Implicit teaching
and
teacher-student-knowledge-technologies
relationship

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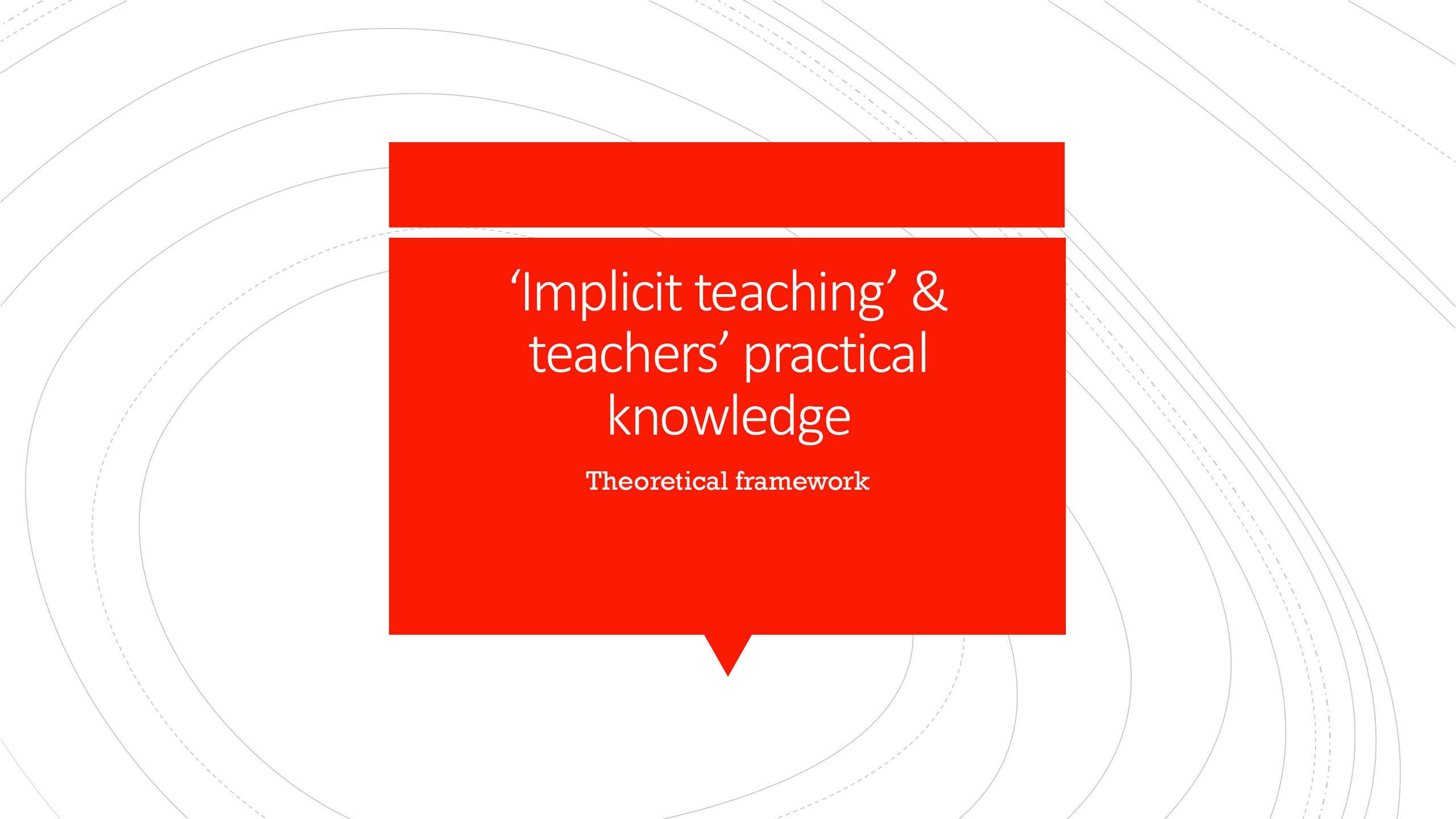
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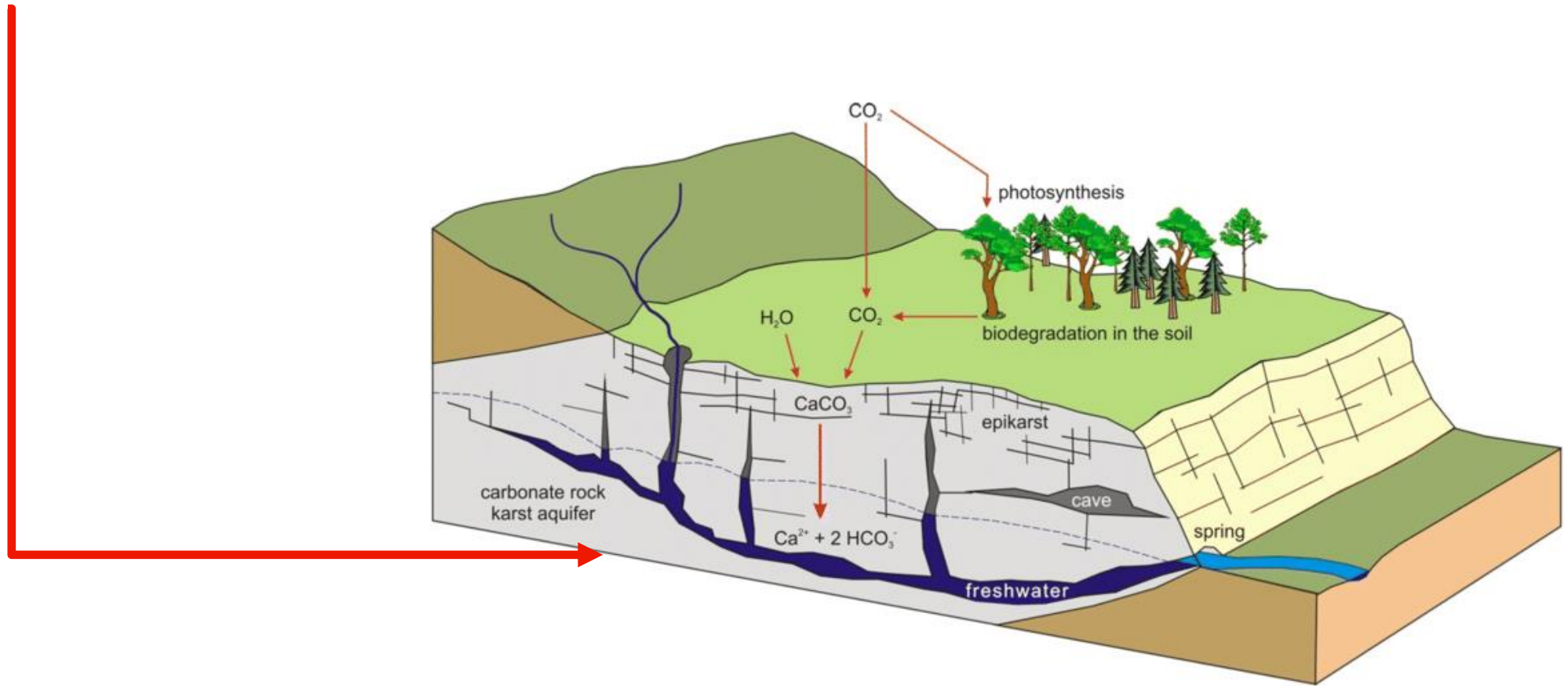
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IMPLICIT TEACHING AS 'KARST PROCESS'

