



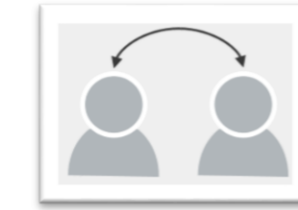
Perceived Teaching in the Classroom: The Mediated Relation Between Teachers' and Students' Value Beliefs in Math

Cora Parrisius, Hanna Gaspard, Heide Piesch, Eike Wille, Ulrich Trautwein, & Benjamin Nagengast

BACKGROUND



Students' math value beliefs decrease during secondary school (e.g., Gaspard et al., 2017)



Teachers can buffer decline via transmission of their values:

- Teachers' affective value beliefs (e.g., enthusiasm) are associated with students' motivation (e.g., Keller et al., 2018; Lazarides et al., 2018)
- Link is mediated by student-perceived instructional practices (e.g., Frenzel et al., 2009; 2018)
- Relevance-related instructional practices are also associated with students' value beliefs (e.g., Schmidt et al., 2018; Schreier et al., 2014; Wang, 2012)
- Do these relevance-related instructional practices also depend on teachers' own value beliefs (value induction; Pekrun, 2006)? → Does a transmission of utility value also occur?

RESEARCH QUESTIONS

Do teachers transmit their (1) teaching enthusiasm and (2) math utility value to their students' value beliefs via student-perceived instructional practices?

METHOD

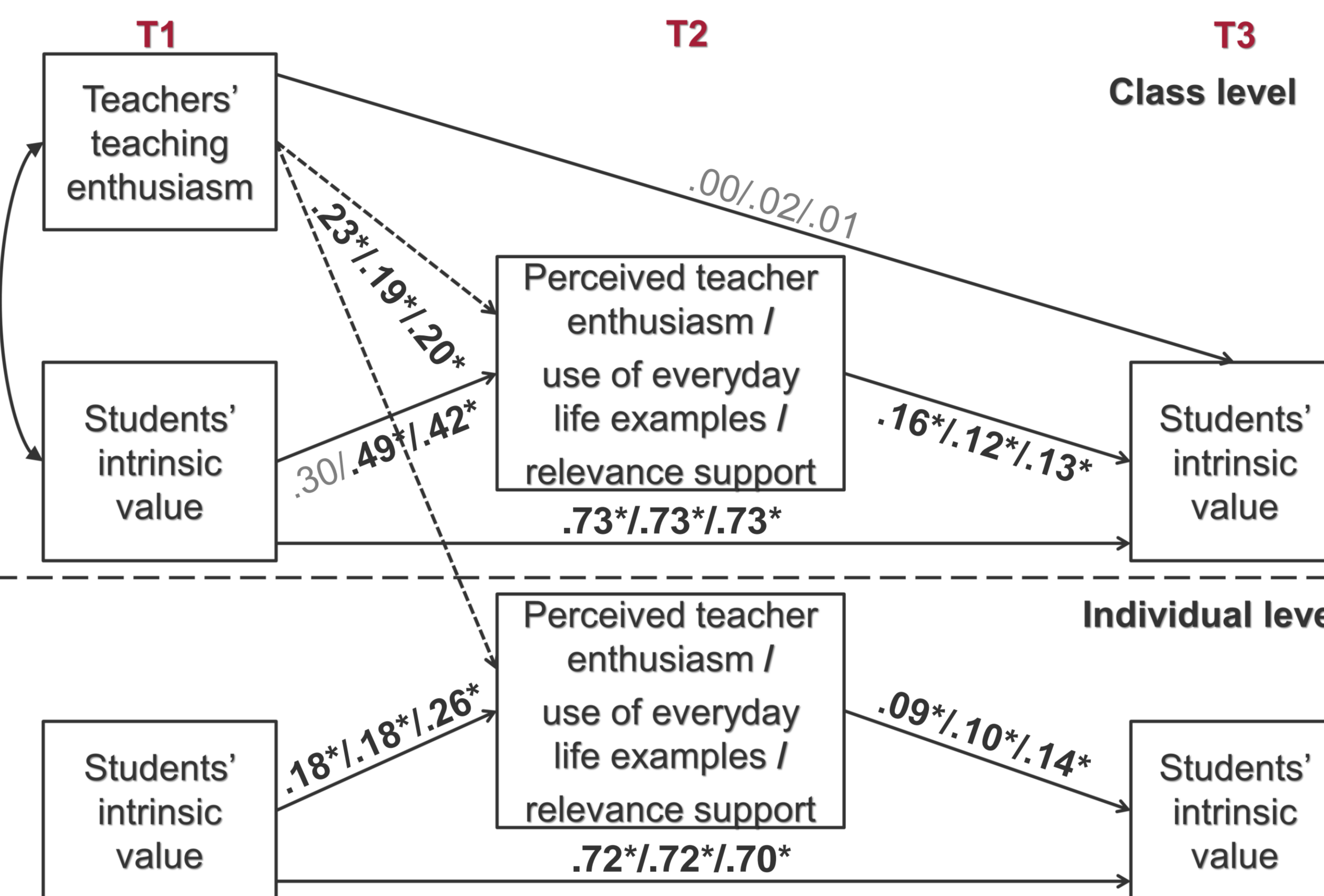
Participants 70 math teachers and their 1,744 9th graders (79 classes, 28 academic track schools)

