



THE OHIO STATE UNIVERSITY

Conceptual Roots and Extant Evidence for Specialized Content Knowledge

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Topics

- Pedagogical Content Knowledge (PCK)
- Content Knowledge (CK)
- Content Development
- Content Maps
- Depth of Content Index

Pedagogical Content Knowledge?

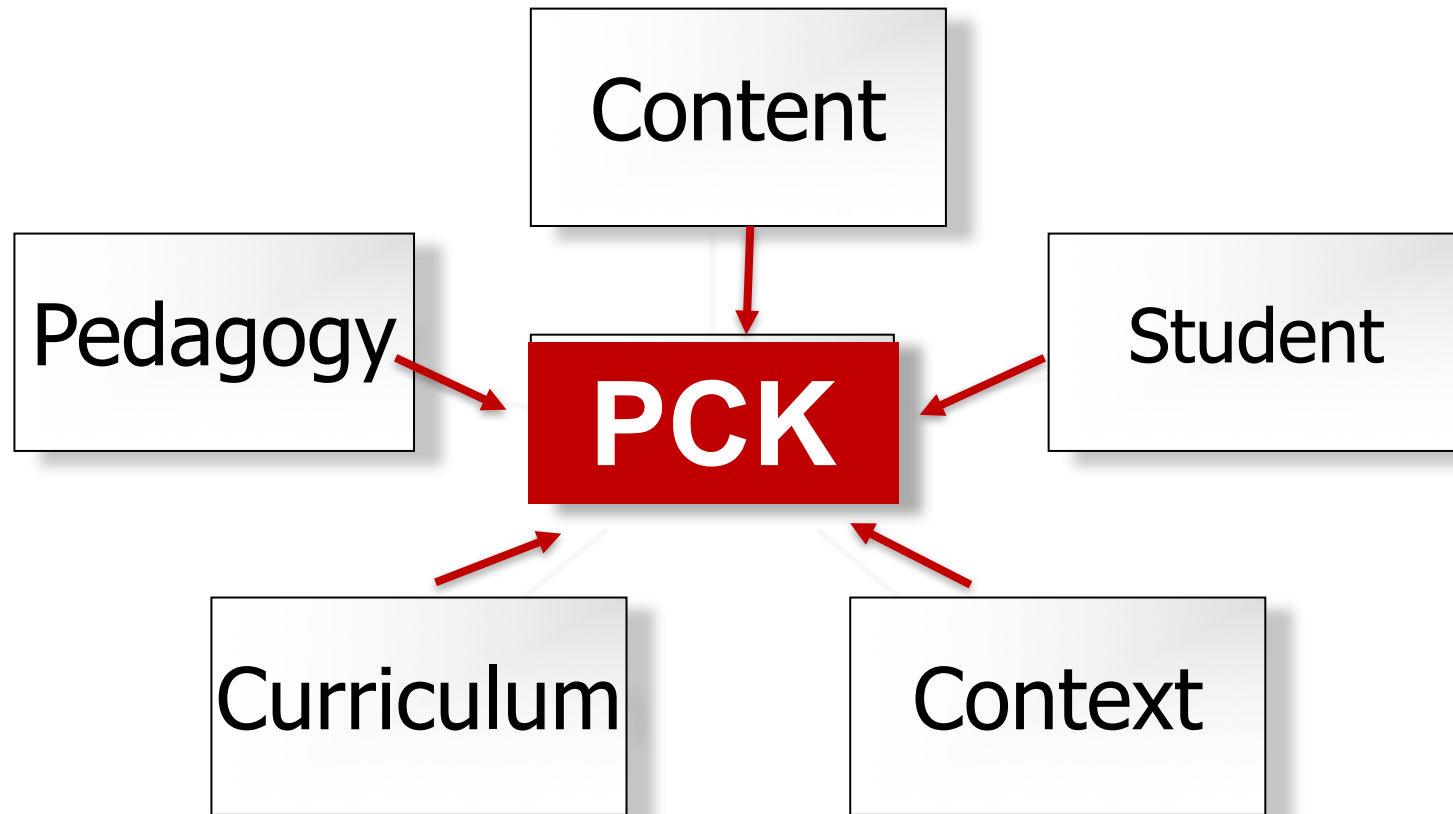


Shulman (1987, p. 8)

Operationalization of PCK:

How content is “**organized, represented, and adapted to the diverse interests and abilities of learners and presented for instruction.**”

Pedagogical Content Knowledge (PCK) Informed by:



Grossman (1990)

Shulman (1986: 1987)

Three problems

- What is it when it is not PCK?
- PCK and effectiveness?
- PCK as a dynamic construct

