Elementary Robotics

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Tap creative play

- *Who is tapping into creative play? Are we?*

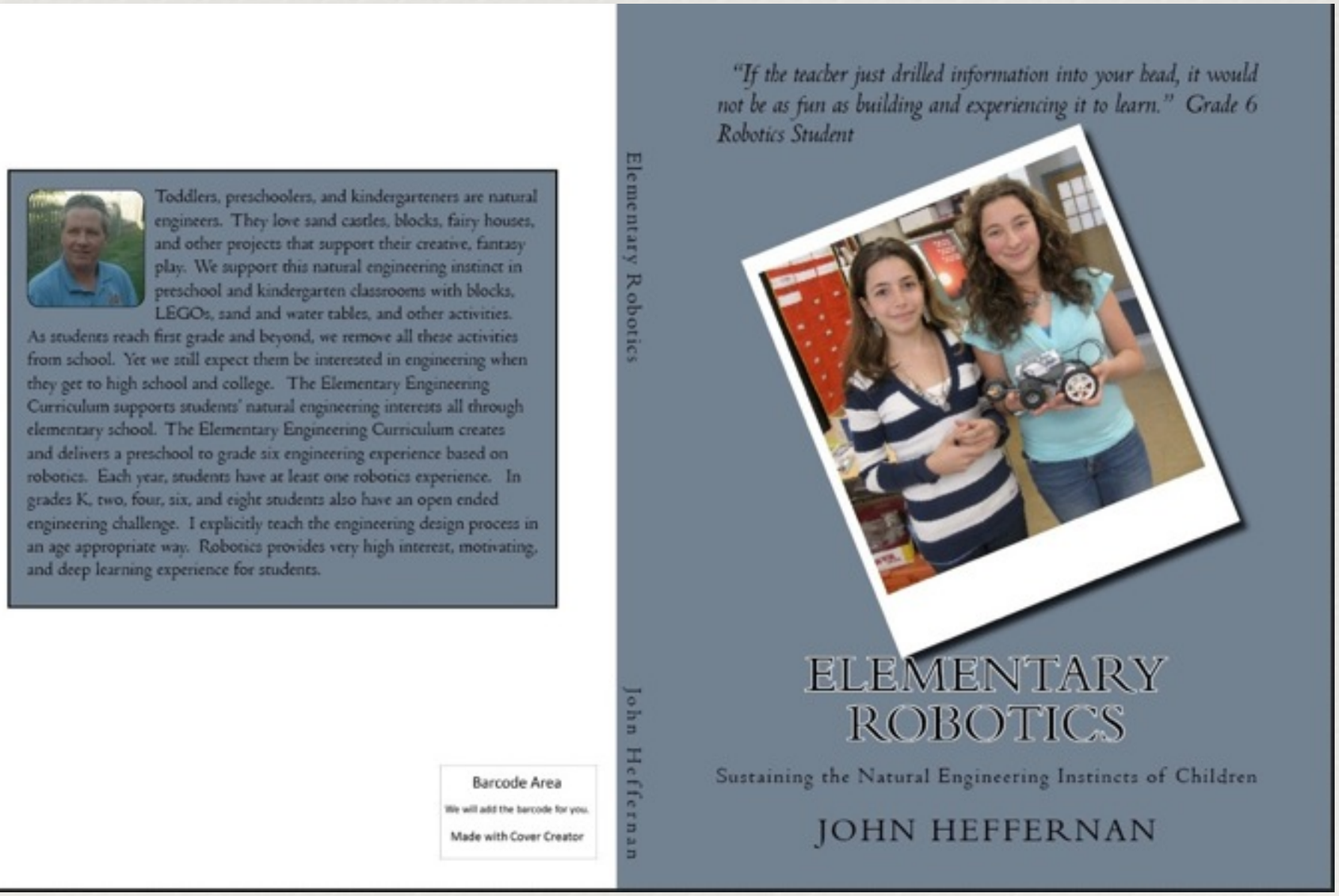

Bell

Lego Robots directly tap into the creative play urge of children in a healthy and educational way. A PK-6 robotics curriculum (such as Elementary Engineering Curriculum) is needed to support and sustain the natural engineering instincts of young children until formal engineering education starts.

WHY ROBOTS?