Statistical Analysis

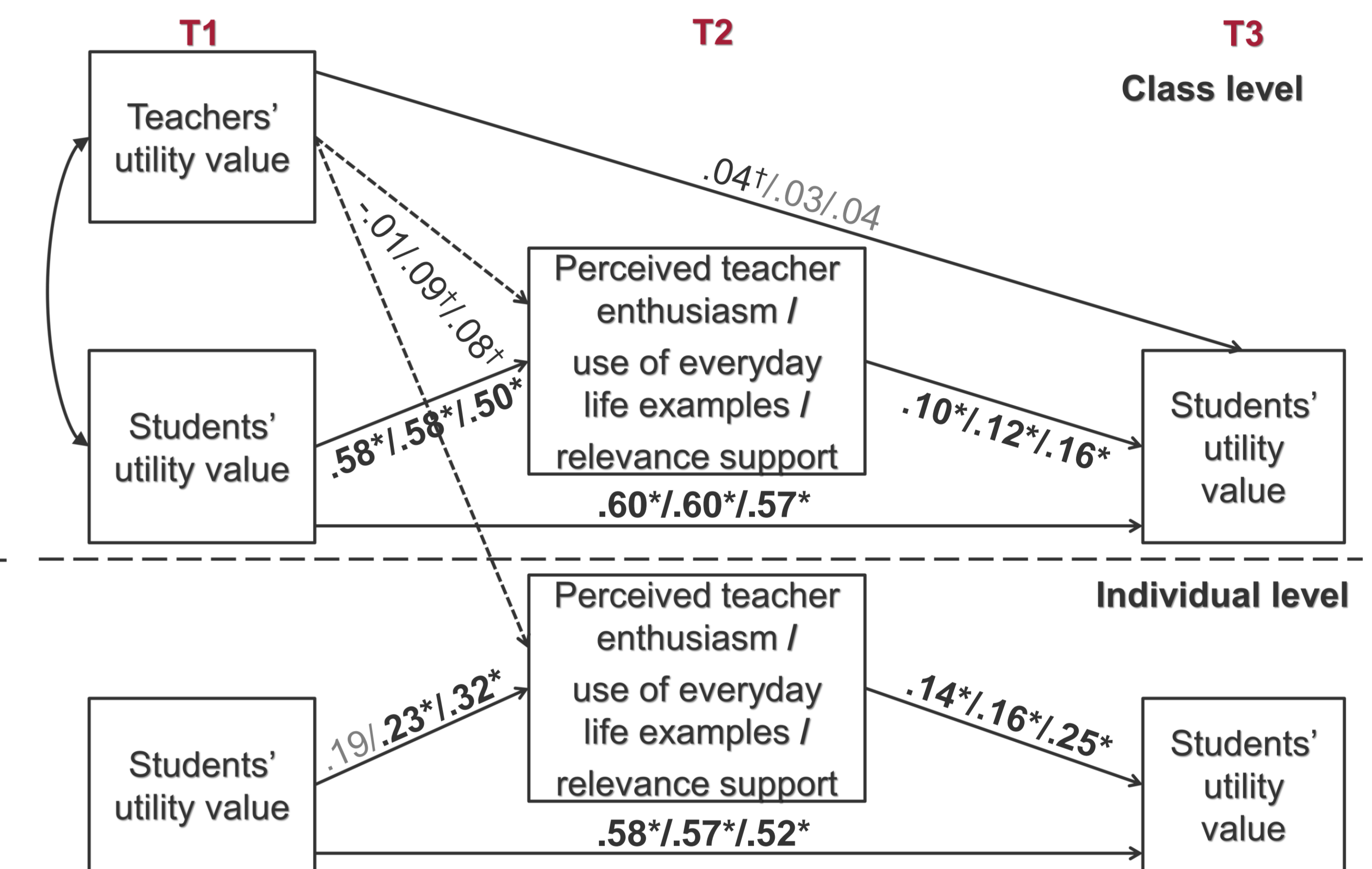
- Cross-level mediation analyses (Pituch & Stapleton, 2012)
- 12 models (2 predictors x 3 instructional practices x 2 outcomes)
- Controlled for students' value beliefs at T1 and intervention condition

