

Nets and Nodes in the field of Doctoral Education Research

Presentation at the WERA IRN on Doctoral Education
Research

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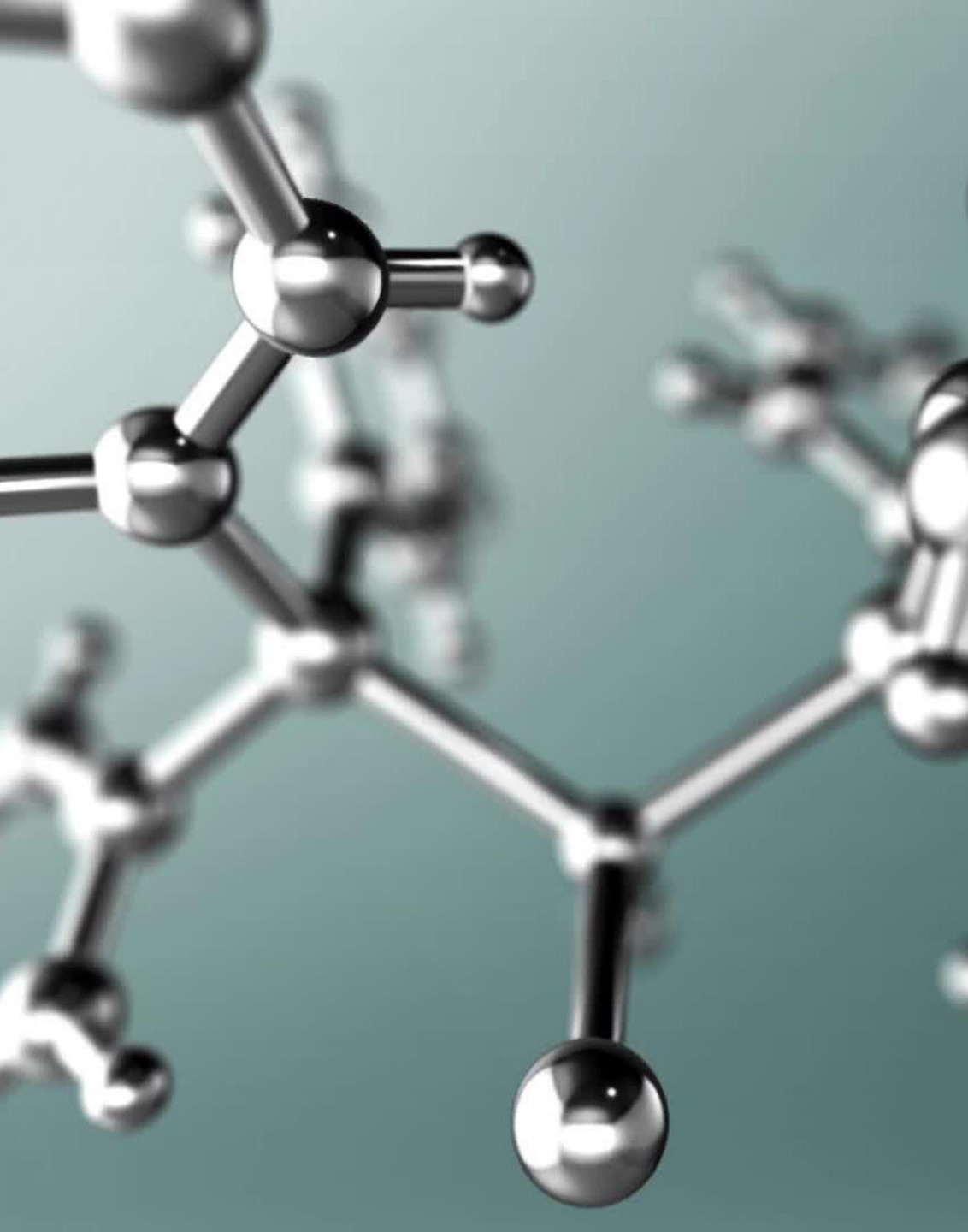
Points of Departure for the IRN