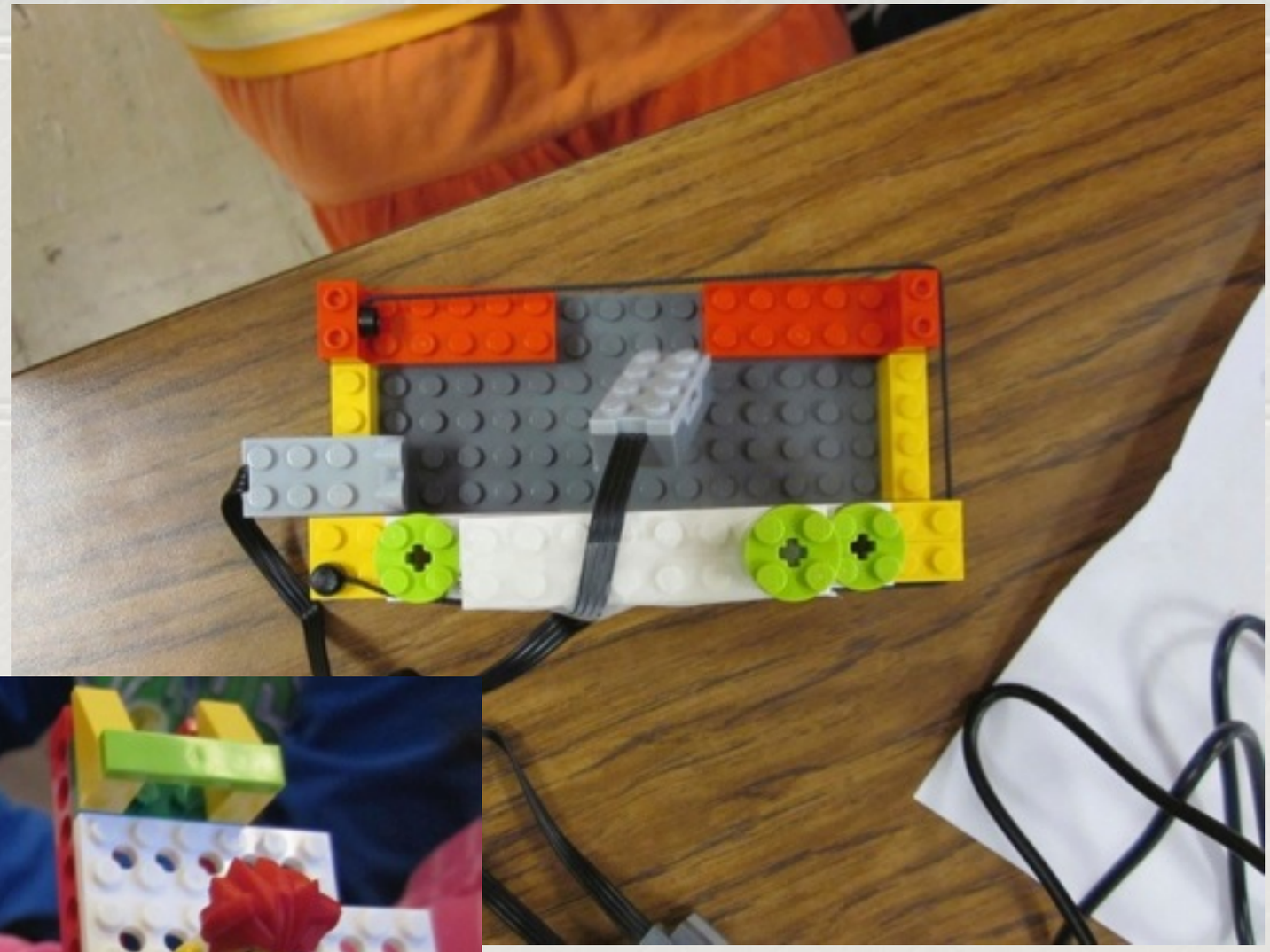
- *Engineering can be taught in many ways, why Lego Robots?*
- *Familiar, fun, fantasy*
- *They can be programmed, adds "life"*
- *Tech component built in*
- *Math, science, ELA as well*

Elementary Engineering - Sustaining the Natural Engineering Instincts of Children



Elementary Engineering Curriculum

- *PK - 6 Robotics Curriculum*
  - *Engineering primary focus*
    - *Collaborative, Communication, Creativity*
    - *Science, Math*
    - *ELA*
- *BeeBot, LEGO WeDo, LEGO NXT/EV3*
- *Mix of structured and open-ended engineering challenges*