Laneve, 1993; Perla, 2010

Implicit teaching

Perla (2010)*:

- hidden dimension of practical knowledge, 'knowledge-in-action', knowledge *of* practice (didacticized) and knowledge *about* practice (know-how, experience, action) (Perla, 2010, p. 32)

- 'topoi'

  - organizing (organizational culture of the school)

  - internal ('variables strictly dependent on the subjectivity of the teacher')

References: teacher's knowledge (Altet, 2006), tacit knowledge (Polany, 1962-1990), teacher's thought (Albaz, 1983; Connelly and Clandinin, 2001)

Topics of the implicit of the practical knowledge

Perla (2010, p. 61)*:

- **Organizing Topoi**
  - Implicit Grammar of Classroom Communication
  - Shadow of 'Power'
  - Unwritten Memory of the Institution
  - Informal Habits of Classroom Work
  - Latency of Professional Gestures

- **Internal Topoi**
  - Naive Epistemologies of Teaching
  - Unspoken Words
  - Biographical Memories
  - Place of the Body in the Classroom
  - Affective Scripts
  - Certainties
  - Gender Implicit
  - Undeclared Discomfort
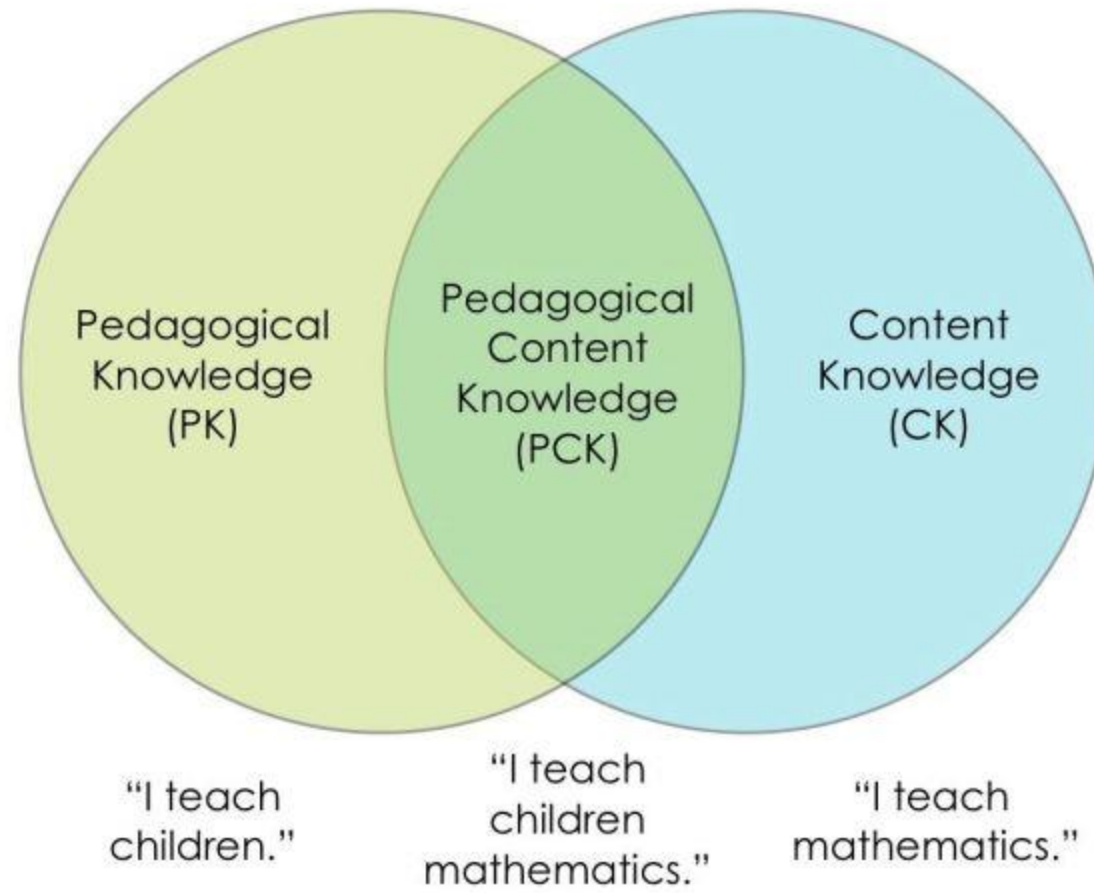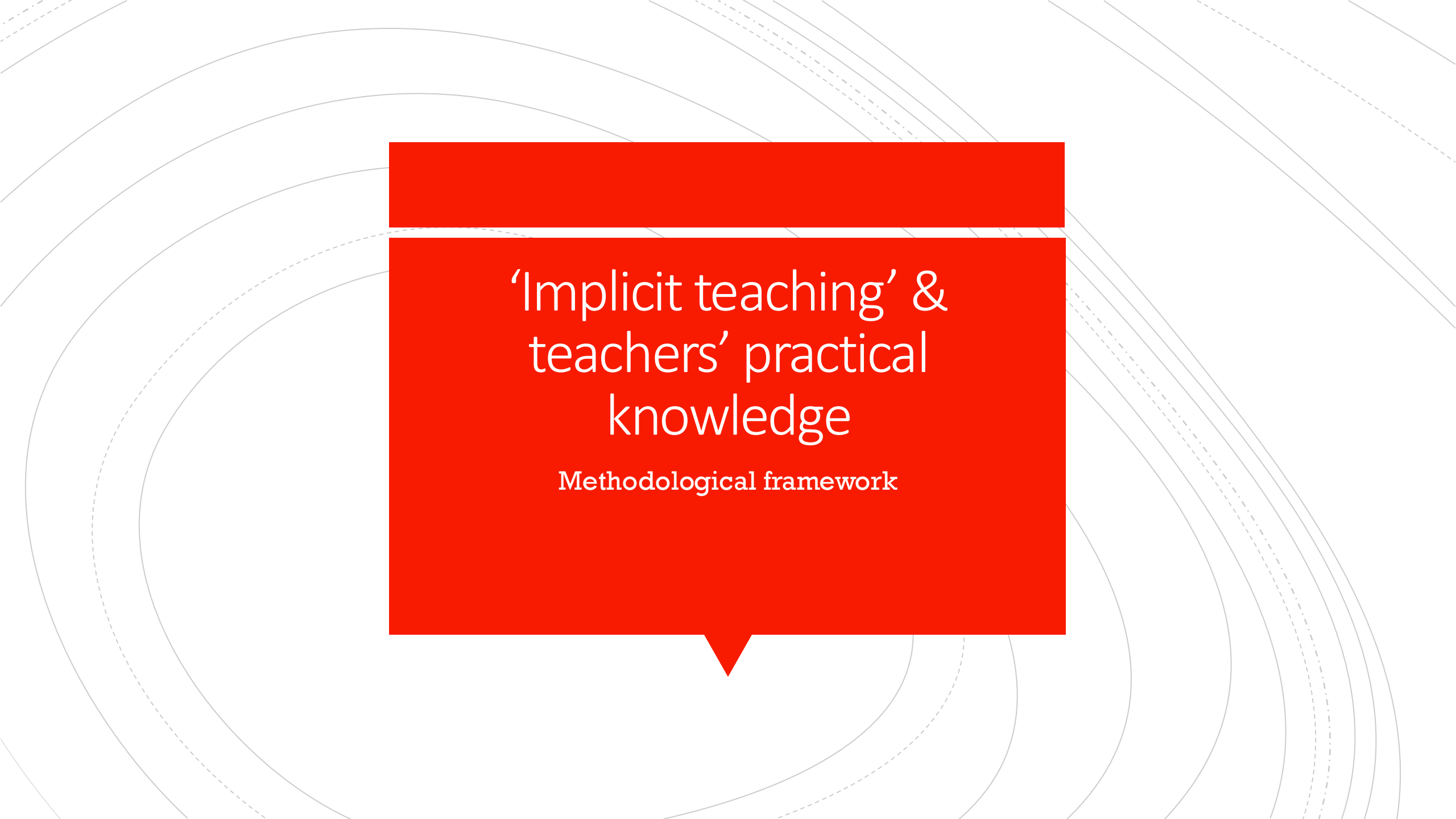
IMPLICIT TEACHING &WISDOM

