EXAMINING MATHEMATICS COACHING

Criteria for Coaching – An Observation Protocol

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Research Partners

MONTANA STATE UNIVERSITY

RMC RESEARCH

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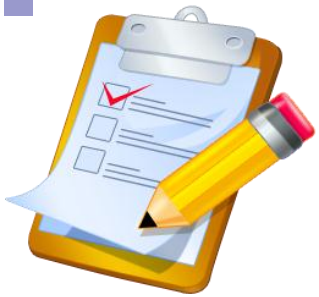
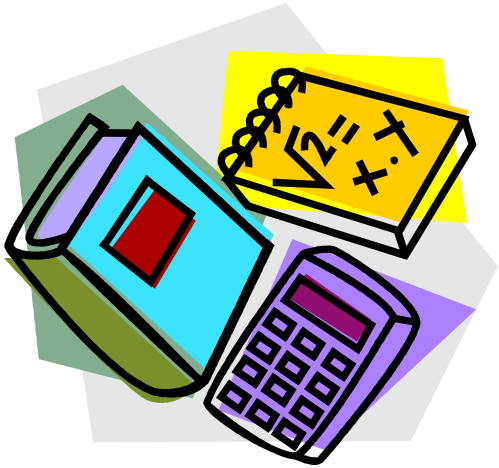


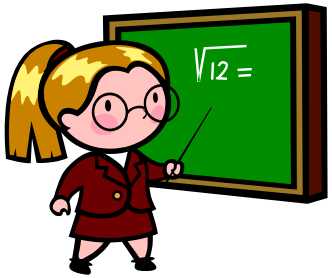
Session Agenda

- Description of Examining Mathematics Coaching (EMC) project
- Qualitative Study Design and Findings
- Coaching Observation Protocol
  - Measuring the Practice of Coaching
  - Instrument Use

MATHEMATICS COACHING

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

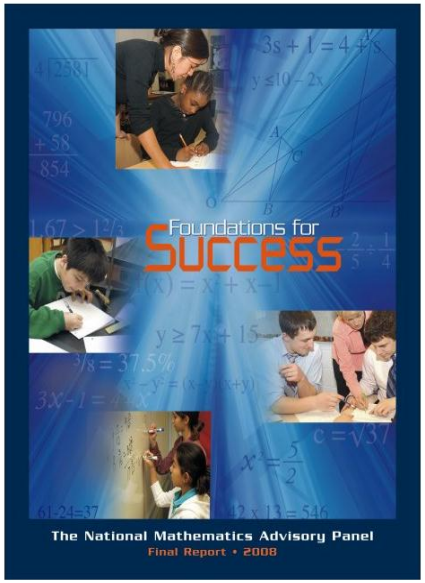




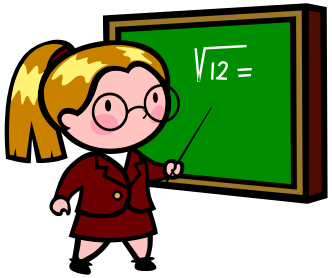
WHY STUDY COACHING?

- Coaching is a promising model for enhancing K-8 mathematics teachers' abilities to provide quality mathematics education.
- Coaching can be implemented at any point in a teacher's career (as opposed to mentoring).

WHY STUDY COACHING?



The National Mathematics Panel (2008) reports that schools across the nation are using mathematics specialists, including mathematics coaches, yet there is **limited research proving what makes coaching effective.**



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.

EXAMINING MATHEMATICS COACHING PROJECT

EMC is a five-year research and development project funded by NSF examining the effects of a coach's "knowledge for coaching" on a diverse population of K-8 teachers.

