

**JOSE RIZAL UNIVERSITY**

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**TECHNOLOGICAL FOUNDATIONS OF EDUCATION**

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1. **INTRODUCTION**

Before you entered education, your knowledge of pedagogy might be based on literal knowledge：

**Technology** is derived from the Greek work techne, which means “art or skill of hand ”

And ‘logy ’ is the making ,modification ,usage and knowledge of tools, machines, techniques,Systems, and methods of organization, in order to solve a problem or modify the existing solutions , to attain the set goal, handle or perform such roles so as to ensure the appropriateness of the required and acquired goals.

The human species’ use of technology began with the conversion natural resources into simple tools. The discovery of fire has led to varied available sources of food and the creation of wheelhelped humans access to many areas. Other technological developments like printing press the telegraph, computer and the Internet have reduced the gap in communication and allowed humans to interact freely on global scale.

1. **Educational Technology**

**A.Definition :**

Educational Technology, as defined by the Definition and Terminology Committee of the Association for Educational

Communications and Technology (AECT) is “the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources” (Januszewski & Molenda, 2008).

Januszewski & Molenda (2008) further describe each of the major terms

in the above definition as follows:

• Study - research and reflective practice in order to “examine the

appropriate applications of processes and technologies to the

improvement of learning”.

• Ethical practice - ethics are not merely rules to follow, but the basis for

our practice as educational technologists. We should question our

assumptions and seek to serve the benefit of learners and of society.

• Learning - the current conception of learning goes beyond mere

retention of information to encompass “the acquisition of knowledge,

skills, and attitudes used beyond the classroom walls” .• Improving - educational technology should provide efficient and cost

effective ways to bring about the desired learning benefits.

• Creating - “the research, theory, and practice involved in the generation of instructional materials, learning environments, and large teaching learning systems in many different settings”.

• Managing - can include project management and management of

large-scale systems.

• Appropriate - suitable for the defined purpose, based on information and sound professional judgement

• Technological - processes and resources

• Process - “ a series of activities directed towards a specific result”.

• Resources - “people, tools, technologies, and materials designed to help learners”.

While this definition of terms may seem abstract, you can see that

it encompasses much more than simply the use of the latest digital

gadgets. Educational technology involves a thoughtful effort to employ

**B.Histony And influences on the field**

According to Seels and Richey (1994), the educational technology field emerged, and continues to develop, through interactions of influences, including foundational research and theory and the features and capabilities of current technologies. This means the field of educational technology is “a child not only of theoretical knowledge, but also of practical knowledge”

Reiser (2001) provided an extensive summary of the history of the field, tracing its roots back to the early 1900s. The first catalogue of instructional film was produced in the US in 1910, and a “visual instruction” movement, with professional organizations and journals dedicated to the topic, arose. This became known as “audiovisual instruction” as technology (e.g., film with sound) advanced. Educational television was the focus of attention in the 1950s and 1960s, until the computer emerged as the next technology with potential to change education.

To see how technology tools and their use in education has evolved since the advent of computers, see the following three videos:

• Very short - https://youtu.be/UFwWWsz\_X9s

• Medium Length (~8 minutes) - https://youtu.be/t5\_v9Aqb9XA

• More detailed (~14 minutes) - <https://youtu.be/jJejENZuybsText>

**C.Learning Theory**

In order to make good decisions about how to integrate technology into teaching and learning environments, it is crucial to understand what is known about how learning happens. This is a tall order because the human mind is complex and researchers disagree on what learning is and how to measure it. Thus, there are several theories about learning, each appearing to explain some aspects of learning better than others. ,which introduces behaviorist, cognitive, and social theories of learning.

**1、Behaviorist Theories of Learning**

In the early 1900s, the most prevalent way of looking at learning was the

view we call behaviorism. Behaviorists defined learning as an observable

change in behavior. which include :

a. Classical Conditioning

b. Operant Conditioning

c. Behaviorism in Educational Technology

**2、Cognitive Theories of Learning**

Cognitive Load Theory (Sweller, 1994) elaborates on the concept of a limited short term memory by defining three types of “load” that need to be considered by instructors and instructional designers. Extraneous load is the cognitive burden posed by distracting elements. An example would be a confusing navigation process in a poorly designed tutorial. Intrinsic load is the complexity inherent in the subject matter. Dealing with that complexity is part of learning the material, and can’t be entirely avoided. Germane load is the cognitive demand of processing the subject matter.

Include:

a. Information Processing

b. Cognitive Load Theory

c. Cognitive Theory of Multimedia Learning

**3、Social Theories of Learning**

Behaviorist and cognitive theories of learning focus on the individual learner. Social learning theorists view learning as a process of adopting ways of thinking from the culture and community. Therefore, social interaction is a crucial part of the learning process. Two leading thinkers in the social learning tradition were Albert Bandura and Lev Vygotsky

Include:

a. Observational Learning (Albert Bandura)

b. Vygotsky’s Social Learning Theory

1. **CONCLUSION**

Although educational technology is still “young” compared to many other fields of study, it has a rich and diverse history. Theory from fields as diverse as psychology, engineering, communications, computer science, business, and education has contributed foundational knowledge, while emerging new technologies prompt researchers to explore new possibilities for creating learning environments, and to further build and refine theory

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