- Our IRN and the making and remaking of doctoral education in educational sciences.
- Focus
 - Doctoral Education according to Thomas Kuhn (1962/70/96) as a way to analyse paradigmatic reproduction and change in the sciences.
 - Content-specific paradigms and Epistemic cultures (Knorr-Cetina; Latour & Wolgar
 - Special interest in analyses of doctoral education in educational sciences.
- Context:
 - Expansion of Higher Education and Research
 - Transitions in higher education and research. From disciplin-fokused Mode1 to problem-fokused Mode2



Questions?

- What does research on doctoral education tell us?
 - What research publications have been produced in the field of research on doctoral research?
 - How is this research organizing itself in nodes and nets?
 - What does this tell us about doctoral education? Considering the design of doctoral education and its task?
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A network theory approach

- Nodes are publications identified by Web of science (N=1360)
- Nets are links between publications in terms of references, keywords, etc., identified by means of VOVviewer
 - Biblographic coupling between publications
 - Co-citation within publications
 - Co-occurrence of keywords etc
- Nets in nodes are analysed as intertextual narratives identifying what e.g. how references are used in the making of plots in publications. A combination of “manual reading” and Chat GPT.

Nets in a Node: Making a research narrative

- *Susan Gardner (2007)* presents a study on socialization of doctoral students (Gardner, S. K. (2007). "I heard it through the grapevine": Doctoral student socialization in chemistry and history. *Higher education*, 54, 723-740.

Narrative:

- The plot is opened by framing an **attrition** crisis in doctoral education, referring to *Lovitts (2001)* and is stating that there is a research gap considering socialisation in doctoral education. It is explaining doctoral socialization via disciplinary cultures and informal networks.



- References are at work in the making of this plot, for instance *Weidman et al. (2001)* supply the socialization framework;



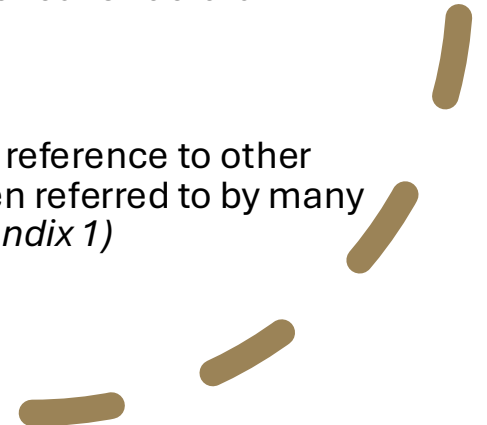
- *Golde (1998/2004)* and *Lovitts (2001)* foreground attrition and ambiguity. *Bogdan & Biklen (2003)* is used in selection of a methodological approach.



- *Bowen & Rudenstine (1992)* and *Berelson (1960)* add historical/structural weight to the conclusion on doctoral socialization.

