Embedded Instruction: Supporting Individualized Learning Goals within the Mainstream Lesson

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This session will focus on:

- embedded systematic instruction to teach academics to students with significant intellectual disability.
- planning and implement grade-linked instruction in English/language arts, mathematics, and science aligned to the outcomes
- models of instruction will be provided with curricular frameworks and lesson plans with explicit guidance.
- strategies that can be used to collaborate with general educators, to generate grade-linked lessons in core academic content areas.
- implementation feasibility, K-12 application, and inclusive practices

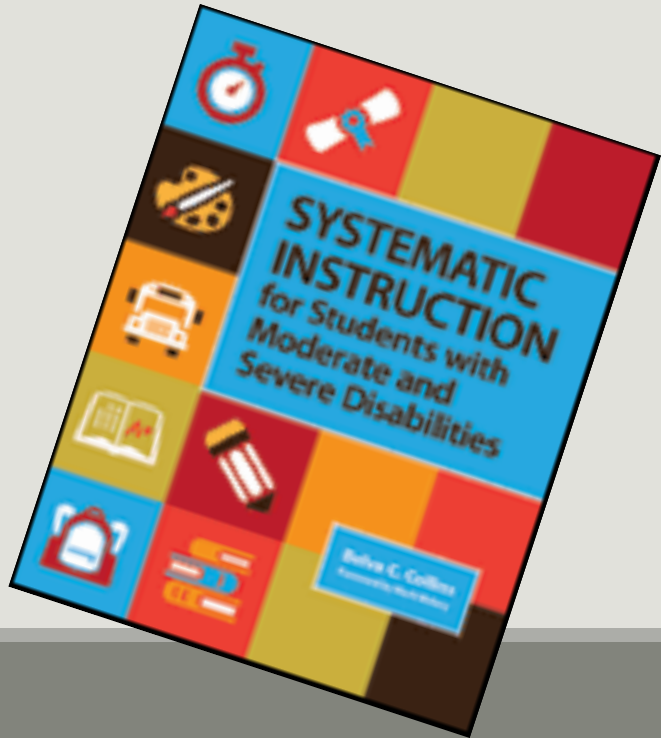
Systematic Instruction: An Evidence Based Practice

To teach:

ACADEMICS

Spooner, Knight, Browder, & Smith (2011)

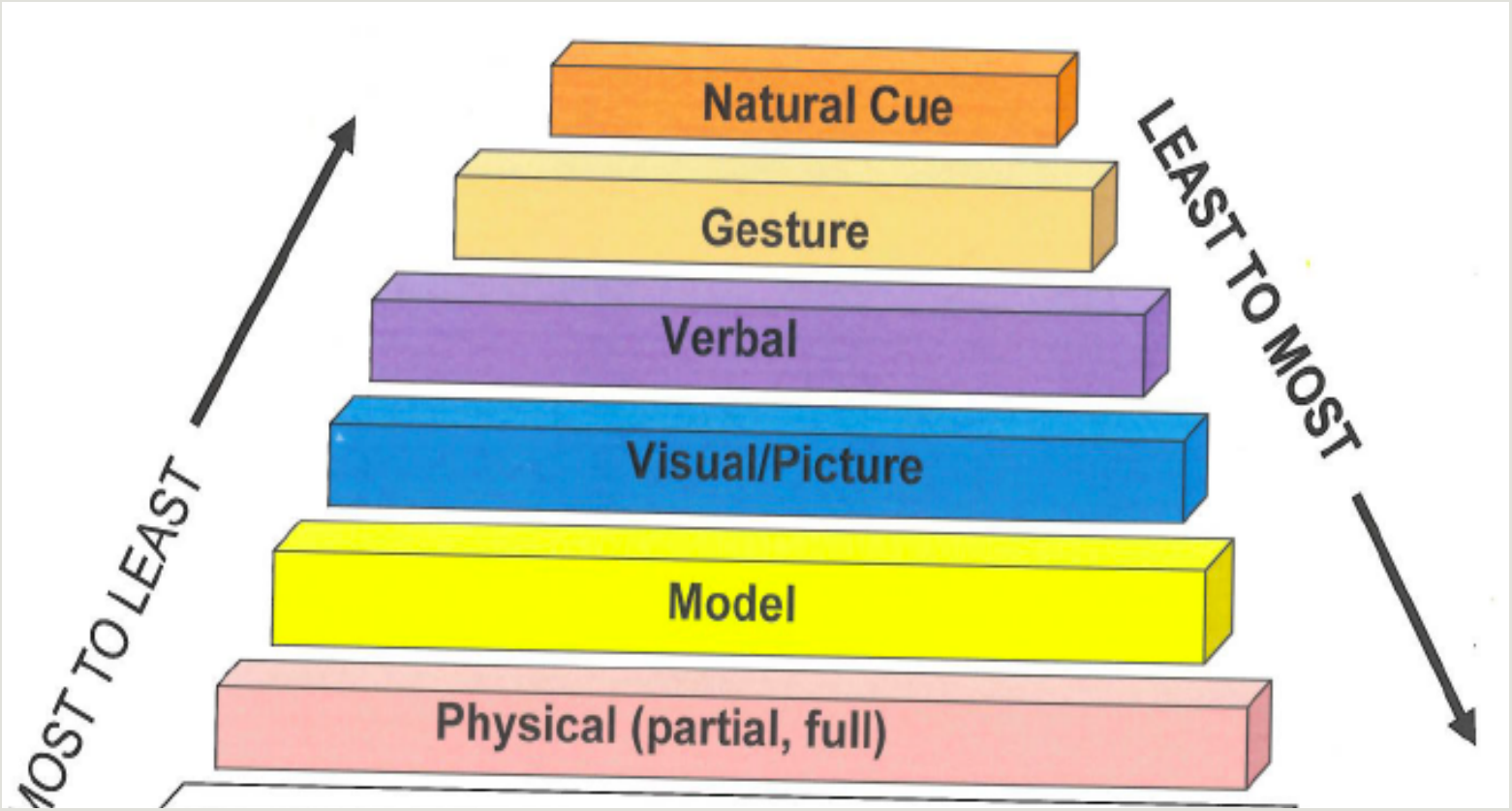
Spooner, Knight, Browder, Jimenez, & DiBiase, 2011