Teaching *wisdom*

Practical WISDOM (*phronesis*) - ARISTOTELE

- practical reasoning that investigates what we can change and aims at making good chices – expressed in deliberation

- 'a true and reasoned state or capacity to act with regard to the things that are good and bad for man' (The Nicomachean Ethics, IV)

Teaching WISDOM – L. SHULMAN

- classroom teaching "is perhaps the most complex, most challenging, and most demanding, subtle, nuanced, and frightening activity that our species has ever invented"

- the only time medicine ever approaches the complexity of an average day for a classroom teacher is in an emergency room during a natural disaster (p. 504)

Shulman, 2004; Kinsella & Pitman, 2012; Thomasian, 2007

Pedagogical Knowledge (PK)

Pedagogical Content Knowledge (PCK)

Content Knowledge (CK)

"I teach children."

"I teach children mathematics."

"I teach mathematics."

Shulman, 2004

'Implicit teaching' & teachers' practical knowledge

Methodological framework

Methods, practices and tools of investigation

OBSERVATIONS and VIDEO-OBSERVATION

- Gestures, actions, etc.
- Problem solving methods
- Case and activity reconstruction
- Etc.

NARRATIVES

- Auto-biography and Co-biography
- Reconstruction of the experience after the fact
- Etc.

Perla, 2010, p. 137-138

'Implicit teaching', practical knowledge, technologies

CONSIDERATIONS

**Teaching *wisdom*
with technologies**

Teaching WISDOM with technologies

- ‘is not entirely separate indicating the intersectionality of each area’

- ‘demonstrate professional knowledge of technology’ (Koehler, Mishra, 2009).

