

Exploring the Implementation of Challenge-based Learning for Sustainability Education in Secondary Education

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Exploring the Implementation of Challenge-Based learning for Sustainability Education in Secondary Education: Teachers' Experiences

ID:
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INTRODUCTION

Integrating education for sustainable development into secondary school curricula is crucial. However, students in secondary education currently have limited exposure to this in their education. CBL (Challenge-Based Learning) could offer a solution to engage students in understanding and addressing complex issues such as biodiversity and climate change.

RESEARCH QUESTION(S)

- **RQ1** - How do secondary school teachers implement CBL in the context of education for sustainable development (ESD)?
- **RQ2** - What are teachers' views and experiences concerning the implementation of CBL for ESD?

METHOD

In preparation for data collection, a 'guiding tool' was developed based on the CBL compass for higher education



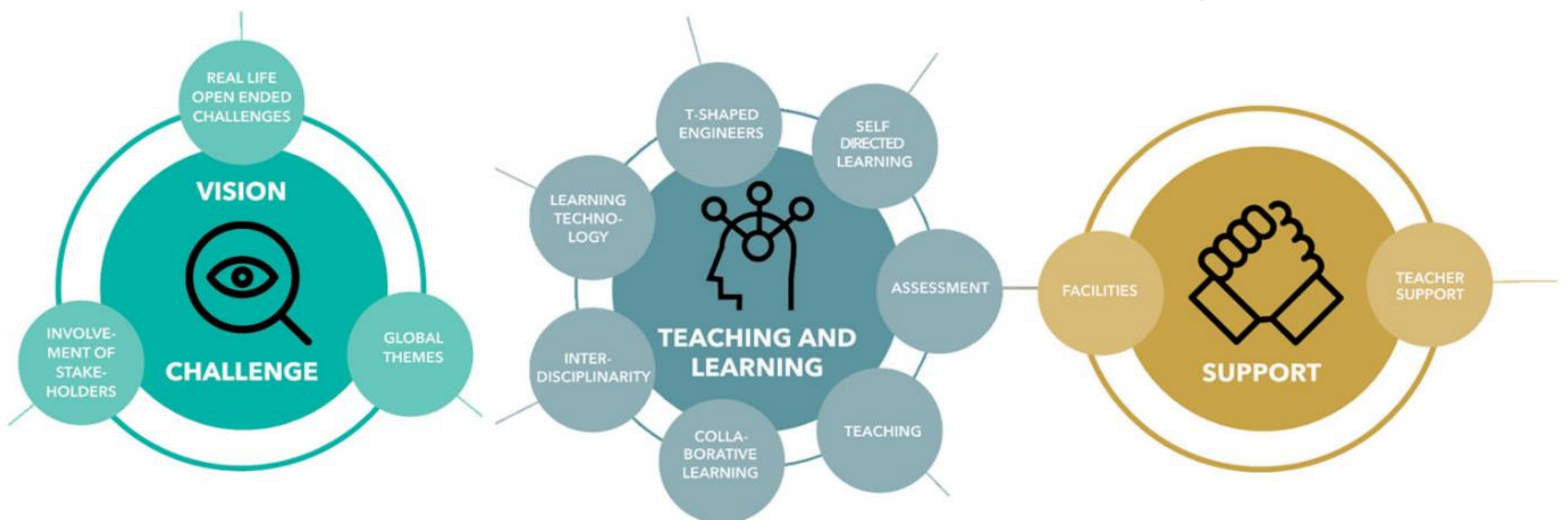
Data collection

- 5 PLC meetings (N = 26) → fieldnotes
- 8 teacher interviews (using guiding tool) (N = 8) → transcripts

CBL projects

EcoKino	AMStory	Green badge	Penfriend-Sierra Leone
Sustainable energy	Advanced Science and Mathematics	Sustainable Campus	Disability tool

Figuur 1: CBL-compass HE (Van den Beemt et al., 2023)



RESULTS

RQ1 – Characteristics of CBL implementations in SE:

- **Real-life, meaningful challenges** are based on real situations and focus on the students' experiences
- Subject implementation integrates **citizenship skills** and **knowledge acquisition**
- Stand-alone projects focus on **raising awareness** of sustainable development within a **local context**
- **Self-directed learning** is central to the research and collaboration processes
- **External involvement** through interviews, guest speakers, and assessments
- Teachers act as **coaches** in guiding groups
- Limited **support structures** for lesson design and teaching skills within a CBL context

RQ2 – obstacles and opportunities:

- **Suitable for sustainability education**: CBL aligns with the complexity of sustainability education
- **Self-regulated learning**: promotes attitudinal changes through self-directed exploration of sustainability issues
- **Rigid curriculum**: limits the possibilities for student-driven and open-ended education
- **Limited interdisciplinary collaboration**: difficulties in integrating sustainability across different subjects
- **External involvement**: essential for authenticity and meaningful learning, requires investment in building and maintaining collaborations

CONCLUSION

This study shows that CBL is suitable for sustainability education, but fundamental changes are needed for full integration. Currently, CBL is still implemented as an add-on to an already full curriculum, which comes with various implementation obstacles. Due to the open, interdisciplinary, and student-centered nature of CBL, flexibility in learning outcomes is essential. The findings can help educators address curricular challenges.