Systems Theory

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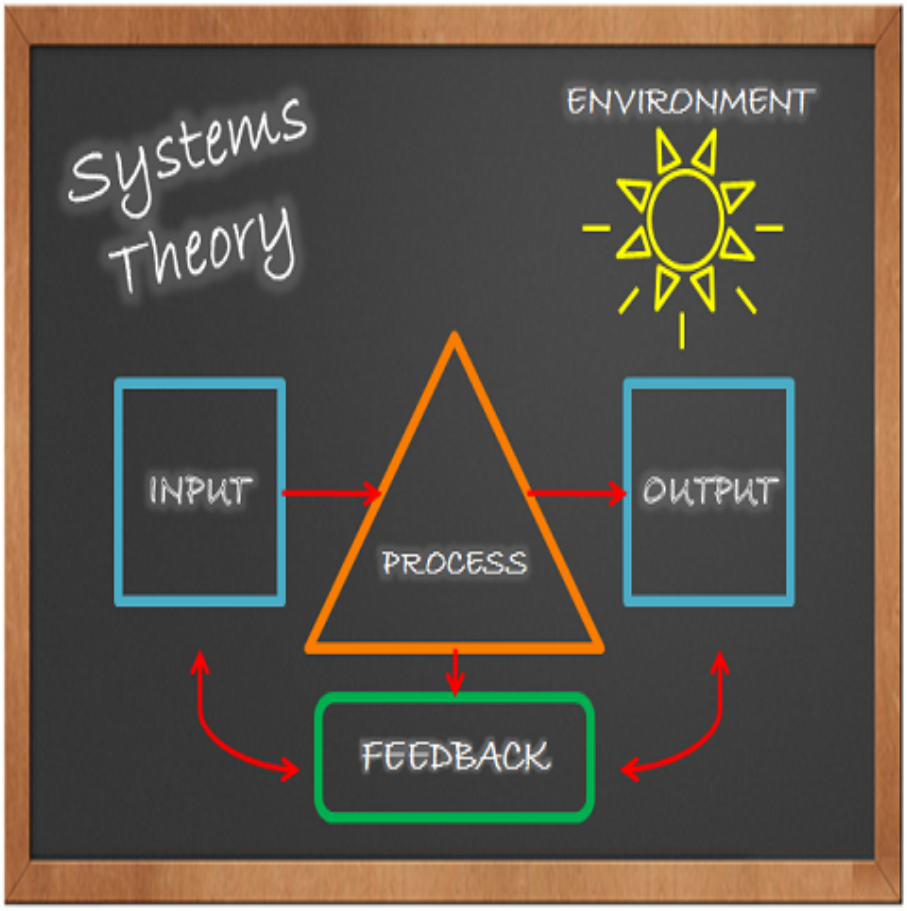

Introduction

This paper will discuss the General Systems Theory (GST), its history, development as a communication theory and its practical application to the author. The theory itself will be divided into two different categories, the components of a system and the different types of systems that exist in the speech discipline. This paper will briefly explain the evolution of systems theory from being a scientific based theory to its transformation into a communication theory. Many psychologists and family counselors now use systems theory as a basis for study of interpersonal relationships and conflicts within those systems. General Systems Theory allowed scientists and psychotherapy practitioners an in depth look to better analyze and attempt to explain relationships and the holistic viewpoint needed to understand them. Several other theories were developed later on with GST as the basis for these theories. GST has become a cornerstone for the interpersonal communications theories. Finally this paper will explain the benefits of GST in the author's personal life. Interpersonal communication and family systems are large part of the role in the author's life. Working with students and parents from all social, economic and religious backgrounds, the systems theory comes heavily into play when attempting to address the various needs and issues that people face in their lives.

History

In the 1930's a biologist named Ludwig von Bertalanffy presented his systems theory to a philosophy seminar at the University of Chicago. Bertalanffy was a biologist who began the systems theory study in life sciences which eventually developed into the modern field of ecology. Ecology as we know it now is the study of the systems of nature. Bertalanffy believed that nothing could be understood by isolating merely one part of what plays a significant role in a system. In his work "General Systems Theory: Essays On Its Foundation and Development," Bertalanffy points out what his purpose was with the systems theory.