CONTRIBUTORS & OTHER PERSONNEL

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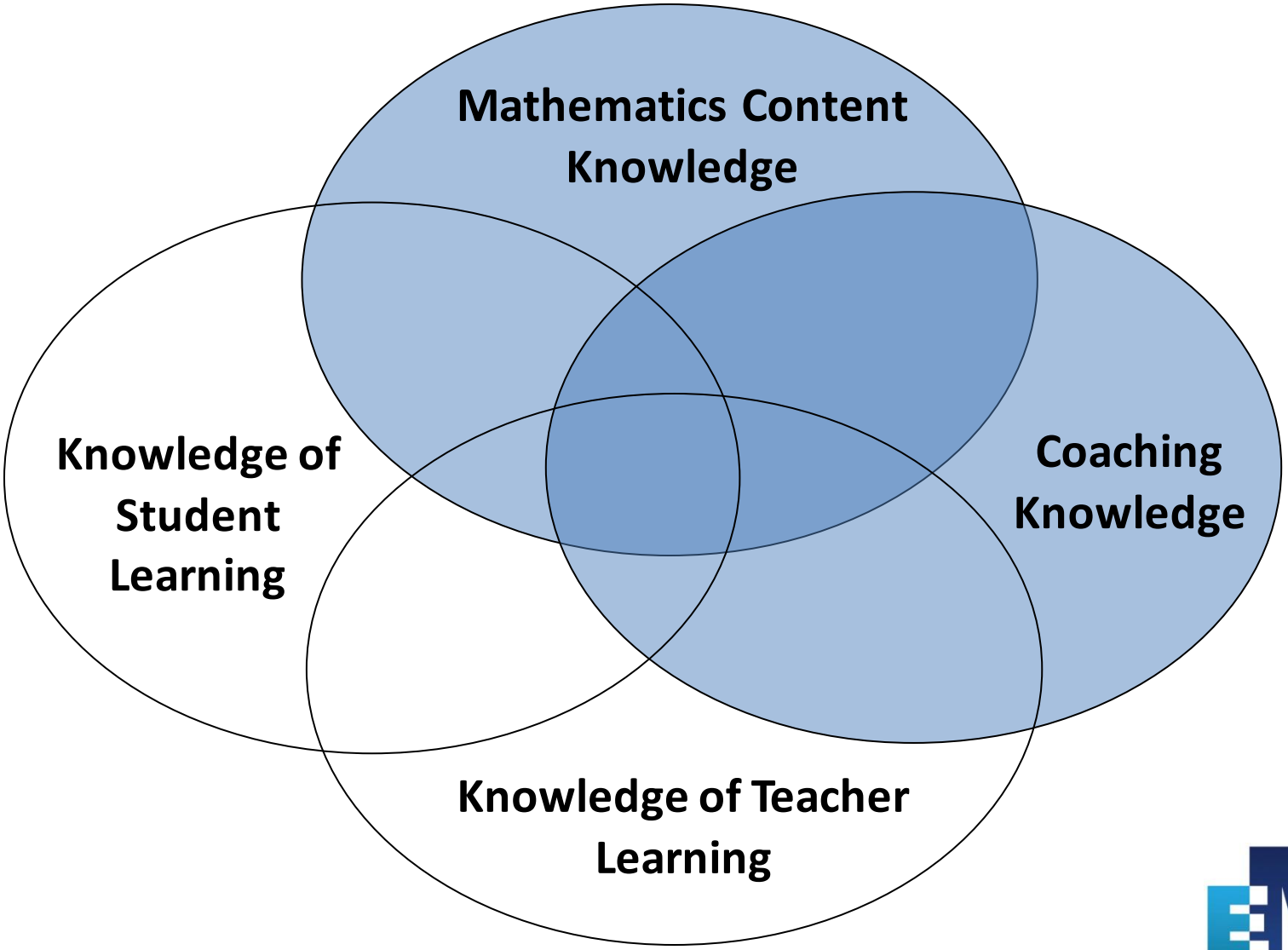
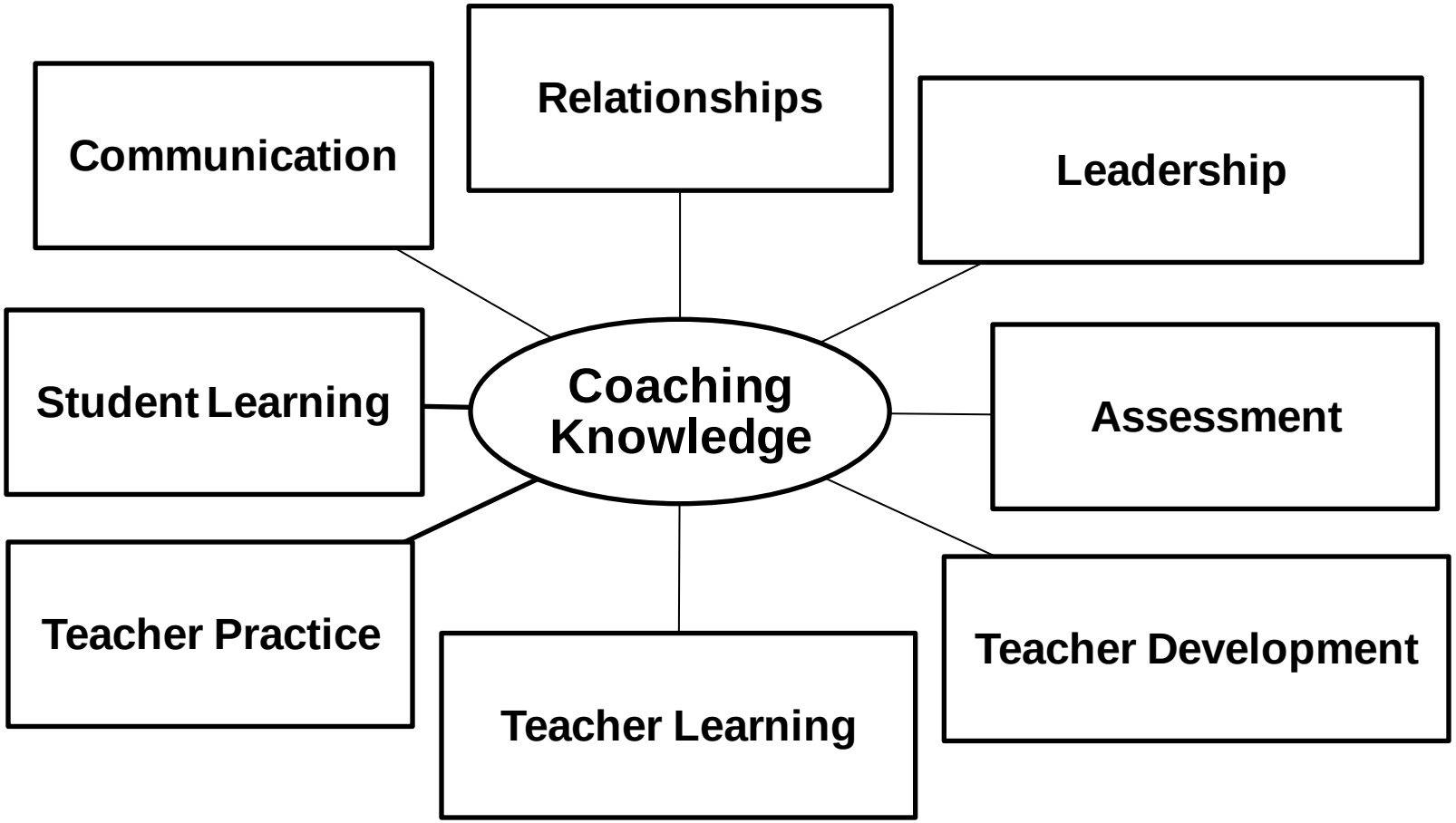
The Examining Mathematics Coaching Project (EMC)

