

TEACHING AS AN INTER-SYSTEM TRANSFER AND LEARNING AS AN INTRA-SYSTEM PROCESSING

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ABSTRACT

Conventionally the Teaching and Learning process refers to the teacher and the taught (student) in a class room of schools or colleges. Essentially it involves interactions of human beings who have the attribute of intelligence with the objective of human resource development; knowledge is the principal monitored factor to be imparted and acquired in the process. Human conscious effort is involved in the overall increase in the body of knowledge. No particular conservation principle is applicable on the amount of knowledge. A teacher transfers information which the student acquires; and the knowledge content increase has no bounded limit. However, transfer of information is alluded to in communication systems with well specified transmitter and receiver and the systems do not seem to become knowledgeable. In the context of the topic of Artificial Intelligence, the term “teaching” seems to be more frequent than the term “learning”. In order to disentangle artificial and natural processes related to teaching and learning a concept diagrammatic approach could be better.

Introduction:

The neurological basis of the theory of learning, supposes that the learner forms an internal representation of the external world which prides the basis for the acquired information, and knowledge seems to be the ability of the learner to reach out to the external world on the strength of the internal representation. Obviously this requires the biological activity: inherently built in within the living systems. Any kind of artificial intelligence would have to simulate this built in activity, with external devices. For example, artificial neural networks try to accomplish this task and robotics based control systems benefit by such simulator networks. To begin with the simplest phenomenon of exposure to nature and related experiences are the stimulators for humans to learn to live in this environment, as a sign of growth and civilization.

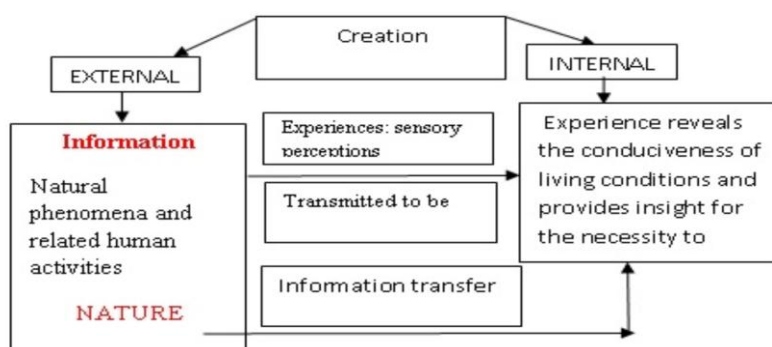


Fig.1: Scheme for human development

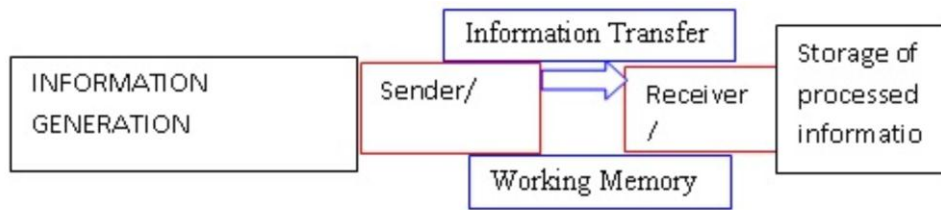


Fig.2 Components: Communication system

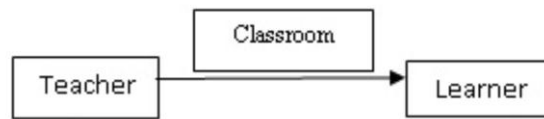


Fig.3 An Evolved Learning

In Fig.1 an effort is made to envisage human development as a information transfer process. The creation is all what is available for subsequent evolution; the evolution can be thought of as a conservative system, in principle. In practice the dynamics within the system of men and materials is transfer of matter and materials between the subsystems as self sustaining processes. The dynamics (interacting subsystems) can be thought of as a subsystem static source supplies input to a dynamic subsystem which modifies the inputs and a development thus results, which in turn may replenish the source from the processed output end. Fig.2 is a way a modern communication system can be sketched schematically for a comparison. The Fig.3 the simplest activity of teaching and learning as the familiar human development and human resource development processes.

Objectives of Learning:

The exposure to the natural environment, particularly for human perceptions occurs just by the mere existence of beings. The

persistent exposure as it happens, leads to priorities and preferences in general, and eventually by individuals choices. The stimuli from the surrounding and the perceptions of the same by living beings begins not so much by any objectives predetermined, but just occurs as a sign of mere existence. Eventually the activity and the incidences acquire purpose by realisation of the advantages that accrue by the interactions. This only means, that the perceptions as it happened results in a learning, and the knowledge so acquired sets a purpose for such interaction, and the teaching – learning process becomes the basis for almost for every aspect of what living constitutes. The learning leads to a higher evolved state that there is a potential for simulating these processes with external objects, as if mimicking a creation.

At the evolved stage of educational activity, a child is sent to school not because the children get to know things about which no one else knows, but precisely because the child must be getting



to know what all the others know, and knew by going to school. It is only as the children grow during the school days and move over from a stage to the next higher stage gradually, that the differences among individuals become more conspicuous. Hence a meticulous recognition of the merits of individuals becomes necessary for the educational system to serve the purposes and effectively enable the distinguishing better talented ones from the average standards. Such a distinction by merit and the consequential competitive spirit inculcated become the constructive activity in building a vibrant society.

inconspicuous: that, such a technical progress could be possible because of the introspection over the natural human activity.

These technical advances have a retrospective consequence to give rise to the topic of Educational Technology and which in turn enables an efficient human resource development, because education makes the human development more effective. The human development activity leads to a human resource development as described below.

Education in a class room teaching is primarily provides a training by well established methods. This is to imply, that there are set of prescribed exercises which the average student must be capable of mastering. When if an effort is made to find out among these trained candidates, how many on the spot can comprehend an exercise which is a variant from the prescribed exercises, then results a possibility of distinction of the outstanding quality. This distinction ensures that the candidates can face on the spot challenges

It is then becomes the attribute of the distinguished lot that they become capable of introspection of what they went through during learning process to such an extent that they can give expression to the revelation by objective models of such a process. This leads to the subject of communication (transmission and reception) distinctly getting developed. In the entire edifice of automation and assembly line productions a fact is rendered

rather than simply go through the assigned exercise to increase the output turn over. Thus in the Research and Development, efficient quantitative output should be distinguished from the developmental activity of proficient inventions and innovations. Such talented candidates can be valuable in giving feedback information to teachers on how to improve the rendering of the subject matter in such a way that even a below average candidate gats to grasp it. Such feedback processes are important in controls and simulations while objectively modelling process. Thus the information transfer in a forward direction can have a transfer in reverse direction so as to improve the overall efficiency of the system. On the contrary if the flaws in forward transmissions get reflected then the system may be rendered unstable and result in the system-collapse if not controlled.

Conclusions:

This article is intended to bring about a realization on the teaching-learning process in such a way that the excursion to the current day advanced technological



approaches towards robotics and complicated control systems is made simple. Most of the time the possibility of a feedback process is introduced as a process only at much higher levels in connection with advanced technological network aspects. In this article the feedback process is introduced as inherently built in with the efficient educational methods; and the concept of students (the learners) contributing to teaching process is brought out indicating the stabilizing and destabilizing consequences. Such an introduction has the advantage of bringing about better presence of mind and attention of students to class room proceedings, and prepares the students to develop into better humans by reflecting their own consciousness as they master the objective science and technology. This early awareness seems necessary in view of the present day digital trends and the use of communication technology outputs at the very early stages of education. Enables a informal component to provide for self-learning without hindering the conventional class room learning.