

Active Pedagogy in a GIS Classroom

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Outline

1. GIS at UW-Stevens Point
2. Flipped class procedure
3. Sample exercise
4. Advantages
5. Challenges
6. Student perceptions

GIS at UW-Stevens Point

- Geography major – Geographic Information Science and Cartography Option
- Majors – 15
- Minors – 45
- Professional Certificates – 17
- Students/year – approximately 750

GIS at UW-Stevens Point

- One GISystems course (<10% Geo students)
- Five core GIScience/Cartography/Remote Sensing courses (25% Geo students)
- Nine application/thematic courses (60-70% Geo students)
- Typical GIS Course:
 - 3 credits
 - Two 50 minute lecture periods per week
 - One 100 minute lab period per week

GIS I – Flipped Class

- Geographic Information Systems I
- Student discipline interest (Fall 2015):
 - Geography and Geoscience – 8
 - Planning – 11
 - Fire – 1
 - Wildlife – 1
 - Soils – 1
 - Forestry – 5
 - Fish/water – 3
- Pre-class assigned reading
- Screen capture video lecture
- Student acceptance

The Flipped Classroom

- Asynchronous video lectures
- Practice problems as homework
- Active, group-based problem solving activities in the classroom

Style	Inside Class	Outside Class
Traditional	Lectures	Practice Exercises & Problem-Solving
Flipped	Practice Exercises & Problem-Solving	Video Lectures

Bishop, J. L., & Verleger, M. A. (2013, June). The flipped classroom: A survey of the research. In ASEE National Conference Proceedings, Atlanta, GA.

In-Class Procedure

1. Form student groups
2. Assign roles
 - a. Manager
 - b. Presenter
 - c. Recorder
3. Set time limits (predetermined outline)
 - a. Pre-class assignment & assessment
 - b. Steps 1–4, 10 minutes/5 minutes
 - c. Steps 5–6, , 15 minutes/5 minutes
 - d. Step 7, 10 minutes/5 minutes

In-Class Exercise

- Bear Baiting Study
- Traditional delivery:
 - 35 minute lecture
 - 15 minutes exercise
- Flipped delivery:
 - External video lecture
 - 50 minutes exercise

Advantages

- Critical thinking engagement
- Small groups
- Individual student connections
- Students are participants
- More questions, opinions
- Social engagement with peers
- Group acceptance
- Roles change
- Full class period
- Improved instructor awareness

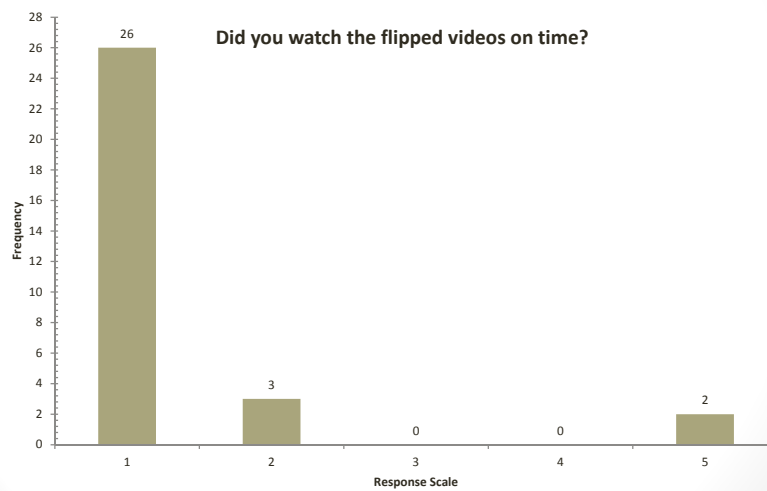
Challenges

- Class time
- Active schedule management
- Pre-assignment preparation key
 - Pre-assignment assessment required
 - Students cannot participate if pre-assignment not complete
- Role acceptance - Passive audience
- Diverse audience
- Instructor commitment

