How equity and Inequity Can Emerge in Pair Programming

Paper by Colleen Lewis and Niral Shah
Work Presented by Stephen MacNeil

How do we define equity?

How do we define equity? As Structural.

Access

Teacher, Books, School System

Which disproportionately favors

Gender, Race, SES

How do we define equity? And As Social.

Social Interaction

discuss, build, share, critique

Which disproportionately favors

?

Background for Research

Discursive benefits

asking questions

explaining thoughts

adopting ideas

Pair Programming

complementary dyads

The experiment

Aaron, Peter, Sam, Kim

Middle School

Summer Session (12 days)

Jason

Methodology

Ethnographic field notes (interpretation)

Coded audio recordings (identification)

Total Talk   Role-based   Commands   Questions

Quant Results

	Aaron	**Samantha**	**Kim**	**Peter**
Total Talk	37% ($N=772$)	49% ($N=526$)	50% ($N=419$)	35% ($N=311$)
Jason as Navigator	50% ($N=282$)	55% ($N=274$)	55% ($N=197$)	45% ($N=82$)
Jason as Driver	33% ($N=490$)	47% ($N=252$)	46% ($N=222$)	31% ($N=229$)

Quant Results

	Aaron	**Samantha**	**Kim**	**Peter**
Commands Issued	7% ($N=116$)	35% ($N=68$)	47% ($N=44$)	18% ($N=37$)
Questions Asked	63% ($N=82$)	59% ($N=52$)	75% ($N=66$)	65% ($N=74$)

Hypotheses

Friendship – No Evidence to support

Task Content – Possible

Content Knowledge – No, equal differences in pairs

Collab. Preferences – Unclear

Beliefs about collaboration – Probable

Bonus Hypothesis. Speed

Command–clarify sequences

326 Peter: Not at the end!
327 Peter: Forward 1, RT 1.
328 Peter: Down there.
329 Peter: You're doing it wrong, there's another (unclear
                speech).
330 Jason: Here?
331 Peter: No, not that.
332 Jason: Here?
333 Peter: Yeah, basically.

Bonus Hypothesis. Speed

Short Cuts

- Jason describes Aaron's corner cutting as cheating

- Aaron uploads untested code, Jason objects, Aaron: "I don't care"

- Peter's shape has wrong orientation, Jason Objects, Peter: "Whatever", Jason: "Everything is whatever, whatever, whatever"

Bonus Hypothesis. Speed

Peer Comparisons

- Internal Competition (within dyad)
- External Competition (with other dyad)

Discussion

Assuming their results are conclusive – how might we align student values (speed) w/ pedagogical patterns?

In what other pedagogical patterns do you see social inequity being a problem?

Do self-paced curricula encourage competitiveness and lead to social inequity?

"How students treat students is how they will treat co-workers" – what are the moral implications?

Conclusion

Structural Inequity has been studied in isolation; we should also consider other forms and **emergent forms** of inequity that may result from our pedagogical design choices.

If you want to talk more - find me. I just started a research project in this area and would love help.