

Continuous Professional Development in Science Education: A Reconceptualisation

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Concerns regarding the teaching and learning of primary science.

Teachers' lack of content knowledge

Insufficient levels of pedagogical knowledge

Low levels of confidence

Difficulties with constructivist approach

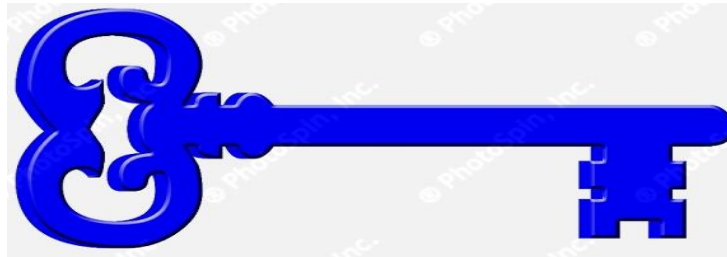
Infrequent engagement with Inquiry Based Science Education

Overreliance on traditional, didactic approaches

Declining pupil interest and attitudes towards science

**Concerns regarding the teaching and learning
of primary science.**

Teacher Professional Development



Hazelkorn, 2015; Martin, Mullis, Foy, & Hooper, 2016; Murphy, Murphy, & Kilfeather, 2011; PISA, 2015; Varely, Murphy, & Veale, 2008.

Teacher Professional Development is a **personal**, **professional** and **social** process through which “teachers review, renew and extend” their teaching, and develop and acquire new knowledge and skills (Day, 1999, p. 4).



“The principal had invited me to present a workshop on inquiry-based science education; my first experience of PD as teacher educator. I enthusiastically presented and modelled inquiry-based pedagogy through the use of hands-on and on activities to teachers who clicked busily on their laptops finishing their Cuntas Miosúils, preparing lessons for the next day and online shopping. I felt extremely frustrated and frustrated with their level of engagement or lack thereof. Why was I not working? I was, to my mind, demonstrating best practice in a practical, engaging way. I had prepared resources and planned the programme, balancing theory with practice. Why was nobody interested? Did they not care about improving their own practice or were they just lazy? Didn't the principal tell them that this is important? Perhaps it doesn't work...”

Lack of motivation

Demoralised

Non-engagement

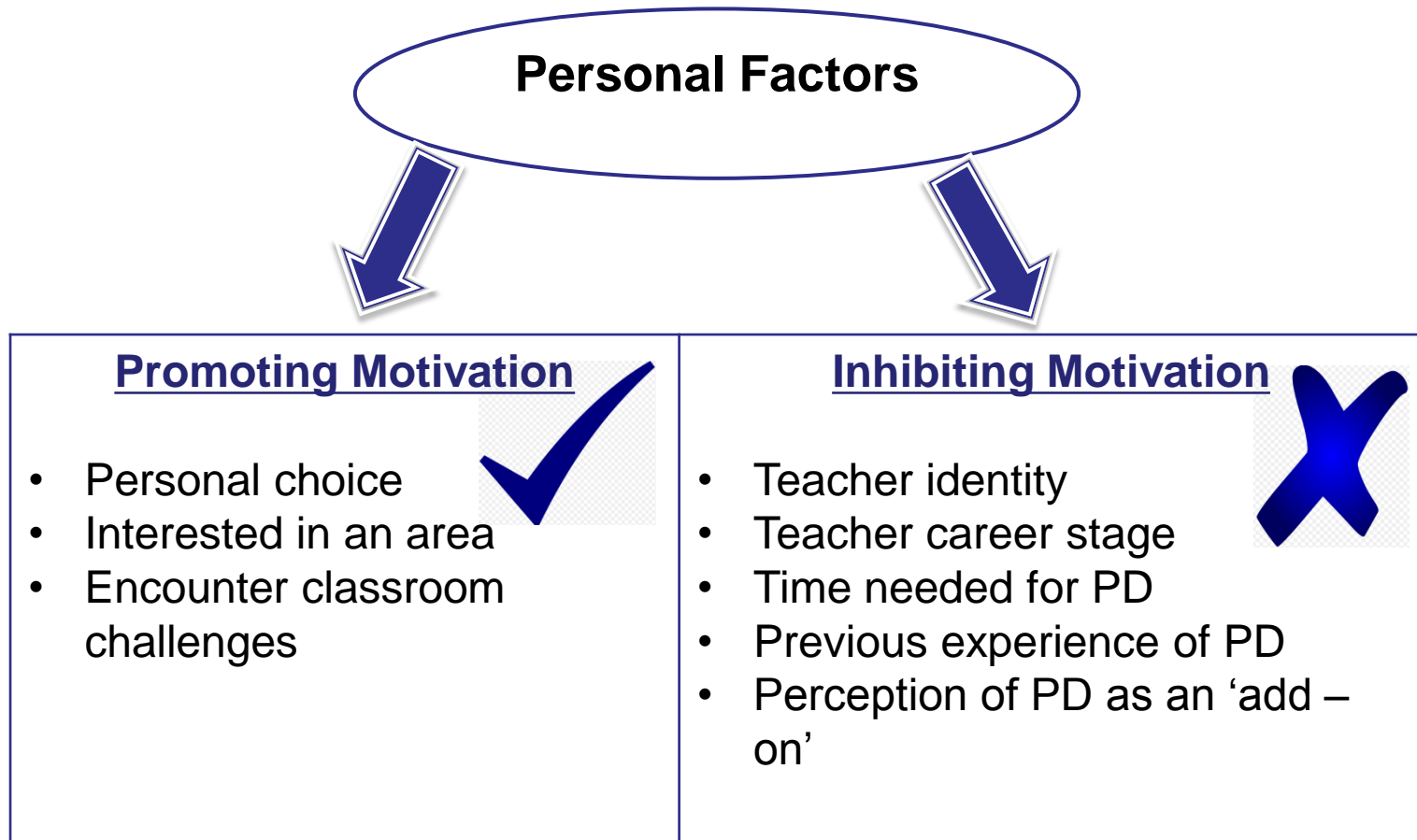
Deflated

Uninterested

Negativism

Written narratives enable us to construct and reconstruct experiences to make more sense of them (Day & Leitch, 2001; Usher 2017).