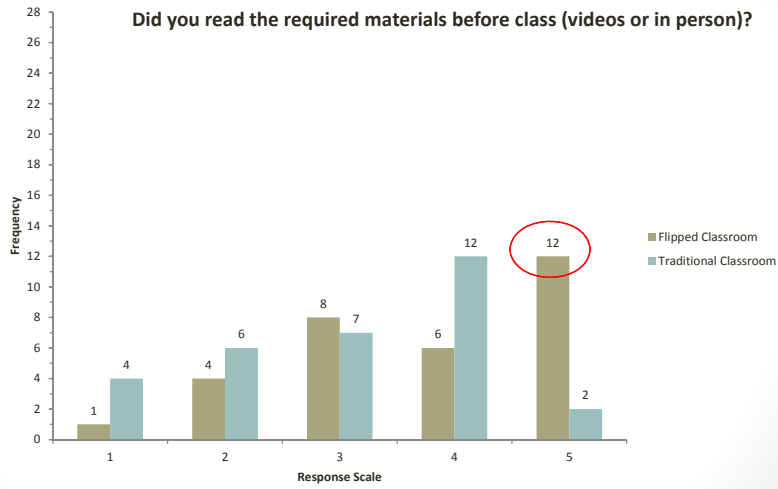
Student Perceptions

- Tuesday lecture period - watch videos
- Thursday lecture period - 45 minutes group work, 5 minutes survey
- N = 31
- Response Key
 - 1 = Agree
 - 2 = Slightly Agree
 - 3 = Neutral
 - 4 = Slightly Disagree
 - 5 = Disagree

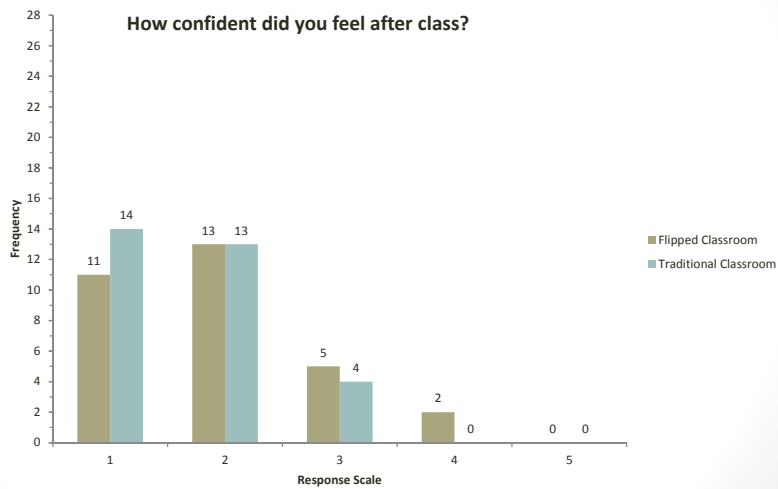
Student Perceptions



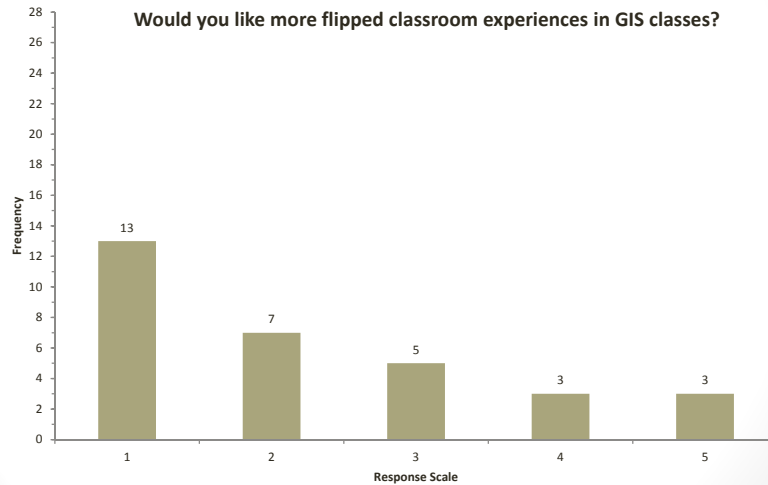
Student Perceptions



Student Perceptions



Student Perceptions



Student Perceptions

- Advantages
 - Video manipulation – 18
 - Convenient lecture experience – 12
- Disadvantages:
 - Could not ask instructor questions – 9
 - Videos were boring – 6
 - Not as personal – 3
- Suggestions to improve:
 - No suggestions - 15
 - Provide text notes with video – 5
- Most helpful of the flipped learning experience:
 - Self-paced learning – 15
 - Convenience – 4

Questions & Feedback

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