Year 1 Clever Solution

Grappling 2

Research Questions

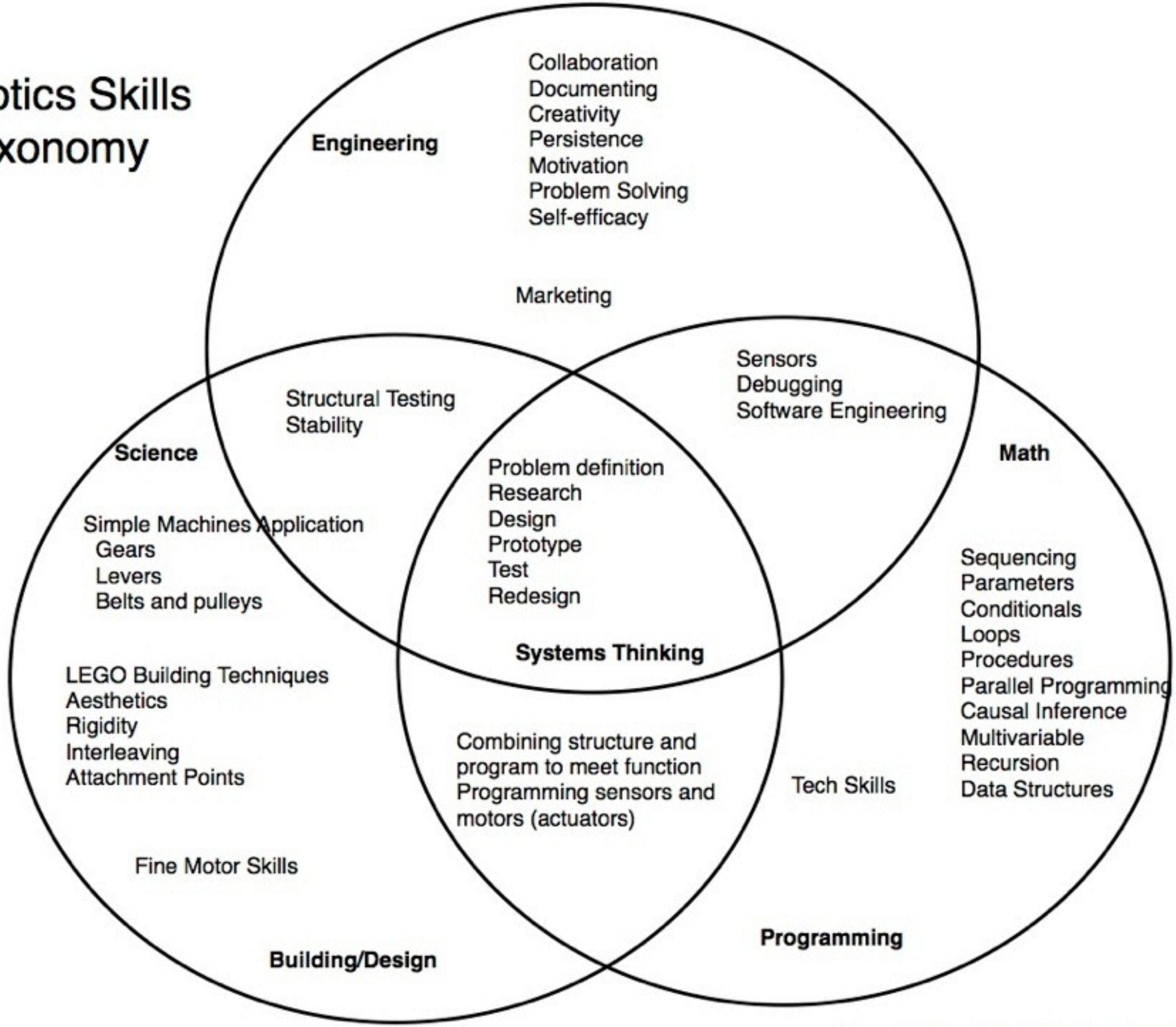
How do grade K to 6 elementary students' robotics engineering skills and processes change over time in terms of construction and programming techniques?

Specifically, what changes in their techniques and processes can be seen over time that impact their ability to realize their design ideas?

Research

- *Longitudinal Study - K - fine motor, 1 - building*
- *Pilot - Cross-sectional Study - projecting out effects of design decisions, cause and effect*

Robotics Skills Taxonomy



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Resources

- *johnheffernan@verizon.net*
- *Kids Engineer - http://www.kidsengineer.com/*
- *Tufts CEEO - http://ceeo.tufts.edu/*