



Biology of ICT-Based Communication Paradigm

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Abstract

A simple phenomenon and sometimes forgotten by all educators, both of basic and higher higher education levels, whereas this phenomenon is the basis of the meaningfulness of a Learning Interaction. In the context of Communication, the phenomenon should be developed, applied, and analyzed by all educators, especially to create the instructional communication quality in every lesson. This paper discussed about the analysis of biological communications technology-based on biological analysis for learners in a learning process. In-depth analysis focused on the effect of the learning stimulus packaged in the form of computer-based instruction (CBI). Results of analysis and verification Learning Interaction phenomena, taking into account the great power of Allah SWT, is the Brain Action. The result gave birth to a new paradigm where specifically focused as a basis for policy thinking designers, developers, implementers and assessors an innovative learning. On the other hand, the results of this research gave birth to a new branch of science in the field of communication learning, that is the "Biology of Communication."

Keywords: Biological Communication, ICT, learning interactions...



Introduction

In this section I will attempt to analyze the philosophical studies of Communication Sciences and arable fields, where the philosophical study is assumed to be able to contribute a very significant, especially from the point of view: a) philosophical, b) rationalist, c) naturalist, d) empirical and e) pragmatic. The Biology of arable field analysis will add to the study of communication theory assumed in the focus of Gender Communication, Nonverbal-Communication, Transcendental-Intuitive Communication and Communication. Thus if a comprehensive analysis is done from the fifth point of view is very memungkinkan that apparently biological theories of communication will be able to be further developed and complex, especially to touch the studies of the practice of biology and behavior of existing communications. This allows the development of various analysis on the source of all the message source, behavior and human communication processes in detail from every point of view both of its biological, biological, teknologi, social, to the nature of logic beyond the reach of human thought (unconscious communication). For example, the study of human behavior that arise as a result of the stimulus or mystical treatment (witchcraft). So is the discussion that is still able to reach by thinking through a psycho-biological and biological-social, including a discussion of the behavior and message control by the human brain, how the transformation of a message can display certain behaviors that are relevant to the demands of individual behavior in its environment. This must be proven up to how it is able to establish the scientific construction in the form of propositions which are expected to strengthen the study of biological communication.

Back in the nature of biological communication itself, which is essentially one of communication studies who study the interaction between humans and the environment by using the scientific basis of biology. Then constructs a paradigm to study the propositions of scientific discovery for developmental biology of this communication, of which include: (1) The study on the nature of the behavior, (2) Some behavioral assessment approaches, (3) Study the Science of behavior, (4) Assessment and biological psikologis the structure of the brain as the source of the behavior, (5) technology-biological approach in analyzing human behavior.

Biology communications writer formulated through research findings by using a scientific approach to biology, is quite complex and profound. Of the five studies the authors try to



interpret, that the extent of the scientific basis of biology in depth and extends under arable field of applied biological sciences can provide essential that the explanation of human behavior as a form of communication capable of controlled balance.

Discussion

Empirical Behavior of Human Communication Paradigm in Bio - Technological

Through the empirical paradigm, the writer will try to internalize some of the study of human behavior as a form of communication behaviors diapandang both inter and intra (organismic biology and social biology), one of which is caused by a factor of ICT. (A) The study on the nature of the behavior. This behavior is a mystery of a presence, which meant maksudya mystery behind human behavior that are invisible to our senses both physiologically and psychologically proved to have a trace process is very complicated and complex. This occurs both in animals and humans, especially on human beings of this study may develop because of behavior that appear very varied and complex.

Study of human behavior can be done by means of: a biological perspective, where it was said that the outlook is biologically shows that human nature must behave in accordance with his posture (physical condition). Behaviors that occur based on the results of the transformation process performed by human mind itself. This phenomenon is influenced also by the shape or posture, if the condition is normal or not. Contribution to the development of biological behavior of communication both will assign a color to behavior that is raised by humans are concerned. For example, if your posture is not normal, then the biological behavior that appears likely to be less ideal, it is at the biological field study of communication, so the condition of the human body is not too much influence human behavior in interacting. Intra Psychic standpoint, berdasarkan this point of view that human behavior can be conditioned in accordance with the intent and purpose of the interaction itself. Actualization of certain behavioral conditioning will be much influenced and controlled by mental processes, perception, motivation, values are understood, memory and personality characteristics of individuals who do and experience. Based on those aspects that control the behavior of this permit is conditioned to a particular individual aptitude tests based on the behavior he showed.