- Investigating knowledge that contributes to successful coaching in two domains:
  - Coaching knowledge
  - Mathematics content knowledge
- The influence of these knowledge domains is examined in two ways:
  - investigating correlations between assessments of coach and teacher knowledge and practice in each domain.
  - investigating causal effects of targeted professional development for coaches.

KNOWLEDGE DOMAINS



Coaching Knowledge Domains



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.

EMC Qualitative Study

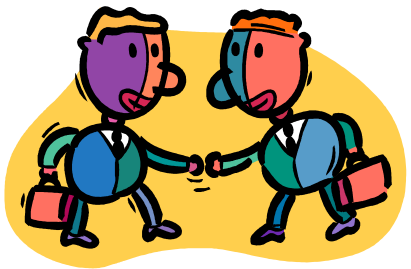
Dynamics of Coaching Interactions	Content of Coaching Interactions	Context
• ways the coach and teacher communicate; • what the coach and teacher communicate about; • what role(s) do the coach and teacher demonstrate (e.g., active, passive, collaborative, directive, etc.); • ways that respect is demonstrated between the coach and teacher; • what relationships are presented (e.g., collegial or hierarchical, etc.); and • what levels and type of engagement are present in the coach and teacher interaction.	• what the interaction is focused on and what is emphasized (e.g.,, management, pedagogy, mathematics content, needs sensing, reflection, counseling, etc.); and • what is done by the coach and/or teacher to prepare for sessions: (i.e., gather materials, reviewing research, etc.). • what strategies/ techniques does coach employ (e.g., reflective question, needs assessment, counseling, mentoring, instructional) etc.	Multiple settings, including: • Coaching session: location, when (e.g., between classes, break time, beginning of day, end of day, etc.), length of the session (fly-by), etc.; • In the Classroom: coach role as co-instructor, modeling, working with kids, observer; and • Coach role within larger school context: (e.g., administrator, colleague of teachers, teacher leader, etc.) what does it look like (talking with other staff, talking with administrator, etc.).

SOME OBSERVATIONS

- Coaches spent a great deal of time working on relationships.
- Coaches spent time marketing themselves (most teacher enrollment was voluntary; some operated from principal referral model)
- “Coaches” spent most of their time in activities better described as mathematics specialist roles:
  - Rallying interest in summer PD offerings
  - “Walk-throughs”
  - “Stop and chats”
  - Compliance monitoring

Coaching Observation Protocol

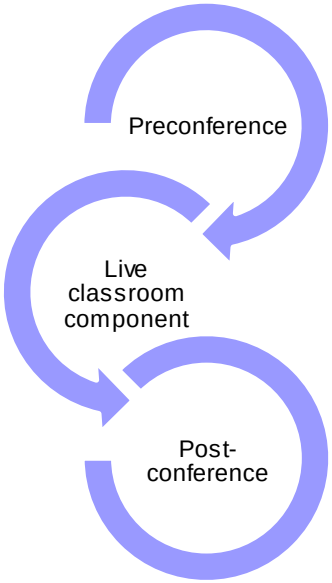
- We could build an observation protocol with face validity from our knowledge of coaching literature and our definitions of coach knowledge
- It would be easy to build (from existing models), however:
  - It would be inauthentic.
  - It would fail to capture the enactment of coaching as manifested in the field.



