



Learning in Virtual Communities of Practice for Transdisciplinarity

Using Digital Artefacts as Support Mechanism

BACKGROUND & AIMS OF MY RESEARCH

A fundamental transformation towards sustainability is necessary to tackle great societal challenges. To achieve such transformations we also need to transform the ways in which we do science (Schneidewind, Singer-Brodowski, Augenstein, & Stelzer, 2016). Transdisciplinary research is a growing field that aims for sustainability transformations (Jahn, Bergmann, & Keil, 2012) and the transformation of traditional modes of science (Nowotny, Scott, & Gibbons, 2003), which needs to be supported (Pohl, van Kerkhoff, Hadorn, & Bammer, 2008). This is not only true for Transdisciplinarity, but also similar approaches such as

Participatory Action Research (PAR), Science of Team Science (SciTS) as well as Integration and Implementation Sciences (I2S). Despite common criticism of disciplinary silos, these communities have mostly remained separated themselves (Bammer, 2015), leaving learning potentials unexplored. Bammer (2015) names e.g. the toolkit series, including tool kits from these fields, as an initial example that aims to address this. There further is the need for a stronger focus on practice in scientific publications in the fields of TD (Jaeger-Erben, Nagy, Schäfer, Süßbauer, & Zscheischler, 2018 discussing Transdisciplinarity in relation to transformative research)

as well as PAR (Friedman, Gray, & Ortiz Aragón, 2018). Toolboxes are more oriented towards the practice of research and according to Bradbury Huang (2013), the development of tools can serve as a connecting point between theory and methods on one hand and practical know-how on the other hand. This raises the following research question:

How do these toolboxes (and digital tools in general) support learning for/about TD research practice? And how can existing solutions be improved?

FRAMEWORK

These questions immediately raise the question of what is meant by learning and knowledge (co-)creation, especially since Mode 2 science (and thus TD as well) “tends to black box the underlying process through which knowledge is produced” (Thorén & Breian, 2016, p. 8). Aligned with my focus on the practice of TD research, I use Lave and Wenger’s (2002) concept of Communities of Practice (CoP) and situated learning as legitimate peripheral participation (see info-box below).

