

Examining Specialized Content Knowledge and Pedagogical Content Knowledge Symposium



Ohio State's Learning to Teach Physical Education Research Program

- **Conceptual debts from**
 - Early work influenced by Inez Rovegno's work in PE.
 - Later work influenced by Deborah Lowenberg-Ball's content knowledge work at University of Michigan.
- **Similar Approaches**

Deborah Lowenberg-Ball,
University of Michigan-
Elementary Mathematics
Education

John Loughran & Amanda
Berry, Monash University,
Australia- Science Education

Conceptualizing CK and PCK

Stefan Krauss University of
Kassel, Germany-Secondary
Mathematics Education

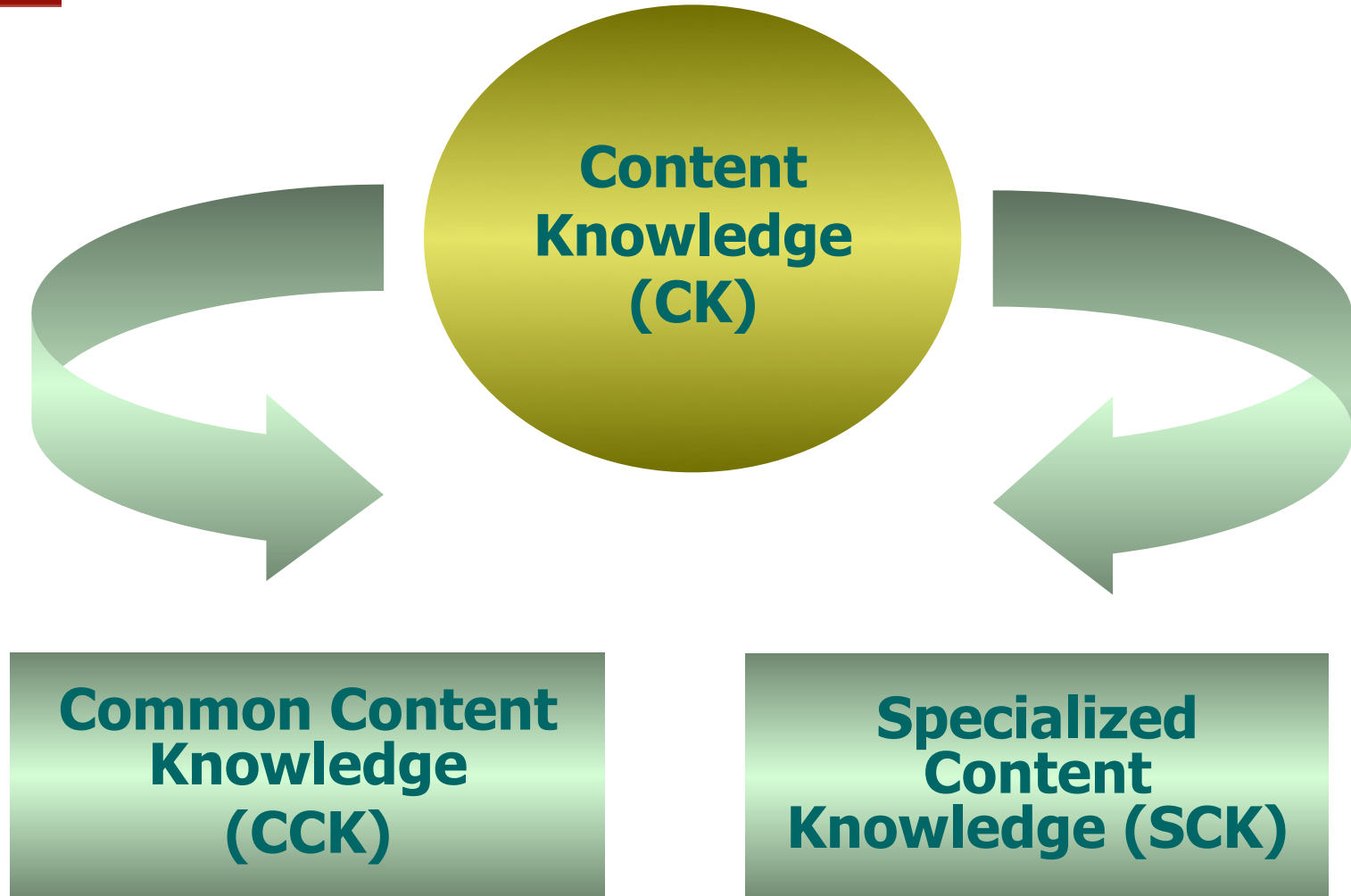
The Ohio State University
The Learning to Teach
Physical Education
Research Program

An introductory task...



