Wydział Elektrotechniki, Elektroniki, Informatyki i Automatyki
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Didactics in Higher Education

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Didactics

Didactics is a system of properly substantiated theorems, hypotheses and regularities ruling the process of teaching and learning (education) and also methods, organizational forms and aids in the causing of students' intentional and relatively permanent changes (Kupisiewicz Cz.)

Components of teaching process

1. Objectives of education
2. Program content
3. Forms and methods of studying
4. Consultations, practice
5. Checking the results
6. Theses

Teaching aims

- Cognitive - appointed by the range and content of programs
- Operational - refers to skills which the student has to demonstrate by the use of the acquired knowledge
- Instructive - determines the range of the intellectual and mental features, which we want to develop in the student
- Educative - covering a range of attitudes, values, disposal of which the student should be characterized by graduating

Concepts of determining the overall cognitive objectives

- Didactic materialism - the aim of education is to provide the widest possible knowledge about the world
- Formalism - F. Herbert, puts emphasis on the development of intellectual abilities and interests of students
- Utilitarianism - J. Dewey, the target is to prepare students to perform practical tasks
- Functional materialism – W. Okoń, education has to be the most comprehensive
- Today: a model of learning throughout life, combining a high specialization with creativity - the EQF, NQF.

Principles of education increasing its effectiveness

Principles of education are possible ways of teaching providing the possible high efficiency of the teaching process. These are, among others:

1 Gradation of difficulties

2 Direct, sensual cognition of reality

3 Systematizing of knowledge

4 Combining theory with practice

5 Sustainability of knowledge

Teaching forms

- Lecture (course, monographic, problematic, conversational, etc.)
- Exercise (auditory, laboratory, project, conversational)
- Seminar
- Discussions conducted with various techniques (dialogue, observed discussion, panel discussion in groups, round table discussion, seminar-type)