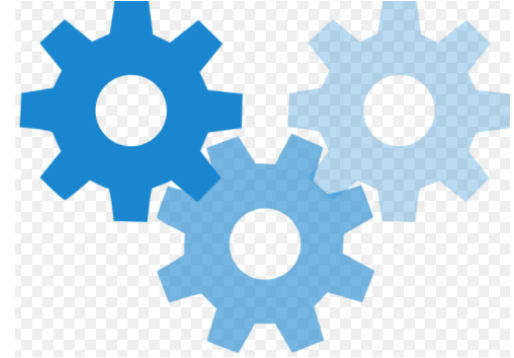
“It is only possible to suggest what an event means if we know what the event was (i.e. if we have described it)”.(Tripp, 2012, p.25).



Callan, 1997; Malone & Smith, 2010; O' Brien & Furlong, 2016; Surgrue, Morgan, Devine, & Rafferty, 2001; Earley & Bubb 2004; Fraser et al. 2007; McMillan, Walsh, Gray, Hanna, Carville, & McCracken, 2012; McMillan et al., 2016; Rose & Reynolds, 2006; TCI 2011.

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School Factors

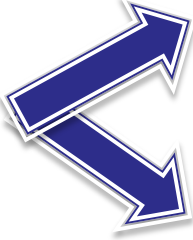


- Positive school culture
- Collaborative approach to Professional Development (PD)
- Supportive school management

Common commitment to examining and improving practice

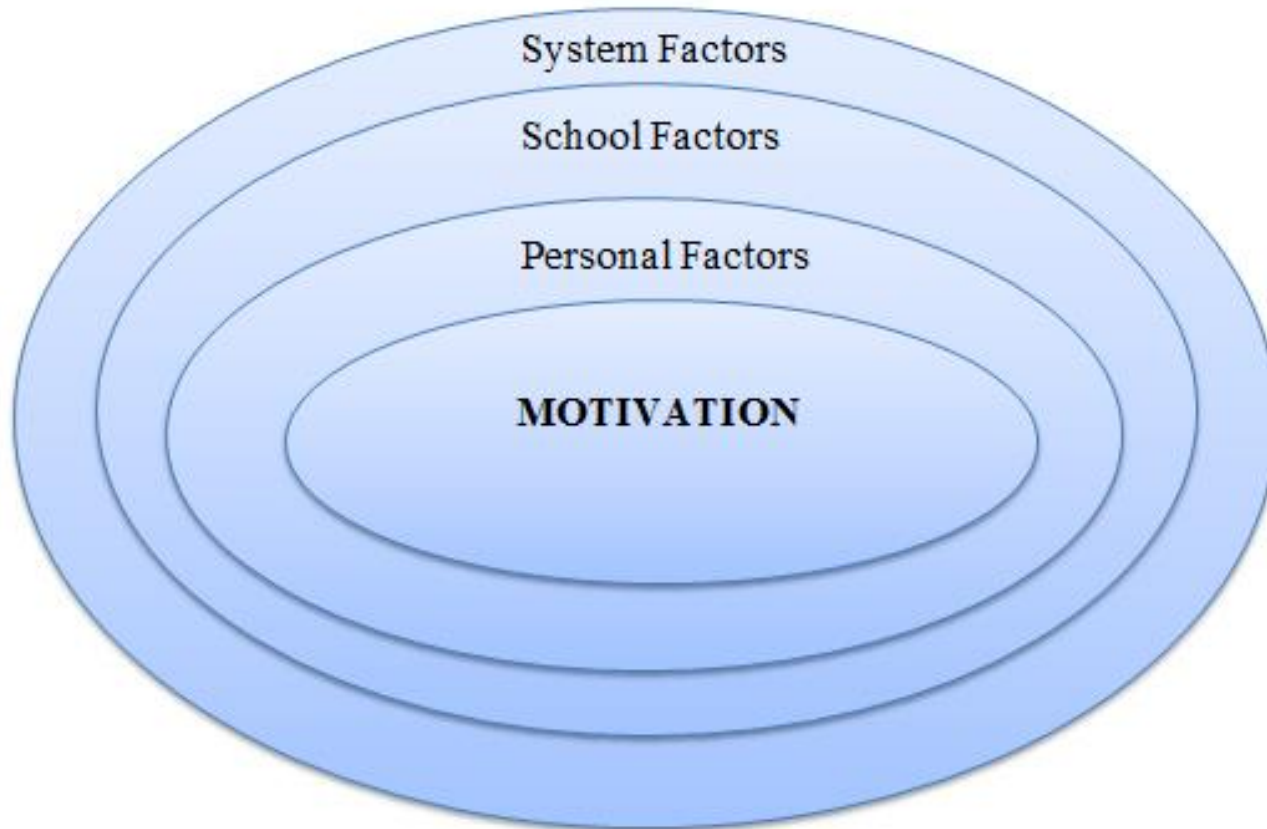
Guskey, 2000; Hawley & Valli, 1999; McMillan et al., 2012; McMillan et al., 2016; OECD, 2010

