



Pedagogical Content Knowledge: Definitions, Relationships and Implications for Teaching

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Main Argument

The improvement of teaching, in both pre-service and in-service settings, requires a *focus on the practice of teaching* much more than a focus on *the study of teaching*.

Focusing on Practice of Teaching

- Much of what we are doing in teacher education is neither empirically based nor is it working.
- What we are doing too often is not focusing enough on the **practice of teaching**, but instead focusing on the **theory of teaching and the study of teaching**.
 - Not an argument to eliminate the study of theory, **but an argument for the application of theory**.
- To focus on the practice of teaching requires a much more sophisticated and precise understanding of the process of teacher education.



Overview



- Conceptualizing Pedagogical Content Knowledge in physical education
- Implications for teaching and teacher education



Pedagogical Content Knowledge is:



The most powerful analogies, illustrations, examples, explanations and demonstrations –in a word, the ways of representing and formulating the subject that makes it comprehensible to others

(Shulman, 1987, p.8)

Questions to Consider



- **How would you know PCK if you saw it?**

AND

- **How would you measure it?**

Problems with Shulman's PCK construct




- An assumption of effectiveness...
 - The same PCK may work for one student and not for another
- Need to move from description to **function--** it may look like a duck sound like a duck, but does it have web feet? It may look like PCK sounds like PCK, but is it PCK?
- What is the opposite of PCK?

Two assumptions I'd like you to consider... First,

- The relationship between Content Knowledge and Pedagogical Content Knowledge
 - If I ask you how to teach a push pass in soccer this is an example of **Content Knowledge**
 - If I ask you how to teach a push pass in soccer to 6 year olds this is an example of **Pedagogical Content Knowledge**
- The difference is **context**—PCK is content rich, content knowledge is content neutral.

Second set of assumptions...

- For the moment consider PCK as
 - **Instructional tasks** (e.g., What the teacher asks students to do).
 - **Representations of content** (e.g., demonstrations and instructions) that teachers provide to students
 - Any event of PCK (e.g., task or representation) can be described along a continuum
- 

PCK Effectiveness as a Continuum



**Ineffective
PCK**



**Effective
PCK**

(Ayvazo, 2007)

Here are two examples of a teacher describing a log roll:

- “I want you to stay straight and roll to the side”.
- “ Have you seen a log? It is straight, firm and long. Look at Yun Soo, he is lying like a log on the mat, his body is stretched, his arms and legs are together and straight. He is now going to roll like a log.”



Maturity of the teacher's PCK as a continuum



**Immature
PCK**



**Mature
PCK**

- Teachers need “**strong PCK**” Shulman (1987)
- “**Strong**”, “**weak**”, and “**immature**” PCK
(Chen, 2004; McCaughtry & Rovegno, 2003;
Rovegno, 1992; Tsangaridou, 2002)

Maturity of the teacher's PCK



- Maturity = Level of content expertise
- Characteristics
 - Developmental appropriateness
 - Content specificity
 - Context specificity

(Ayvazo, 2010, Lee, 2010)

PCK is Developmentally Appropriate



**Immature
PCK**



**Mature
PCK**

- Teaching throwing to 6-year olds; 10-year olds and 15 year olds.

(Ayvazo, 2007; 2010, Cohen, 2007; Yun Soo Lee, 2010)

PCK is Content Specific



**Immature
PCK**



**Mature
PCK**

- Teaching Basketball to fifth grade students
- Teaching Tennis to the same students

(Ayvazo, 2007; 2010, Lee, 2010)