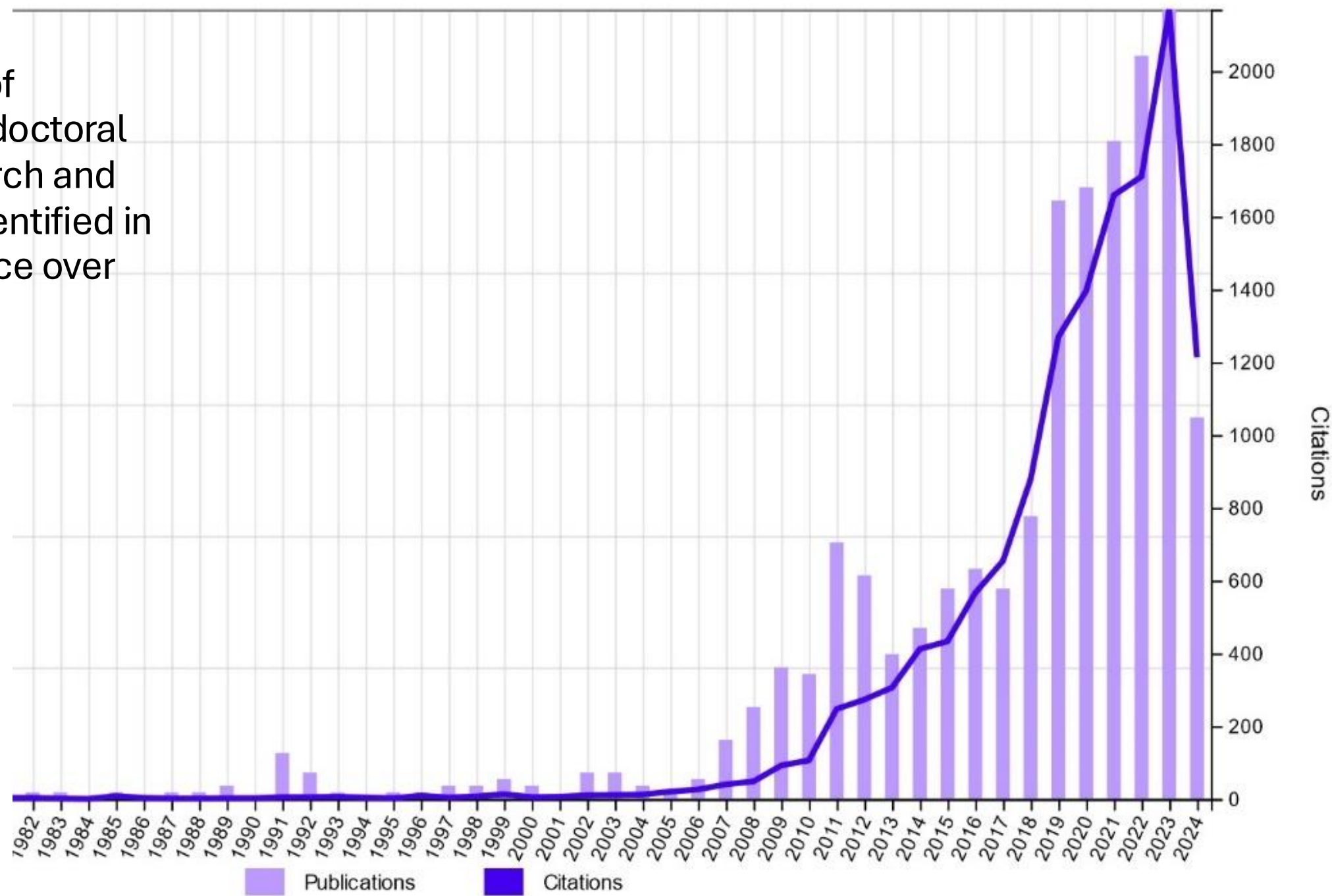


- The narrative is transformed into **recommendations** with reference to other studies such as *Appel & Dahlgren (2003)*. This study is then referred to by many publications. (*An expanded narrative is presented in appendix 1*)



Items: Number of publications on doctoral education research and their citations identified in ISI Web of Science over years.

- (Search Topic “doctoral educ*” or “doctoral train*” in Category Education and Educational Research”

