Using a Practicum to Train Tutors for Developmental Mathematics

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Different approaches to tutoring
Advantages of a practicum
Credits and schedule
Instructor
Content
Assessment
Identifying students
Issues
Questions
Approach One

The student learns by
- Being retaught.
- Watching others do similar problems.
- Looks like...
Approach One

- Assumes that the student gains enough conceptual understanding from examples to generalize and solve other problems.
- May be focused on algorithms and "problem types" rather than concepts.
Approach One

- Evaluate

\[
\frac{3}{8} + \frac{5}{6}
\]
Approach Two

- The student learns by
  - Answering questions.
  - Explaining his/her thinking.
  - Explaining why.
  - Finding similarities and differences.
  - Looks like...
Approach Two

- Assumes that the student needs conceptual understanding before practicing algorithms.
- Assumes that a student who needs help benefits less from showing and more from doing.
Approach Two

- Evaluate

\[
\frac{3}{8} + \frac{5}{6}
\]
Advantages of Practicum

- Cost
- Student schedules
- Connection to content and classroom practices
- Observation and mentoring
- Demonstration project
Instructor

- Developmental math faculty
- Talks to other faculty
- Interested in learning theory
- Model of good tutoring
- Coach
- Can build a climate of trust
- Encourager and listener
Credits and Schedule

- One class per week (1 hr 15 min)
- Two credits – 200 level
  - Class, 3 hr tutoring, 1 hr observation
  - Homework
- Three–four credits – 400 level
  - Class, 4 hr tutoring, 2 hr observation
  - Homework
Practicum Content

- Professionalism
- How to Tutor
- Mathematics Content
- Learning Theory
- Class Observation
Professionalism

- Academic dishonesty
- Confidentiality
- Dress, speech, attitude
- Boundaries
- Safety
- Instructors and other tutors
- Student in crisis
How To Tutor

- Ask questions
- Emphasis on concepts
- Seldom write; sit on left
- Realistic encouragement
- Control the tutoring
- Admit that you don’t know
Mathematics Content

- Compare content and approach within courses and in sequence.
- Improve conceptual understanding.
- Emphasize application problems.
Learning Theory/Psychology

- Background for tutor
- Fear of failure
- Learned helplessness
- Personal responsibility
- Anxiety
- Learning styles
- Constructivism
Class Observation

- Different pedagogies
- Different approaches to content
- Students know their face.
- Improves conceptual understanding
Typical Class

- How’s it going...
- Discussion of reading
- Short content lecture with questions
- Practice tutoring; instructor observation and comment.
Assessment

- Journal (loose leaf notebook)
  - Activities/notes and reflection
  - Tutoring log and reflection
  - Observation log and reflection
  - Readings and Responses

- Homework
Date _____
Description of Class Activity or Lecture

Reflections about this activity or lecture
Tutoring Log and Reflection

Date ____  Number of students _____

Topics in which I need more preparation:

Reflection:
Date ____  Class _____  Instructor ______

General observations:

Most difficult topic for students in this class:
Response to Assigned Readings

- Answer assigned questions.
- Word processed
- Appropriate English.
- Reading and response included in journal
Response to Assigned Readings

- Summarize what you have learned about “learned helplessness.”
- Have you ever known anyone who had “learned helplessness” about math or something else? Describe their behavior.
- What do you think you might observe when tutoring a student with learned helplessness?
Response to Assigned Readings

- Summarize what you have learned about “learning styles.”
- What do you think is your dominant learning style?
- Describe how a teacher who you have observed has taught to a variety of learning styles.
- Will knowing about learning styles change the way you tutor? Explain.
Homework

- Exercises from dev. math classes.
- Emphasis on applications and using the problem solving format.
- Questions that require students to “explain why” or “describe how you would teach this.”
Identifying Students

- Minimum requirement: completion of Intermediate Algebra with an A or B. and instructor recommendation.
- Liberal arts math; science classes
- Mathematics for Elementary Teachers
- Elementary ed/math minor
- Math secondary education
Issues

- Tutors
- Tutees
- Tutoring Location
- Faculty
- Tutoring after Practicum
Questions

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