Furthermore, in a pragmatic point of view contributes to the study of biological aspects of communication at the level of measurement reliability and validity of his theories are developed. As an illustration that he should be able to explain to the author in order to study the biology of communication that all forms of communication behavior of an individual with himself, with other individuals, even with its environment it will give certain characteristics or conditions and tend to be similar, if LIVE or indirectly performed the routine. This routine is referred to as the conditioning of human behavior based on this viewpoint. Of mental processes, for example, conditioning a person's character will grow if the interactivity talked continuously through the same opponent, same topic, then when he would do it for the umpteenth time, it will be easy to do. The perception that work when it provides the ability for individuals to conditioning is to be able to draw conclusions as well as what to do when the same response he received. On the other hand the motivation to speak and give a boost to the individual to perform exactly the same behavior and have no barriers. Surely all it will mean when *perliaku* in accordance with the values espoused by the individuals themselves, so it will be easy to remember. Where indirectly it will hone his memory acuity, which in turn is capable of forming one's personality on the other side of the conditioning that he experienced.

Socio-behavioral point of view, this perspective contributes to the development of aspects of the biology of communication objectives for the introduction of biological behavior, control and balancing (*keterterimaan*) individuals in the environment. This viewpoint is a continuation of previous *pandnag* angle, because the control *dilakukan* by the behavior of individuals through interaction with the environment will continue to use, mental processes, perception, motivation, values, memories and personal *kerakter* respectively. The process of the emergence of behaviors that are categorized as behavior that can be analyzed by the biology of communication through social perspective-behavioral proved to be extremely complex. Where individuals will perform in addition to interactions with other individuals as well with its surroundings. So the ability to control the behavior of other individuals must be adjusted with the ability to perceive environmental conditions that exist at that time whether to support, inhibit, or neutral. Thus if he is able to balance the biological behavior of the communication he showed to be perfect.



Several Approaches to Behavioral

In his review of this section is directed to the tendency that the practice of biological science has been able to provide the scientific basis of the developmental biology of communication, including on the development methodology. Where found three specific approach in studying and developing a balanced behavior in the world of communication, namely scientific approach, the natural approach, and a holistic approach. Based on the scientific approach, suggests that human behavior is assumed to be correct according to the environmental conditions under which it is located, if it diuju first through scientific thinking, idea the submission and testing hypotheses.

Natural approach, contributing to the development of biological integrity of the communication on the analysis of human behavior that is displayed, where it is assumed that human behavior emerging demands of this approach, so it is not purely human perilaku generated by the transformation of the human mind itself, but allows that the process of human interaction (behavior) occurs unconsciously and is not normal, as desired by the mind.

Holistic approach, contributing to the development of human biology study of the behavior displayed by individuals will basically sourced and controlled by biological functions, mental and social. Where all three will be found in what is called memory. So this holistic approach to promoting the study of biological communication from the point of the analysis of human memory. Human memory is working to obtain biological contribution of the biological functions that include the workings, and the perfection of human brain tissue ymag owned. Then the memory is also getting donations biological forces that tend to be associated with human mental powers. So at the end of the two factors will give effect to the man himself utuk able to behave in accordance with the values that develop in the environment.

Assessment of Behavioral Science

This study been able to provide the scientific basis of biological thought communication in studying human behavior from the viewpoint of the development effort and the discovery of features or something new human behavior in accordance with scientific logic. Biological needs of communication that was developed based on the study of ICT in researching and developing secondary and primary behavioral approaches are needed when individuals are in a condition to learn. Where through this study that manusi behavior can emerge based on



these factors are given the freedom of the stimulus giving rise to the response. From the response that comes up then there is a biological phenomenon as a black box that must be researched and analyzed. Based on this, then steps can be done is by doing experiments, where the result that human behavior that appears under the control of the stimulus will be more restrained and certainly fit for purpose and the values of personal needs and environment.

Assessment of Psikologis and Biological Structure of The Brain as the Source the Emergence of Behavior

This study contributes to the communication of biological research methodology in order to find the biological factors that cause people to behave in accordance with certain psychological conditions. Where the subject is the subject of study is the human brain. Based on an analysis of the brain was found that personality was influenced by the intelligence, affection, and physical and mental activity. Thus the field of biological study of communication particularly with respect to intra-organismic humans will be faced in the study of intelligence, affection, and physical and mental activity. Field of study is still on course to the field of biological studies that can assess the pattern of human behavior that looks based on her personality.

