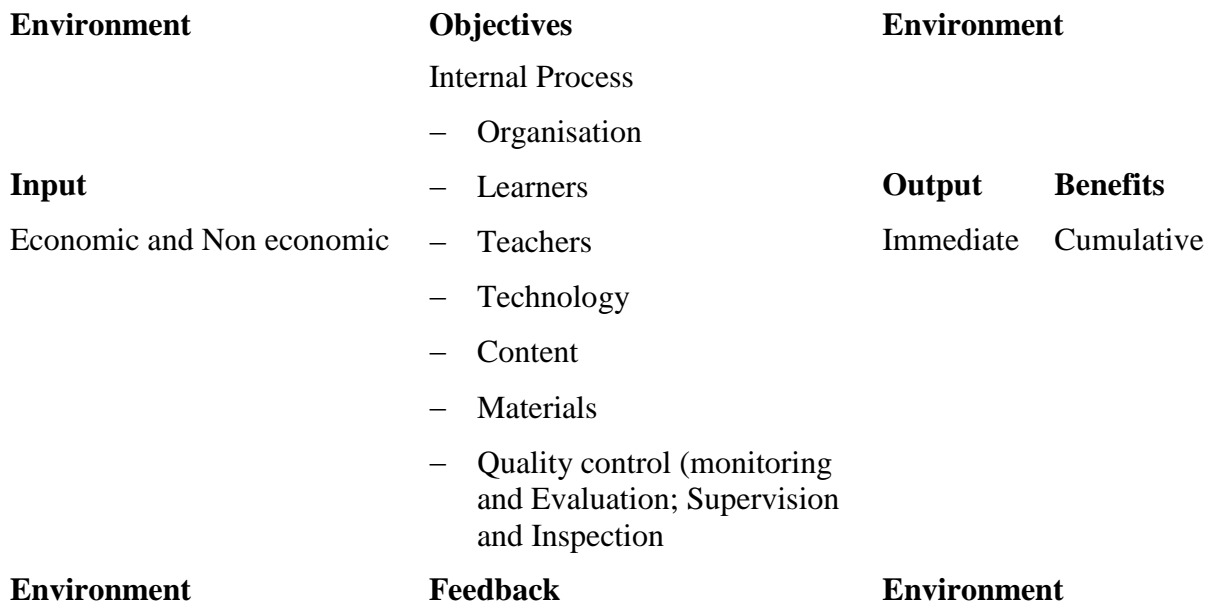
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### ACTIVITY III

1.     Explain what is meant by the system approach.

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## APPLICATION OF THE SYSTEM APPROACH TO EDUCATIONAL SUPERVISION AND INSTRUCTION

Education is a component of the entire system that is regarded as Nigeria. On this basis, it is an integral part of the supra-system. It is for this reason that education must interact effectively with the other subsystems such as the family, agriculture, industry, commerce, politics and health for its effectiveness. This becomes necessary because anything done about any part of the supra-system has repercussions on the others.

Education as a system could also be seen in terms of hierarchical structure of the individualised activities that are organised in the various institutions such as primary, post-primary and higher institutions. Therefore, the system of education is made up of sub-systems, which could be the various levels of education or the different programmes such as

Arts, Social Sciences, Sciences, Medicine, Supervision and Inspection and the other educational programmes that are orgnised in Nigeria.

| Environment | Objectives | Environment | |
|---|---|---|---|
| | Internal Process | | |
| | – Organisation | | |
| **Input** | – Learners | **Output** | **Benefits** |
| Economic and Non economic | – Teachers | Immediate | Cumulative |
| | – Technology | | |
| | – Content | | |
| | – Materials | | |
| | – Quality control (monitoring and Evaluation; Supervision and Inspection | | |
| **Environment** | **Feedback** | **Environment** | |

**Figure 1***: The Input-Output Model as Related to Education*

The main features or elements of an educational system are presented in Figure 1.  The various elements of the system of education as presented in Figure 1 are discussed as follows:

1. **Objectives of Education**

   Objectives of education could be regarded as the targets that are expected to be attained through education.  The attainment of such targets is the main reason for the existence of the system.  Most countries, including Nigeria, rely heavily on education for the attainment of their overall objectives.  It is partly for this reason that education has many objectives, some of which are general while others are operational.  The operational objectives are expected to guide the daily affairs of education.  Thus the objective es of the school may be to inculcate counting, reading or multiplication skills in the pupils within a given period.  Some objectives however are general, for instance, the objectives on producing good citizens and promoting national unity.