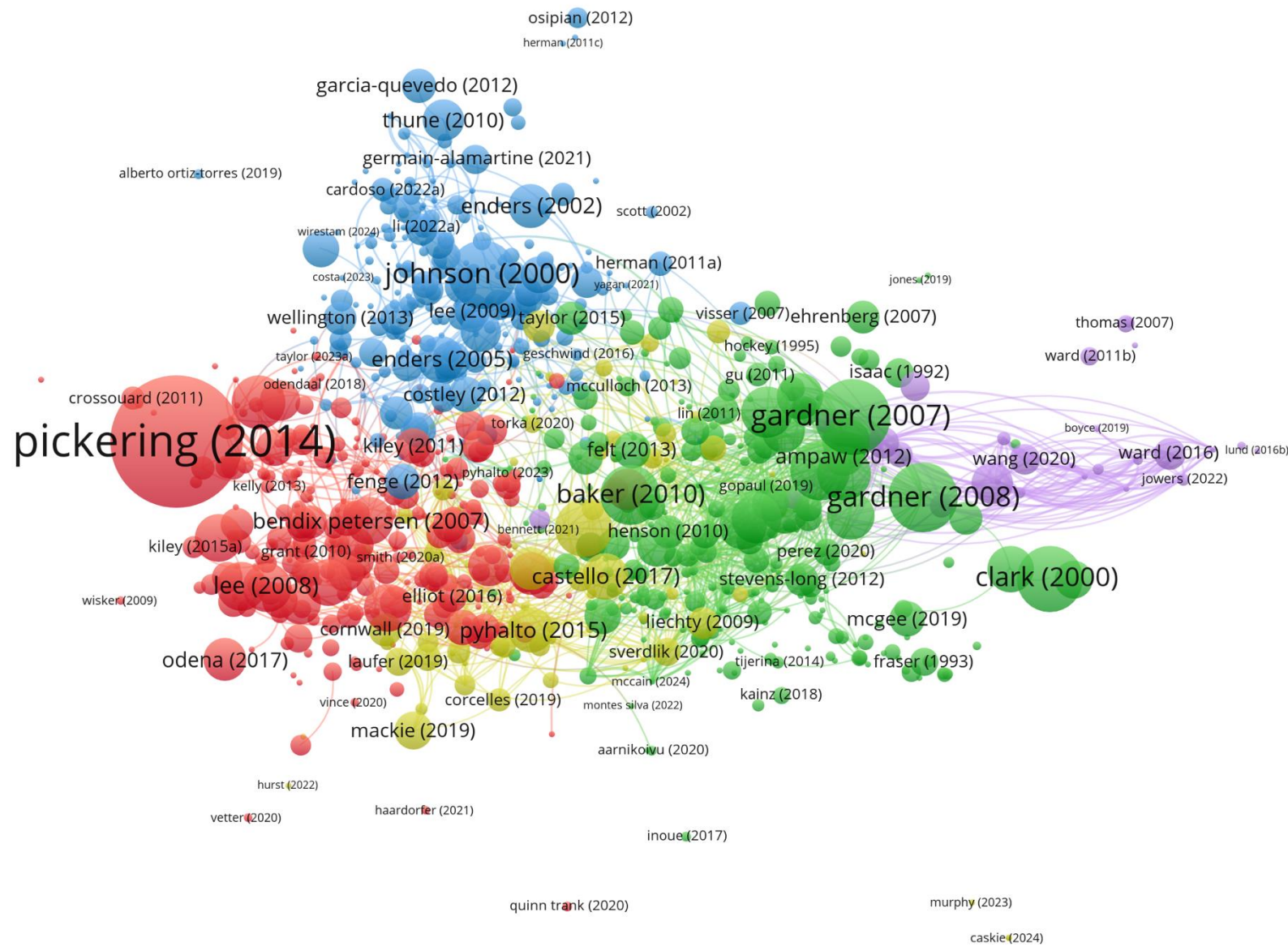


Links: Research fronts in doctoral education research indicated by biographic couplings between publications (N=1360).

Seven clusters derived by Vosviewer cluster analyses.

Explanations:
Colours represent different clusters identified by cluster analyses. Size of nodes is based on number of links.

Distances represent number of links between nodes, where closeness indicates large numbers of links and larger distances indicates fewer links.



Nets in Nodes: Doctoral Education Research Clusters, numbers of items, and reference examples of nodes and links. N= 1360 reduced to 1000 most cited.