This phenomenon would provide an opportunity for the emergence of biological approaches to communication with the stimulus message via ICT diproduk devoted to learning the structure of human biology that make up the personality, as a real form of the guiding concept, which has been used in psychometric sciences through the practice of his psychiatrist. Measurement and diagnosis of what is normal behavior exhibited by a person, chances are predictable based on the introduction to his personality.

In biological studies of the brain contributes to the analysis of biological communications controller about the source of human behavior both physically and mentally, namely the study of structure and brain tissue. If this is developed further, then the communication will be able to give birth biological sciences brain communication is communication and neurological communication, communication science that examines the communication processes that occur in the human brain based on the structure and networks. Where in it is discussed about the management of messages / information are carried by nerves to the brain



manifests itself in the form of physical behavior. This is where one of the benefits of modern communications, especially in the assessment of biological communication, by naked eye because we will not be able to describe it without understanding the structure, nerves, the workings of each of the Comprehensive brain nerve. In human brain there is a transformation process complex information, particularly that controlled by the trillions of nerve cells, as well as biological activities conducted by Neuron. Neurons are capable of, control of what is thought, felt, learned, and performed human interaction, especially when he is doing in order to control the behavior that is raised in an environment in which it resides.

Based on these biological studies, the biology of communication can be regarded as a communication model that analyzes the behavior of individual biological problems internally, because studying the origins of behavior based on the study and understanding of the sources of the brain that control behavior. Where biological studies of internal communication will include: the first will deal with human behavior is biologically based on the level of consciousness. This will be a lot of digging Kajina of neurons as a skin-forming elements of the human brain and, second, fast-track information in the brain, which will study the process of delivering stimuli from outside the individual. This study will deepen the sensory and motor abilities; third, controlling an automatic response, which is studying how the process of breathing and digestion capable of influencing human behavior, especially in the conduct of human muscle movements during the interaction. This study is a lot to do with the parts and the center of the brain; fourth, related to the field of biological study of communication with ICT support will lead to a discussion of communication intelligence thinking, which is one of the arable area of communication psychology examines many of the processes that generate stimulus response behavior of smart thinking , behave or be a good, good writing skills and more organized assessed based on the ability of the brain.

In this section it can be concluded that the development of the area of biological study field of communication will provide clarity in a complex analysis of why certain individuals behave and act. Then the analysis will be missed perfect from the standpoint of biology that reflect on the basis of work elements or components of the brain and from wholeness, health and normalcy of the human brain. As an example of the author's own analysis in the assessment of the content of the discussion was to find some scientific basis of biological communication from another area in which the authors termed itself which includes:



- a. Potential Neurons communication, namely the study of biology that studies communication about internal communication processes in human beings, organized by neuron. Where the biological part of the brain (neurons) occurs the process of delivering information from one part of the brain to other parts of the brain, which eventually leading members of the human body and senses. From the side, then comes the motion response of other brain nerves.
- b. Communication Dendrite potential, namely the study of biology that studies communication about internal communication processes in human beings, organized by the dendrites. Where in the biological brain (dendrites) is a process of acceptance and penyamapian message to Synapse.
- c. Potential Soma Communication, namely the study of biology that studies communication about internal communication processes in human beings, organized by Soma. Where in the biological brain (Soma) is a process of acceptance and balancing conditions message to stay balanced and kept long in the memory.
- d. Potential Axon Communications, namely the study of biology that studies communication about internal communication processes in human beings, organized by Axon. Where this occurs in the transformation process the messages and then the messages appear as a stimulus to the movement of other brain nerves.

If the brain of the four biological processes that occur, then the behavior displayed by individuals can be regarded as "behavior potential". Behavior of this potential is assumed as the behavior associated with the purposes and functions of the human senses other biological and physiological function in smoothen the process of human communication with others and with their environment. Furthermore, in practice that the study of the biology of the brain is able to contribute to the claim of biological communication as seen from the element of gender, where the appearance of a form of communication behavior that happens to men and women differently. Scientific foundation of the opinion writer can take from Kimura & Henry (1986), which distinguishes it as follows:



Male and Female Brain Differences

Male Brain :

- Corpus collosum greater
- Discussion is still running though the center of the brain susceptible to interference
- Fibre connecting the two occipital lobes

Female Brain :

- Corpus collosum smaller
- Discussion is lost if the center of the brain is disrupted
- Fibre connecting two frontal lobe