   The Nigerian educational aims and objectives, for instance, are:

   1. the inculcation of national consciousness and national unity;

   2. the inculcation of the right type of values and attitudes for the individual and Nigerian society;

   3. the training of the mind in the understanding of the world around; and

   4. the acquisition of appropriate skills, abilities and competences both mental and physical as equipment for the individual to live in and contribute to the development of the society (NPE: 1982:2).

   The objectives of the different types of education are also stated in the National Policy on Education.  A clear statement of these objectives is essential because without this it

becomes difficult for the planners and administrators to have basis for their actions and for assessing their activities to effect changes when necessary.

2. **Inputs**

These include monetary, material and human resources required for the system to function effectively. They include students, teachers, materials, equipment, supplies and funds. The quantity, quality and combination of inputs are often a reflection of the number of students and the nature of the process. Without the required inputs, it is difficult for administrators and planners to conduct their affairs properly.

3. **Internal Process, the Thru-Put**

This refers to the appropriate ways of conducting the activities of education. They consist of methods, technologies, organisation, structure and the patterns of carrying out the affairs of education. It is at this stage that the inputs are refined to generate outputs.

4. **Outputs**

These are the residual learning, the skills, attitudes, values and the ways of thinking that students acquire due to their exposure to the system of education. The output can therefore be regarded as the 'value added' to the student as a result of the education acquired. This implies that the degree of success in examinations cannot on its own be used as a measure of output of any institution.

5. **Benefits**

These are the ultimate goals of an educational system often in terms of generating long term benefits which are both economic and non-economic to the individual and the larger society. For instance, the graduate of an educational institution could secure better jobs with good earnings and live a more satisfying family life or have a greater sense of participation in the events of his society. Generally, society also benefits through higher productivity of the educated and the provision of good leadership. It is for this reason that it is important for the planner and the administrator to evaluate their programmes from time to time.

6. **Evaluation and Feedback**

This helps to determine the adequacy of the various parts of the system including the inputs, outputs and the process. Evaluation enables planners and administrators to check the quality of the output in order to ensure good control. This involves the setting of standards which should be realistic. This is where the important role of supervision and inspection comes in.

## THE USE OF INPUT-OUTPUT MODEL TO EDUCATION

The input-output model provides educational planners and administrators with an effective tool for enalysing and evaluating educational programme. Through it, the planner is able to assess the input, the process and the output to deficient areas that require correction so as to attain the intended goals in a most efficient way.

The model reveals the nature of association that exists between education and its environment and this could guide the decisions and actions of educational planners and administrators. It also reveals how education could acquire its resources or inputs to ensure continuity of the system.

With the systems model, planners and administrators are made to understand the fact that educational input could affect the effectiveness of the process and that the process of education could also have an impact on its input and output. Moreover, it enables planners and administrators to better appreciate the fact that the nature of input and process could determine the type of output produced by the educational system. This information provides a solid basis for an effective planning of education. For example, in admission exercises the quality of candidates in terms of their qualification is essential the higher the quality of input – the better the output.

## PROBLEMS AND LIMITATIONS

The low interdependence among the various sub-systems in education tends to inhibit the application of the systems model. For instance, the rate at which the output of primary schools becomes input of the secondary schools, or the rate at which secondary school leavers are absorbed by the universities is low. One of the consequences of this low relationship is an increase in the drop-out rate and in the level of unemployment among graduates of the various levels who would have probably preferred to continue with their education.