PRELIMINARY RESULTS

Transmission of teaching enthusiasm to intrinsic value



Transmission of utility value to utility value



Note. Dashed paths are equal. * $p < .05$. † $p < .10$.

.04†/.04†/.04*	Total effects	.04†/.04†/.05
.04*/.02*/.03*	Total indirect effects	.00/.01/.01

Teachers' value beliefs (T1)

- **Teaching enthusiasm** (e.g., I teach with enthusiasm, $\alpha = .80$)
- **Math utility value** (e.g., Mathematical skills are useful in many professions, $\alpha = .76$)

Student-perceived instructional practices (T2)

- **Teacher enthusiasm** (e.g., Our math teacher teaches with enthusiasm, $\alpha = .85$)
- **Use of everyday life examples** (e.g., Our teacher shows us examples from daily life where math can be used, $\alpha = .79$)
- **Relevance support** (e.g., During math lessons, I generally have the feeling that we are shown how the content is related to our everyday life, $\alpha = .87$)

Students' value beliefs (T3)

- **Intrinsic value** (e.g., Math is fun for me, $\alpha = .93$)
- **Utility value** (e.g., What we learn in math is directly applicable in everyday life, $\alpha = .89$)

DISCUSSION

Teachers transmitted their

- teaching enthusiasm to students' intrinsic value
- math utility value to students' utility value

- Transmission of teaching enthusiasm was mediated by student-perceived enthusiastic behavior (in line with, e.g., Frenzel et al., 2009; 2018)
- Teaching enthusiasm also evident in relevance-related instructional practices
- Students' perception of relevance-related practices was relevant for their own utility value (in line with Schreier et al., 2014; Schmidt et al., 2018; Wang et al., 2012)
- Teachers' beliefs about usefulness of math did not manifest in relevance-related instructional practices

CONCLUSION

Teachers' motivation and instructional practices are crucial for students' motivational development

FUTURE DIRECTIONS & IMPLICATIONS

- It is worthwhile to inform teachers about the relevance of their own values and practices to foster students' values (e.g., during teacher training)
- Helping teachers reflecting on their values and offering information about the applicability of math might also help improving their strategy use during class
- How can teachers maintain their motivation and how can they be supported in their motivation?