System Factors

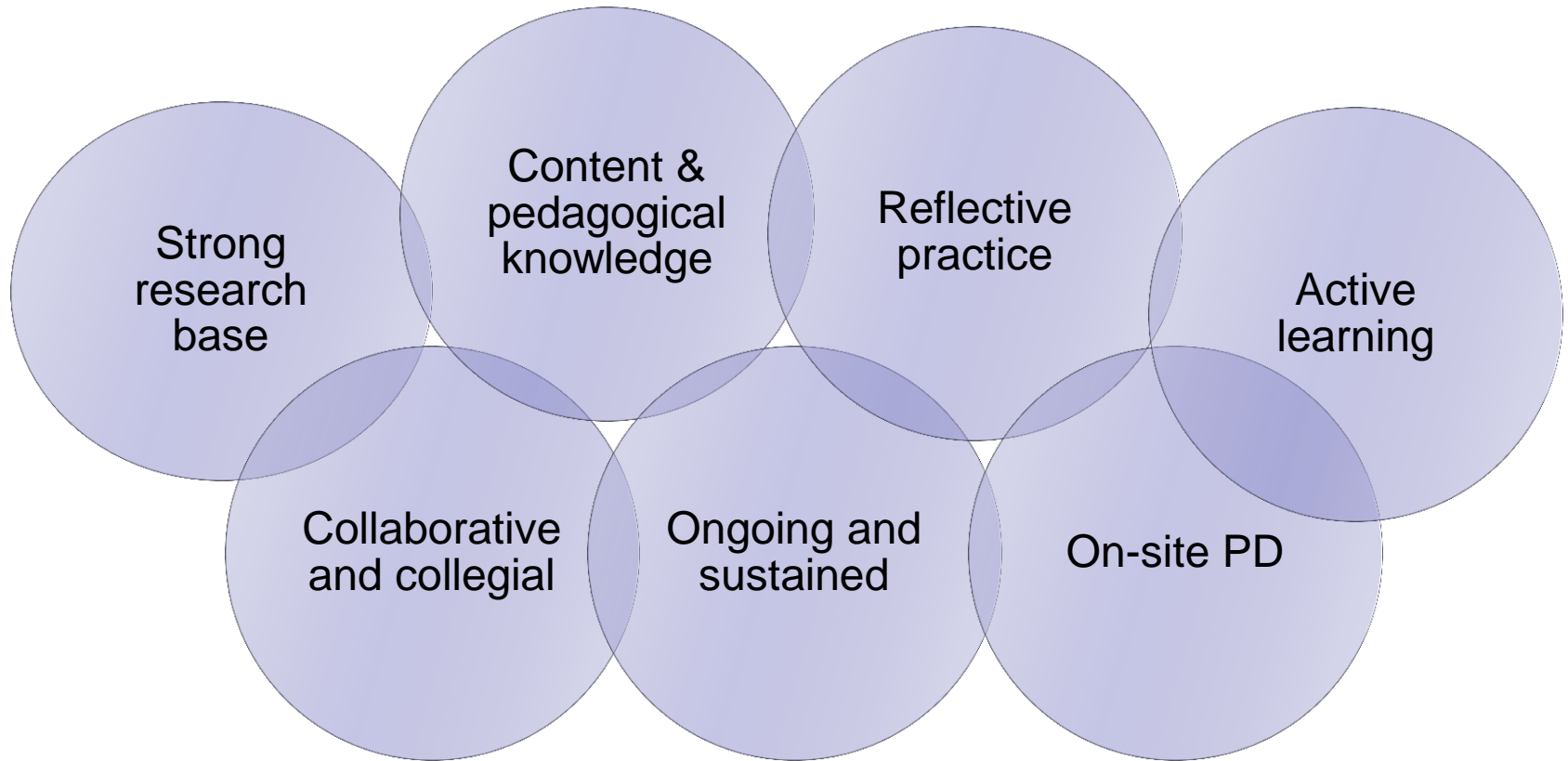
- Compulsory PD  accreditation
 - Priority PD
 - PD Framework
- accountability



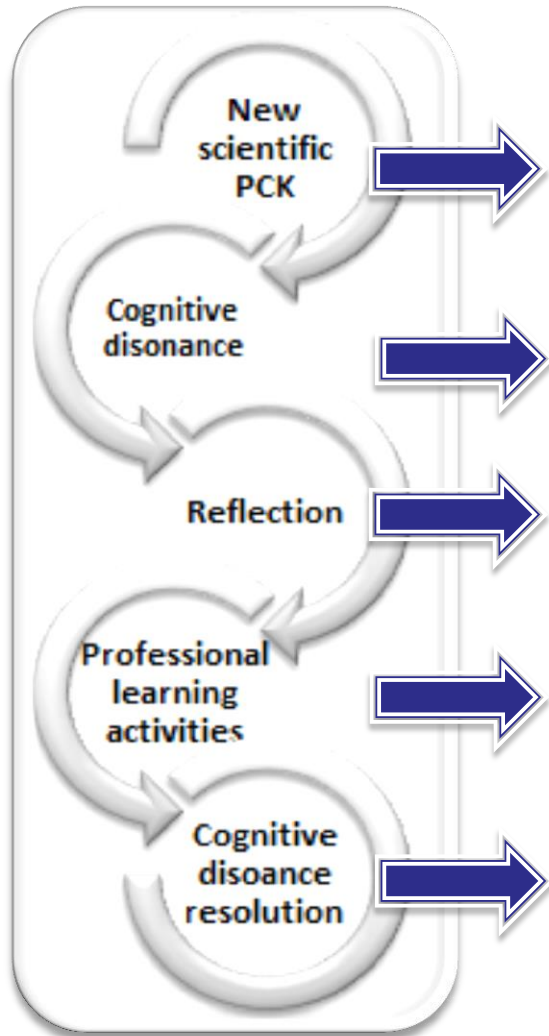
O' Sullivan et al., 2011; Ryan & Deci, 2000; Shieb & Karabenick, 2011