Examples from the Field

Specifically time-delay, task-analysis, and prompting hierarchies were found to be effective strategy when teaching reading and literacy skills, science and math to students across all grade levels.

Prompting Hierarchy



Barriers and Concerns

Students with severe disabilities have intensive support needs (Kennedy & Horn, 2004)

Spooner, Dymond, Smith, and Kennedy (2006) described the “multifaceted” barriers to providing students with significant intellectual disabilities access to the general curriculum

MIXED MESSAGES

Massed vs. *Distributed Trials*

Instructional targets occur one after the other with no time between each

"acquisition and initial learning"

Instructional targets are naturally embedded in ongoing activities throughout the day

"facilitates generalization"

Definition of A Practice

Jimenez & Kamei (2013): comprehensive literature review

-Embedded instruction, academic outcomes, moderate & severe intellectual disabilities

"explicit, systematic instruction designed to distribute instructional trials within the on-going routines and activities of the performance environment"

McDonnell, Johnson, & McQuivey, 2008

Is embedded instruction an Evidence-Based Practice?

Comprehensive literature review (Jimenez & Kamei, 2013)

- Inclusion Criteria
- Horner's (2005) quality indicators
- Horner et al. (2005) criteria for single subject studies to prove an EBP
  - ✓ 5 quality studies
  - ✓ 3 independent research teams
  - ✓ 20 participants
  - ✓ 3 geographical locations

11 studies met criteria (Horner et al. 2005; NSTAAC, 2010)
Strong or moderate (acceptable) levels of causal inference.

	Collins et al.(2007)[b]	Jameson et al. (2007)[a]	Jameson et al. (2008)[a]	Jameson et al. (2012)[a]	Jimenez et al. (2012)[a]	Johnson, & McDonnell, (2004)[a]	Johnson et al. (2004)[a]	McDonnell et al. (2002)[b]	McDonnell et al. (2006)[b]	Polychronis et al. (2004)[a]	Riesen et al. (2003)[a]
Participants											
Described sufficiently	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Selection described sufficiently	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Setting											
Setting described sufficiently	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Dependent variable (DV)											
Described with replicable precision	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Quantifiable	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Measurement described to replicable precision	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Measurement occurred repeatedly	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IOA data reported	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Independent variable (IV)											
Described with replicable precision	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Systematically manipulated	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Procedural fidelity described	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Baseline procedures											
Phase provided evidence of pattern, prior to intervention	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Described with replicable precision	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Results											
Three demonstrations of experimental effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Design controlled threats to internal validity	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Effects replicated, indicate external validity	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Social validity											
DV socially important	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

is embedded instruction happening?