Teaching WISDOM with technologies

- It is the ability to ’incorporate and integrate technologies into a series of teaching actions as disign, evaluate, manage, integrate, create, communicate’ (Perla, Agrati, Vinci, 2019, p. 14)

Koehler, Mishra, 2009; Perla, Agrati, Vinci, 2019
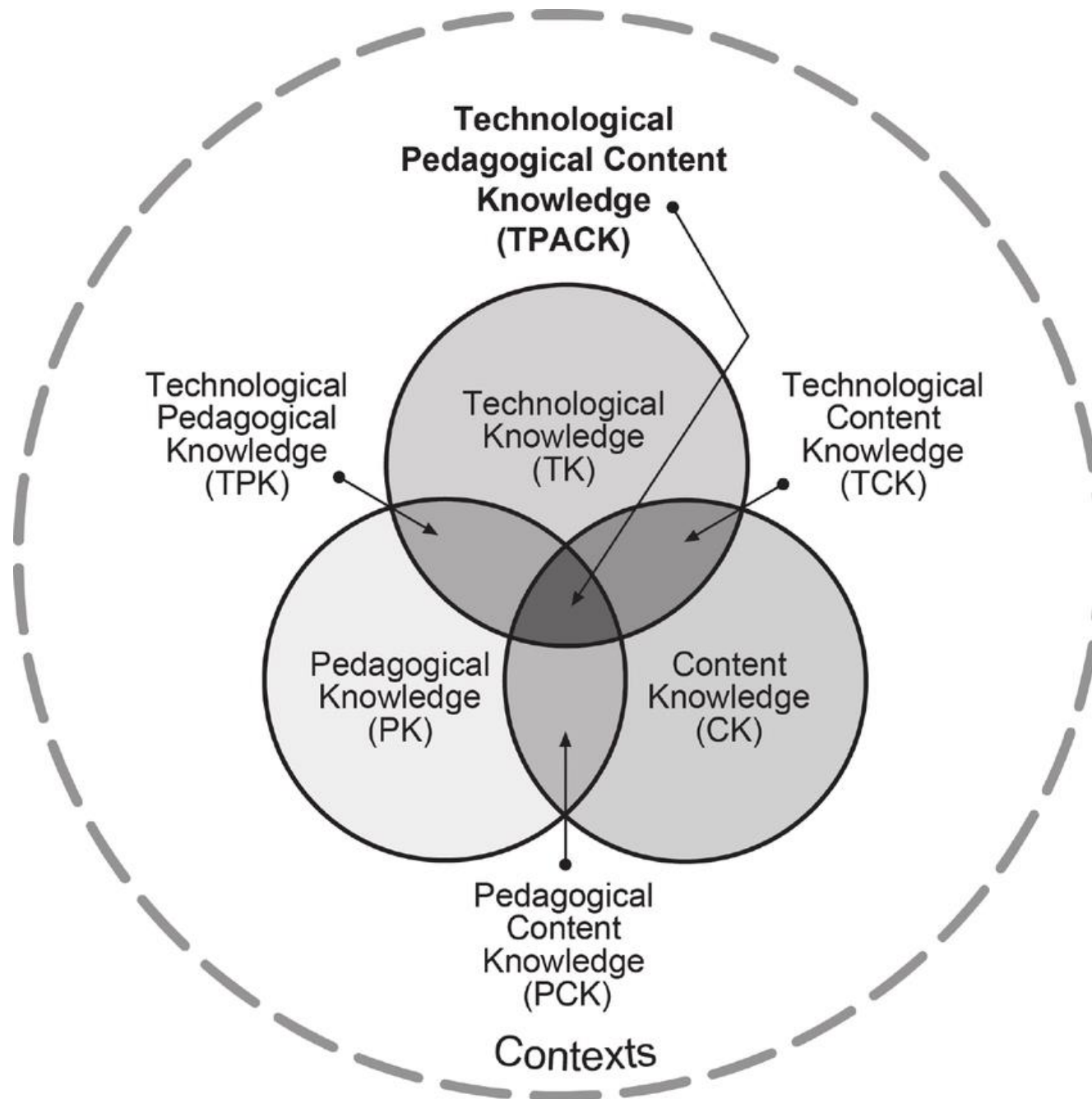
Koehler, Mishra, 2009;
Perla, Agrati, Vinci, 2019

Artificial *wisdom*

Artificial WISDOM (*phronesis*)

- 'ability to think creatively, artfully, and effectively in solving novel ethical and moral problems as they arise'

- 'machines with ethical and moral practical wisdom, a capability we will call artificial phronesis' (Sullins, 2021, p. 78)

- 'artificial intelligence reaching the top-level of decision-making when confronted with the most complex challenging situations' (Phillips-Wren, 2008)