Similarly, if biology is also capable of communication inspired by the ability of human behavior is biologically influenced by the ability of the brain hemispheres work left and right brain. Where such differences can be seen as below:

Left Brain

- the left hemisphere growing rapidly at the age of children (slit) (Sperry & Myers)
- Supported by the right hand
- Perform activities (Gazzaniga)
- Brings calmness and control (Elliot ross & Marek-Marsel)

Right Brain

- The analysis, logic models (David Galin) • The right hemisphere develops slowly at the age of children (slit) (Sperry & Myers)
- Supported the left hand
- Control activities (Gazzaniga)
- Raising and controlling emotion (Elliot ross & Marek-Marsel)
- Holistic (David Galin)

Based on the second review based on sex differences in behavior and the workings of the right and left hemispheres of the brain, then the development of biological assessment in a practical communication can be further developed in a comprehensive. In the end remedies the problems associated with human behavior in the communication process as a whole can be done.



The Approach of Medical Technology in Analyzing Human Behavior

This approach has provided a bridge is also in the field of development studies in the area of communication psikiologi adoption and diffusion of technological innovation engineering (enginernig). It allows also raises biological sciences enigering communication. Because if it is analyzed more in-depth visualization of the response or behavior of individuals is shown in particular lingkungan conditions were able to distinguish from other behaviors in other conditions too. One result of the adoption of technology (communication technologies) this is the emergence of detection tool diantaranya process flow of messages from one nerve to the nerves of the brain that other brain detected by using a tool called an EEG (electronic encephalo graph), ie aat which can detect the response in the form electrical waves in the channel to screen Kemudian so visually distinguishable from other behaviors.

The description provides a new phenomenon in the expansion of cultivated areas into the field of biological communication studies coupled with communication technologies that govern human behavior since the problem of the brain work.

The result of the adoption of these technological developments will provide new opportunities in developing more on behavioral approaches to biological communication that could be raised based on the control visualization tools so that familiarity is more accurate detection. In the praxis of science suggests that the biology of communication can influence the development of communication technology in studying the behavior of communication internally and externally.

The Paradigm of Nerve Cells "Si-Revealer"

Process interactions are difficult to process interactions has examined the terjadi in nerve cells in the brain. There are media materials are capable of causing two nerve cells communicate, which is called neurotransmitters (NT). Authors provide an analysis of "In multi-way", meant that in cell biology, neurotransmitter is able to explain the information to the brain. NT always in cooperation with the synapse in an effort to forward a message from outer lingkungan three places, namely, the body and brain. The illustrations can be seen in the event battles in Aceh, many children are starving. Genesis at the time was "messages" are transmitted to the brain. A military who saw the incident directly to tell "I saw sparks from the muzzle of military weapons." When he says so, then it may be analogous to that process of cooperation that has NT and synapse function normally.

Furthermore, the right brain stores events in the skin of the brain. If at any time the military had returned home and told his brother in Java so cells consisting of NT nerve and synapse will respond back quickly, so the event seemed to be happening again. Thus the mechanistic pattern of terjadi in



the interaction between nerve cells will occur when a body of information from outside the entrance which was followed by the relationship between cells. When jalian was supported by myelin, then braid it will be strong and durable. Surely this is determined by the thickness of myelin, it will relate to how long a person is capable of storing the information he received. The more often people do repetition (income information) the firm will semkin occurrence of myelination in the old, so he is able to store information in his brain a long time.

ICT-Based Genetic Heredity

Comparison between the behavior of a child with another child who sometimes often done in education, especially by teachers or even by her parents to the birth of children. These efforts sometimes have a point and there's nothing wrong, if it is associated with the analysis of scientific approaches, namely the biological sciences. Sometimes the child's behavior shows how the nature and behavior of their parents and sometimes also seen as environmental influences play. This is called Phylogenetic question (Murray Thomas, 1979: 186). If the conditions and behavioral observations of the child process is closely associated with the effects or behavior changes as a result of genetic transfer from parents and the transfer of messages / behaviors in observed children in the neighborhood, then of course, will lead to the analysis of biological and psychological influences .

Indeed, the development of human behavior since the start of the properties keturunan until he formed his behavior based on the population in which he lives will be very varied. Some of the classical theory says that human behavior can be shaped by the environment and learning. The genetic trait is assumed to be the basics of human behavior before it interacts with its environment. Based on the above, then to explain that behavior is influenced by genetic factors (Biology) and Social, can be started from five analysis as follows:

- a. Species Reproduction
- b. Genetic Plan
- c. The Network of Species
- d. The Natural Purpose
- e. Natural Selection.