- 11/11 studies used EI in the inclusive classroom

Elementary (6)

Secondary: Middle Schools (8) & High Schools (1)

can I embed learning trials?

Role Call, bathroom breaks

Transitions (e.g., lecture to science lab)

Cooperative Learning Groups

Ongoing lesson

Science = 7
Math = 2
LA = 6
Social studies = 3

embeds the instruction?

GENERAL EDUCATORS (4) (e.g., Polychronis, McDonnell, Johnson, Riesen, & Jameson, 2004)

SPECIAL EDUCATORS (3) (e.g., Collins, Evans, Creech-Galloway, Karl, & Miller, 2007)

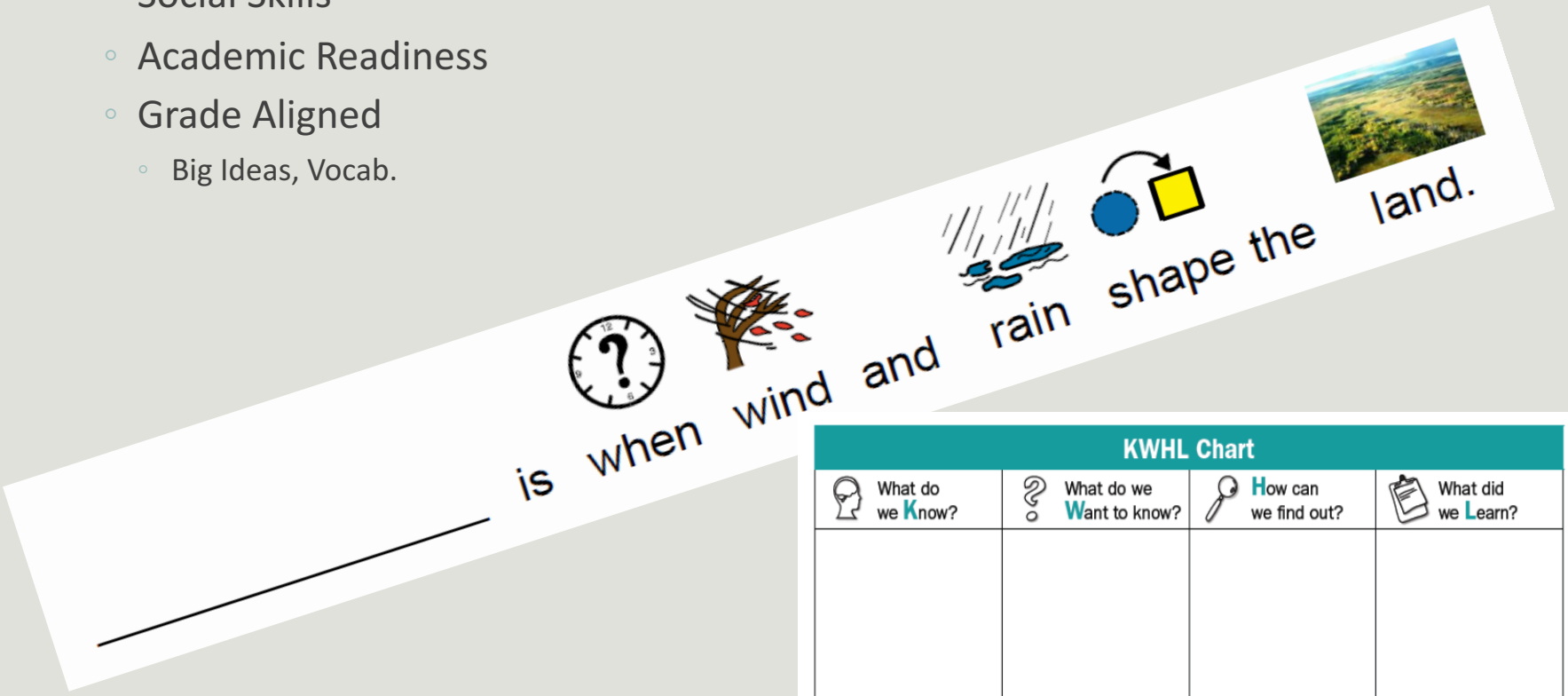
PARAPROFESSIONALS (5) (e.g., Riesen, McDonnell, Johnson, Polychronis, & Jameson, 2003)

PEERS (3) (e.g., Jameson, McDonnell, Polychronis, & Riesen, 2008; Jimenez, Browder, Spooner, & DiBiase, 2012)

But . . . How do I “make it happen”

Identify student academic goals

- Social Skills
- Academic Readiness
- Grade Aligned
  - Big Ideas, Vocab.