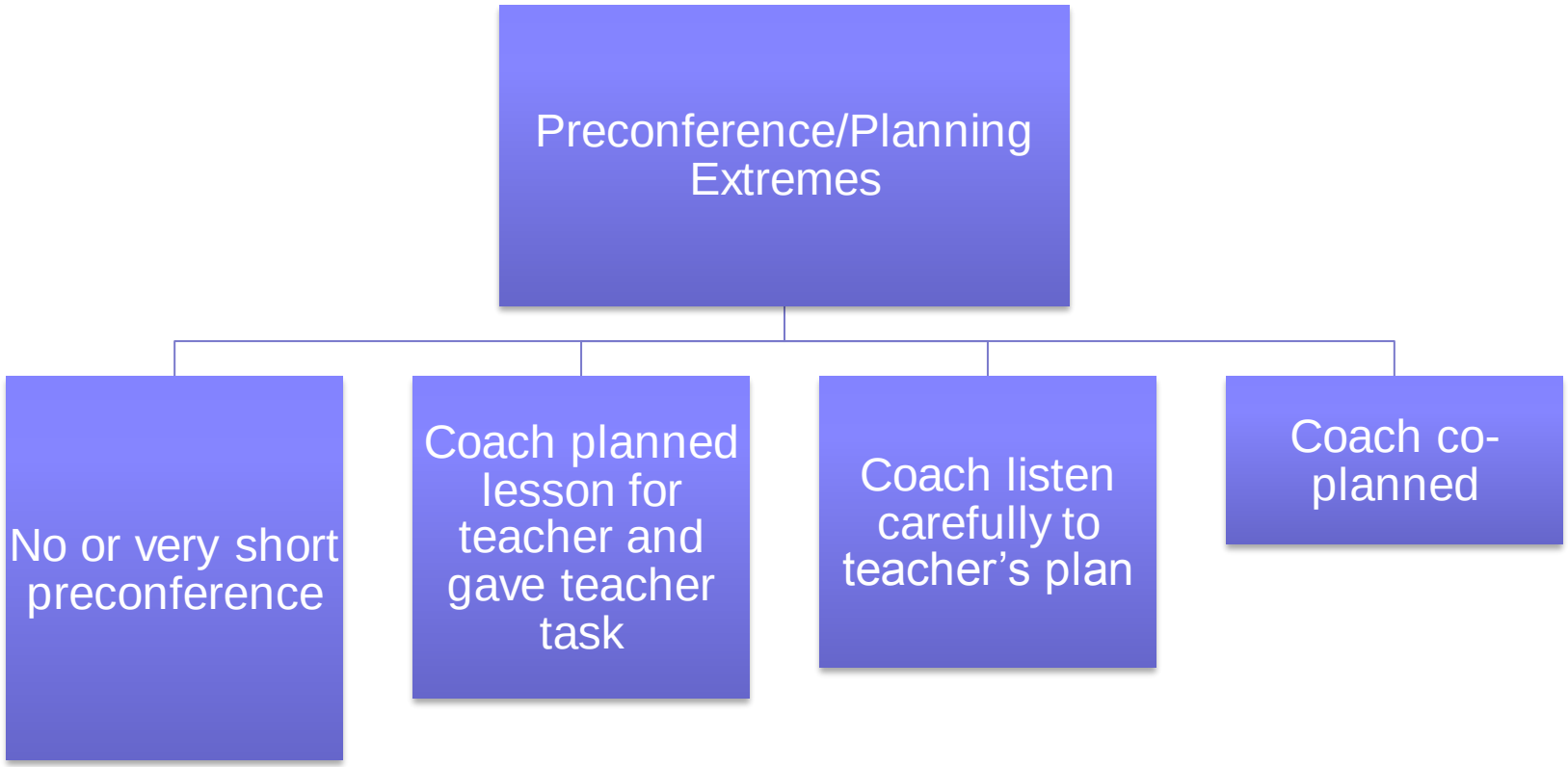
COACHING CYCLE

There is some consensus in the literature that “a” coaching cycle should have:

- Preconference session
  - Planning
  - Listening
- Live classroom component
  - Observing and collecting data
  - Modeling
- Post-conference session
  - Reflection
  - Next steps