The internal process of education in Nigeria is not systematic and uniform enough to ensure proper utilization of the model. The processes applied vary from one institution to another and also among states. In some cases, the activities of the institutions are conducted with little regard to the national policy or guidelines. For example, some states started to implement the 6-3-3-4 system of education (that is, the system which requires six years to be spent in primary school, three years in Junior Secondary, three years in Senior Secondary and four years in the University) well ahead of others. Furthermore, while some states have attained 90% qualified teachers in their primary and secondary schools, some others have their schools manned mainly by untrained and unqualified personnel.

The nature of education in Nigeria is such that it relies heavily on support from its environment. This exposes the system to a lot of external influence from politicians, community members and other interest groups. The fact that most of the objectives of education are difficult to be specifically stated makes them liable to a variety of interpretations which adversely affects the operation of the programmes. In addition, educational outputs are difficult to quantify. This problem is further compounded by the fact that there is no reliable feedback on the output, including the benefits of education, in the country. These problems tend to limit the application of the systems model to the affairs of education in Nigeria.

These obstacles might be reduced by restructuring the system of education thereby reducing the hierarchies and allowing for greater integration among the sub-systems. The objectives of education should also be made more specific or operational to promote uniformity in the implementation of educational programmes throughout the country. In addition, adequate and the right types of input should be provided at all levels. Efforts should be made to frequently evaluate the educational programmes and output. Better relationship between the

system of educational and its environment should be encouraged through more enlightenment programmes and improved quality of educational output.

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## ACTIVITY IV

1.      Explain the input-output transformation model in relation to education.

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## SUMMARY

In this unit, you have learnt about systems and systems approach to educational supervision and inspection. You have learnt that a system is an assembly of parts where the parts are connected together in an organised way. These parts are seen as a whole and are interrelated, and interdependent. There are two main classifications of systems: open and closed sytems. The general systems approach is considered as a method which helps us to analyse and explore the operation and interactions which exist in the systems around us. In relation to the genral systems, educational supervision and inspection is one of the major components of the internal process of the education system that enhances quality of the finished products/output or students.

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# UNIT FOUR: INFORMATION AND COMMUNICATION TECHNOLOGIES IN SCHOOL SUPERVISION

## INTRODUCTION

Anytime we talk about technology, it usually centres on its intervention in human activities. The essential feature of technology is how to bridge time and space to minimize cost and effort, as well as the maximization of quality, efficiency and effectiveness. This unit you are about to study focuses on the real value of information and communication technology (ICT) in school supervision. It discusses the evolving role of information and communication technology in enhancing efficiency, effectiveness, reliability and quality of school supervision in the education system.

## OBJECTIVES

At the end of this unit, you should be able to:

1.    understand the concepts of information, communication and technology;

2.    identify and describe types of information and communication technology (ICT);

3.    explain the classifications and characteristics of information;

4.    describe communication process and methods; and

5.    assess the merits of information and communication technologies (ICT) in school supervision.

## CONCEPT OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)

**Information** is data that have been processed in such a way as to be useful to the recipient. Data are facts, events, transactions and so on which have been recorded. They are the input raw materials from which information is produced. Information is data that have been interpreted and understood by the recipient of the message. It will be noted that the user not just the sender is involved in the transformation of data into information. There is a process of thought and understanding involved and it follows that a given message can have different meanings to different people. In addition, data which have been analysed, summarised or processed in some other fashion to produce a message or report which is conventionally deemed to be 'management information' only becomes information if it is understood by the recipient. It is the user who determines whether a report contains information or just processed data.

There are few aspects of life nowadays which are unaffected by information technology (IT). In the office, factory, school, home, bank, supermarket and in many other places IT is used to carry out transactions, provide information, record data, make decisions and perform an ever increasing range of tasks. Information Technology (IT) has been defined as the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numeric information by a micro-electronic based combination of computing and telecommunication (Lucey; 2000:195).