KWHL Chart			
What do we **K**now?	What do we **W**ant to know?	**H**ow can we find out?	What did we **L**earn?

Example of word/picture/concept set for Unit 2.

Kinetic energy

_____is the energy of motion.

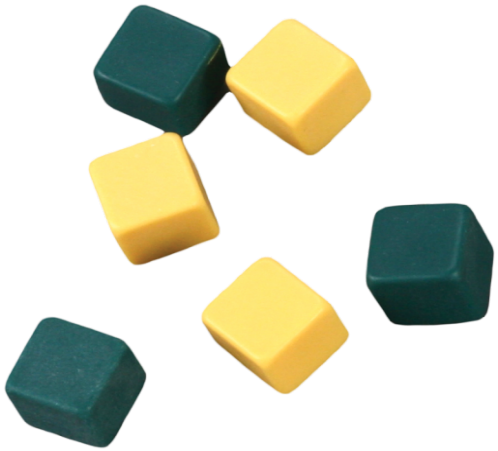
Generalization of “instruction” to Inclusive Math Class

- 3rd, 4th, or 5th grade
  - Based on chronological age; not math achievement
- Target skills identified from special education teacher/class lessons
- Taught by teaching assistant in general education math class
- Taught using embedded instruction

Example

General Education Math Lesson

- Using sets to develop understanding of multiplication or division
  - Creating 3 sets of 4
  - Dividing 12 into 3 sets



Embedded instruction

- Create sets up to 5 (skill learning in Early Numeracy instruction)
  - Generalized to general education math materials for creating sets
  - Extended to multiplication
- Can select number from number line to label sets
  - Using number line from Early Numeracy instruction in general education math classroom
- May be able to count to find multiplication answer

Inclusive Education

Embedded skills delivered by paraprofessional

4-5x per week

Overall Fidelity %: _____Early Math INCLUSION TA Fidelity – Level 2.1 **2010**

- ONLY need to embed 1 trial of 6 skills within lesson. Do you not score after 6th skill is embedded (if applicable).

Math Skills Identify 6 math skills to embed per lesson. If opportunities arise to embed more - great!	Prompts	Embedded Skill	Used TD	Used Appropriate prompt/feedback
1. Count 1-5 moveable objects by pushing each across a line	Count like this: 1..2..(etc.) Move each item off the line as you count. Count them all and then say, "Your turn to count."	+ –	+ –	+ –
2. Count 1-5 non-moveable in line	Count like this: 1..2..(etc.) Touch each item as you count. Count them all and then say, "Your turn to count."	+ –	+ –	+ –
3. Identify the number 1-5	3…now you say it.	+ –	+ –	+ –
4. Make sets (1-3)	Put four in my circle like this: 1,2,3,4. Now you try.	+ –	+ –	+ –
5. Add premade sets with sums to 5 (individual sets of 1-3) "all together"	Let's count to add like this, 1,2,3 …4,5. Now you try. Note: don't say "plus"; just count the items.	+ –	+ –	+ –
6. Match the symbol = (same)	This is "same". You touch it.	+ –	+ –	+ –
7. Identify ABAB patterns (from 2 or more options)	Here is the ABAB pattern. See it's red/blue; red/blue (or whatever it is). Now you touch it.	+ –	+ –	+ –
8. Calendar skills (ID date 1-5, count "later" 5 or less days.	Here's the 2…now count up 3 like this-1,2,3. It's the 5th! Now you do it.	+ –	+ –	+ –
9. Measurement (nonstandard — 1-5 objects)	Measure it like this. Let's see, there are 1,2…etc. Now you try.	+ –	+ –	+ –
		____/6	___/6	___/6