Since the molecular phase in the chromosome, that the study of biology toward everything that affects the person's behavior, especially behavior-way communication is always giving our understanding of the relationship of biology and behavior of human interaction. Biological behavior between women and men will experience the difference in line with its growth. When the attack human males bertinteraksi with the opposite sex, then it will greatly affect the biological influence behavior, but sometimes we are not aware that it is perwujudan of communication behavior can be understood in



biology, but that became the stimulus is the field of ICT. Along with the growth during adulthood adolesen individual behavior change in the interactions sometimes little changed from the usual, where he was noticed and consider any behavior based on changes in physical biology. (Richard Lerner & David F. Hultsd, 1983: 99).

Women began to fancy berias and attracted to men because there are biological and physical changes, as well as men. Behavior that seems to be giving pemahama iniah us how biology is highly influential on human communication behavior along with the growth stage and perkembangannya. But so far we are still focused on studies of psychological nature. In the study of biological roots of Communications based on one book entitled Understanding Human Behavior bouquet of James V. McConnel (1989) explained that human behavior can be categorized into three namely the behavior of social behavior, psychological behavior and biological behavior. As described previously was human behavior from a biological assessment is at the root of the analysis of biological communications. Where the central controller on the basis of all behavior in biological analysis is contained in the brain, as has been in lay out in detail in the earlier discussion. These brain aka control and convey all the messages into another tubug members with translated also by the individual's own conscience. This is important when the behavior that raised were important or not appropriate or not. Such as thirst, hunger and so on.

However, the possibility of mismatches between behavior and conscience kadnag much your own experience. This is the uniqueness of the biological behavior of the communication which is controlled by the brain and the human conscience. Then the fact that the locus of the biological behavior of human communication is raised by the brain through a variety of thoughts that are sometimes tailored to the conditions of conscience or not. While the three main categories of behavioral biology major in communication studies from the point of philosophical kondrat will relate to humans as social beings, and inividivu (psychological and biological). For example, when human behavior that indicates that he is hungry and will eat, then a third above the nature of social, biological, and psychological necessity. And it all affects the behavior that appears as you experience yourself or see others, especially such as pain and healthy will look different if the social conditions or may be facing different cultural, then the behavior will seem different. Do not forget also that all the biological condition of this communication can be observed and analyzed circuitry utilizing ICT in the form of EEG and readout systems of the human mind through Electro ensephalografly.

The Discovery Process of ICT-Based Communication Sciences

As for the behaviors or activities of individuals that were recorded and analyzed during a laboratory experiment when it was learned by the activity of seeing, feeling, understanding and a tendency to act



in particular is able to support accelerated learning students. Analysis and verification carried out by recording the activity of specific parts of the brain that includes Frontal, Parietal, temporal, and occipital when students learn to perform the four activities above (see, feel, understand and tendency to act). The process might look similar to what was done by Tom Mitchell as the author can show the picture on the side of this.

The recording process of the pattern and pace of work specific parts of writers do when it starts from elementary, junior high, high school and college students, and it obtained a new finding how the biological behavior of learners can be recorded and explained. As one of the tapes also can show the author as shown in the following figure.

- a) The process of recording communication biological behavior in elementary school learners.
- b) The process of recording communication biological behavior conditions on secondary school learners.
- c) Recording of behavioral biology high school level communication Learners
- d) Recording of behavioral biology at the level of communication of Higher Education.

Conclusion

The ability of individual humans to be able to receive, process and do the interpretation, at least heavily influenced by a number of scientific applications such as communication science. However, what is seen visually on the impact of changes in the behavior of an individual after the processing of information in itself, then the other individual is not necessarily able to translate what is happening in the individual interlocutor, especially if an educator is to educate participants protege, then he may not be pesetas to understand what their students have really understood what he wanted. To explain the second example of the phenomenon is one of them can be explained through the study of the New Science of Life Sciences Communication-Based ICT as has been described by the author. Can finally be observed that a necessity, assertiveness, scientific truth that supports high-aspect of rationality with the packaging of a Human Relations policies in the context of the Biological Paradigm Communications is expected to provide inspiration to an educational innovation and learning in the future. Surely no human works perfectly capable of exceeding the Creator of the Universe, but the process of education and learning is one of the bridges pointing communication process with the Creator. Thus a new paradigm which the authors described above may be the basis in each embodiment of the quality effort of Instructional Technology and Learning Communication.



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