Planning Extremes



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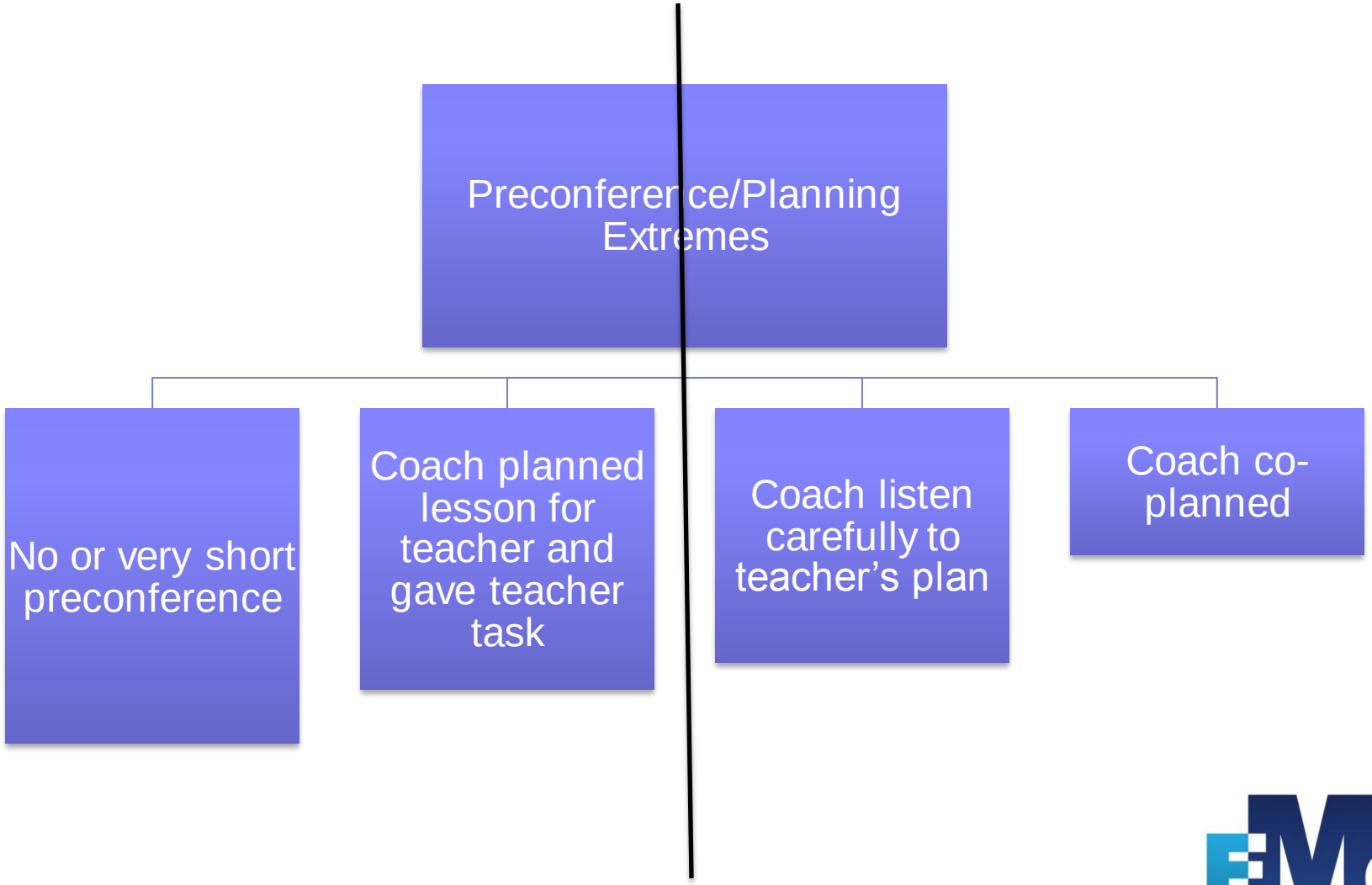
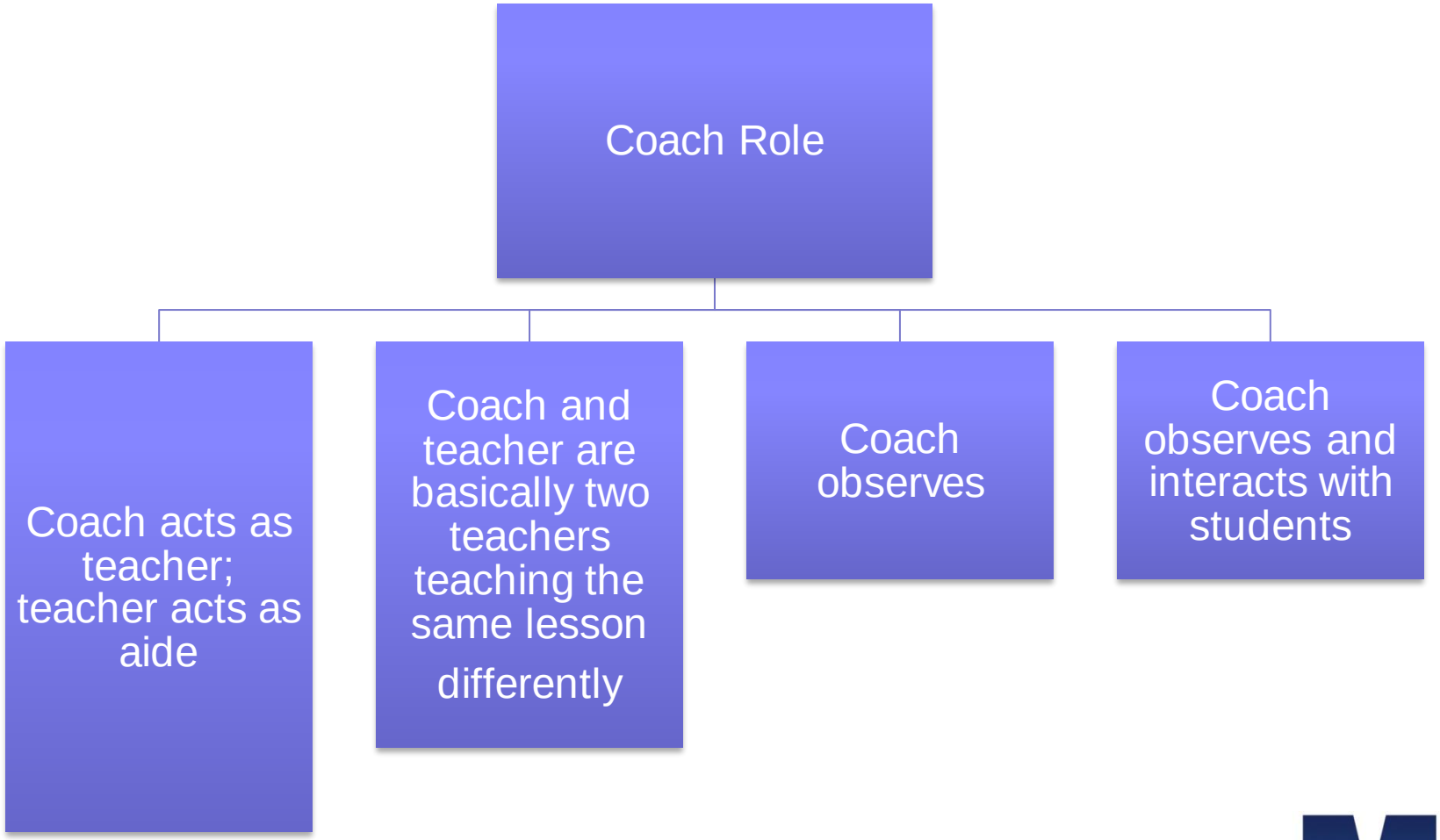