Banks & Smyth, 2013; Sandholtz & Ringstaff, 2016



Garet et al., 2001; Guskey, 2002; Smith, 2014; Murphy et al., 2015



Shulman's Pedagogical Content Knowledge (1986)

Compare current practice with new experience (Piaget, 1972)

Deep change to classroom practice (Gash & McCloughlin, 2010).

Support teachers as they implement new approaches in different contexts (Kennedy, 2014)

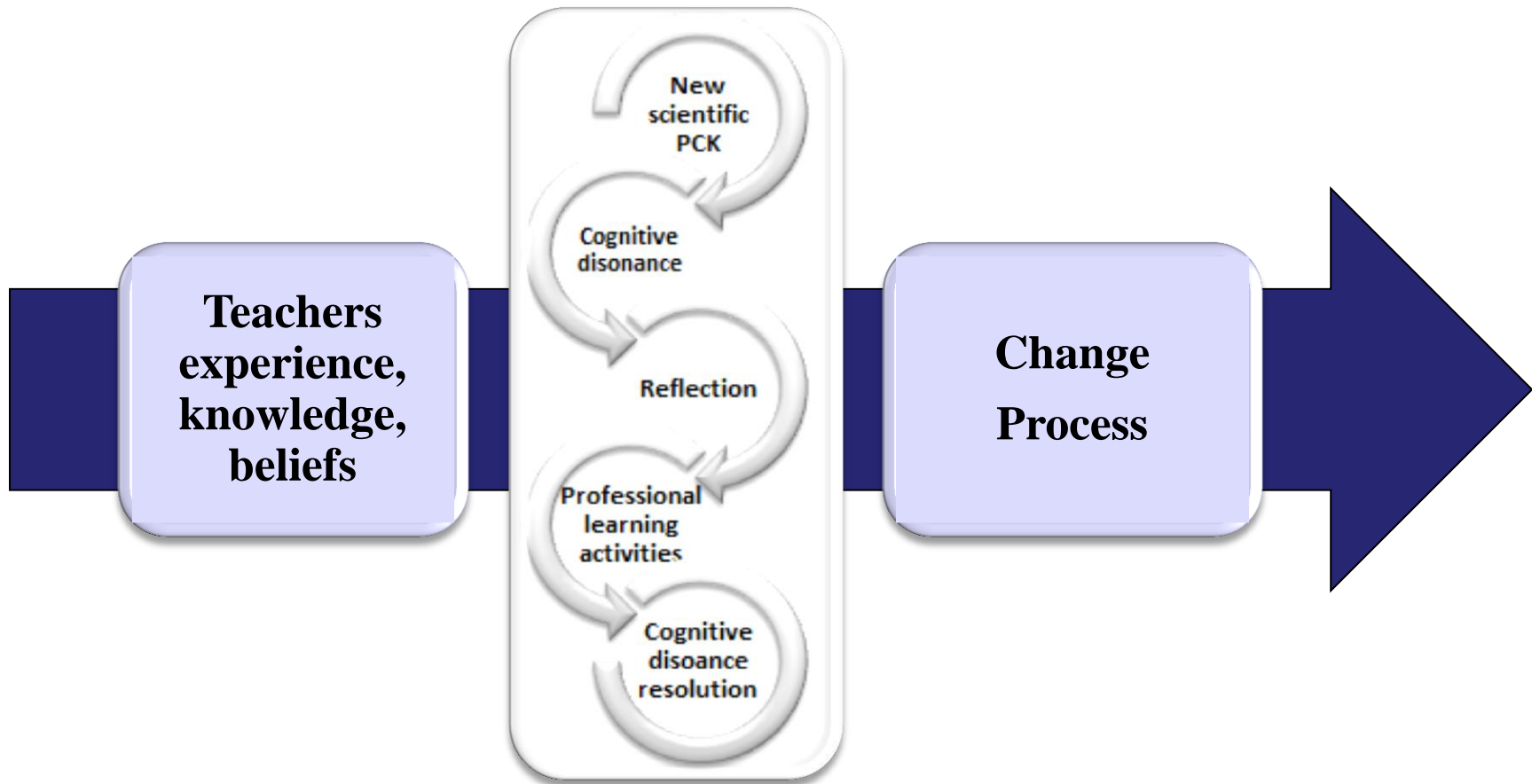
Transformation to classroom practice (Kennedy & Shiel, 2010)

