Spherical Display Systems in Higher Education

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SOS in Higher Education

• Little documented use of SOS for HE courses
  – Some evidence of use found through searches of the web, literature, network materials, etc.
  – Some exploratory data on student and faculty perceptions of SOS as a learning tool at JMU
Study

• Focus: US faculty members’ perceptions and use of Science on a Sphere

• Methodology: An online survey about classroom instruction and outreach was sent to 65 probable faculty users in late 2016

• Respondents:
  • 59 people identified had eligible email addresses
  • 19 people returned valid responses (~32% response rate)
  • 13 respondents used SOS for HE coursework
  • 11 respondents began using SOS three or more years before the survey was administered, and 12 respondents had used SOS in the past 24 months
Mapping of Reported Learning Outcomes (for 11 courses reported by 11 faculty)

Bloom’s Taxonomy

1 - create
   - Design, assemble, construct, conjecture, develop, formulate, author, investigate

1 - evaluate
   - Appraise, argue, defend, judge, select, support, value, critique, weigh

1 - analyze
   - Differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test

3 - apply
   - Execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch

10 - understand
   - Classify, describe, discuss, explain, identify, locate, recognize, report, select, translate

0 - remember
   - Define, duplicate, list, memorize, repeat, state
Mapping of Reported Learning Outcomes

Fink’s Taxonomy

- 8 -

- 1 -

- 4 -

Learning How to Learn
- self-directed learning

Foundational Knowledge
- understanding
- remembering

Application
- skills
- thinking
- managing projects

Integration
- ideas
- people
- realms of life

Human Dimension
- learning about:
  - oneself
  - others

Caring
- developing new:
  - feelings
  - interests
  - values

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Benefits and Barriers to Students

• **Benefits:**
  – Better & deeper understanding of content & processes
  – Active engagement in learning
  – Enhanced inquiry skills
  – A different view of data
  – Better memory of the material
  – Increased ownership & pride from creating something
  – Increased excitement about the material
  – An enjoyable experience

• **Barriers:**
  – Inconvenient location
  – Technology challenges
Benefits and Barriers to Faculty

• **Benefits:**
  – Enhanced student relations
  – Professional benefits
  – Excitement using SOS

• **Barriers:**
  – Creating or using data sets in desired ways
  – Managing presentations for a class
Opportunities

• Exploring learning outcomes in categories of creating, evaluating, and caring
• Creating content/lessons (by students and faculty)
• Measuring learning
• Understanding non-respondents’ use (40 faculty?)
• Understanding course use by international HE faculty
• Understanding faculty use for outreach
Your Turn

• Is your spherical display system used by higher education faculty in any of these applications?
  – Teaching
  – Research
  – Service or Outreach

• If not, do you have interest in using spherical display systems for higher education in any of these applications?
As a Group

• Is there a need to facilitate communication between higher education institutions?

• Are there materials to share for courses?

• Is there interest in research collaborations?
  – Any interest?
  – Topics?
  – Funding opportunities?
Thank you for participating!