Practical Rationality and Instructional Choices: Can a Socio-Cultural Framework Explain Teacher Decision Making?

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Introduction

Teaching, as any other social activity, is firmly rooted in the cultural context in which it takes place. Theories of teacher decision making, however, have conceptualized instructional decisions to be mostly an individual process (e.g., Bishop & Whitfield, 1972; Bishop, 1976; Shavelson and Stern, 1981; Shavelson, 1986; Schoenfeld, 2008). In fact, Blömeke, Gustafsson, and Shavelson (2015) call for the development of situated theories of teacher decision making that combine individual resources with situation-specific skills and performance.

Hersbt, Chazan, Dimmel, Kosko, and Erickson (2016) argued that contextual factors, conceptualized as recognition of instructional norms, as well as individual factors, such as years of experience and MKT-G scores, can be used to predict teacher decisions within instructional scenarios.

In this poster, we show that situation-specific contextual factors can in part explain teacher decisions using the theory of practical rationality (Herbst & Chazan, 2012).

Research Questions

- Can contextual factors explain part of the variation we observe in teacher decisions?
- If so, can these contextual factors empirically separated from the individual factors that influence teacher decisions?

Data

Data for this study comes from a national sample of secondary mathematics teachers. 577 participants responded to at least one decision item and thus are included in our models.

Table 1. Sample Proportions

	Mean	SD
Female	0.603	0.490
African American	0.071	0.257
Asian American	0.027	0.161
Latino/a	0.023	0.150
New geometry teacher	0.461	0.499
Experienced geometry teacher	0.364	0.482
New algebra 1 teacher	0.466	0.499
Experienced algebra 1 teacher	0.390	0.488
Experience mathematics teacher	0.463	0.499
N	577	

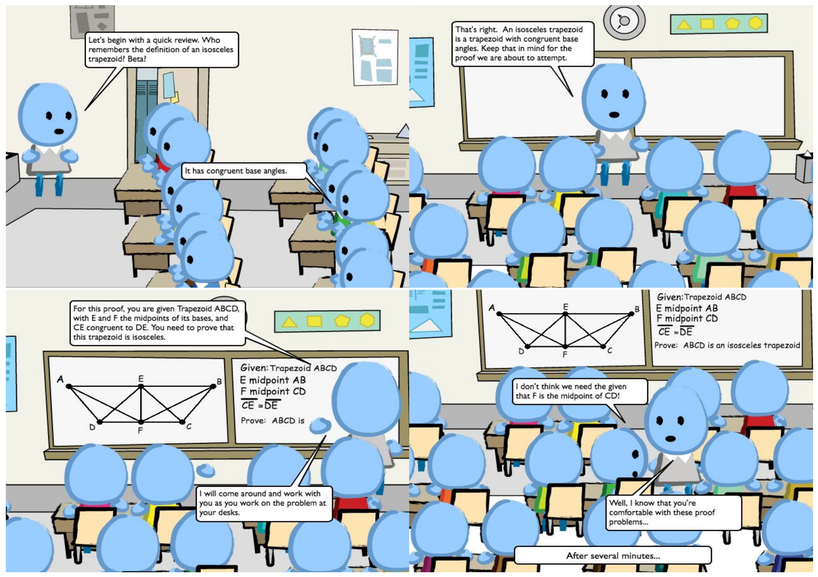
Figure 1. Decision Making Model

Methods

Data Collection

Participants were presented with multimedia scenarios of mathematics instruction. These presented a typical interaction that could occur during a mathematics lesson. We asked participants to indicate what they would do next in the lesson by picking one of four options.