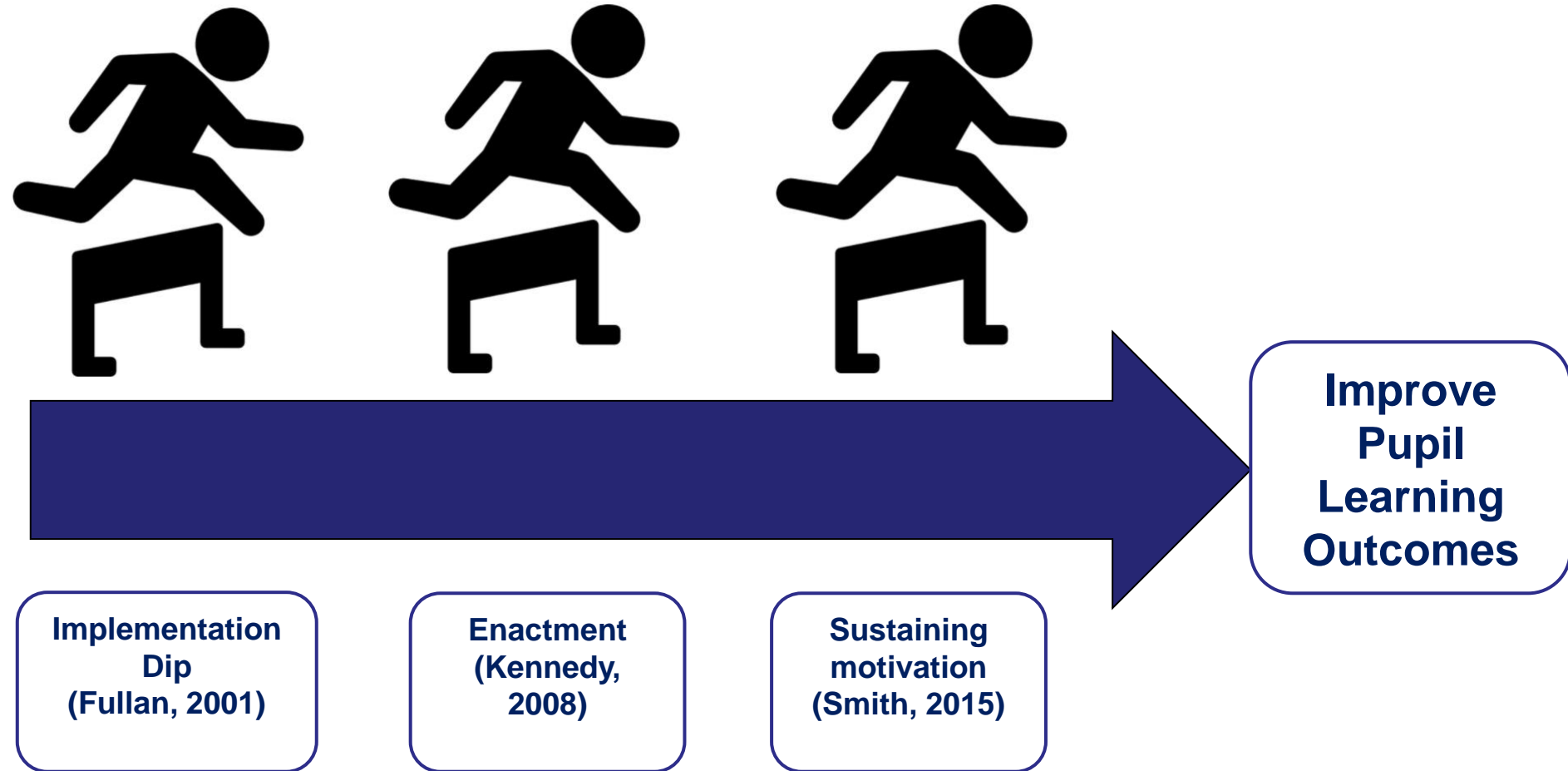
Inhibiting Factors

Time

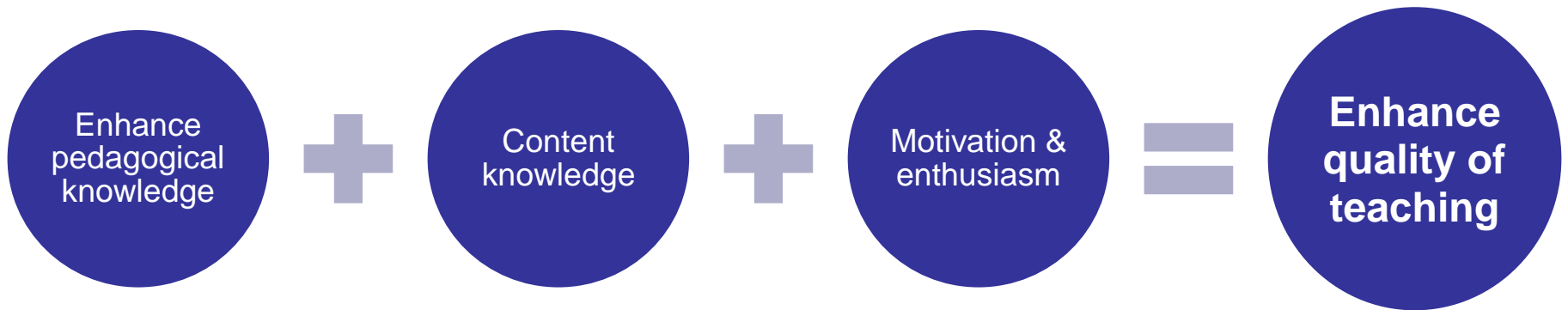
Collaborative, collegial relationships

School culture

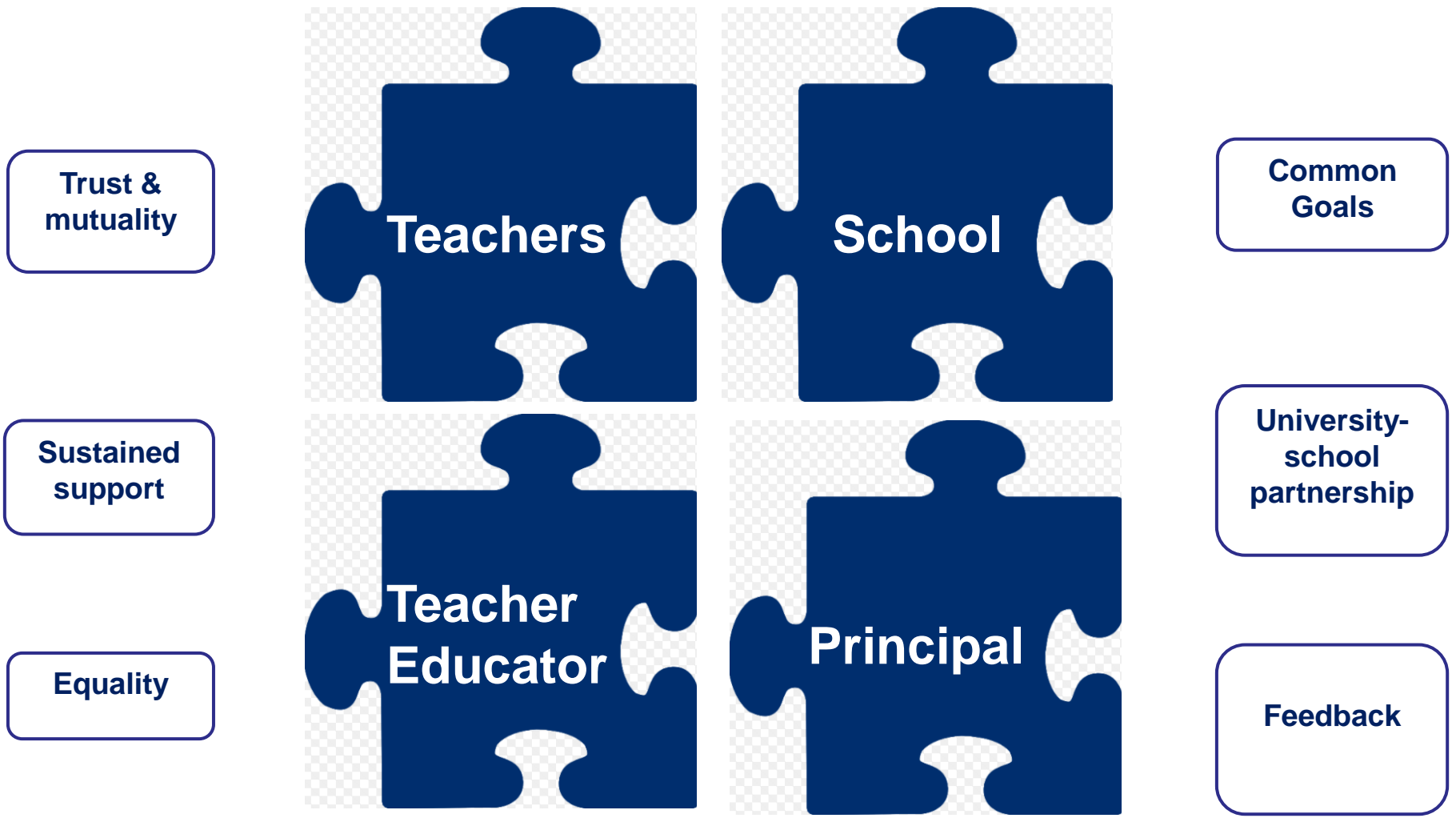




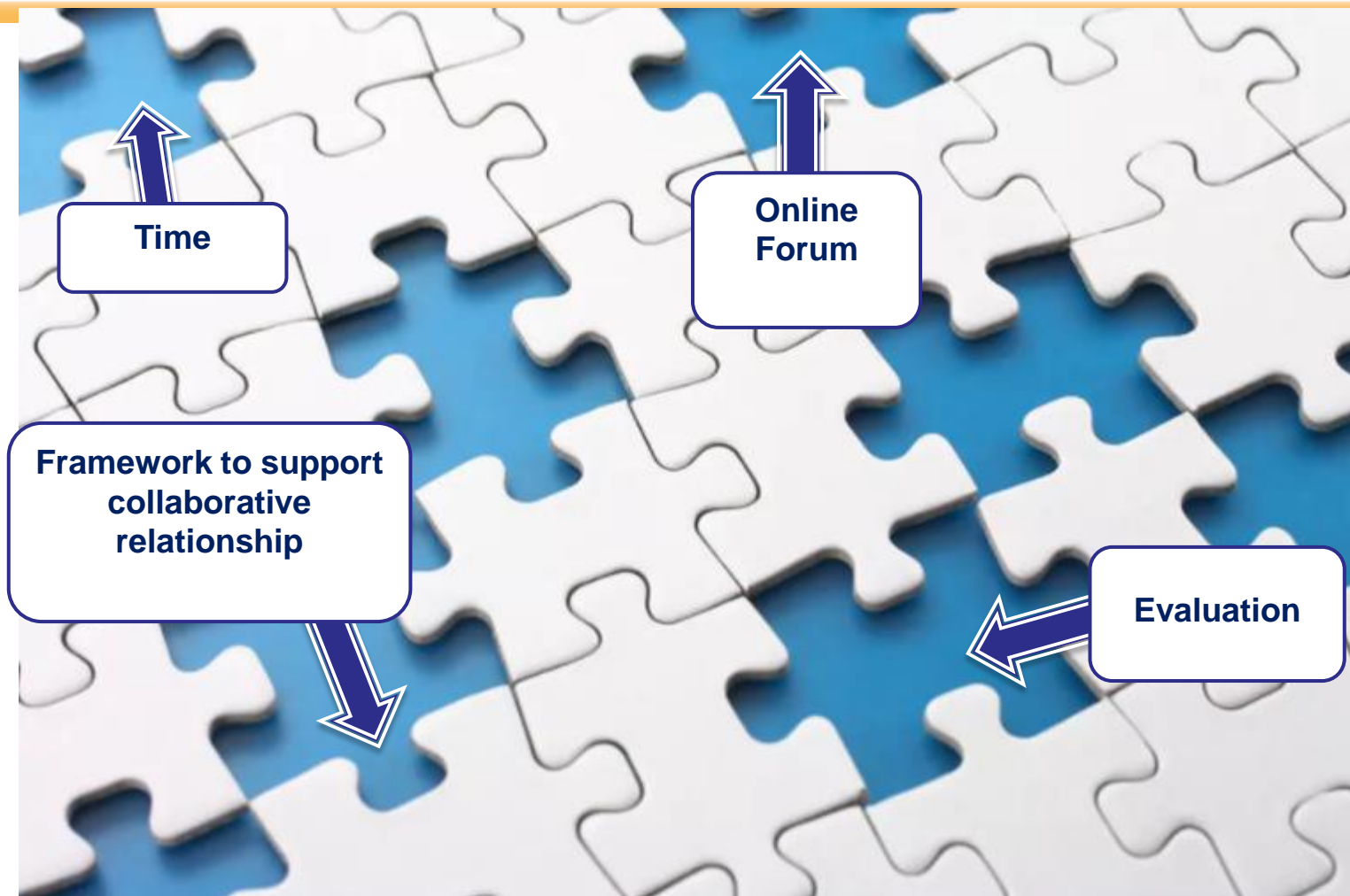