- Think about the critical elements / technique of the handstand!
- Think about the sequence of task progressions for teaching the handstand from initial weight bearing to performing the handstand unassisted!
- Which task progressions would you exclude if you were teaching 8th graders who had at least one previous unit of gymnastics in middle school?
- Which task progressions would you exclude if you were teaching 1st graders who had little experience with weight bearing on their hands?

What kinds of knowledge did you just use?



Ball, Thames & Phelps (2008)

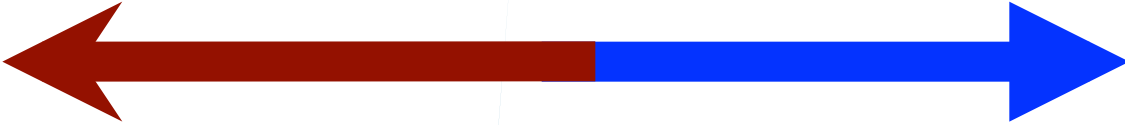
CCK

SCK

**Rules &
Etiquette**



**Technique &
Tactics**



Error Detection



**Tasks &
Representations**



Checking for understanding..

- The critical elements / technique of the handstand!
- Think about the sequence of task progressions for the teaching the handstand from initial weight bearing to performing the handstand unassisted!
- Which task progressions would you exclude if you were teaching 8th graders who had at least two previous units of gymnastics?
- Which task progressions would you exclude if you were teaching 1st graders who little experience with weight bearing on their hands?

**Common
Content
Knowledge
(CCK)**

**Specialized
Content
Knowledge
(SCK)**

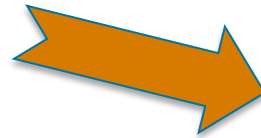
**Pedagogical
Content
Knowledge
(PCK)**

Checking for understanding..

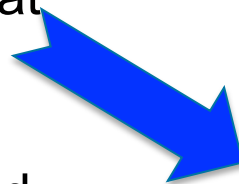
- The critical elements AKA technique of the handstand!
- Think about the sequence of task progressions for the teaching the handstand from initial weight bearing to performing the handstand unassisted!
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**Common
Content
Knowledge
(CCK)**



