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ACJ: A better way for evaluating open-ended design projects

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On a scale from 1-10

• 10 being the hottest temperature you have ever felt
• 1 being the coldest temperature you have ever felt

How would you rate the temperature in this room?
When there is not a single “right answer” we run into trouble

- Your version of a “warm” room may be drastically different than mine

Can traditional rubrics or criteria solve this?

- Assessment – An inexact science
Which is warmer?

• Inside this room or outside the building?
When we move away from criteria and rubrics what was once difficult becomes intuitive and easy.

Assessing Student work through Adaptive Comparative Judgment
**HOW DOES IT WORK?**

Measuring without scales: Based on Thurstone’s - **Law of Comparative Judgement**
HOW DOES IT WORK?

• No rubric to tally a score
• Sets of student work and identifies which item is “better” holistically
  • Predetermined rubric
  • Professional expertise
• Repeat the process to produce rank order (Feedback)
• Single teacher or as a group effort.
Adaptive Comparative Judgment dynamically refines the ranking of the student work through a series of judging rounds.

What emerges is a collective professional consensus from the group of judges.

Produces a reliability coefficient $r > 0.90$
WHICH LOGO IS BETTER FOR PURDUE?

HTTPS://WWW.NOMOREMARKING.COM/
HTTPS://WWW.NOMOREMARKING.COM/JUDGES/JUDGINGSTART/KM7DWD4O6XRYH4CU
Option 2: Elementary school writing examples

Username: MU_Judge06

Password: Pharmacy (case sensitive)

Putting it to work (grading)

Final Rank Order

Parameter value error plot

Potential letter-grades corresponding with the final rank order:

F  |  D  |  C  |  B  |  A
DISCUSSION

THE RELATIONSHIP BETWEEN ACJ AND TRADITIONAL METHODS OF ASSESSMENT

• Significant correlation between ACJ and traditional forms of assessment

• Strengthens the validity of ACJ as an approach

• Congruent with prior research on the validity of ACJ (Seery, Canty, & Phelan, 2012).
DISCUSSION

RELATIONSHIP BETWEEN ACJ, TRADITIONAL METHODS OF ASSESSMENT, AND DESIGN PERFORMANCE

• Product Performance & Process
  • Not Aligned
  • Similar to (Bartholomew et al., 2017)

• The Implications
  • Design portfolio Success Does not Equate to a Successful Product
  • Successful Designs Not Correlated with Good Grades
  • Perhaps Revisit Assessment Practices
DISCUSSION

THE RELATIONSHIP BETWEEN TIME DEVOTED BY JUDGES TO ASSESSMENT AND ALIGNMENT WITH THE FINAL RANK ORDER OF PRODUCTS.

• More time did not significantly alter the alignment of a judge's choices with the final rank order (Bartholomew, et al, 2017)

• If more time does not equate to a better assessment performance what does?

• Kimbell (2017) argues for a reliance on intuition and gut-feeling decisions in assessment

• Additional research into the efficiency grading approaches
Current & Future Work

1. PATT
   • Is “good design” a regional phenomenon

2. Noble Crossing
   • Is ACJ a more “efficient” method of assessment?

3. Creekside Middle School
   • What do different groups value in design settings?
     – Teachers, students, industry experts

4. Engineering Education
   • Alignment of student, teacher, & industry perceptions

5. NSF DRK12
   • The role of formative feedback in informing design decision thinking
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