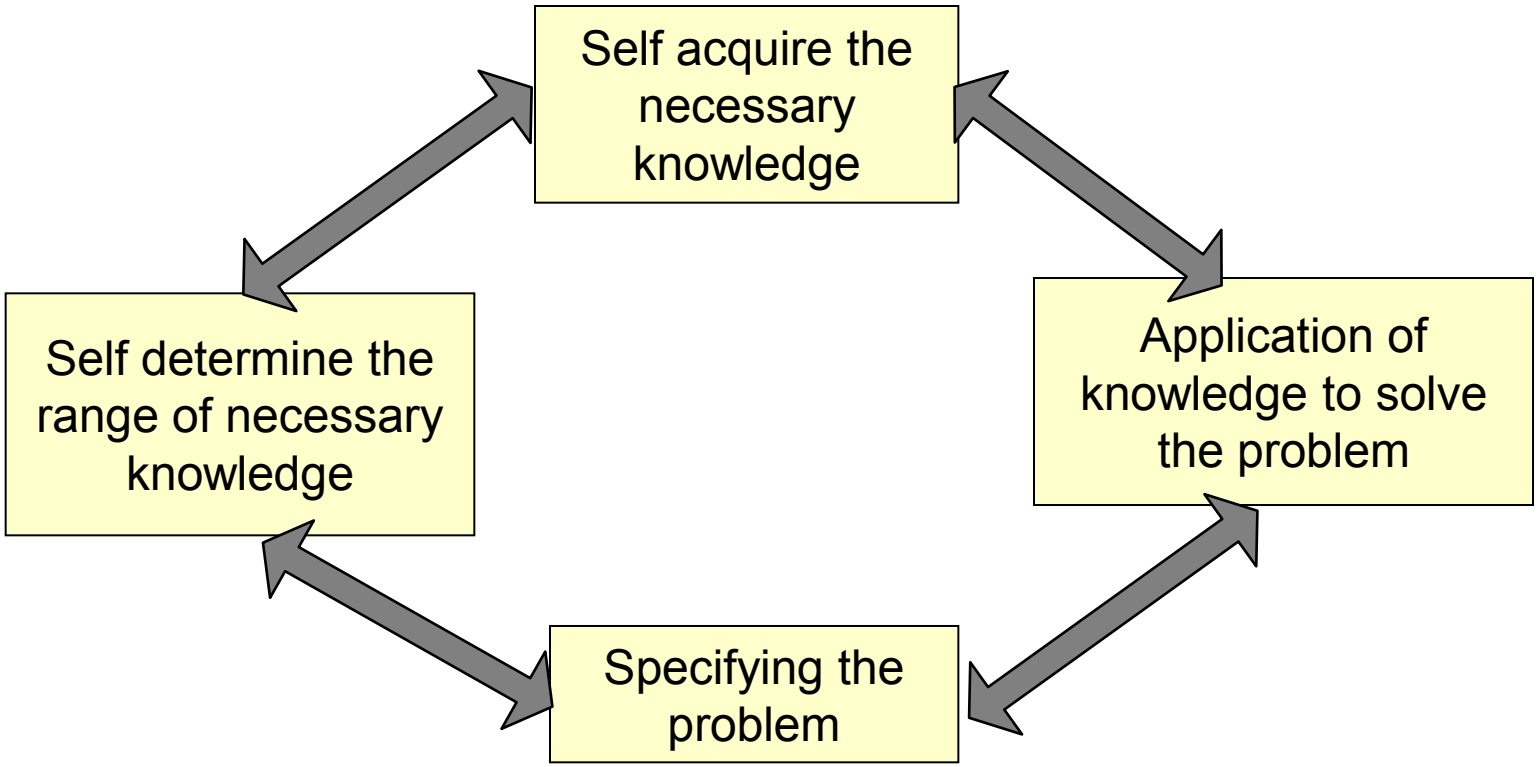
Teaching methods

- Feeding (ex cathedra) - knowledge passed in final form, together with the methods of its transformation
- Seeking (problem) - the student acquires the knowledge and skills through their own activities and work

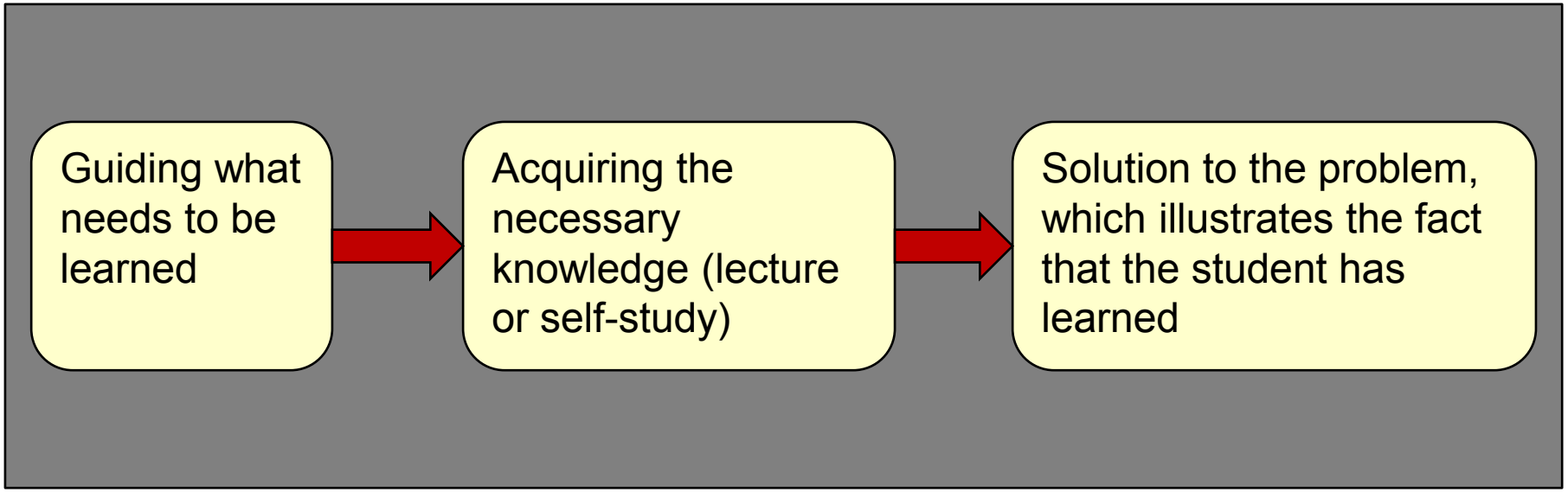
Methods - types

- Feeding: lecture, observation, talk
- Activating:
  - Problem: educational games, brainstorming, observation, discussion panels, design method, a case study
  - Expression and impression: drama, simulation methods, improvisations
  - Graphic record: decision tree, a fish skeleton, mental map, snow globe, map of associations