> (1) There is a general tendency toward integration in the various sciences, natural and social. (2) Such integration seems to be centered in a general theory of systems. (3) Such theory may be an important means for aiming at exact theory in the nonphysical fields of science. (4) Developing unifying principles running "vertically" through the universe of the individual sciences, this theory brings us nearer the goal of the unity of science. (5) This can lead to a much-needed integration in scientific education. (Von Bertalanffy, 1968, p. 38.)

His idea was that if a system was going to be examined or understood it had to be what he referred to as an open system. An open system is one in which the system has both inputs and outputs. To demonstrate this example we can look to the human body as an open system. In order for life to be sustained we must have oxygen, food and water to keep us alive. All of these components are what Bertalanffy labeled as inputs. However, he also explained that a system must have outputs or ways of excreting access waste or unused portions from the input. If our bodies were to never release air or excrete waste we would eventually self-implode because our body is not designed to simply keep receiving. An example of a closed system is one in which the system is self-sustaining and needs no input from outside sources which means there is nothing to put out. An example of a closed system is planet earth. While earth does receive energy from the sun it doesn't actually exchange mass with the solar system around it (Ritter, 2013. Web). According to scientists this idea of pure energy exchange without mass transference is considered a closed system. A true closed system is considered to be purely theoretical or hypothetical, meaning that they can only exist in theory because every system needs some sort of input and output functions. However, on the opposite side, there are no perfectly open systems either. Open systems do have to have some point of closing or restriction in place to maintain balance through the self-regulating process.

Bertalanffy's idea behind systems theory is that nothing can be explained by isolating a component of system. His thought on scientific reductionism could not accurately explain a whole system because that thought pattern broke everything up into pieces instead of studying things as a whole (Connors, 2007 p.1). In order to properly explain and gain a better understanding of something, the system and its holistic properties had to be analyzed to find the root of problem. For example, in the world of ecology now, we couldn't simply try to explain the extinction of a species by simply looking at the one type of animal; instead, we would have to look at the system the species plays a part of to better understand why it became extinct. For some, the only thing they know about Easter Island is that they have the large stone heads. We know the island now mainly for tourism, but what some don't know is that the island faced extinction on several different occasions. The island faced this because of a lack of knowledge about the eco-system. The inhabitants were using the resources of the island faster than they could be replenished which forced the inhabitants to relocate (Hunt, 2006, p.3). Had the Easter Island inhabitants been able to analyze the whole system and why it was failing they might not

have had to relocate. The feedback cycle in the Easter Island system was not being received by the inhabitants thus causing the adaptation cycle to fail. When a system doesn't properly adapt to the changes and feedback from its components it will inevitably fail and fall apart. A good system will seek homeostasis or balance through interchanging with its environment. The way a system interchanges with its environment is through feedback loops that inform the system on how or what to change to maintain the system homeostasis. Exploring the function of a system as well as its components can often times increase awareness of why a system will malfunction.

Systems theory takes into consideration all possible sources of the problem and examines each individually and what role they play in the system. A system is best described as a set of connected things or parts forming a complex whole, in particular. This definition gives a basic understanding of what a general system is. However, Russell Ackoff, a professor of philosophy for the University of Pennsylvania describes a system like this:

> Each element has an effect on the functioning of the whole.
>
> Each element is affected by at least one other element in the system.
>
> All possible subgroups of elements also have the first two properties.
>
> (Ackoff, 1981, pp. 15-16.)

In this definition Ackoff describes the system as Bertalanffy was using it in his systems theory. Understanding a system and how Bertalanffy was referring to it will help generate a greater understanding of the purpose of this theory and why it is so beneficial in the applied and social sciences. The systems theory not only explains systems of natural sciences, but it also helps bring clarity to other systems such as family relationships, organizations and their employees and even help expound on the sometimes complicated system of governments.