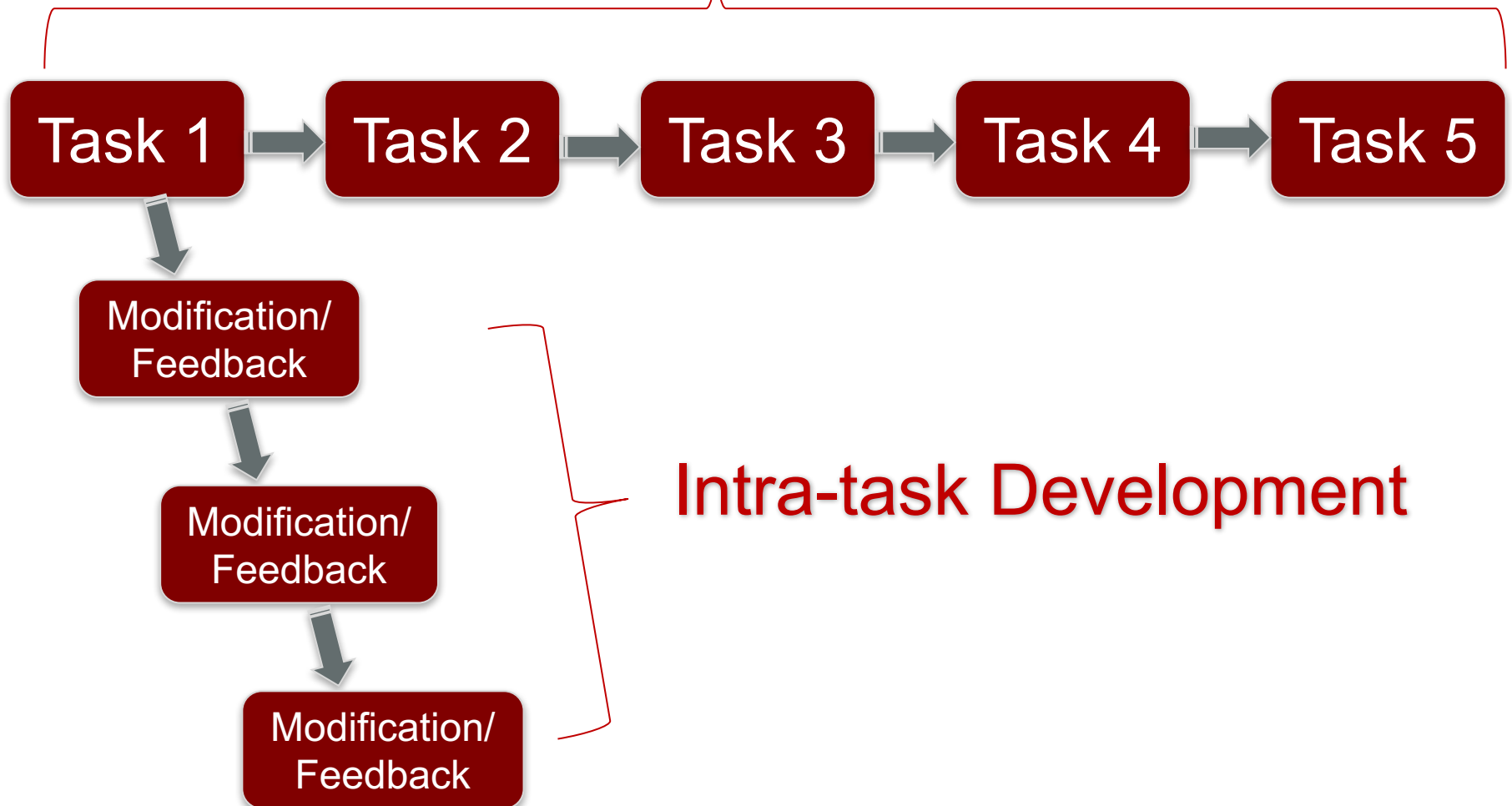
Operationalizing PCK

How content is “**organized, represented, and adapted to the diverse interests and abilities of learners and presented for instruction.**”

