

FLIPPED MATHEMATICS INSTRUCTION OBSERVATION PROTOCOL

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Introduction

- Flipped instruction is a model of instruction in which the lecture portion of a class is delivered electronically by video.
- Many variations of flipped implementations exist in mathematics, however extant classroom observation protocols do not adequately capture the nuances between these different variations.
- Our Flipped Mathematics Instruction Observation Protocol (FMIOP) draws upon existing frameworks and consists of two main lesson components: *in-class* and at-home.
- The *in-class* component captures two aspects of the lesson: instructional quality and interactivity.
- The protocol also distinguishes the whole-class and the non-whole-class activity formats.
- The *at-home* components are examined along three aspects: instructional quality, multimedia design, and interactivity.
- Looking ahead, due to rapid changes in technology, our observational tools must advance to account for key features of instructional videos, and their use in mathematics instruction.

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References

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| Format | | | Individual Work | Non-Instructional Time |
|-------------------------------|--|--|--|--|
| | (WCD) | (GRP) | (IND) | |
| Descriptio | All students are expected to attend to public discourse. | Students are expected to work in groups. | Students work individually or in voluntary groupings (No clear expectation for them to work in groups). | Segments are devoted tonon-instructional tasksgenerally. |
| Duration (min | ns.) 12 | 0 | 34 | 4 |
| | At-Home | | In-Cl | ass |
| | Video/Multimedia | | Lesson Char | acteristics |
| Unclear | r Focus Explicit | | Focu | IS Explicit |
| Voice Over | er Narrator Type Lecture Cap | oture | Weak Kation | |
| Embedded Questions | s | nipulative | Disjointed | |
| | Lecture Rationale | | Whole-Class Format Engager | nent Most On |
| Set- Up/ Motiv ation | Instructional Quality Multimedia Design Not Contiguity On Sam | d Narration tion aneous | Instructional Quality Rules & Facts Math Deve Major Unmitig. Math Math Repress Math Conr Recall Math Conr Interactivity Teacher Math Aut Brief Video/Media In Short Public Invol Sharing | th Errors No Errors sentations Integrated hections Substantial thority Class nvolvement Explicit Verment Several Lengthy |
| Set- Up/ Motiv ation | Instructional Quality Multimedia Design Not Contiguity On Sam Modality Animated Redundancy Description Irrelevant Coherence No Extraction | ne Screen d Narration tion aneous | Rules & Facts Math Deve Major Unmitig. Ma Main Math Repres Not Integrated Math Conr Recall Math Conr Interactivity Teacher Math Aut Brief Video/Media In Short Public Invol Nature of Di | integrated integr |







