Practical Implementation of Learning Fields in Vocational IT/CS Education –
A Guideline for Designing Learning Situations

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1. Current Problems in Vocational IT/CS Education
2. How the Guideline was Developed
3. A Guideline for Designing Learning Situations in IT/CS
4. Evaluation of the Guideline
Current Problems in Vocational IT/CS Education

Teachers do not adopt the concept of learning fields into practice

- Environmental conditions
- Less suitable teaching material
- No guideline how to develop teaching material
Agenda

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4. Evaluation of the Guideline
How the Guideline was Developed

Analysis of existing criteria a learning situation should comply with

- **KMK**
  - basic criteria

- **Bader**
  - basic criteria
  - practical criteria

- **Kremer & Sloane**
  - process of learning
  - less process of learning

- **Wilbers**
  - most practical criteria
How the Guideline was Developed

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No specialisation on IT/CS
How the Guideline was Developed

Literature about didactics of IT/CS

- vocational education
- general education

Only less literature in IT/CS

Main reason for developing a specific guideline for vocational IT/CS education

E.g. IniK (German IT/CS-specific open working group)
How the Guideline was Developed

Literature ? Guideline
How the Guideline was Developed

Step 1: Conclusions of all given criteria
Step 2: Structured analysis by using methods of content analysis
Step 3: Categorization into items
Step 4: Comparison table with all criteria
Step 5: Arrangement in logical order
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Step one: Preparation

“Analysis of existing criteria a Learning Situation should comply with”

Do not reinvent the wheel!

Take care of cooperation between teachers!

Take care of didactic agreements between all teachers!
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Step two: Elaboration

Focus

- Structure the intended learning situation
  - Structure the area of action (persons, problems, material/media)
  - Structure the process of action (complex view of self-contained activity)
    - Individual action
    - Social processes
    - Meta-cognition & -communication
  - Structure the outcome of action (product type, quality, material/media)

- Assessment and other subjects
- Competences and content
- Analyse the conditions
  - Previous skills
  - Needed Media
  - Experiences
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Step two: Elaboration

Develop complete action model of self-contained activity:
Orientation, Information, Strategy, Execution and Reflection

Each change in one aspect will probably be followed by changes in other aspects!
Between step two and three: Review the Learning Situation

Main Questions:

- “Does the Learning Situation match to the criteria?”
- “Does it fit to the curriculum?”
- “Is it suitable for the target group?”
Step three: Execution

The Learning Situation can now be applied in class.
The area of action and the given problem have to be introduced to the students.
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Step four: Reflection

Evaluate and revise the learning situation

- Students involved
- Teachers duty
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During step two to three: Documentation of the learning situation

Essential basis for:

- Multiple usage of the learning situation
- Sharing the learning situation with other teachers
- Evaluation and further development
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Evaluation of the Guideline

• Evaluation of usability by developing an exemplary learning situation
  – Learning field: “Application development and programming”
  – Title: “A marketing game: Developing a playful way of marketing in Java”

• Results:
  – The learning situation could be designed in a structured and clear way.
  – Actual steps: Usage of the guideline to develop further learning situations
  – The designed learning situation was suitable for the target group and can easily adapted for other classes
Thank you for your attention!
Literatur

• R. Bader. Lernfelder konstruieren - Lernsituationen entwickeln (German). Die berufsbildende Schule, 55(7-8):210-217, 2003