Cluster	Items	References
Cluster 1: Pedagogy, identity & critique of the doctorate	260	<p>Example: Johnson, Lee & Green (2000)</p> <p>Focus: gendered/rationalist critiques of supervision and postgraduate pedagogy; the PhD as identity work within power relations.</p> <p>Central: Johnson et al. (2000); Lee (2008/2009) on supervision; Kamler & Thomson (2006) on doctoral writing pedagogy.</p> <p>Bridges: Lee (2009) often links this cluster to both writing/literacies and socialization clusters.</p>
Cluster 2; Methods & research capacity (reviews, writing, outputs)	260	<p>Example: Pickering & Byrne (2014)</p> <p>Focus: systematic reviews, methodological literacies, writing productivity.</p> <p>Central: Pickering & Byrne (2014); Aitchison (2006/2010/2012) and allied “doctoral writing group” work.</p> <p>Bridges: Aitchison (2006) frequently co-travels into identity/socialization (via writing) and into learning environments.</p>
Cluster 3: Socialization, developmental networks & identity formation	162	<p>Example: Baker & Lattuca (2010)</p> <p>Focus: developmental networks; identity development across communities in doctoral study.</p> <p>Central: Baker & Lattuca (2010); Sweitzer (2009); Mantai (2017).</p> <p>Bridges: Baker & Lattuca (2010) often connects socialization with communities of practice/learning environments.</p>
Cluster 4: Well-being and mental health in doctoral education	118	<p>Example: Mackie & Bates (2018)</p> <p>Focus: the doctoral environment’s contribution to stress, anxiety, and mental health.</p> <p>Central: Mackie & Bates (2018); Levecque et al. (2017).</p> <p>Bridges: Levecque (2017) links well-being to policy/governance and socialization discussions.</p>
Cluster 5: Communities of practice & learning environments	87	<p>Example: Pyhältö, Stubb & Lonka (2009)</p> <p>Focus: doctoral learning as participation in scholarly communities; motivational/relational climate.</p> <p>Central: Pyhältö et al. (2009); Stubb et al. (2011/2012); Mainhard et al. (2009).</p> <p>Bridges: Pyhältö/Stubb/Lonka papers connect learning environments with well-being and supervision.</p>
Cluster 6: Doctoral socialization & attrition	85	<p>Example: Gardner (2007)</p> <p>Focus: departmental cultures, progression, and leaving/finishing narratives.</p> <p>Central: Gardner (2007/2008/2010); Golde (2005); Lovitts (2001).</p> <p>Bridges: Golde (2005) and Lovitts (2001) cross-cluster “classics,” linking socialization to policy/structures and well-being.</p>
Cluster 7: Discipline-specific professional	28	<p>Casey, A., & Fletcher, T. (2012). Trading Places: From Physical Education Teachers to Teacher Educators. <i>Journal of Teaching in Physical Education</i>, 31(4), 362-380.</p>

Problems identified by ChatGPT using keywords in Doctoral Education Research Publications identified in Web of Science. Numbers and percent.

Problem (primary)	Items	Percent of all items
Supervision/advising challenges & misaligned expectations	323	24
Career-training mismatch & non-academic transitions	249	18
Unclassified*	201	15
Writing & scholarly communication hurdles	142	10
Equity, inclusion & role-related barriers	129	10
Attrition, intention to quit & time-to-degree	76	6
Well-being & mental health strains	43	3
Underuse/transfer of skills & tacit knowledge	41	3
Professional doctorates: status, structure & support gaps	38	3
Employment quality & conditions during the PhD	37	3
Need for broader professional development (PD)	28	2
Preparedness & employability perceptions	22	2
Stage-specific process bottlenecks	16	1
Pandemic-era supervision & progress problems	15	1
Total:	1360	101



Conclusions:

- Identifications of research publications carried out. Resulted in seven networks with their central publications as nodes
- Analyses of identified different networks with their central nodes and bridging links were presented.
- Much research on doctoral education actors and their difficulties.
- Little of research on paradigmatic change in disciplines or research fields
- Our questions point to a research gap – how to deal with it?

Thanks a lot for
networking!