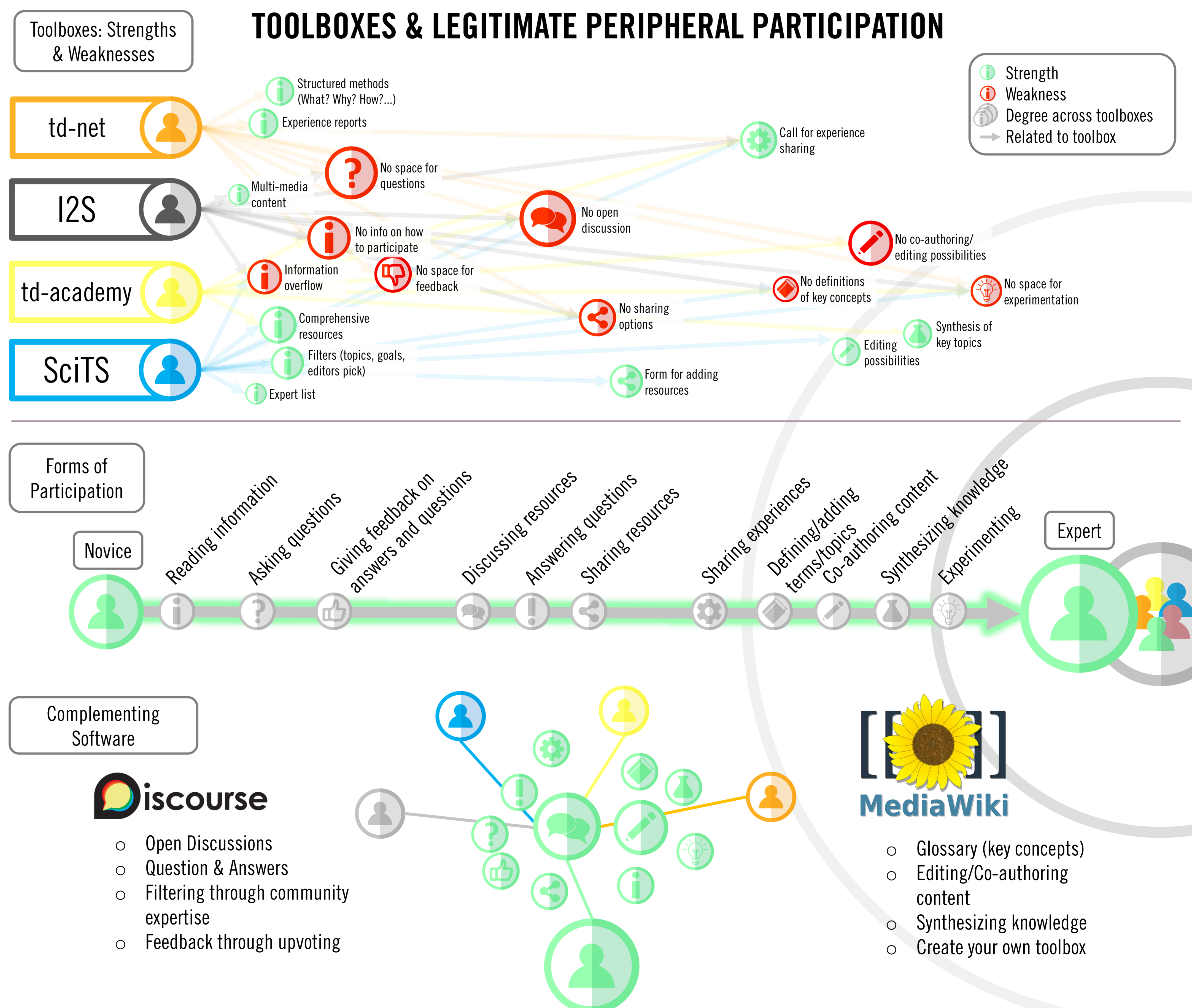
ANALYSIS

Based on their theory, I analysed four exemplary *toolboxes’ strengths & weaknesses*; the td-net’s toolbox for co-producing knowledge¹, the I2S resource repository², the td-academy platform³ and the SciTS toolkit⁴. I looked at different *forms of participation* that people can engage in and how they are represented in the structure of the toolboxes. These forms of participation range from simple reading, to open questions, discussions, to co-authoring content and synthesizing knowledge.

RESULTS & CONCLUSION

The toolboxes mostly reflect a view on learning as internalization (one way communication). While they have their strengths in their comprehensiveness and content structuring elements, they are lacking components that enable/ support increasing forms of participation, i.e. possibilities to ask questions, discuss topics and write about them collaboratively.

Based on the results, I suggest two pieces of *complementing software* that can complement the existing toolboxes and help connect the CoP. A discussion software (“Discourse”⁵) and a wiki-software (“MediaWiki”⁶).



From Situated Learning to Legitimate Peripheral Participation

Lave and Wenger (2002) consider situated learning as “an integral and inseparable aspect of social practice” (p. 31f), that is situated in a historical-cultural context. In this description, they move away from individualist views of learning as an internalization of facts to a more social perspective on learning. From their perspective on situated learning, they then progress to learning as legitimate peripheral participation in Communities of Practice (CoP), pointing out the importance of participation and illustrating the different forms it can take. They describe how participation in practice is shaped by the structuring of resources, how access to them is mediated through artefacts and discursive practice and the effects of participation on identity and change and the tension inherent in all these things.

Feedback Space: Please provide feedback here, this can include recommendations on literature, tools, to general feedback on the poster

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LINKS

¹ https://naturalsciences.ch/topics/co-producing_knowledge

² <https://i2s.anu.edu.au/resources>

³ <https://td-academy.de/>

⁴ <https://www.teamsciencetoolkit.cancer.gov/PublicHome.aspx>

⁵ <https://www.discourse.org/>

⁶ <https://www.mediawiki.org/wiki/MediaWiki>