EMC COACH OBSERVATION

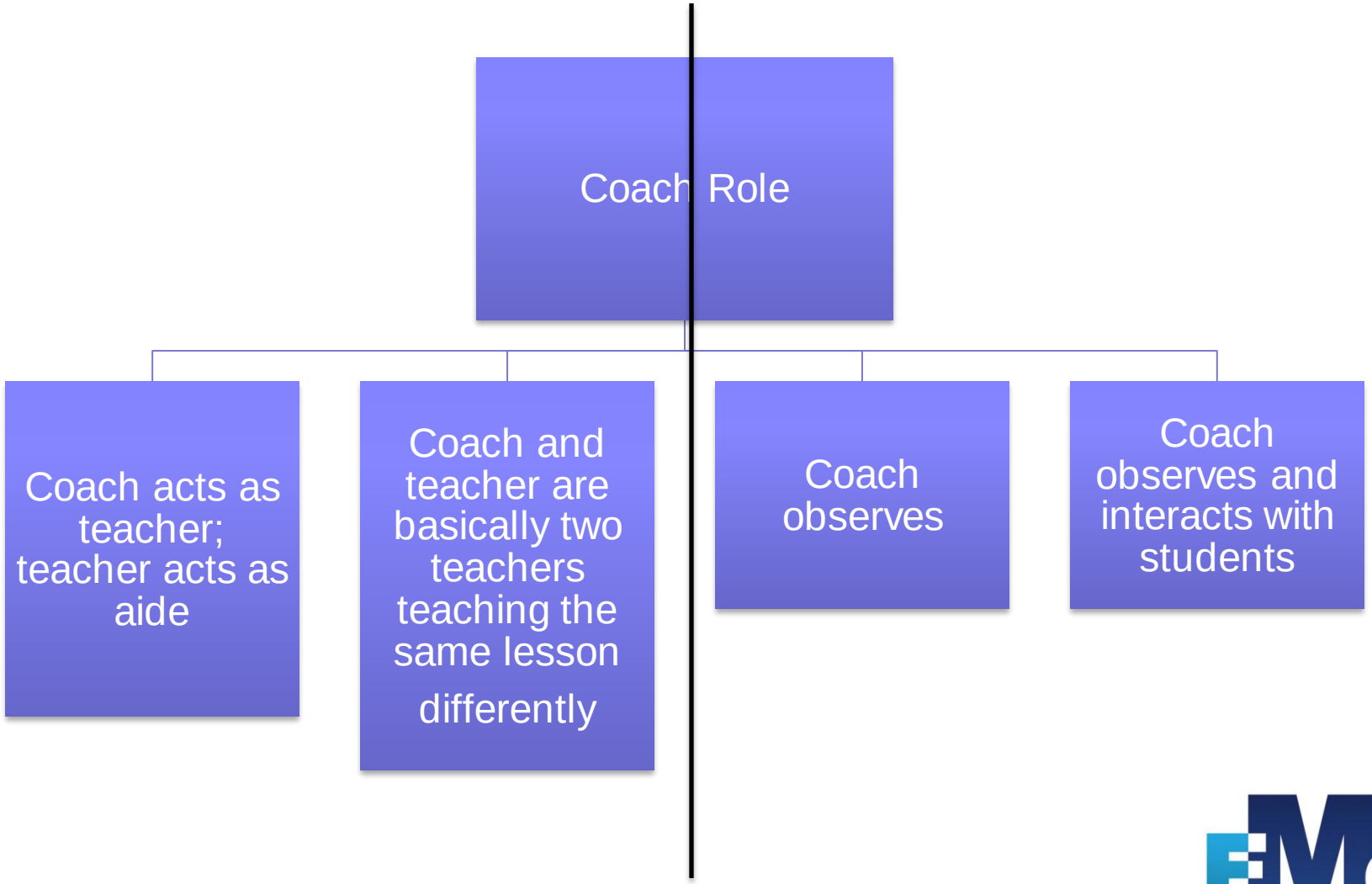
- Coach and Teacher Planning
  A. Coach planned the lesson – informed the teacher they will be working with a group of students – touched base right before the lesson to discuss the routines for the mathematics lesson with the modeling to be accomplished.