**Communication** is defined as the process of conveying or transmitting messages, information or ideas from one person to another in a manner that both parties (the sender and the receiver) understand the message succinctly (Uyanga, 1995: 105). Hackett (1979) views communication as the process of passing and receiving of signals from one person to another. This may happen either directly, through written, spoken or non-verbal language, or indirectly through technology: telephone, radio, telex or computer. A large percentage of activities in the educational institutions be they primary, secondary or tertiary concern communication. In support of this view, Akanni (1987:265) emphasized that a large percentage of activity in an organisation concerns transmission of information between people; and this is referred to as communication. Communication links all managerial functions of different departments in a school organization.

**Technology** means a systematic application of scientific or organised knowledge to practical tasks.

Thus, in essence information and communication technology is concerned with ways to aid service delivery in teaching and learning. It focuses on how to creatively bridge time and space in such a way that educational activities (teaching, learning, monitoring, supervision, inspection and evaluation) are of better quality and delivery is faster. ICT helps to add value to the teaching-learning process; it is a facilitator and veritable platform in ensuring students' satisfaction in their quest for knowledge.

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### ACTIVITY I

1.      Define information and communication.

2.      What do you understand by information and communication technology (ICT)?

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**TYPES OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)**

The whole world has suddenly become a small global village through the use of Information and Communication Technology (ICT). It has aided in simplifying many processes that hitherto would take time, energy and money. For example, programmes of postgraduate education in some universities in the country are now advertised on the internet and interested candidates can actually apply for admission through the same route. Collection of Academic transcripts which hitherto has been a long and cumbersome one is now easy as it can be done online as it is done in the developed countries. The major vehicle that moves globalization is ICT. The technologies in this area include:

1.      digital video broadcasting;

2.      Vsat;

3.      Multimedia conferencing;

4.      Networking systems;

5.      Information storage devices;

6.      Instructional packages in form of texts, graphics, audio and video formats;

7.    Interaction with teachers/lecturers through e-mail, computer conferencing and internet access software for surfing;

8.    Receiving lectures, taking questions and assignments and returning same through the internet;

9.    Forming discussion groups on the internet; and

10.   Use of computers to read textures etc.

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**ACTIVITY II**

1.    What are some of the hindrances that schools in your state might face in using ICT?

2.    How can these hindrances be removed to enable schools in your states enjoy the numerous benefits of ICT in education?

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## INFORMATION CLASSIFICATIONS AND CHARACTERISTICS

Information can be classified in numerous ways.  Some of them are outlined below:

1.    By source – which could emanate from internal, external, primary, secondary, government and others.

2.    By nature – they could be quantitative, qualitative, formal and informal.

3.    By level – they could be strategic, tactical, operational etc.

4.    By time – which could be historical, present, future.

5.    By frequency – it could be continuous (real time), hourly, daily, monthly, quarterly, annually etc.

6.    By use – which include its being used for planning, control, decision making etc.

7.    By form – information may be written, aural, visual, sensory etc.

8.    By occurrence – it could be at planned intervals, occasional, on demand etc.

9.    By type – information may be detailed, summarised, aggregated and abstracted.

Information may also be categorized according to the urgency and way that it is produced or handled.  Such classifications include:

1.    **Demand/Response**:  A demand is a request for information which is essential for the task in hand and a response is the answer to a demand.  In general the time scale is short and immediate response may be required.  The EMIS must be able to deal with these categories which can occur at any level.

2.    **Deposit/Reference**:  A deposit is an item of information which is stored for possible future use and a reference is a request for information which may or may not be available.  The designer of the EMIS must constantly be examining management's information needs in order to be able to store information likely to be relevant in the

future. Not all information can be stored and the major problem with databases is deciding what is relevant and irrelevant.

3. **Internal/External**: Internal information originates within the organisation and flows horizontally and vertically around it. External information is about the environment and should be obtained by a continuous scanning and intelligence gathering process.

The characteristics of information are:

1. it consists of a number of interacting variables;

2. it has speed, which is an important factor;

3. the data are reasonably accurate;

4. the output is to a large extent accurate;

5. the operations are repetitive; and

6. large amounts of data exist.

