LEGO WEDO 2.0 ROBOTICS PILOT FOR TEACHERS

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BACKGROUND

• Previous work with Lego WeDo and Lego Mindstorms NXT
• Future work with Lego Mindstorms EV3
• Member of Lego Education Ambassador Program (LEAP)
WORKSHOP

• June 27-29, 2016
• Four teachers, in-service and pre-service
• Completed Lego-suggested projects
• Completed some of the open-ended projects
• Kit allows students to model reality, investigate, and design
• Projects aligned with NGSS, grades 2-4 (K-5)
GETTING STARTED PROJECTS

• Four projects
• Milo, the science rover
• Similar to NXT, rather than earlier WeDo
• Motion and tilt sensors
GUIDED PROJECTS

• Eight projects
• Physical science and biological science
• Examples: Pulling, Frog’s Metamorphosis
• Incorporate science with the building activities
OPEN PROJECTS

- Eight projects
- No building instructions, rely on structures from other projects
- Examples: Wildlife Crossing, Moving Materials
ASSESSMENT

• Lego, teacher-led assessment of students
• Observation rubric for Explore, Create, and Share
• Concentration on Create
• Four levels: Emerging, Developing, Proficient, Accomplished
• Participant self-assessment
RUBRIC AREAS

• Explore: I documented and used my best reasoning in connection with the question or problem.

• Create: I did my best to solve the problem or question by building and programming my model and making changes when needed.

• Share: I documented important ideas and evidence throughout my project and gave my very best when presenting to others.
RESULTS FOR “CREATE”

• One participant: Self-assessment of Accomplished
  • Tried to think of ways to take each design to the next level
  • Worked independently of instruction guide, after learning basic structures
RESULTS FOR “CREATE” (CONTINUED)

- Three participants: Self-assessment of Proficient
  - Understood what was built and able to modify
  - Comprehended content and concepts; needs to improve application [on open-ended projects]
  - Easily followed instructions; did not fully master open-ended activities to create something original
PARTICIPANT PROJECT REFLECTION

• Things done well
  • Innovate – make designs their own, create new designs
  • Follow directions on guided assignments (2)
  • Stayed organized, analyzed problem areas, fixed problems
• Things to improve upon
  • Develop the ELA part, rather than, just, the engineering part
  • Practice creating own designs with, both, bricks and programming
  • Modifying designs for different situations
  • Learn more about kit components, and when and how to use them
CONCLUSIONS

• Guided projects were easy to build, program, and comprehend.
• Additional time should be devoted to learning about the functions of kit components.
• Develop a sample organizational plan for approaching an open-ended project.
• Place an emphasis on cross-curricular learning, especially in ELA.