Stoll et al. (p.6, 2006) define a ‘professional learning community’ as a school in which “an inclusive group of people are motivated by a shared learning vision, support and work with each other, find ways inside and outside their immediate community to enquire into their own practice, and together learn new and better approaches that will enhance all pupils’ learning”



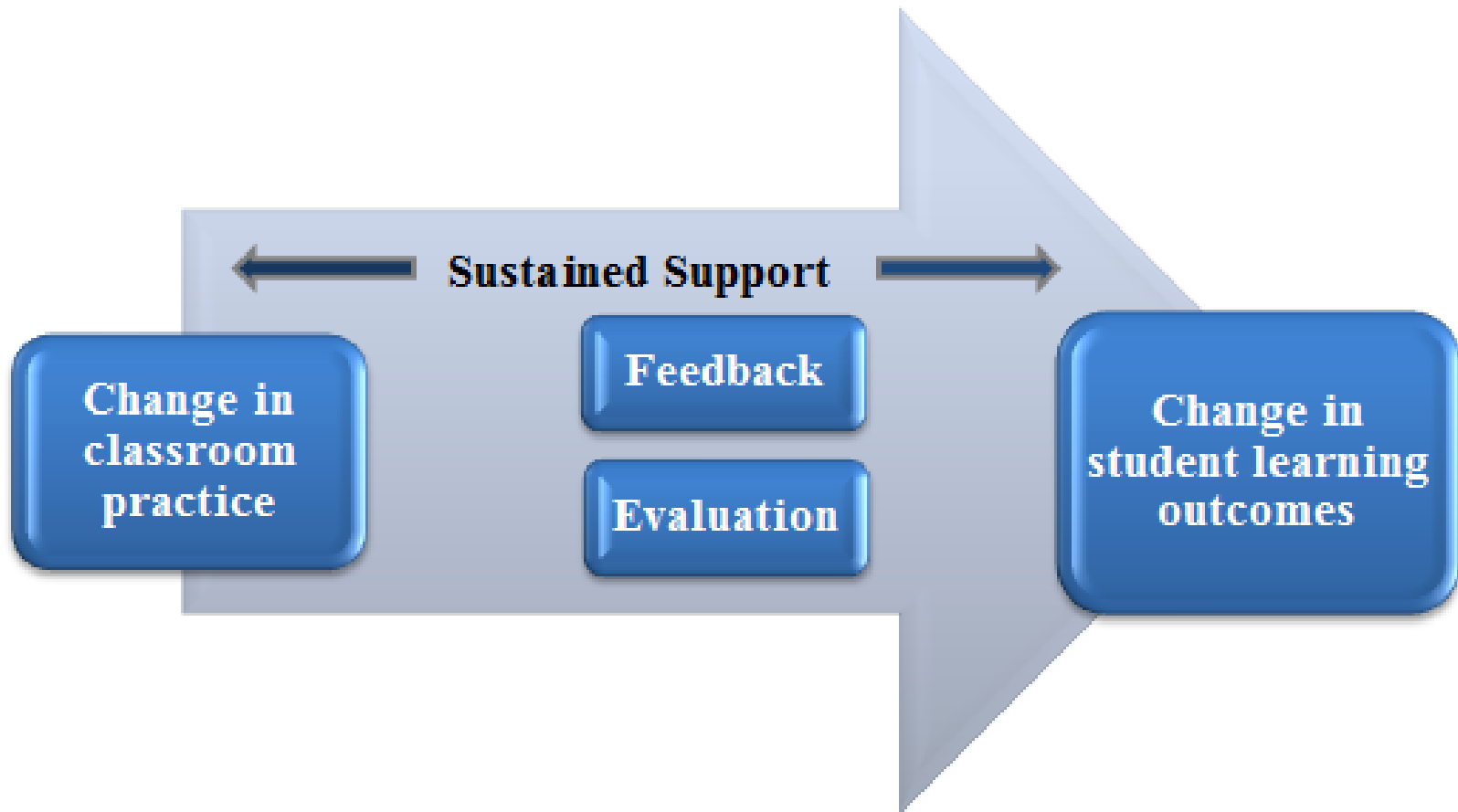
Slick 2002; Stoll et al. 2006; Supovitz 2002



