

GENERAL SYSTEMS THEORY



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A theory is a group of related concepts that propose action that guide practice. General system theory describes “how to break whole things into parts and then to learn how the parts work together in systems”. General system theory is known by different names - systems theory, theory of open systems, systems model, and family systems theory.

The author of General system theory was Ludwig Von Bertalanffy in 1950's,

A system is a complex of elements in interaction, which on first appearance does not seem interconnected or inter related.

As Von Bertalanffy theory emerged in the early 1930s, scholars from many disciplines discovered that the concepts of General system theory could be applied equally to their own fields, such as chemistry, physics, and social sciences. The application of General system theory to psychiatry was helpful in conceptualizing the development of personality.

Von Bertalanffy (1969) introduced General systems theory as a universal theory applicable to many field of study which provides a way of examining interrelationship and deriving principles.

General system theory describes how to break the whole apart and then learn how the parts work together.

- ❖ Emphasizes the relationships between parts.
- ❖ Describes how parts function and behave.

Basic concepts of General system theory

Concept of system : A system is a set consisting of integrated, interesting parts or components that function as a whole. Each part is necessary to make a complete and meaningful whole.

Components

- Share a common purpose or goal.
- Form a whole which is more than the sum of its parts.



Terms : Systems are usually complex and consist of several parts called subsystems.

Each system is a part of a larger system known as a super system, a collection of two or more systems into a larger system. A separation that differentiates one system from another is called boundary.

Basic attributes of system

Wholeness system is consisting of elements. each element has own particular structures and functions. When each element comes together in certain ways to form a whole , it then has a new function that a single element has not. Here, the function of the whole is different from and greater than the sum of its elements . In other words , a system is different from the system than the sum of its sub system.

2. Interrelation :

There are interrelations and interactions existed among elements of a system . changes in one part of a system will create changes in other parts

3. Levels :

To certain system , it is composed of some elements, and also is an element that build up larger system.

4. Dynamic

A system is changing along with the change of time, one one hand, to function a system must arrive at optimum state via the interaction among elements inside, the exchange of energy, information and matter, and the constant adjustment of internal structure on the other hand, a system always exists in certain environment and exchanges matter, energy and information with its environment in order to adopt the environment and to maintain itself is survival and development.

5. Finality:

The finality of system means the movement of a system eventually tends to be in order and to be a stable state.

Classification of systems

1. Classifying according to the influence of human being and system

a. Nature system - is one that consists of natural Matter and objectively exists.

b. Man made system - is one that is build up by human beings to achieve some purposes.

2. Classifying according to the content and elements

a. A matter system - means the one that is made up of matter entity, for ex:- the animal and mechanical systems

b. Conceptual system - is one that is made up of non matter entity. eg : - computer program, software.

3. Classifying according to the relationship between a system and its environment

a. A open system – is that one that constantly exchanges matter, energy, & information with its environment . The function between an open system and its environment is achieved by input, output & feedback

4. Classifying according to the attribute of system movement

a. A dynamic system is the one that the state of a system is changing along with the change of time.

b. A static system is the one that the state of a system does not change along the change of time and it has relative stability.

Principles of General system theory and its application in Nursing ,

1. The principle of wholeness: It is the core of General system theory , This principle provides the guidance or methodology to us in order that we can study all kinds of objects effectively.

2. The principle of optimization :

The principle of optimization of a system is to achieve an optimal state in certain condition and to perform its best function by organization and coordination.

a. Local effect must obey whole effect :

To achive the optimization on a base of a whole is a key purpose in principle of optimization local effect must obey whole effect when they are not consistent .

(b) Insisting multipolar optimization :

Optimization should be seen through the whole course of movement of a system. When providing Nursing care to the patients we should decide the choice of optimization on the processes of identifying health problems determining objectives , establishing nursing care plan, implementing and evaluation to pursue the optimal effect to nursing activities in possible conditions .

(c) To combine the Absoluteness and relatively of optimization .

When we face some patients with various complicated conditions . we feel difficulty in finding solution to them. In this kind of situation , it is necessary for us to choose a relative optimization project from inconsistent requirements, in which all aspects are satisfied .

3. The principle of modeling .

Modeling is to design a model similar to a real system first , then to describe and understand the characterization and level of real system by studying the model .

a. Concrete model : is to reproduce a prototype by using a similar model in some degree and forms eg. CPR model

b. Abstract model : is the reflect the similar relation of a prototype of a system by non objective forms of language, symbol and diagram, such as Nursing diagnosis .

c. Structural model : is to describe the structural relation among elements in real system in the form similar to the structure of a prototype , such as the model of hierarchy of needs theory.

d. A Functional model : is to describe the movement process similar to a prototype in certain members and to find out manners of systems in movement operations eg. Nursing process.

The principle of modeling is composed of 3 aspects.

(1). Principle of similarity : A model should be an imitation and abstract of an actual system.

2. The Principle of simplicity : A model with lose its function if there is no reality we should be good at grasping key contradiction, neglecting the secondary factors to achieve simplicity under the precondition of ensuring necessary precision.

3. The principle of objectivity: The relations of similarity and simplicity between a model and a prototype may result in completely consistency in data and production provided by model and the situation of a real system.

The Revolution of General system theory to Nursing.

To look at a person with systematic view point.

The human being is the object of Nursing. The human being is a system that is composed of many elements, such as physiological, psychological, social , spiritual and cultural elements .

The human being is a natural system

a. A basic condition of life activities and health of human being is harmony and equilibrium of internal and external environment in the human body.

b. A human being is an open and dynamic system

A human being exchanges the energy, matter, and information with its environment constantly, as well as within its body to maintain life and health.

c. A Human being is an system with a subjective activity

A human being is conscious and able to supervise and control his / her state of functions.

1. To understand nursing with a systematic viewpoint.

a. Nursing system is system with complicated structure

b. Nursing system is an open system

c. Nursing system is dynamic system

d. Nursing system is with the function of decision making and feedback.

Characteristic of systems.

1. Systems refer specifically to self regulating systems

2. Systems are self correcting through feedback

3. System have structure that is defined by its process and parts.

4. Systems are generalization of reality.

5. The various parts of a system have functional as well as structural relations between each others.

6. System tends to function in the same way

7. Every living organism is essentially an open system

System theory and nursing .

Nursing theory has drawn from the work of von bertalanffy on systems theory.

1. Newman’s system theory, Rogers theory, Roy’s adaptation model, Imogene king theory, Orem’s self care deficit theory, Johnsons behavior system theory.

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