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Introduction to Educational Technology

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1 Introduction

This course unit aims to provide an introduction to the field of educational technology. Educational technology can be defined as a design science or as a collection of different research interests addressing fundamental issues of learning, teaching, and social organization. Educational technology as a design science relies on and influences other academic disciplines, in particular the so-called learning sciences and instructional design theory (didactics).

Learning goals

- recall conceptual foundations, in particular some principles from learning theory and instructional design and how they interact with educational technology
- gain a global picture of the field
- understand various strands of development, research and practice
- describe major educational technologies and the contexts in which they are being used
- map technologies to instructional design goals

1.1 Text and chapter architecture

This text contains four series of chapters:

1. **Introduction and conceptual foundations**: We start with an introductory chapter that aims to define the field of educational technology, followed by chapters on its conceptual foundations (learning theory, pedagogy, and digital literacy) and an introductory chapter on technology in education.
2. **Educational technologies**: Educational technologies will be introduced through several chapters. The first "edTech" chapter summarizes the following edTech chapters. Each of these presents and discusses a set of technologies in more depth.
3. **Research and organizational issues**: We shortly will discuss research and development methodology as well as innovation and change management issues.
4. **Conclusion, glossary, and index**: The conclusion includes some tables that can be used for revision or taking design decisions. The glossary includes definitions of some important terms. The index will help you find concepts and major authors.

The following mind map summarizes this organization:

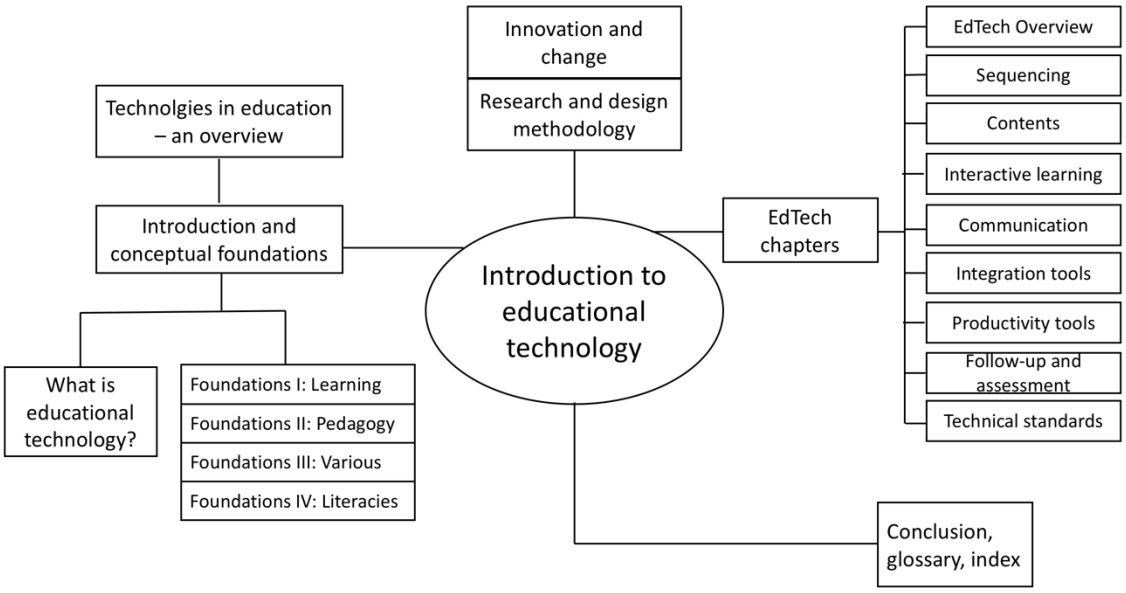

Figure 1: Mind map: Introduction to educational technology

1.2 What is educational technology?

Educational technology is concerned with the use of technology in order to improve education. It is a wide field. Therefore, one can find many definitions, some of which are conflicting. Educational technology can be considered either as a design science or as a collection of different research interests addressing fundamental issues of learning, teaching, and social organization.

Nevertheless, most researchers and practitioners might agree on a few features (of educational technology):

1. Use of technology is principled: Using technology means the systematic application of scientific knowledge to practical tasks. Therefore, educational technology is based on theoretical knowledge drawn from different disciplines (communication, education, psychology, sociology, philosophy, artificial intelligence, computer science, etc.) plus experiential knowledge drawn from educational practice.
2. Educational technology aims to improve education. Technology should facilitate learning processes and increase performance of the educational system(s) as it regards to effectiveness and/or efficiency.

This short introduction will try to give a preliminary definition of the field.

Educational technology as a design science

As a design science, educational technology looks at complex multidimensional processes involving people, procedures, knowledge, technical devices, and organizational structures. Finding solutions to various problems of learning and teaching implies a process of design, implementation and management and finally evaluation.