PCK is Context Specific



**Immature
PCK**

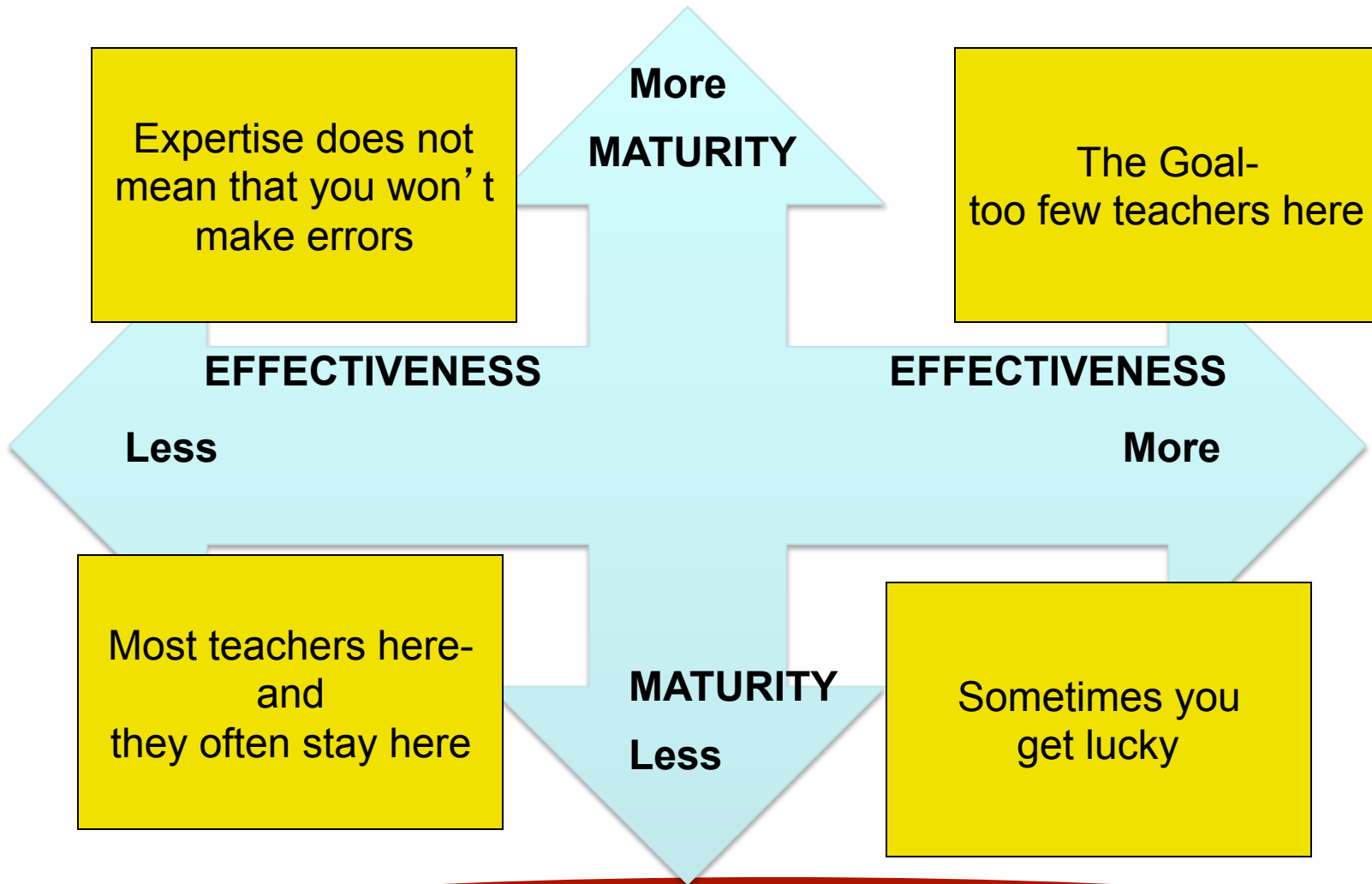


**Mature
PCK**

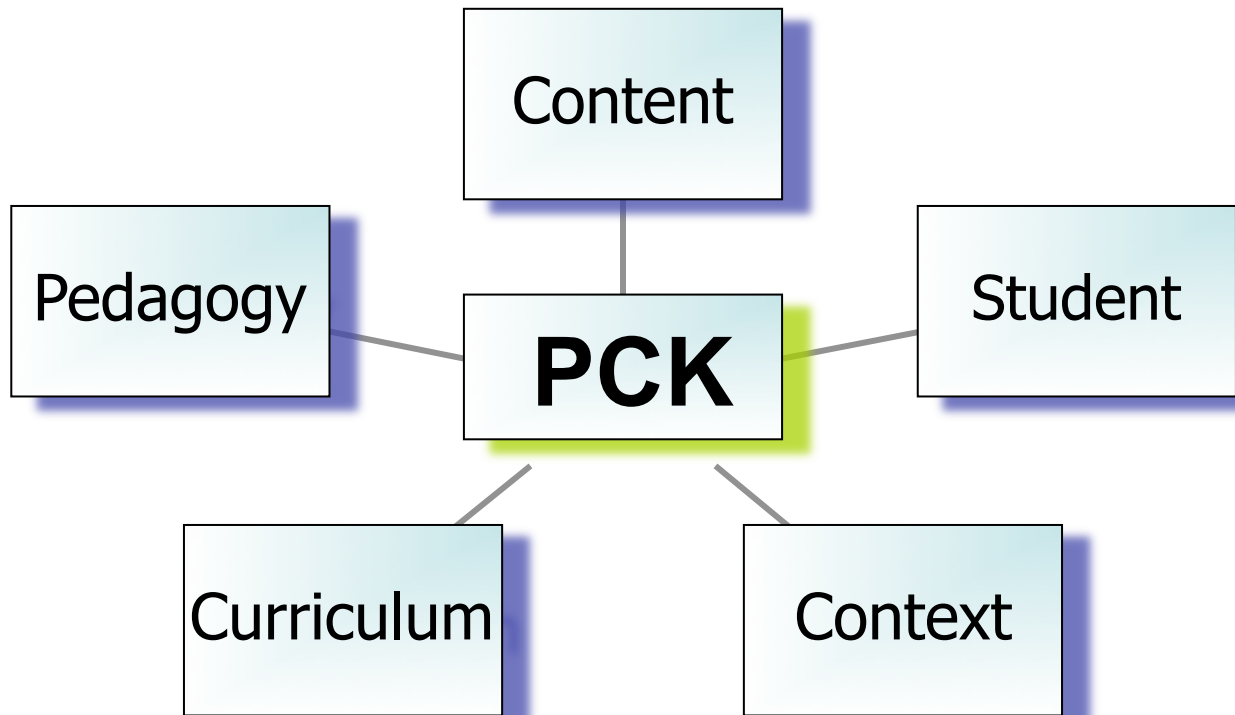
- Teaching beginners gymnastics in a well equipped gymnasium versus teaching them in a less equipped gymnasium