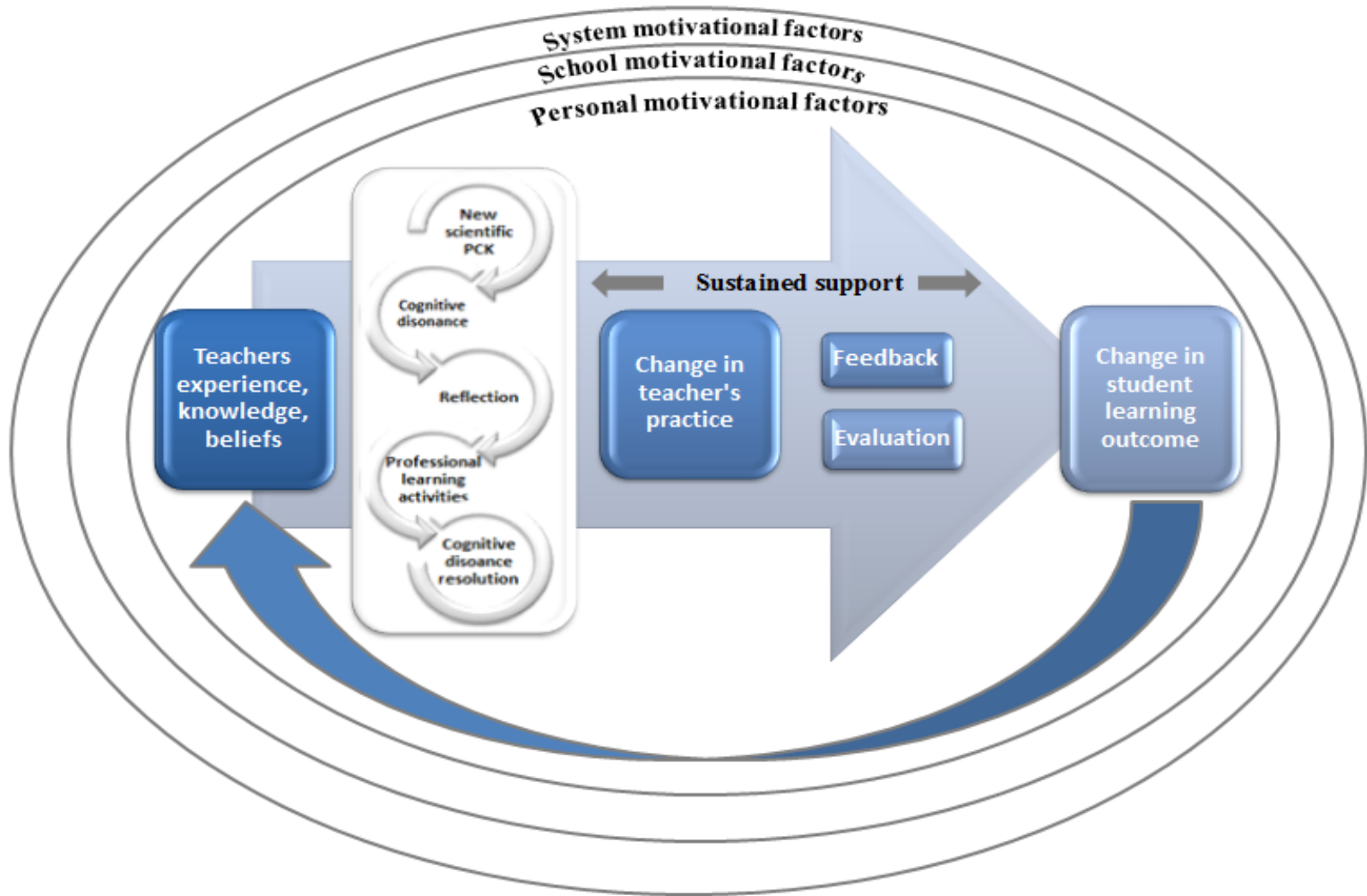
Donaldson, 2010; DuFour & Eaker, 1998; McLaughlin, 1993; O'Sullivan et al., 2011; Short & Greer, 2002; Staratt, 2004



Ducan-Howell, 2010; Harford, 2009, 2001; OECD, 2009; Smith, 2014



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