Desigh method cycle



Traditional method cycle

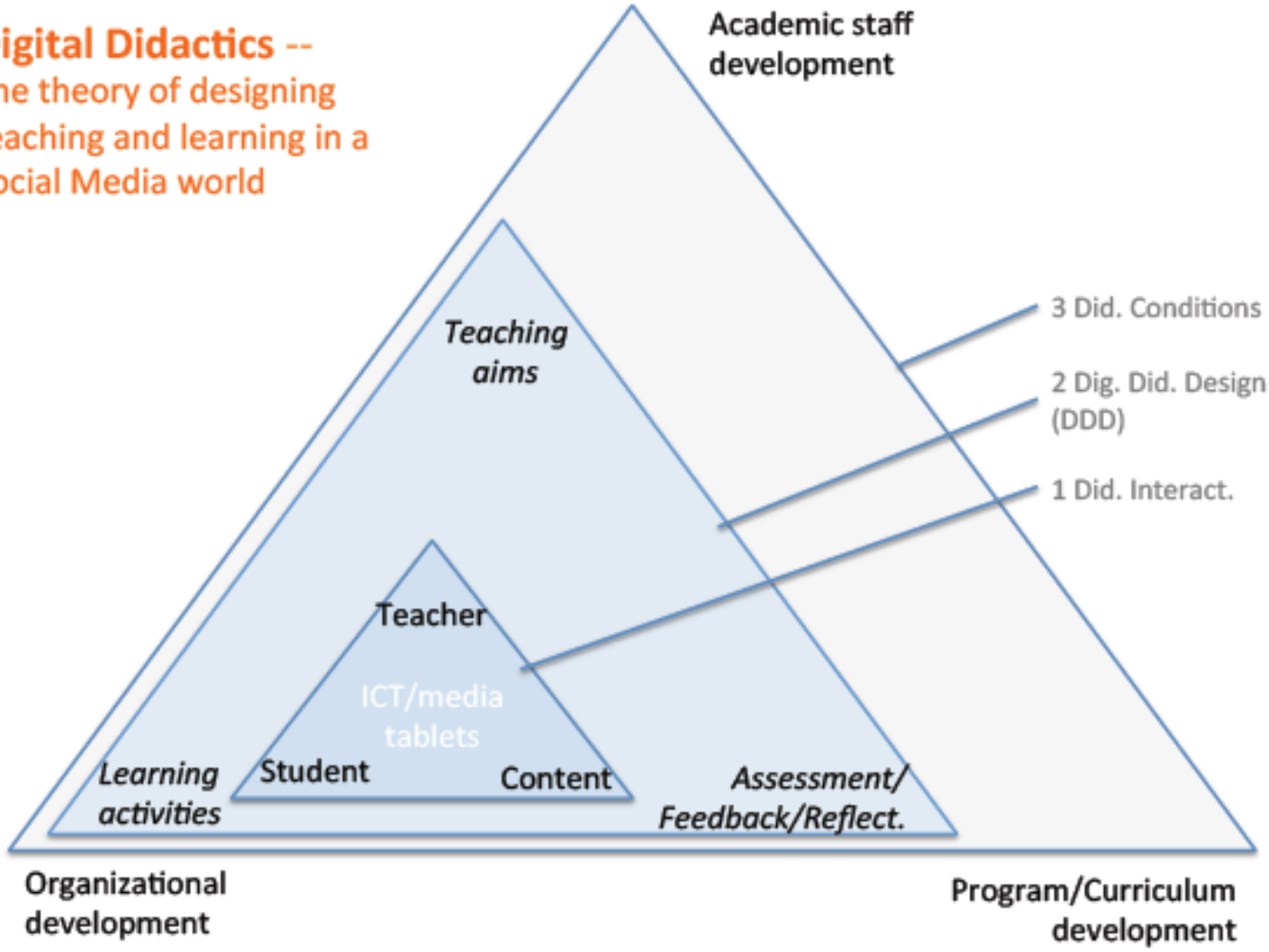


Methods efficiency

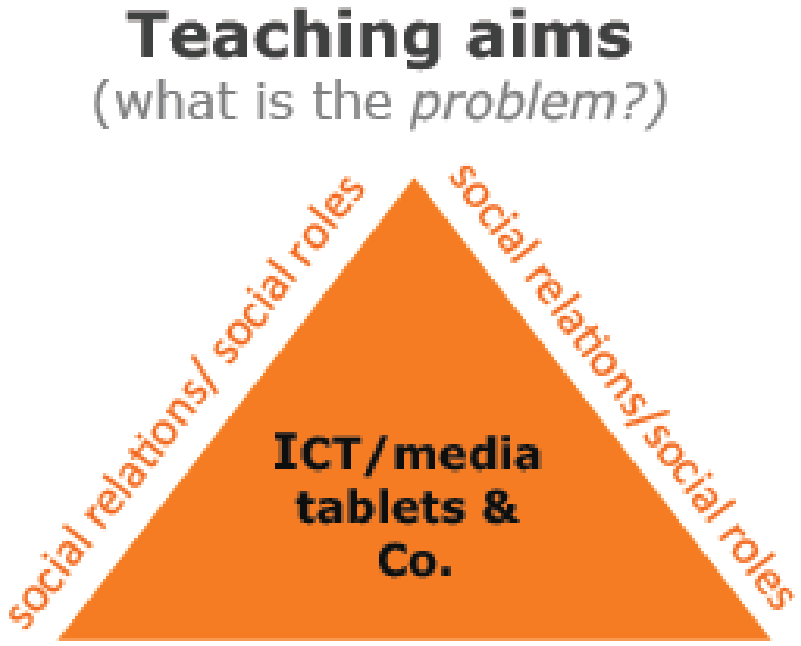
Piramida zapamiętywania Dale'a

Three Layers of Digital Didactics

Digital Didactics --
The theory of designing teaching and learning in a Social Media world



Digital Didactical Design Model



References

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2. Glenn Hultman, Ragnhild Löfgren & Jan Schoultz: Subject Didactics in Practice – Hidden in the Process. A Study of Teaching Logics and Classroom Cultures. *Education Inquiry*, Vol. 3, No. 1, March 2012, pp.3–18