Equal partnership between engineering education and industry

A needs analysis

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TALENTS project

Core themes

- Supporting learners (students, professionals, teachers) during defining and developing their personal professional development
- Utilizing Authentic Learning Environments (ALE) consisting of authentic and societal/urgent challenges
- Learning and working together in a learning community



TALENTS project

- Quality of and integrated support
 - Supporting development of the personal profile ('coaches')
 - Supporting development of BoKSA ('facilitator of the learning process') of the interdisciplinary domain



Method

Semi-structured interviews*

Students (N=11)

- Full-time bachelor
- Different courses, mostly technical (e.g. Mechanical Engineering, Technical Physics)

Teachers (N=12)

- Role of coach
- Facilitator of the learning process
- Different kinds of expertise, e.g. engineering, marketing, nursing

Engineering partners (N=10)

- Small (<20) and larger (>20) companies
- Dutch and international
- Different domains (e.g. engineering, business)

Interdisciplinary groups



Research questions

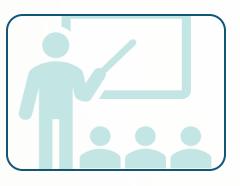
- RQ1: What wishes, requirements and ideas do respondents have regarding the design of the equal partnership within an authentic learning environment, distinguishing between epistemic, spatial, instrumental, temporal, and social elements?*
- RQ2: To what extent are partners willing to invest in this partnership?
- RQ3: What are the opportunities and obstacles for cooperating in an equal partnership according to partners?



Conclusions (1)

Epistemic element







- -> Focus on output
 - -> Closed challenges

- -> Focus on development students
- -> Open, complex challenges

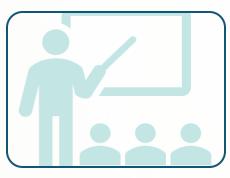
- -> Open, complex challenge
- -> Aligned with background, room for personal development
- -> Developing concrete product



Conclusions (1)

Social element







-> Gain inspiration,use of extrahands,get a problemsolved

Some: Life-long learning

 Gain knowledge outside domain, expand network, improve coaching skills Gain knowledge (outside domain), expand network, co-creation with industry



Conclusions (2)

Investment in equal partnership

All partners are willing to invest time

Different views of learning together



Conclusions (3)

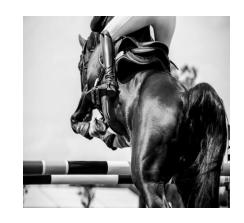
Obstacles to an equal partnership

Traditional roles (e.g. Industrial partners – clients)

Focus on output

Teachers are also assessors

Teachers and industrial partners as experts





Conclusions (3)

Prerequisites to an equal partnership

Traditional roles need to be less apparent

Focus on partners' individual learning goals

Partners need to understand the rationale for learning in a learning community and to be willing to learn



Recommendations

for creating an equal partnership between engineering education and industry

Stimulate dialogue between partners before and during challenge

Make sure all partners have a contribution in formulating the challenge, taking into account their learning needs

Match partners with 'suitable' challenge

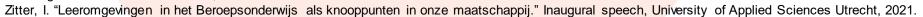
 Ensure that all partners can learn and contribute equally by matching them with challenges that they can add value to

Diminish traditional roles

- Explain added value of learning in equal partnership
- Not only teachers should be the assessors

Literature used in presentation:

Bouw, E., I. Zitter, and E. de Bruijn. 2021. "Designable elements of integrative learning environments at the boundary of school and work: a multiple case study." Learning Environment Research 24, no. 2: 487-517.





Thank you! Questions?

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