(Ayvazo, 2007; 2010; Chen, 2004; McCaughtry & Rovegno, , Lee, 2010; 2003; Rovegno, 1992)

Combining the Continuums

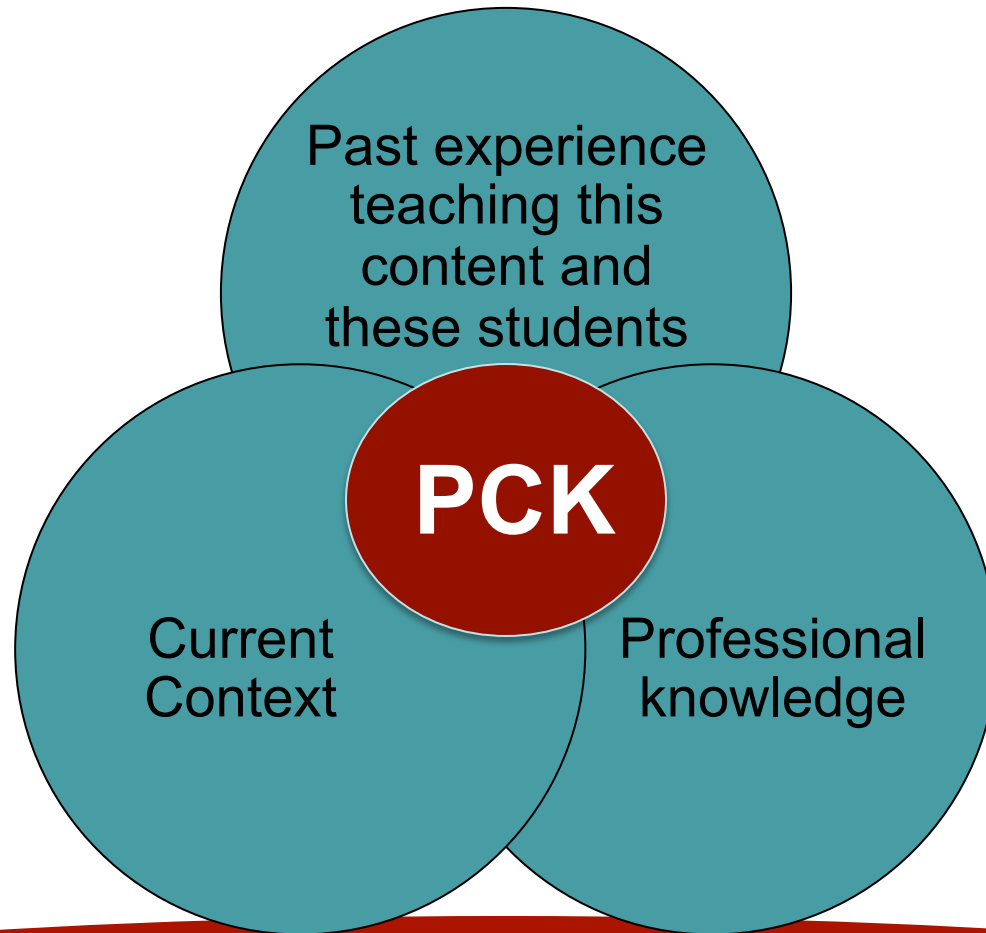


Pedagogical Content Knowledge (PCK) Informed by:



Grossman (1990)▷

Another way to view the influences on PCK

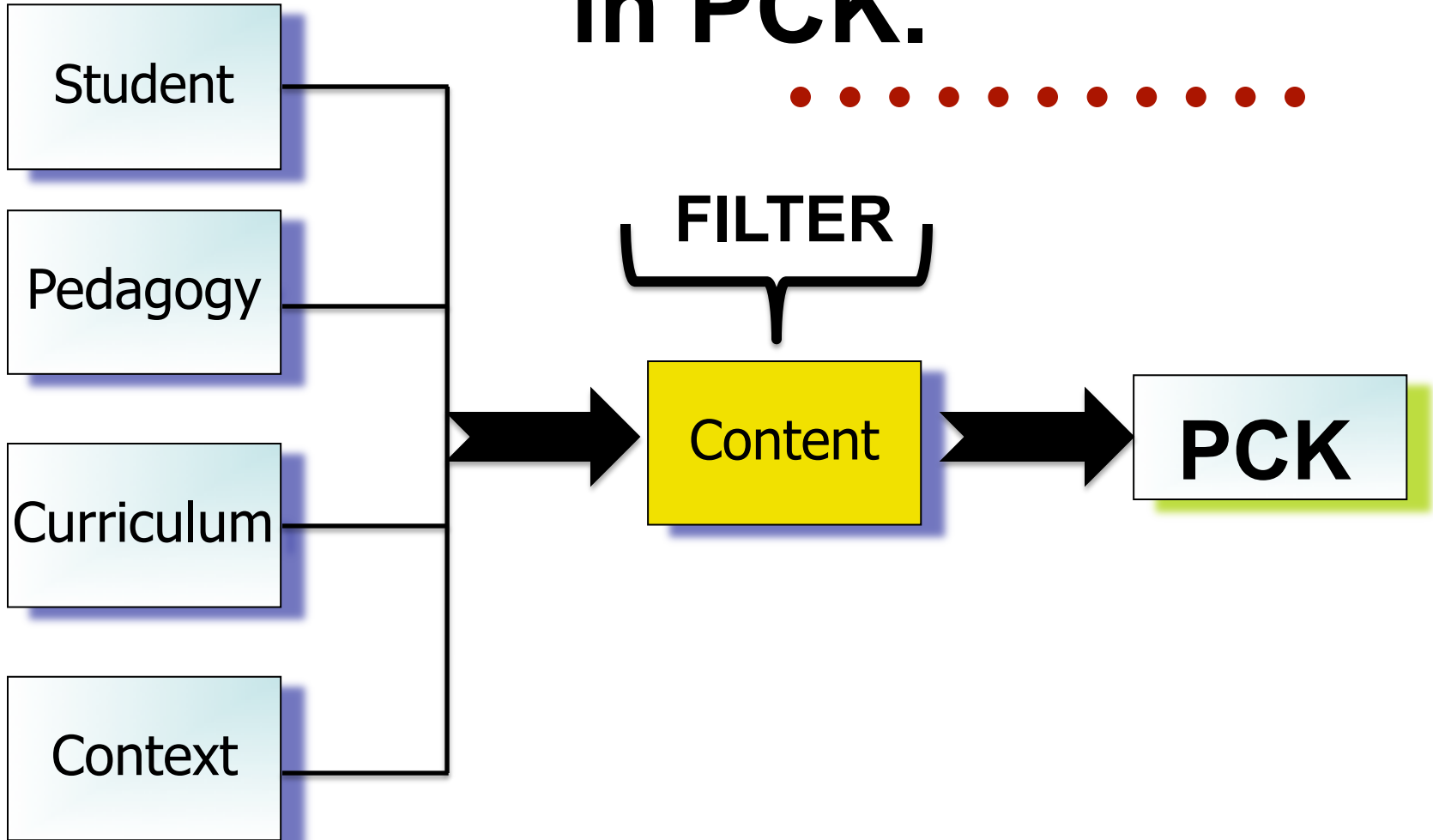


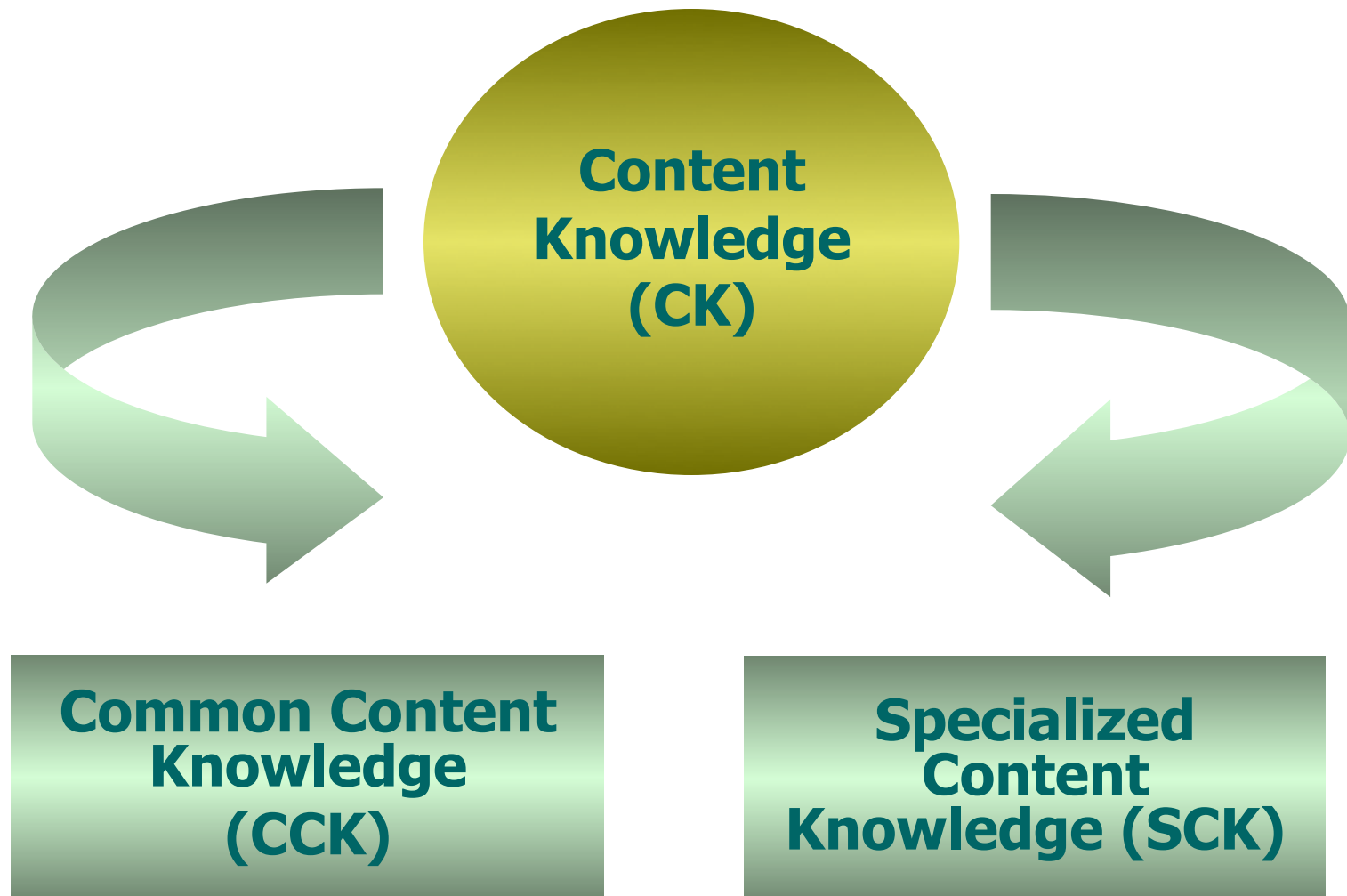
A working definition of PCK



PCK is a focal point, a locus, defined as such as an **event in time** (and therefore specific contextually) where teachers make **decisions in terms of pedagogy** and **content** based on their understandings of a **number of knowledge bases** (e.g., of understanding students, of pedagogy, of content, of curriculum)

Centrality of content knowledge in PCK.





Ball, Thames & Phelps (2008)

Physical Education CK Domains

Ward (2005; 2009)



- Rules, Etiquette, Safety
- Technique and Tactics
- Visual discrimination of correct and incorrect performance
- Representation of the content (e.g., demonstration & descriptions) and instructional tasks

CCK

SCK

Rules & Etiquette

Technique & Tactics

Error Detection

Tasks & Representations



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Main Argument-revisited



The improvement of teaching requires a ***focus on the practice of teaching...leading to a depth of teaching skill...characterized by:***

- teaching practice that occurs in the gymnasium or on the field, not the classroom
- teaching practice that is subject matter focused
- teaching practice that is focused on doing, not just talking about doing, and
- teaching practice where the doing has more time devoted to it than the talking about it.



Thank you

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