Figure 2. Sample Decision Stem



Data Analysis

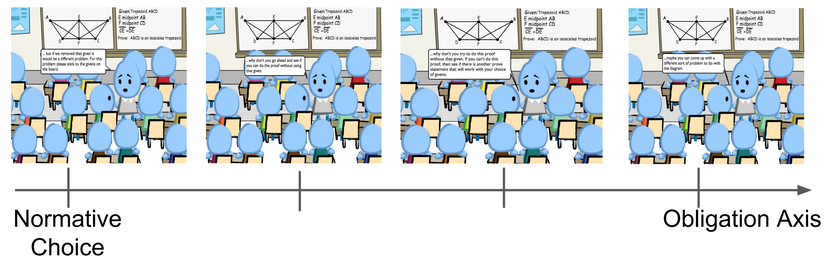
We model teacher decisions using factor analyses where the latent constructs measure participants' preference towards the norm in doing proofs and solving equations.

To test whether our results are due to other factors unrelated to the contextual factors we are interested in (e.g., beliefs about mathematics instruction, norm recognition, or MKT), we first account for the effects of individual resources on participants responses then we fit a factor analysis using the residual variation left over in the responses.

Theoretical Assumptions

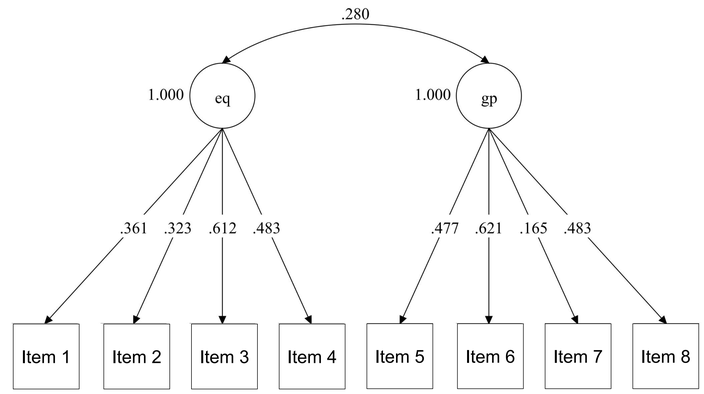
We propose that response options can be ordered along an obligation axis by using the justification burden needed to justify the chosen option. We assume that normative option require less justification than non-normative options.

Figure 3. Response Options along the Obligation Axis



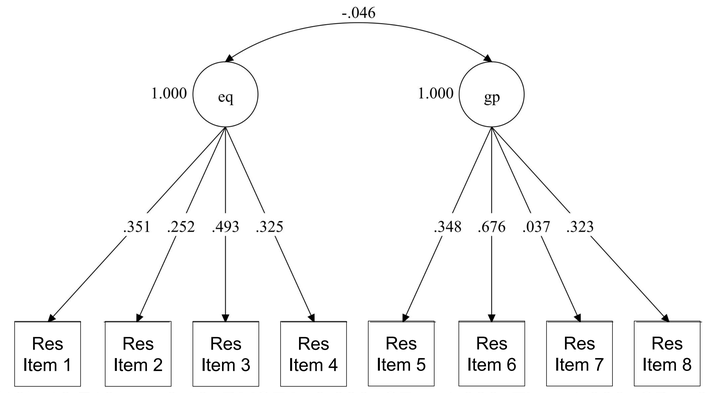
Results

Initial Model



$\chi^2(19)=23.338$, $p > 0.10$, RMSEA=0.020, CFI = 0.976, TLI = 0.965, CD = 0.772

Falsification Test



$\chi^2(19)=18.718$, $p > 0.10$, RMSEA=0.000, CFI = 1.000, TLI = 1.006, CD = 0.710

Conclusion

Our results show that contextual factors, as conceptualized by norms of the situations and professional obligations (Herbst & Chazan, 2012), can explain part of the variation that we observe in teacher decision making.

Our theoretical model can also explain why teachers sometimes make decisions that go against what is expected (normative action) and their own personal preference thought the concept of in-the-moment instructional utility.

In future work, we plan to explore how decision making interacts with the subject specificity of instruction and the framing the same decision within two instructional situations impacts teacher decisions.

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