Development of Systems Theory

After realizing the benefits of systems theory, psychologists began using this theory in family studies. The area of family studies falls into the discipline of psychology but often times overlaps the theories and studies of interpersonal communication. The study of families as systems was possible because as long as the family system was functioning properly it was in equilibrium. As long as equilibrium was being achieved, then the feedback and adaptation cycles were functioning the way they should; however, when one of these becomes out of balance then that pulls the whole system out of equilibrium and the system shuts down. When this occurs the

systems theory can help accurately explain why this happened by taking a holistic approach and viewing each family member as a key component in the system.

As the systems theory began to develop, scholars from various disciplines began cultivating new theories with systems theory as their foundation. Theories involving individuals, relationships, families, organizations and groups all began to emerge with this basis of the systems theory. Family theories were developed by several psychologists who each had their own thought on family system theories or therapy. These theories understood families as a system and attempted to explain how they should be viewed with individual members. According to a scholarly summary on Family Systems Theories by C. Morgaine Ph.D., the family should be viewed as a system with individual members. Each member has an interdependent relationship with each other which builds the very structure of the system. Family systems can be divided into subsystems which are usually comprised of a smaller group of individuals within the family. This subsystem has its own interdependent relationships that define the system itself. As studies show, the systems theory went on to become the basis of many interpersonal communication theories in group organization and individual communication.

Systems theory became popular as a communication theory because it is believed that communication helps in defining and sustaining a system. Without communication a system will fall out of homeostasis because the feedback loop or channel is not functioning properly. Communication is the key to keeping an interpersonal system operating at its best. Systems theory plays an important role in communication theories because it helps develop strategies for effective communication, whether they are in individual, group or intercultural communication. In communication we are always communicating to those who are part of at least one system and we are always communicating as someone who is part of at least one system. Once we realize our role in the system and how our decisions and actions affect the rest of these systems we are involved in, we can communicate more effectively. When someone becomes isolated in a system the means in which we can effectively communicate with them is drastically reduced because we are potentially addressing a symptom and not the problem.

Using systems theory in communication helps better identify where a problem lies within an individual's life or within a group or organization. Often times when this theory is not put into practice we can find ourselves chasing ghosts of problems because we never truly identify the

issue. Systems theory not only allows us to take a better look at a problem, but it also helps us to identify why there is a problem. If doctors were to only treat the symptoms of people and never the disease, we would never fully recover from an illness. Identifying not just the problem but also what is causing the problem helps us to be more effective communicators. Systems theory allows us to be more effective communicators because it takes us from looking so narrowly at a problem to expanding our view to the whole situation. This theory gives a holistic viewpoint to interpersonal communication.

Life and Ministry Application

After graduation I intend on continuing on to graduate school for organizational communication. I will graduate with a BA in Speech Communication with a focus in public relations. However, while the systems theory will be beneficial to me in the professional world, it will prove to be even more beneficial to me in ministry. I am a student pastor right now and will continue to work in ministry of some aspect even after I leave that field. In working with young people of all ages, interpersonal communication is crucial. Every day I have to communicate with either a student or parent and the level at which I communicate has to change with every individual. I have students that I work with that come from all walks of life. Each of them comes with their own set of unique challenges and opportunities. In order for me to be an effective communicator, I must be able to assess where they are coming from and what is the best way to communicate with them. Applying communication theories allows me to be a better communicator with my students and their parents.

Systems theory has already proven to be beneficial for me in communicating with my students. Applying this theory has allowed me to understand that communication should be a very personal experience and that there is no best way to communicate with everyone. Working with students from all walks of life can be challenging at times. I can apply systems theory to this work by allowing me to assess not only what problem the student may be facing but also to help me gain an understanding as to why the problem occurred. Family studies are vital part of the work I do with students. Sometimes to understand why a student acts the way they do I have to look at the environment they are raised in and what communication styles are being used at home. There are some students who I work with that the family system is not that of a typical nuclear family so the system is different than others who I might be working with. Systems

theory helps not only create an awareness of how to look at a problem but also helps in looking at the system that is involved.

