

Defining Domains of Coaching Knowledge Using a Modified Delphi Process

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Paper Presentation Outline

- Examining Mathematics Coaching (EMC)
Project Description
- Modified Delphi Process
 - Participants
 - Questions Used by Phase
 - Rating System
- Definitions of Coaching Knowledge



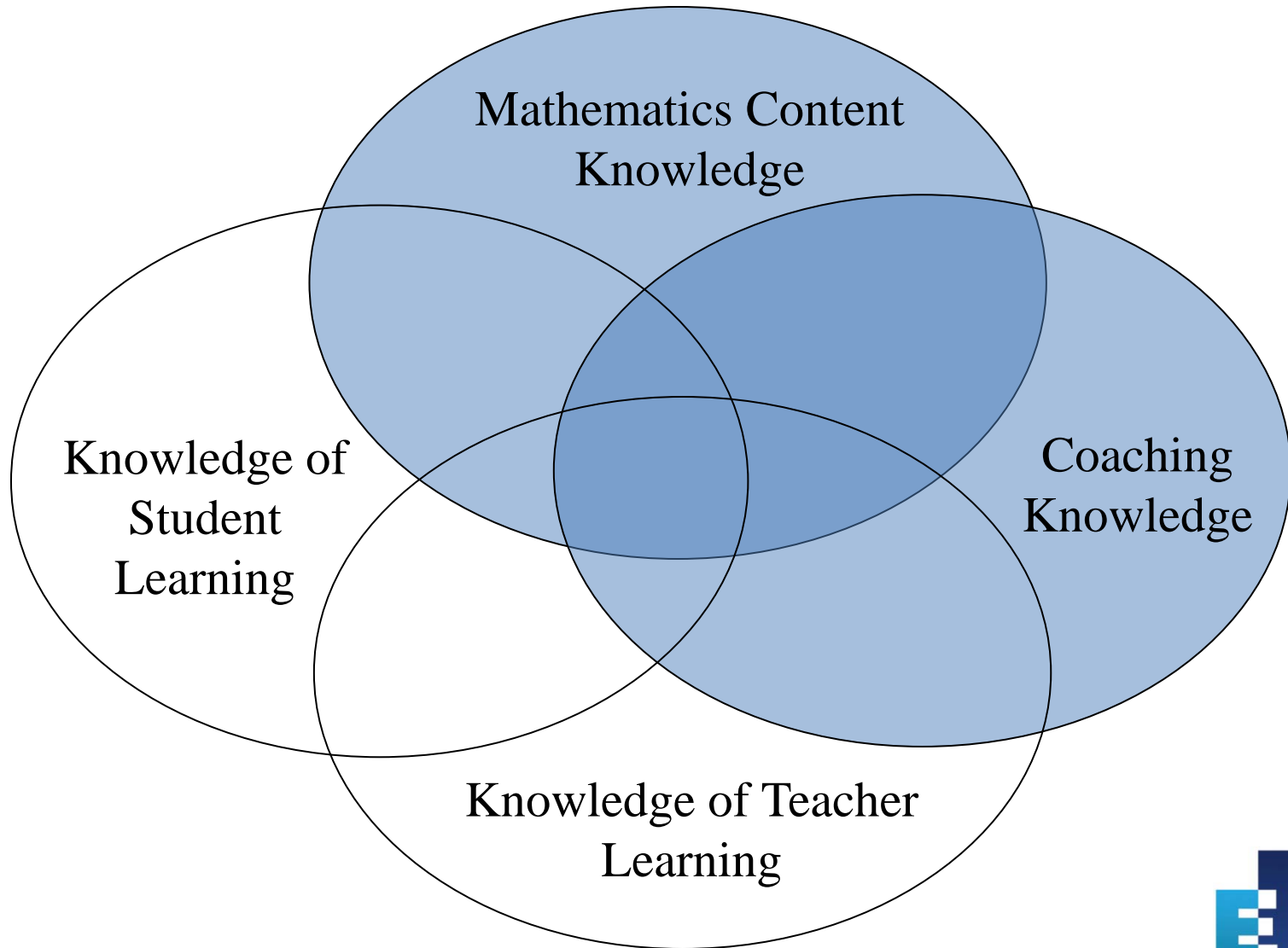
Mathematics Coaching

Mathematics classroom coaching is gaining popularity as a school-based effort to increase teacher effectiveness and student achievement.

Mathematics Coaching Defined

“A mathematics coach is an on-site professional developer who enhances teacher quality through collaboration focusing on research-based, reform-based, and standards-based instructional strategies and mathematics content that includes the why, what, and how of teaching mathematics.”

Knowledge Domains



Why Study Coaching?

- There is limited understanding of coaching effectiveness, especially in mathematics.
- Moreover, no studies have demonstrated what types and depths of knowledge effective coaches hold.
- At the same time, implementing coaching involves considerable cost and logistical effort for schools and districts.