  B. Co-Planning of lesson – Together the coach and teacher think about different choices for “tools” – manipulatives or visuals Teacher talks about when the lesson will take place, and what the lesson guide says they are supposed to do. Together they make some notes looking at the lesson in the textbook.

Classroom Interaction Extremes



Classroom Interaction Extremes

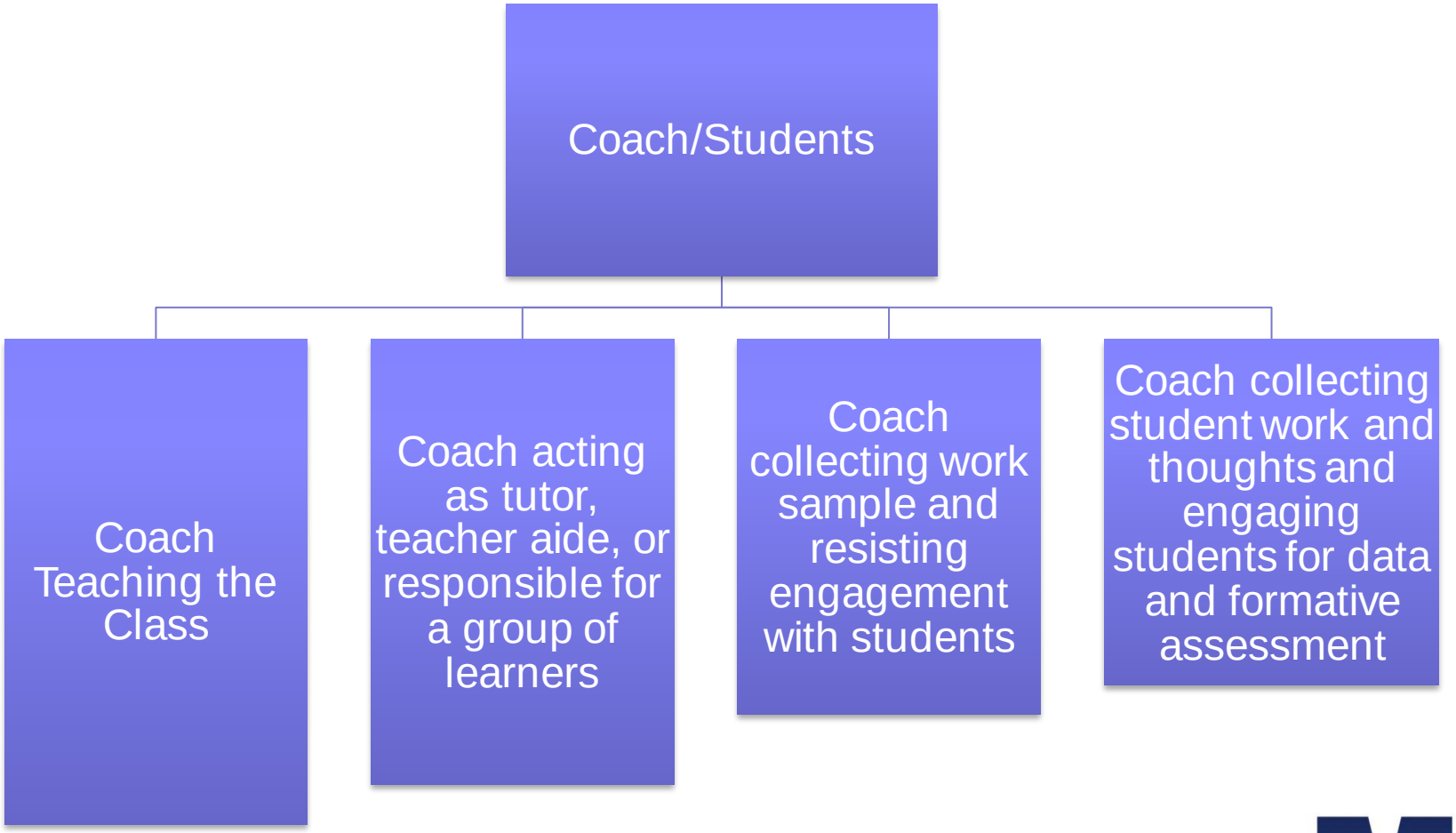


EMC COACH OBSERVATION

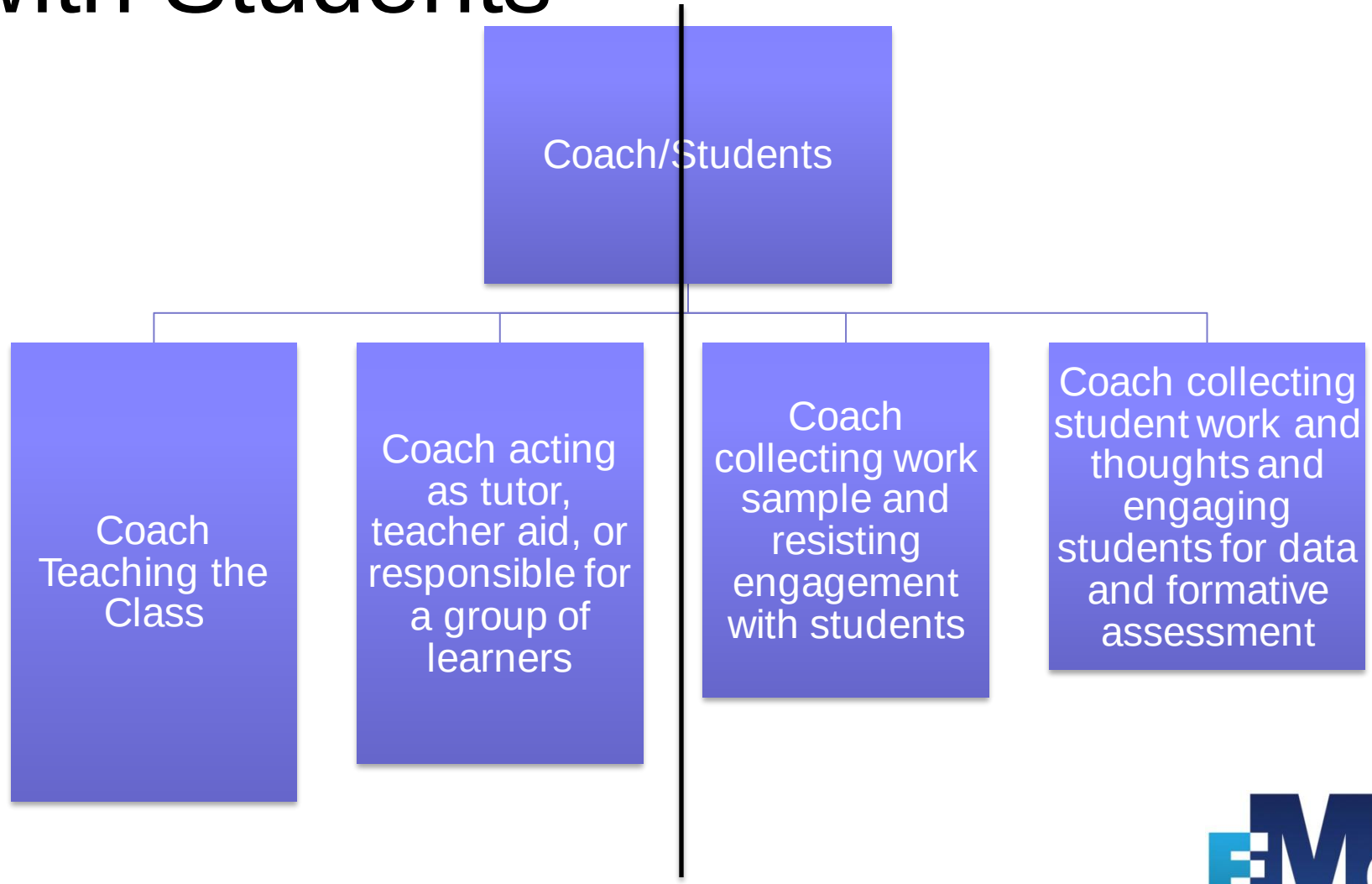
- Coach and Teacher Interactions in the Classroom
  A. Coach acts as teacher; teacher acts as teacher aide – coach planned the lesson, gave teacher their role – teacher didn't know enough about the lesson and needed to ask the coach what to do with students

  B. Coach and Teacher both teaching, just not together – neither coach nor teacher discussed or understood roles in advance – each teaching the lesson differently – acting as two teachers in the same classroom without it being coordinated or collaborative

Coach Interaction/Engagement with Students



Coach Interaction/Engagement with Students



EMC COACH OBSERVATION

- Coach Interactions with Students
  A. Coach works with a group of students to help them learn
     1. Difficult to determine whether the coach is actually using the information from working with students

  B. Coach works with or observes students to gather data