Systems theory teaches that there is a proper balance that must be maintained in a system to achieve homeostasis. In order for that to be achieved there must be a proper feedback channel and adaptation process in place. If a student is part of a system that the feedback channels aren't working properly than typically things get out of balance and the student doesn't know how to adapt to the new environment. One very common system that is broken which students have to deal with is the division of the nuclear family. When parents separate the family system becomes broken. This breaking usually happens due to the feedback channels and adaptation process not working properly. Communication is always the key in keeping these systems functioning properly. When communication breaks down and the system fails kids are typically the ones to become prisoners of war. When a system breaks down in a child's life there are usually signs that manifest in their life as well. Systems theory allows us to see that there might be more to the problem than what meets the eye. This theory demonstrates that instead of addressing just the problem we need to see what the whole system looks like to gain a better understanding of what we are seeing and why.

On the Job Application

Systems theory has also been used in application to organizational communication. Organizations are systems that have many different members and relationships within those members. All of the relationships within the subsystems of an organization are interdependent on each other and can directly affect the operation of the system. When an organizational system is functioning properly synergy is present. Synergy is the combined effect of a system working together where the combined result is greater or more powerful than that of the individual components. Systems theory allows for this synergy to be generated because of the communication channels that are open in a properly functioning system. When feedback channels are used to effectively measure company progress and then the organization adapts to those suggested changes, homeostasis is achieved in that organization. By utilizing systems theory in organizational communication, I can take a broader look at the organization and see all the components of the system that are involved and also see what part they play in the system. Systems theory helps create an awareness of the system you are involved in and how it can be affected by changing one component of that system. In an organization communication has to be

effective. Systems theory opens up the thought process about the feedback channels and adaptation process. For example, if sales are down and a monthly goal is to increase sales by 5%, simply saying that we need to increase them doesn't help us. We need to look at the full system and see why sales are down and what component of the system is not functioning properly to cause the drop in numbers. Systems theory brings a holistic viewpoint to the organization and removes the individualistic mindset or island mentality that everyone operates independently of each other. Every relationship in the organizational system is interdependent on one another to keep the system functioning properly and to achieve homeostasis.

Conclusion

Systems theory was developed by a German scientist named Ludwig Von Bertalanffy. This theory was not originally proposed to better communication or increase effectiveness in family studies. In fact this theory was not designed for anything dealing with applied science or psychology. Systems theory was proposed to better understand the systems of the world around us. Ecology as we know it today was derived from systems theory. This theory was applied to better understand food chains, life cycles, and the environment. Through systems theory we can better understand the world around us and explore problems and their causes.

Through studying this theory we learn what makes up a system and how they are supposed to function. Systems can be closed or open, but only open systems can really be studied. Open systems are self-adapting through feedback loops and adaptation. Open systems have inputs and outputs; they are not self-sustaining. Open systems can best be represented by the digestive system in the human body. The digestive system has an input which is food entering the body; the output is obviously the excretory function of the body. By the body adapting to this process and to feedback channels it remains healthy and in a state of equilibrium.

All systems have components in them that have interdependent relationships in them. Systems are comprised of subsystems which are smaller entities that make up the larger system. Systems theory suggests that when there is a problem with one component in the system that we cannot isolate that component but take a holistic approach and view the whole system to understand what the problem could be. Problems are a sign of a malfunctioning process. When a system fails it is because either a feedback channel is not working or the adaptation cycle is being ignored; both of these are functions of communication.

Communications and family studies quickly adopted the systems theory and it was applied to these disciplines because it involved such a heavy means of communication. Theories were later developed around the systems theory to better explain areas of family study and interpersonal communication. Systems theory is a very popular theory in communication because it takes an all-inclusive view at communication and those involved in the process. Understanding the system that is being dealt with is critical because it determines how to communicate and shows what all components are involved in the process.

Systems theory is applicable for me in both my professional career and ministry in the church. Dealing with people in the ministry it is vital to understand the system they play a part of and how to work through the whole system and not just individual components. On the professional side it also important to learn how to apply systems theory to better comprehend the system I will play a part of. Systems theory is also applicable for organizational communication because it shows that everything must be taken account for when dealing with any organization. Systems theory is a valuable tool in both interpersonal and organizational communication.