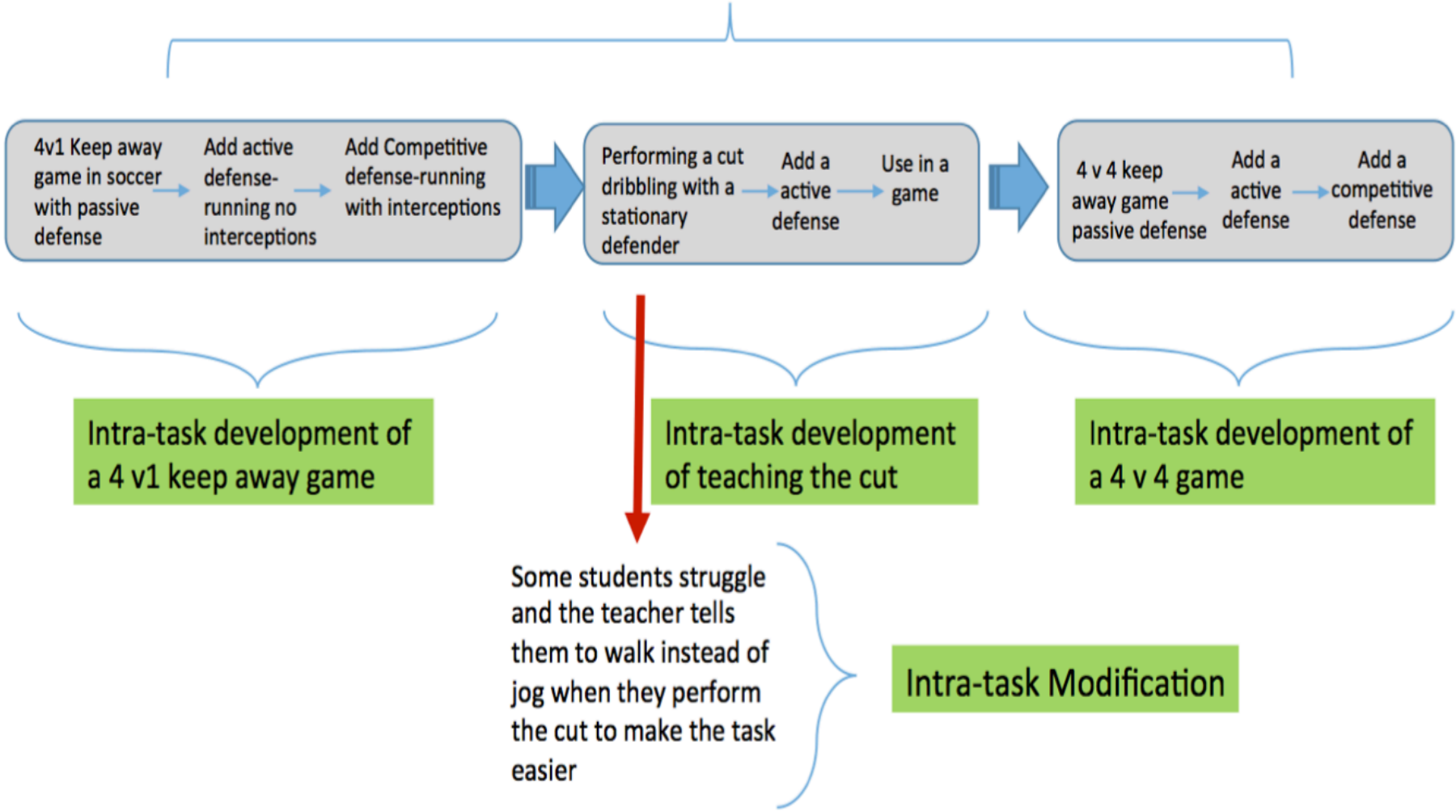
- **Representations of content** (e.g., concepts, demonstrations, instructions, cues, feedback) that teachers provide to students
- **Instructional tasks** (e.g., What the teacher asks students to do).

Viewing PCK as a series of representations, inter- and intra-lesson tasks, and feedback.