     1. Coach is taking pictures of student work and turns student down to answer question
     2. Coach was working with students and heard them say … (observer heard coach share this with the teacher in coaching conference)

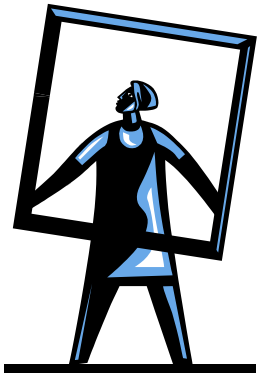
EMC COACH OBSERVATION

- Pre-observation Conference (Coach and Teacher Planning)
- Observation (Coach and Teacher Interactions in the Classroom)
- Post-observation Conference (Coach Interactions with Students)

It is important to observe the full coaching cycle to determine fidelity to the process and determine coach and teacher roles, co-planning and collaboration, modeling of strategies, data collection and reflection on the practice.

Considerations

- In a small group or with a neighbor:
  - Discuss ways you could measure the practice of coaching.
  - Discuss ways you think you could quantify the results?
  - Discuss uses for this type of instrument (i.e., communicating with administrators, identifying areas for coach professional development, conversations with coaches to improve their practice, etc.)



Framing the Picture

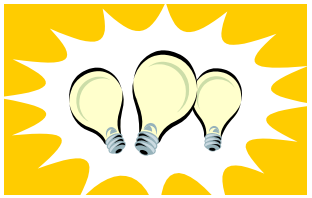
- Share out one item from your group for each of the three bulleted items.
- Continue around the groups.

Coach Observations

Questions ???

Ideas ???

Comments ???



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