Phillips-Wren, 2008; Sullins, 2021; Perrotta & Selwyn, 2019; Agrati, 2024

'Implicit teaching', practical knowledge, technologies

OUR INVESTIGATION

Post-teaching and professional learning. An investigation on teachers attitudes towards AI

L. Perla[a], L.S. Agrati[b], A. Beri [c] - Università di Bari; Università Telematica Pegaso, Università di Bergamo

- OBJECT – relation personal factors (age, duration of previous training in the technological field) and teachers' attitudes (usefulness/risk, trust/resignation) towards AI
- AIM- implications for professional learning
- No. 177 teachers (woman, 45 year, 5 length of service)
- HOW - survey, 'ad hoc' questionnaire, descriptive-correlational statistic analysis

Characteristic	Answers	N. (Tot. 177)	% (Tot. 100%)
Gender	F	159	89,8 %
	M	16	9 %
	other	2	1,1 %
Age (*years*)	20-25	0	0 %
	26-30	3	1,7 %
	31-35	13	7,3 %
	36-40	20	11,3 %
	41-50	89	50,3 %
	51-60	52	29,4%
	61-70	0	0 %
Qualification	Achieved	120	67,8 %
	To be achieved	57	32,2 %
Length of service (*years*)	Da 0 a 1	59	33,3%
	Da 2 a 5	71	40,1%
	Da 6 a 10	35	19,7%
	Over 10	12	6,7%

Table 1. Socio-professional characteristics, n. and % of responses.

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Questions (Q)	μ	σ
age (Q2)	45,9	7,05
use in planning phase (Q6)	1,7 (scale 1-4)	0,9
use in instructional phase (Q7)	1,7 (scale 1-4)	0,9
use in evaluation phase (Q8)	1,5 (scale 1-4)	0,8
perception of usefulness (Q14)	3,7 (scale 1-5)	1,07
sense of trust (Q15)	2,7 (scale 1-5)	1,05
risk perception (Q16)	1,4 (scale 0-2)	0,6
sense of resignation (Q17)	0,7 (scale 0-2)	0,6
duration (digital training) (Q19)	35,6 (hours)	32,6
usefulness in writing (Q24)	3,1 (scale 1-5)	1,3
usefulness in translating (Q25)	3,4 (scale 1-5)	1,2
usefulness in creating images (Q26)	3,6 (scale 1-5)	1,3

Table 4. Means (μ) and standard deviations (σ)

Questions (Q)	age (Q2) ρ	duration (digital training) (Q19) P
perception of usefulness (D14)	-0,04	0,13
sense of trust (D15)	0,02	0,07
risk perception (D16)	-0,05	-0,1
sense of resignation (D17)	-0,17	-0,06

Table 5. Correlation (ρ) between Q2/Q19 and QQ 14, 15, 15, 17.

FIRST RESULTS
(description)
- **in general, if questioned in general, caution and cold trust emerge, ambivalence between risks and benefits;**
- **if questioned about help with respect to concrete actions (evaluation, changes to teaching resources), high expectations emerge**

(inferential)
- low relationship between attitudes and age;
- low relationship between attitudes and duration of training

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CONSIDERATIONS
- strong need for support in concrete practices prevails over fears of not understanding (darkness) of AI
- perspective of '**cruel optimism**' (saving and toxic relationship) (Bassett, 2023)
- strong investment in knowledge of AI, in its use in teaching + support in bureaucratic work

Bassett, C., 2023. The Cruel Optimism of Technological Dreams. *In*: E. Browne, S. Cave, E. Drage, and K. McInerney (eds.). *Feminist AI*. Oxford University Press - DOI: 10.1093/oso/9780192889898.003.0015. Nazaretsky, T., Ariely, M., Cukurova, M. and Alexandron, G. 2022b. Teachers' trust in AI-powered educational technology and a professional development program to improve it. British Journal of Educational Technology, Vol. 53, No. 4. Hoboken, NJ, Wiley, pp. 914-931.

Some final considerations

Implicit and professionalization of teachers

The implicit is **deep**:

- it must be understood through appropriate theoretical frameworks and tools

The implicit is **alive:**

- it must be known and acted upon with individual/collective conscious actions

The implicit is **changeable**:

- in the professionalization process, the teacher learns to change and manage e.g. prejudices in a way that is useful for complex situations.

Open issues

- How to train teachers in initial training in implicit teaching?

- How to train trainers?

- How to train researchers?

- Etc.

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for listening and attention

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