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Interactive learning platforms for teaching occupation-specific content in healthcare professions

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Theoretical Background

Advantages and areas of application of simulations

- Learning success through simulations (St. Pierre & Breuer, 2018)
- Nursing technology problem solving, decision making and interpersonal competences (Lateef, 2010; Kirsten&Kagermann, 2018)
- Virtual and case-based scenarios support contextual and procedural knowledge (Feng et al., 2013; Kononowicz et al., 2019)
- Redefinition of tasks (SAMR Model) (IQSH, 2018; Puentedura, 2010)

Theories for digital teaching and learning

- TPACK Model to identify the knowledge for teaching and integrating technologies (Mishra & Koehler, 2006)

Adaption of TPACK for vocational schools

- TAWOCK Model (Arifin et al. 2020)
  A = Andragogy Knowledge
  W = Work Knowledge

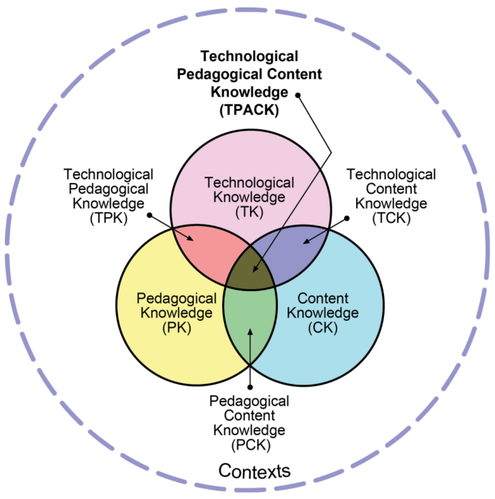


Fig. 1 TPACK Model

Research Questions

1. How do prospective teachers in the area of healthcare sciences currently assess their digital professional knowledge, taking into account their personal prerequisites in the competence areas TK, TCK, TPK and TPACK?
2. What differences are evident in lesson planning depending on the learning environment being worked in?

Methods

Design & Timeline:

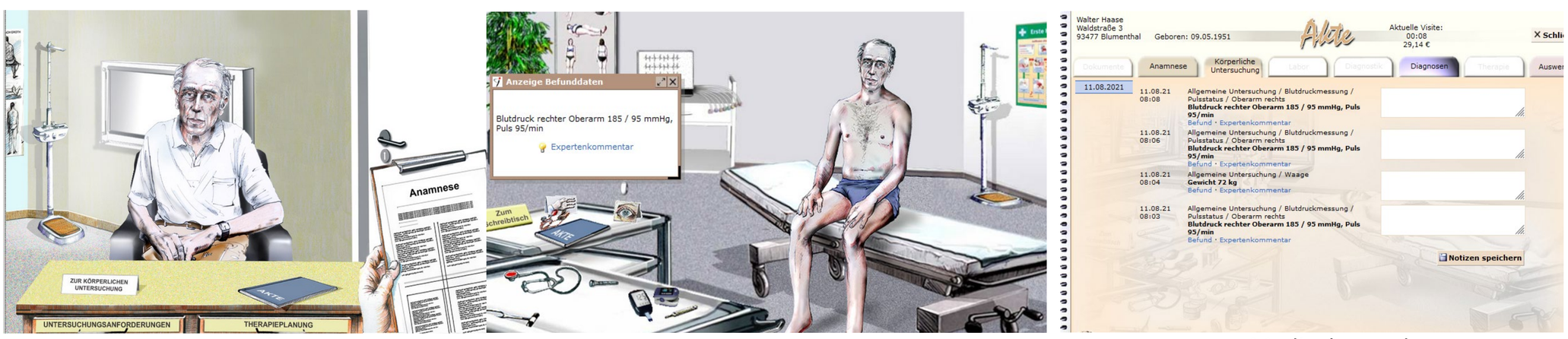
PRETEST → **LESSON PLANNING** → **POSTTEST**

- Experimental Group 1: interactive simulator
- Control Group 2: non interactive patient information

Mixed Methods:

- questionnaire — *N= 139, 30 minutes*
- teaching material — *N= 30, 3 weeks*
- questionnaire — *N= 39, 30 minutes*
- guided interview — *N= 20, 60 minutes*

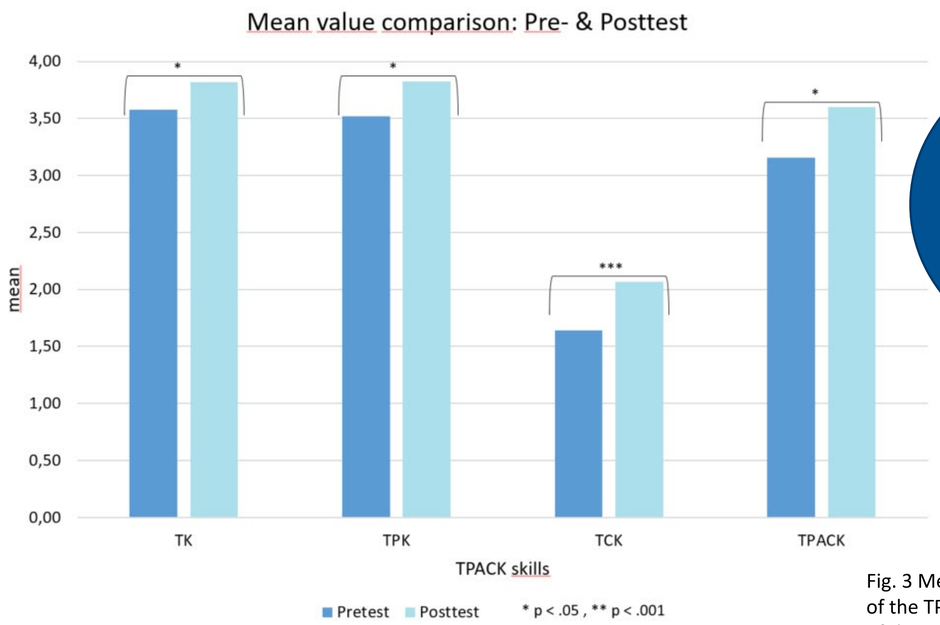
Interactive Learning Environment:



Anamnesis *Treatment room* *Medical record*

Fig. 2 Walter Haase, INMEDEA Simulator

Results



no significant impact on TPACK skills atrributed to learning environments

Fig. 3 Mean value comparison of the TPACK skills of the pretest and posttest

Conclusions

Digital Simulator

… provides information rather than taking action.
… works for decision-making and self regulated learning.
… needs to be adapted for each professional group.
… doesn't affect students TPACK skills

Students perspectives

… miss options and possibilities of TCK for health & care education.
… lack knowledge about how to define interactive simualtions.
… don't use models and theories for digital teaching and learning.

Theories

The classification of the digital Simulation at level 4 of the SAMR model must be further verified.

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Icon meeting: Icons made by Becris from www.flaticon.com
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Fig2: Screenshot von CGM Deutschland AG, BU TELEMED (2021): Anamnese, Behandlungsraum, Krankenakte

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