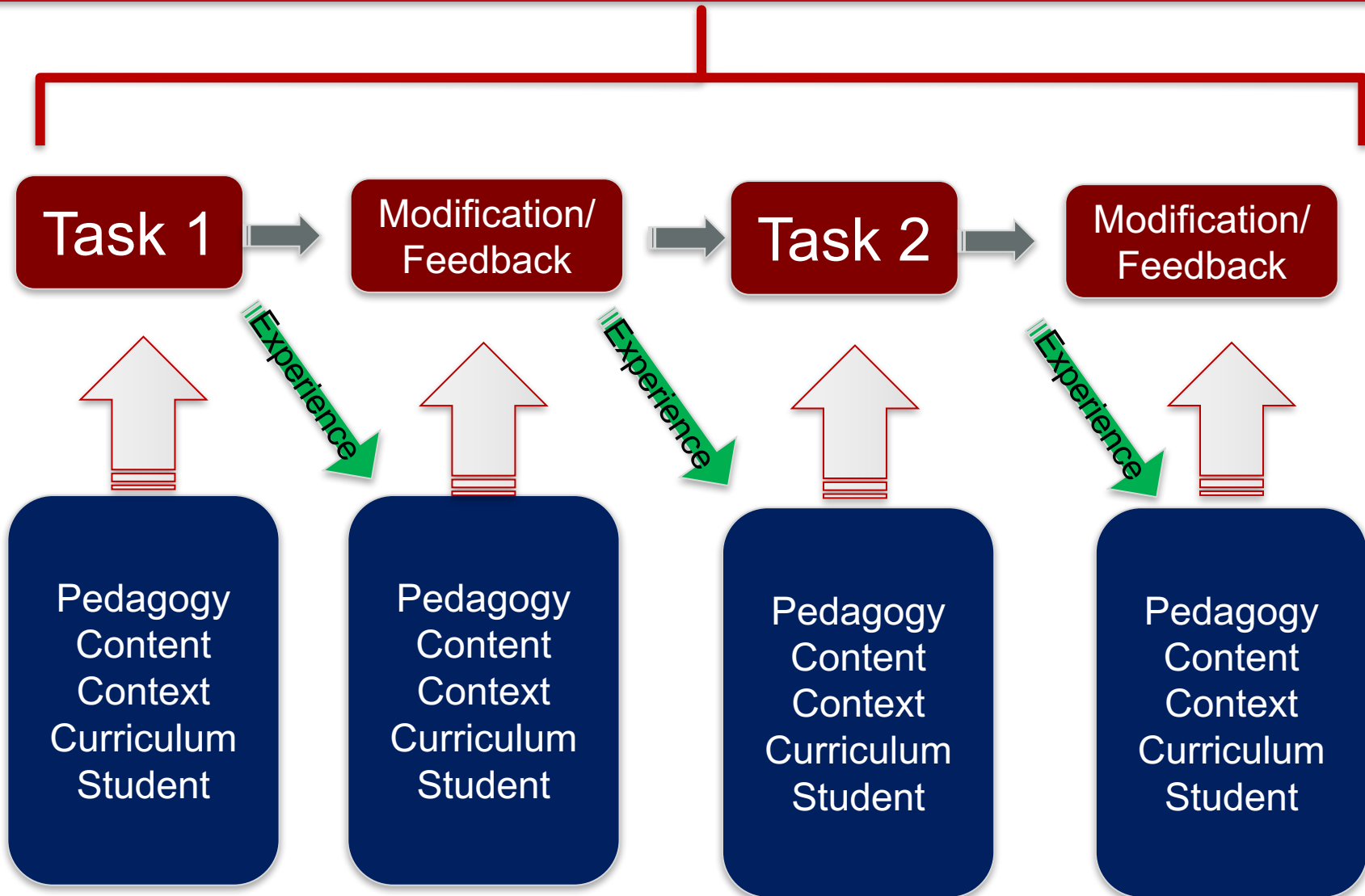
Inter-task Development



Inter-task Development task development within a lesson



Instructional Decisions - PCK



PCK Effectiveness as a Continuum



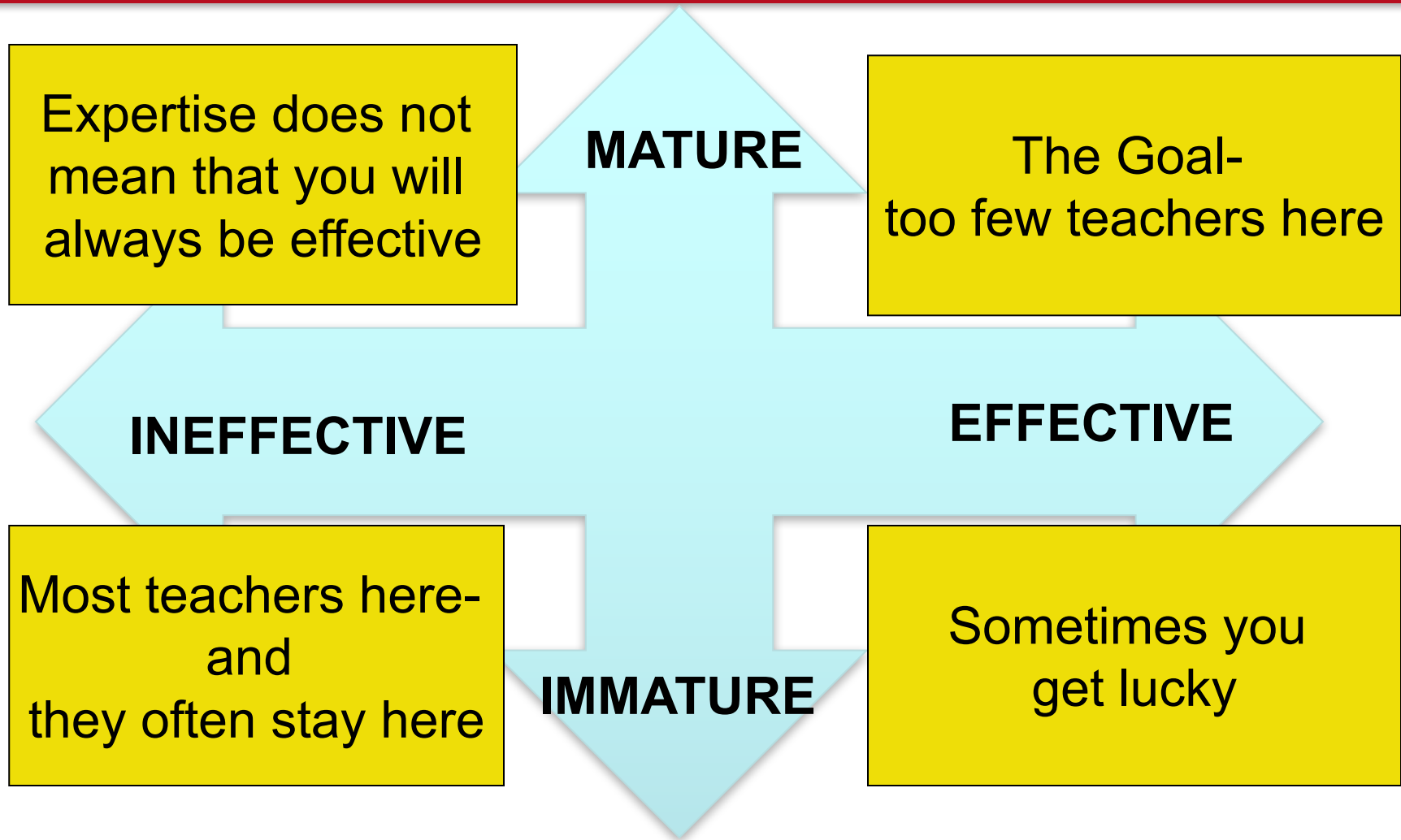
(Ayvazo, 2007; Lee, 2009; Kim 2011)

