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COMPUTER SCIENCE

Educators Symposium – MOOC Panel

NSF CE21 (#1240944)

- NSF and CSP4HS Context
  - Scaled from a local need to a national offering
  - Google CS4HS (Computer Science for High School)
    - http://csp-cs4hs.appspot.com
  - Computer Science Principles focus (NSF/College Board AP in US)
- Participant Summary
  - 1,048 participants from 45 US states and 6 countries
  - Primarily high school teachers (grades 9-12) in the US
  - Approximately 50% contributed some discussion
  - Only 5% completed full assignments (knowledge acquisition); most seem to just want access to curriculum and teaching resources (hunters/gatherers)
- Course Platform to Support Asynchronous and Synchronous Engagement
  - Asynchronous: Course Builder (using App Engine)
  - Asynchronous: Piazza for group large discussion
  - Synchronous: Hangouts on Air for broad messages (weekly “keynote” speakers)
  - Synchronous: Hangouts for “office hours”
- Production Details
  - Low budget: $25,000
  - Staff: 1 Graduate student, 4 undergraduates (film school), 4 content expert peer teachers
  - 87 videos on dedicated YouTube channel
    - 7 to 15 minute chunks + HoA and face-to-face training videos => ~35 hours of video (100 hours to record)
  - Effort: Estimate how long you think it will take, and then triple it
  - Videos, course pages, online assessments, 862 emails one day

Suggested Discussion Points

- Two Important Criteria for Evaluating MOOC Success
  - Purpose of the MOOC
    - Democratization vs geographical necessity
  - Intention for Participating
    - Skill/knowledge acquisition, hunter/gatherers, lurkers
- MOOCs and Modeling Courses
  - Richard's keynote – need for engaged interaction
    - Modeling feedback to students (Richard's keynote)
    - Modeling through experience not imitation (f2f better)
  - Some disciplines may have more success (e.g., Physics[1]) – why?
    - Deep refinement to develop understanding may work better face-to-face
    - Modeling tool support even more frustrating when learning online
  - Could a flipped classroom be a better option for a modeling course?
    - Content delivered through online videos, but project mentoring is face-to-face
  - San Jose State experience suggests challenges for remediation
    - Students in a modeling MOOC course need to be prepared and engaged
- Suggested Reference
  - Learning@Scale Conference (Vancouver, March 2015) – 2nd Year
    - Where Learning Scientists meet Computer Scientists

[1]http://newsoffice.mit.edu/2014/study-shows-online-courses-effective-0924