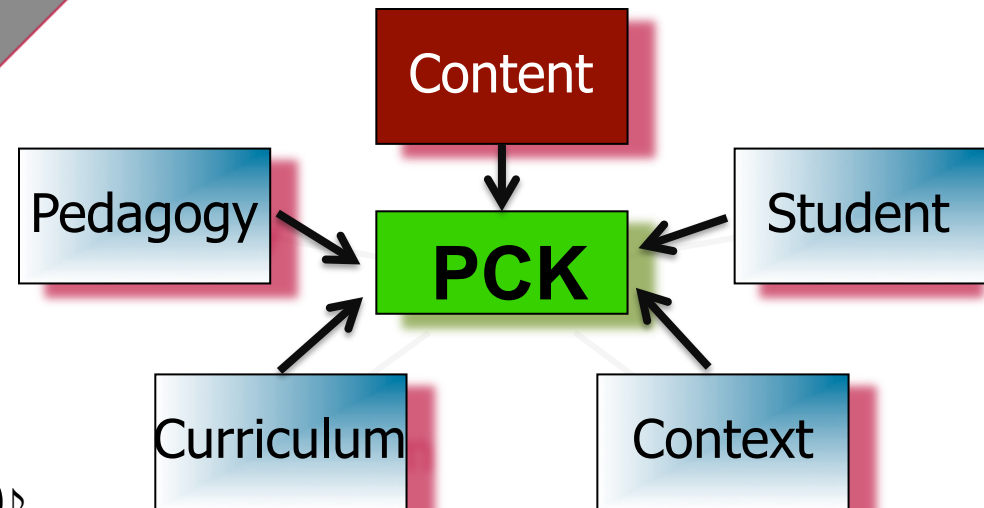
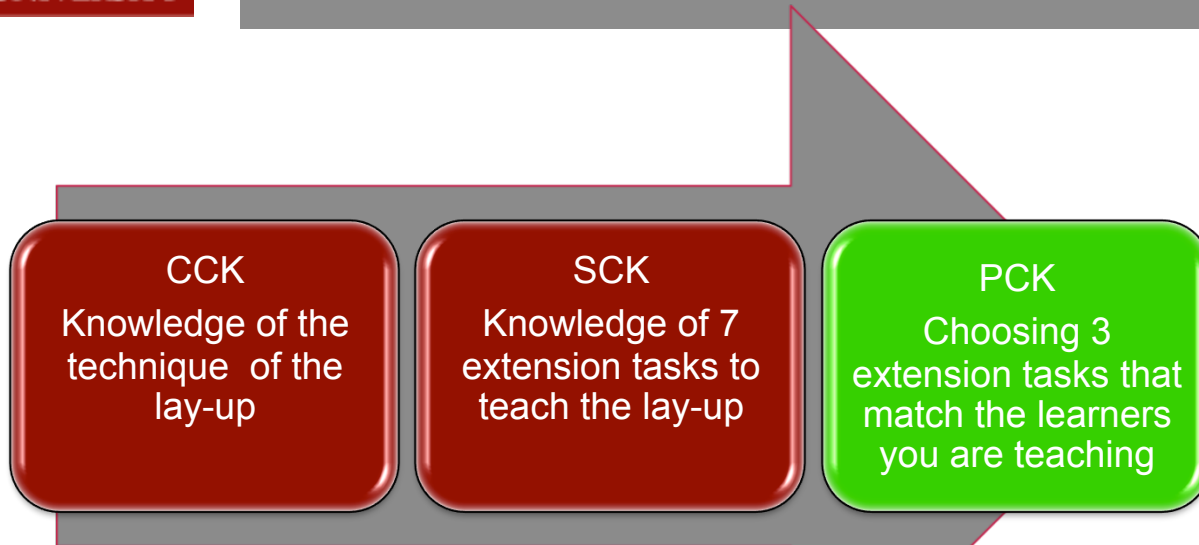
**Specialized
Content
Knowledge
(SCK)**



**Pedagogical
Content
Knowledge
(PCK)**



Pedagogical Content Knowledge (PCK) Informed by:



Grossman (1990)

- **Is context specific**
 - Teaching beginners gymnastics in a well equipped gymnasium versus teaching them in a less equipped gymnasium
- **Is content specific**
 - Teaching tennis versus teaching soccer
- **Is developmentally specific**
 - Teaching middle school youth to pitch versus teaching children in grade one to throw
- **Is child specific**
 - What works for one child may not work for another

- We propose that PCK has two elements that can be observed.
 - **Representations of content** (e.g., demonstrations, instructions, concepts) that teachers provide to students
 - **Instructional tasks** (e.g., What the teacher asks students to do).
- Any event of PCK (e.g., task or representation) can be described along a continuum

The Learning to Teach Physical Education Research Program

- Establishing and validating operational definitions of CK (content knowledge) and PCK (pedagogical content knowledge)
- Examining the relationship between CK and PCK?
- Examining the relationship between PCK and student learning?
- Collectively projects in the *Learning to Teach Physical Education Research Program* are multi-methodological involving multi-institutional teams in the USA, Europe and Asia

THE LEARNING TO TEACH PHYSICAL EDUCATION RESEARCH PROGRAM

Badminton
Content
Knowledge
Study
(BACKS)

The
International
Content
Knowledge
Study (ICKS)

Measures of
Physical
Education
Teacher
Content
Knowledge
(MPETCK)

**THE DEVELOPMENT OF PRE-SERVICE AND IN-SERVICE
PROFESSIONAL DEVELOPMENT PRACTICES**