Delphi Study

- Research method that uses a panel of experts to bring a field to consensus around a particular topic and enhance decision making.
- Used both in the corporate world and in education.
- It is acknowledged that “there are multiple variations of the Delphi Method” (Chamberlin, 2008, p. 3)

Delphi Study

- Non-geographically constrained, collaborative, structured learning exercise
- Allows access to all data generated with the opportunity to review, react, and refine while collaboratively engaged in the process
- Encourage experts to share viewpoints

Modified Delphi Study

- Tailored to meet the project's research objective of identifying as many domains of coaching knowledge as emerged from the data
- EMC researchers provided panelists data that was filtered through a process of qualitative analysis conducted by researchers
- Used technology to bring together a panel of experts in a three-phase dialogue over time

Modified Delphi Study

- Three phase process:
 - *Phase I*: Identification – Identify knowledge areas;
 - *Phase II*: Elaboration– Define knowledge areas;
and
 - *Phase III*: Validation – Validate the knowledge areas and definitions

Modified Delphi Study

■ Participants

- EMC researchers identified 10 experts in the field of mathematics coaching
- Experts were invited to name two others who possessed the expertise to participate on the panel
- The final panel consisted of 12 participants.
 - six are authors or co-authors of coaching or mathematics coaching books;
 - four are directors of grant-funded professional development projects on mathematics coaching;
 - one is a mathematics coaching practitioner; and
 - one studies coaching as a researcher in mathematics education.

Modified Delphi Study

■ Process

- engaged panel members in three phases over 18 days (October 1–18, 2009)
- All of the panelist interactions were blind (3-digit identifier)
- Panelists did not interact directly with each other
- EMC researchers did not know the authorship of panelist contributions
- All contributions were text-based, online submissions

Modified Delphi Study

- ***Phase I: Identification – Identify knowledge areas (N=12)***
 - think only about components of coaching knowledge, separate from teaching knowledge, that a coach needs in order to be effective
 - identify and provide words or phrases that convey or represent your understanding of components of coaching knowledge.

Modified Delphi Study

- ***Phase II: Elaboration – define knowledge areas (N=9)***
 - Research team used qualitative methods to list, cluster, analyze and organize responses, resulting in the identification of seven specific knowledge areas
 - Define each of the seven knowledge areas
 - Limit each definition to 100 words or less

Modified Delphi Study

- ***Phase III: Validation – Validate the knowledge areas and definitions (N=10)***
 - Review the definitions for each of the seven knowledge areas
 - Choose the degree with which you agree or disagree with four statements about the definition by using a five-point scale
 - Following each definition are four optional questions related to the definition

Modified Delphi Study

- ***Phase III: Validation – Validate the knowledge areas and definitions (N=10)***

- **Rating Scale**

Strongly Disagree



Disagree



Agree



Strongly Agree



Neither Agree nor
Disagree



Modified Delphi Study

- ***Phase III: Validation – scaled questions***
 - **This is an accurate definition for coaching knowledge of ...**
 - **This definition captures my thinking related to coaching knowledge of ...**
 - **This definition enhances my thinking related to coaching knowledge of ...**
 - **This definition can help inform my work.**

Modified Delphi Study

- ***Phase III: Validation – Open questions***
- **What words, phrases or key features for the definition (if any) ...**
 - **do you feel are missing and need to be considered for inclusion in the final definition?**
 - **do you feel are particularly unclear and need to be restated to minimize confusion or misunderstanding?**

Modified Delphi Study

- ***Phase III: Validation – Open questions***
 - **What (if anything) do you feel could or should be removed from the definition?**
 - **What other comments or suggestions do you have to enhance the overall quality and utility of the definition?**

Results

- **Eight domains of coaching knowledge were identified by EMC researchers in Phase I**
- **Domain and definition of knowledge of communication was consistently and sufficiently identified and defined by panelists in phase one.**

Coaching Knowledge



Results

- From Phase III, there was a high level of agreement and high level of consensus among panelists for scaled response questions.
- EMC researchers conducted a review of the additional comments from open-ended questions

Results

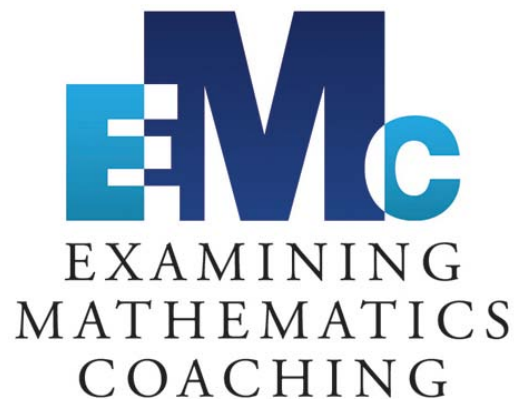
- Based on additional comments, and EMC specific needs, EMC Researchers revised the definitions in the seven domain areas
- Reflected the EMC researchers' knowledge while considering the panelists' comments

Results

- Eliminated laundry lists, eliminated the ambiguity in wording between skills, practices, and beliefs, and framed the definitions in terms of knowledge
- Some ideas were moved from one domain to another
- Filtered based on what a coach needs beyond what a teacher needs

Use of Definitions

- Guide instrument development
- Encourage other projects and institutions to use these definitions provided as a starting point
- Feel empowered to modify any of the definitions to fit specific project context and needs



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