Maturity of the teacher's representations (PCK) as a continuum



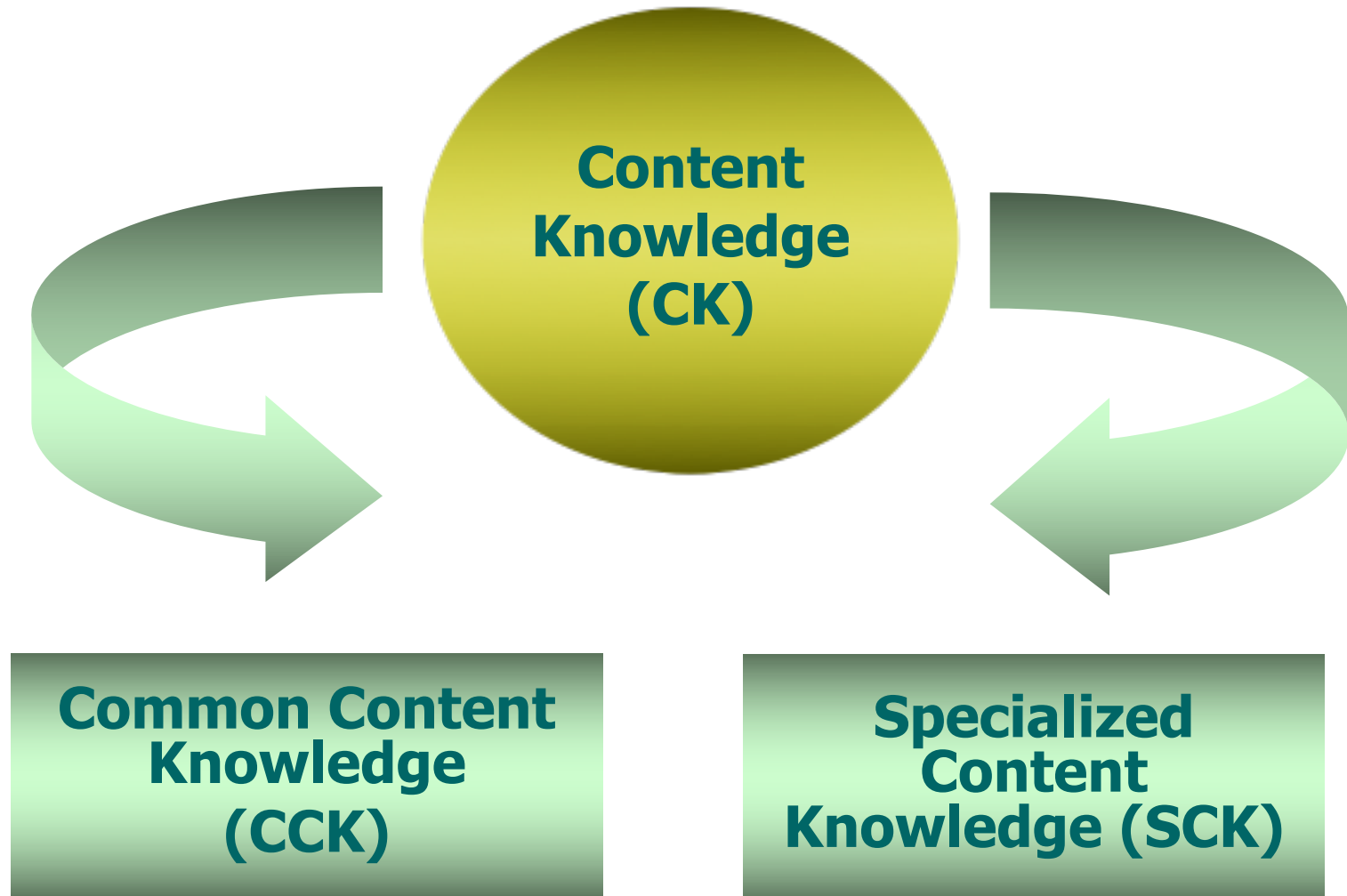
- Teachers need “**strong PCK**” Shulman (1987)
- “**Strong**”, “**weak**”, and “**immature**” PCK
(Ayvazo & Ward, (in press); Kim 2011; Chen, 2004; McCaughtry & Rovegno, 2003; Rovegno, 1992; Tsangaridou, 2002)

Combining the Continuums



Content Knowledge

What kinds of knowledge did you just use?