TOTAL: _____/18

Example of an Embedded Instruction Planning Form

Student Michaela Unit Two Date 11/12/13

Lesson components	Describe embedded instruction and how student will participate	Describe what worked well and what needs refining
1 Teacher Input/Introduction to Lesson		
2 Guided Practice		
3 Group Activity	Michaela will participate within a group. Assign peer buddy for writing assistance.	
4 Independent Practice/ Worksheet	Use same worksheet as entire class, but Michaela will solve problems using numbers 1-5. Michaela can also use a calculator for the worksheet problem.	
5 Closure		

Comments:

“Make it Happen”

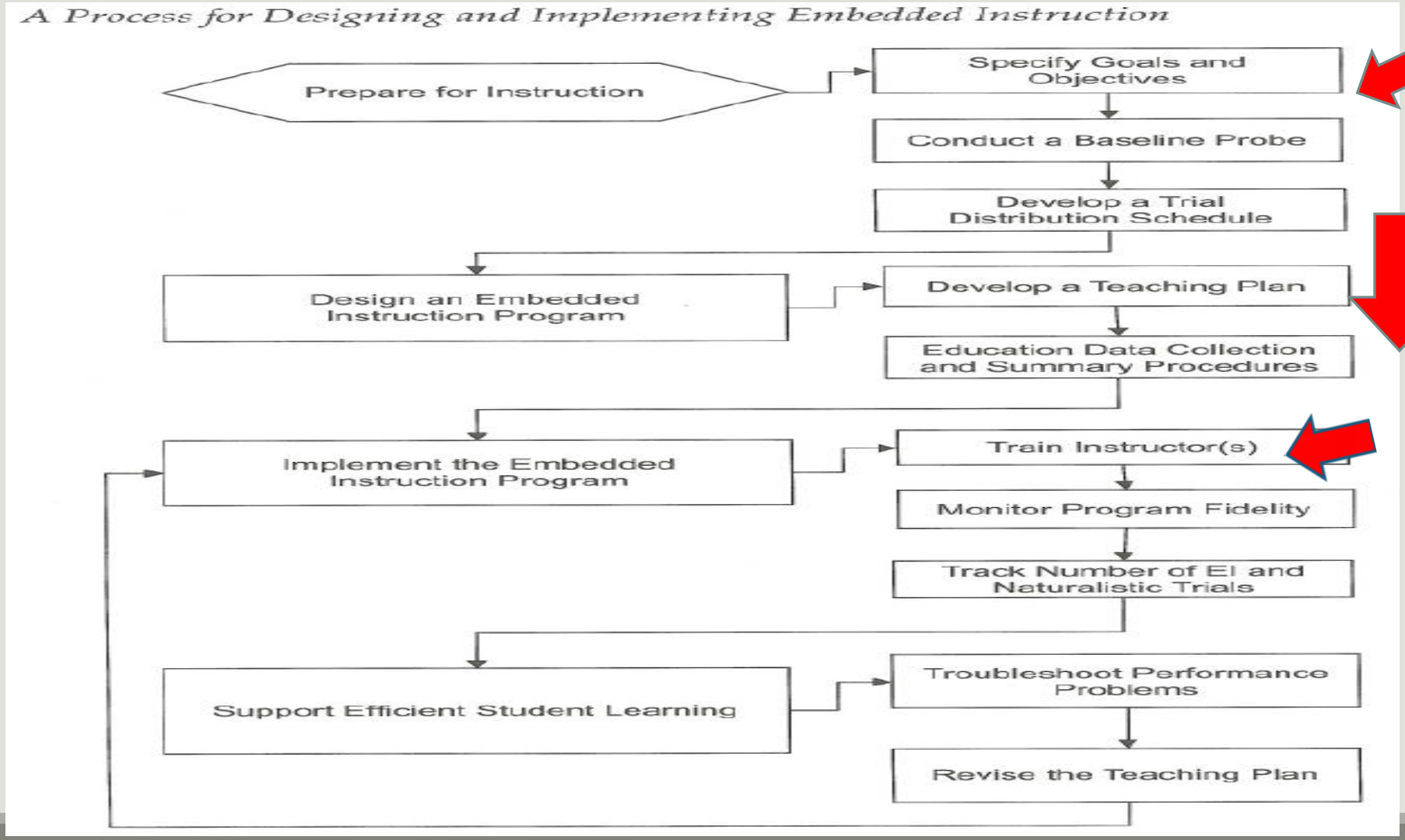


Figure 2-1. McDonnell, Johnson, & McQuivey, 2008

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