Information Technology (IT) influences organizations in a variety of ways. It alters the skills requirements for individuals; it changes jobs and the way they are done. It can also alter relationship between individuals and departments within the organisation and may affect some relationships outside the organisation, for example, with parents and teachers over the issue of students in a school. It is likely to be a major factor in determining the type of information available and how the information is used and consequently how the organisation operates

## COMMUNICATION METHODS

Various methods (channels) of communication are used by organizations. These include:

1. Face-to-face communications

- Interviews.

- Formal meetings.

- Video telephones.

- Informal contacts.

- Talks and discussion groups.

2. Writing Communications.

- External mail by letter

- Internal mail by memoranda, circulars.

- Reports.

- Statements and tabulations.

- Company, magazines, newsletters and bulletins.

- Notice boards.

- Fax.

3.   Visual Communications.\

   - Films and Slides.

   - Videos.

   - Charts.

   - Posters.

4.   Oral Communications

   - Telephone.

   - Public address system.

5.   Electronic Communications

   - Video displays using electronic mail (E-mail).

   - Data transmission networks.

   - Electronic data exchange (that is computer to computer).

   - Telex.

   - Pagers.

In order to be usable by the administrator (manager), information must be transmitted by means of a communication process.  Communication involves the interchange of facts, thoughts, value judgements and opinions and the communication process may take many forms; face-to-face conversations, telephone calls, informal and formal meetings, conferences, memoranda, letters, reports, tabulations, D.D.U. transmissions and so on. Whatever the process, good communication results where the sender and receiver are in accord over the meaning of a particular message.  The choice or selection of communication should be done with regard to such things as: the nature and purpose of the information, the speed required, and above all, the requirements of the user.

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### ACTIVITY III

1.   Identify and briefly explain six classifications of information.

2.   Describe four communication channels and discuss their uses in the school situation.

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## BENEFITS OF INFORMATIONAND COMMUNICATION TECHNOLOGIES IN SCHOOL SUPERVISION

ICT has a significant effect on the activities and structure of the Organisation.  Developments in ICT may cause some jobs to disappear, for example, the traditional typewriters, but it can also open up new business opportunities which create jobs, for example teaching and learning which now rely heavily on on-line learning particularly at tertiary level.  This can also be applied to teaching, learning, supervision and inspection of schools.  Quite a lot of students in primary and secondary schools in the country now have access to the internet by virtue of the

fact that either their parents own personal computers or they visit cyber café centres in the town. This means that in the school situation, the teacher can no longer be regarded as the sole custodian of knowledge. The supervisor and inspector also have to keep abreast of information so as to be able to perform their duties in the school effectively.

Supervision is a process common to all professions and occupations. Basically this process deals with the giving and receiving of direction in an effort to make improvement. In education this effort is concerned with what to teach, when it should be taught, to who it should be taught, by whom, with what and how. The nature of tasks involved in these efforts show how wide the scope of instructional supervision is.

Information and Communication Technologies (ICT) simplify and reduce tasks needing manual skills and physical strength. Properly applied in the education sector, it can increase productivity and performance.

## SUMMARY

- This unit describes the evolving role of ICT in education general and in school supervision in particular. It defines ICT as the ways to aid service delivery in teaching and learning. It focuses on how to creatively bridge time and space in such a way that educational services (teaching, learning, monitoring, supervision, inspection and evaluation) and products (students) are of better quality with faster delivery. ICT helps to add value to the teaching-learning process. It is a facilitator and a veritable platform in ensuring students satisfaction in their quest for knowledge. Some of the ICT available include digital video broadcast, vsat, networking systems and multimedia conferencing. Information can be categorized in numerous ways; some of these are by source, by nature and by time. There are many communication methods, namely face-to-face communication, written communication, visual and electronic communications. ICT has a lot of benefits for school supervision. It will go a long way to bridge the gap between the supervisor and the school teachers among other merits.

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