Ball, Thames & Phelps (2008)

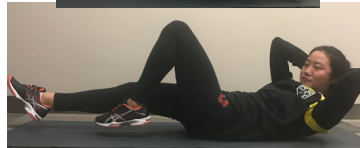
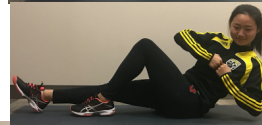
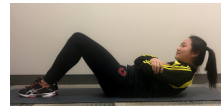
Fitness Exercise Content Knowledge

Common Content Knowledge

Specialized Content Knowledge

Pedagogical Content Knowledge

Lie on your back on the floor, bend your knees 90 degrees, and plant your feet flat. Tuck your chin slightly toward your chest.....



Basketball Content Knowledge

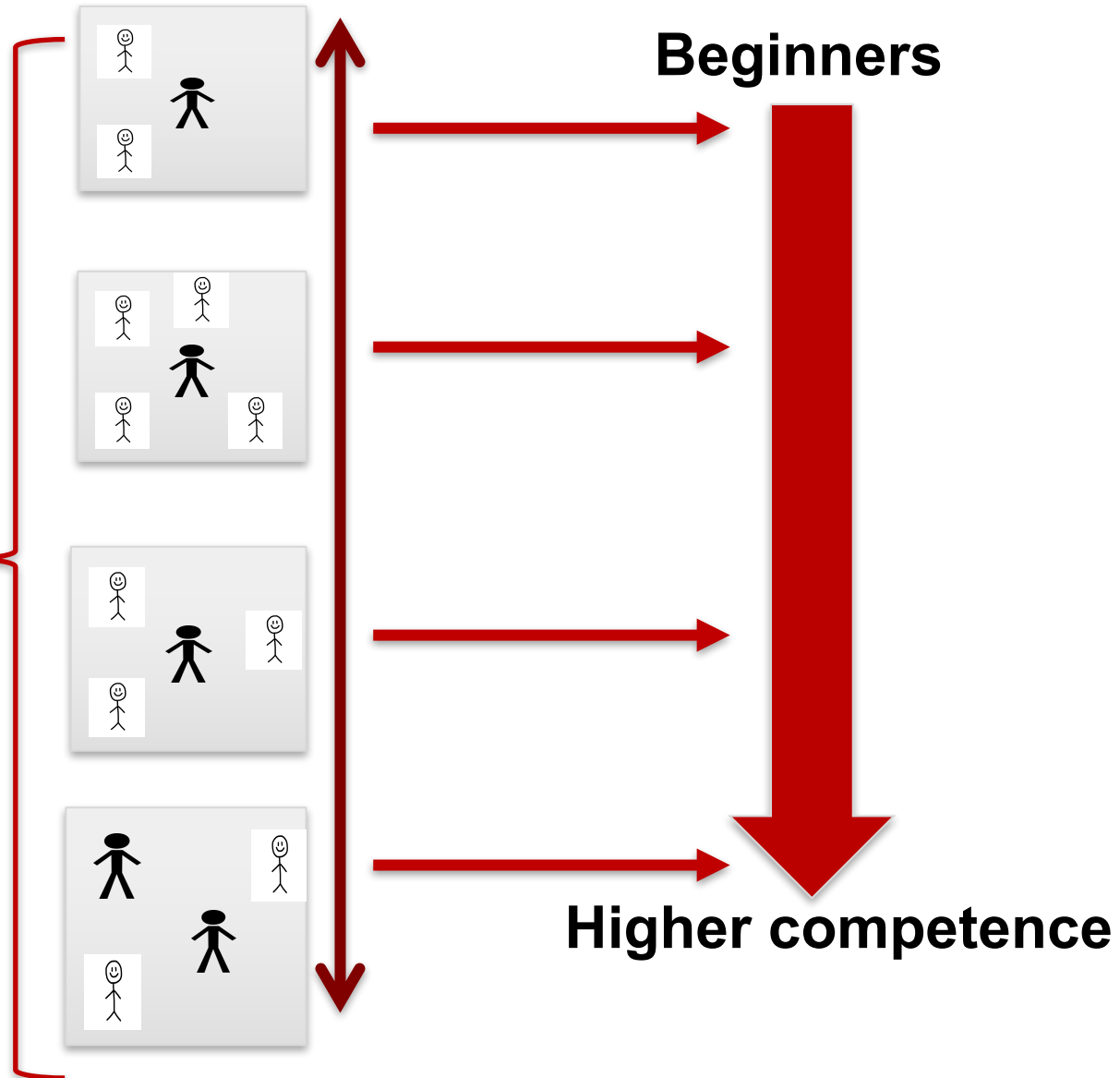
Common Content Knowledge

Specialized Content Knowledge

Pedagogical Content Knowledge

- Off the ball players: **move away from the defender**
- On the ball players: **Pass to the open player**

Defense walks no interceptions
Defense jogs no interceptions
Defense runs and intercepts



Content Development

Content Development (RINK, 1979)



Extending Task



Extending Task



Extending Task



Extending Task



Extending Task



Extending Task



Informing Task

Extending Task



Extending Task



Extending Task

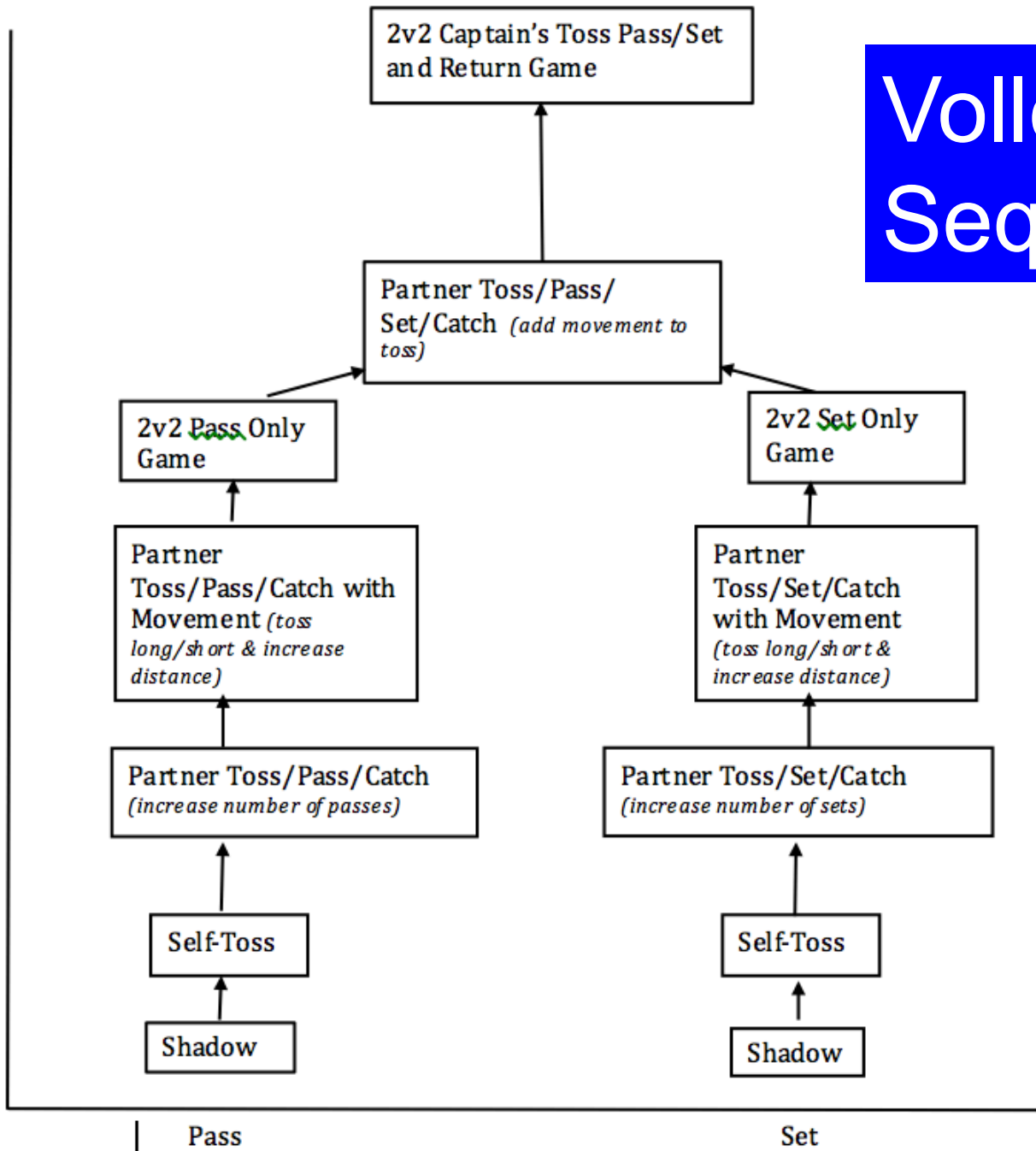


Informing Task



Content Maps

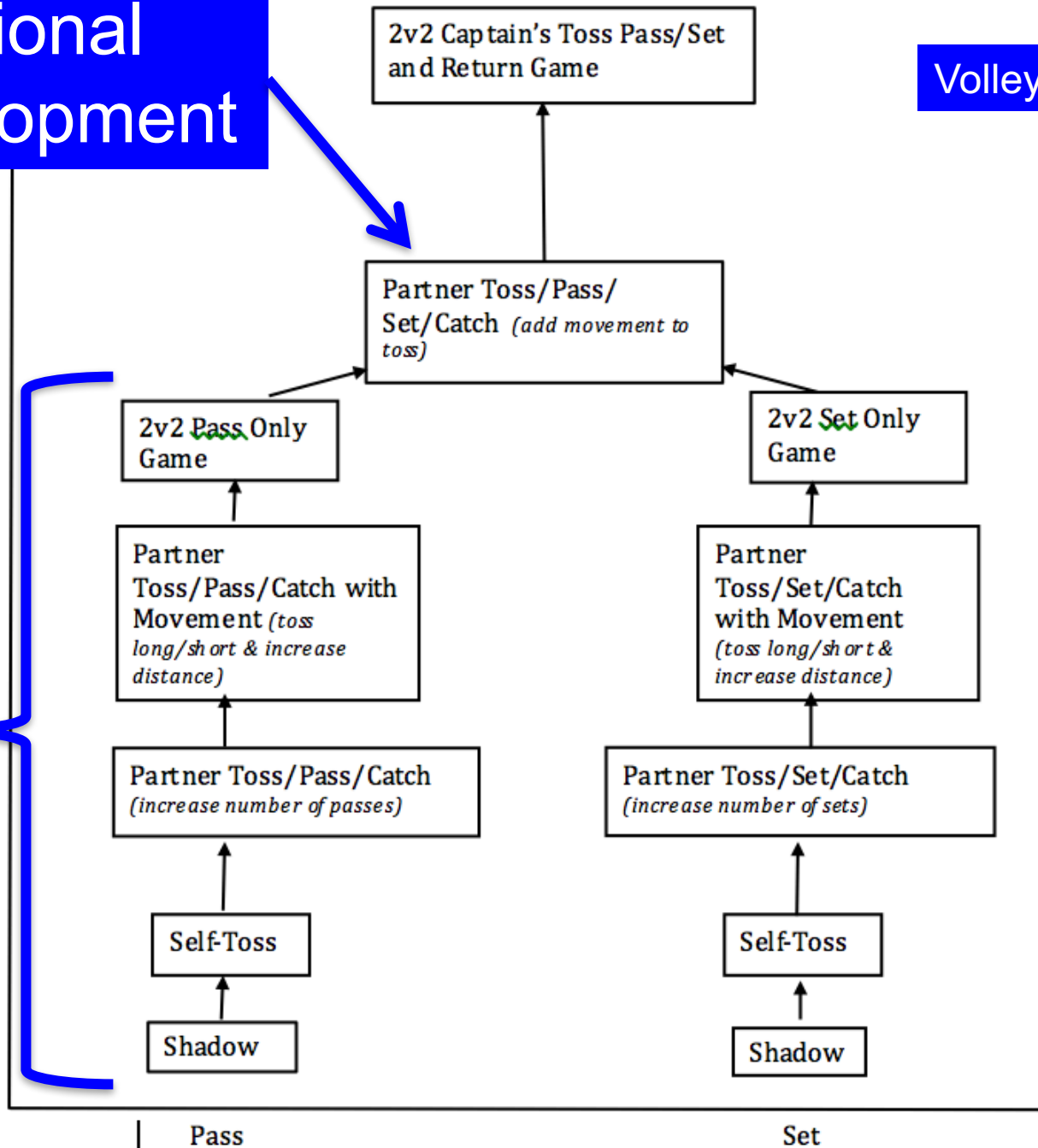
Volleyball Sequences



Relational development

Volleyball Sequences

Sequential development



Pass

Set

Specialized Content Knowledge?

Measurement:

Depth of Content Knowledge

Depth of Content Development

Extending + Refining + Applying
Informing tasks

3 Extending + 0 Refining + 1 Applying = **1.0**
4 Informing tasks

5 Extending + 4 Refining + 3 Applying = **3.0**
4 Informing tasks

The Ohio State University Learning to Teach Physical Education Research Program Teams

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Research Tools

[MANUAL Content Development Answer Key 2.1 Published](#)

[MANUAL Content Development 2.1 Published](#)



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THE LEARNING TO TEACH PHYSICAL EDUCATION RESEARCH PROGRAM

Our purpose: To serve as a platform for collaboration among physical education researchers to conduct rigorous, innovative, educationally relevant research on teaching effectiveness in physical education.

Our research goals:

Helping teachers to teach better,
and teacher educators to train future teachers.



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Thank You



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 content** based on their understandings of a **number of knowledge bases** (e.g., pedagogy, students, content, curriculum)

Ward 2009