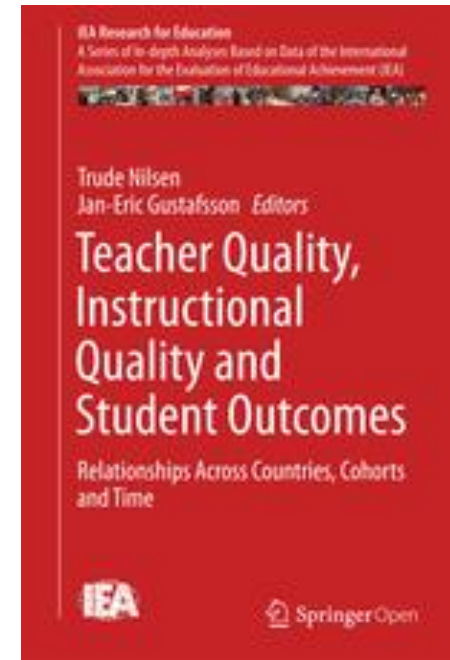


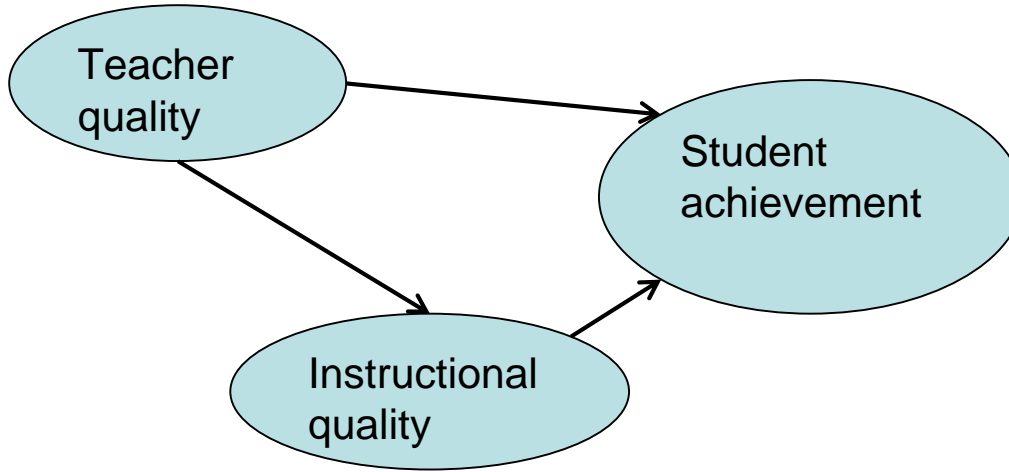


UiO : **CEMO – Centre for Educational Measurement**
University of Oslo

Rolf V. Olsen, Sigrid Blömeke & Ute Suhl
Effects of teacher quality and
instructional quality on student
achievement



Teacher, students and teaching

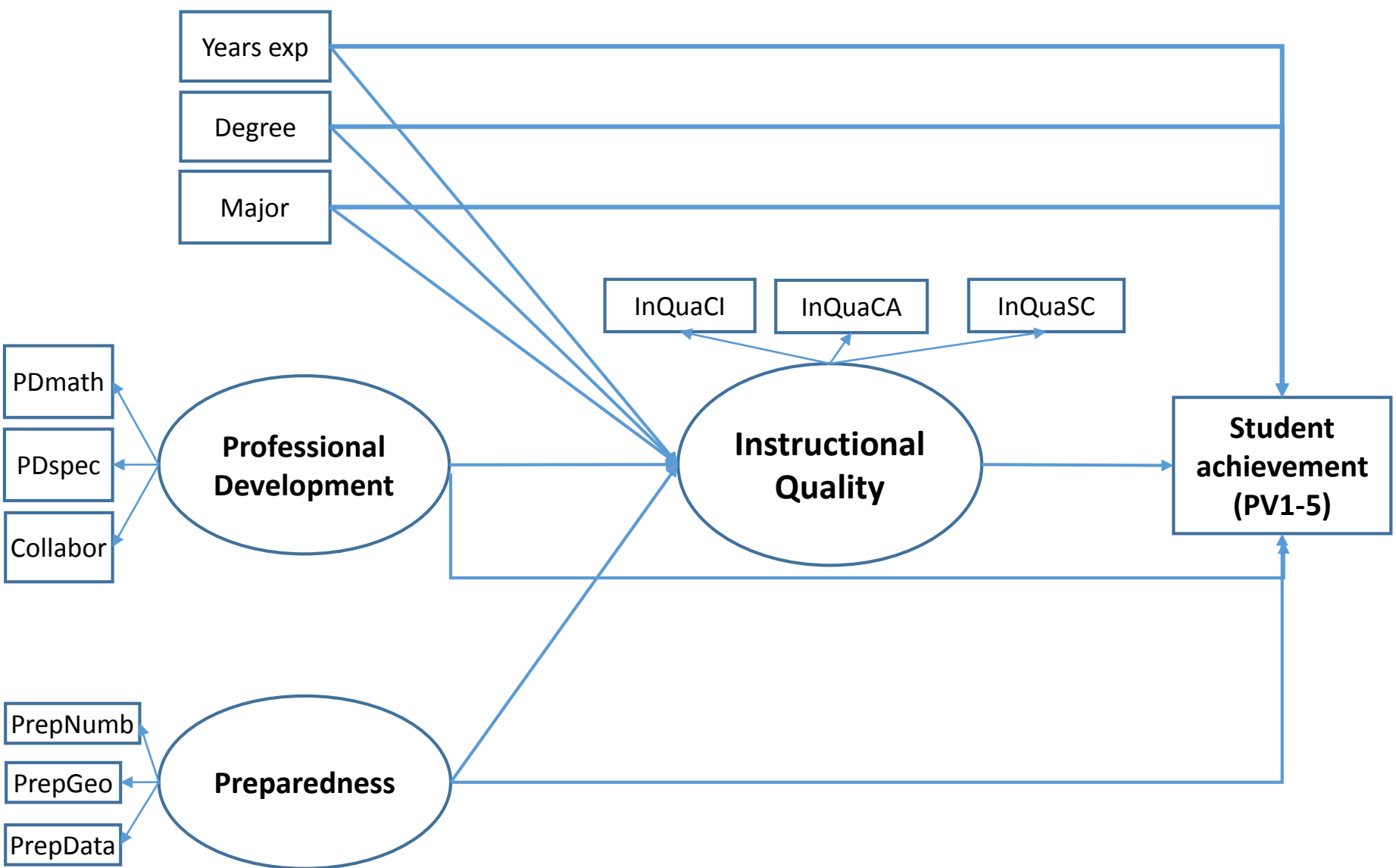


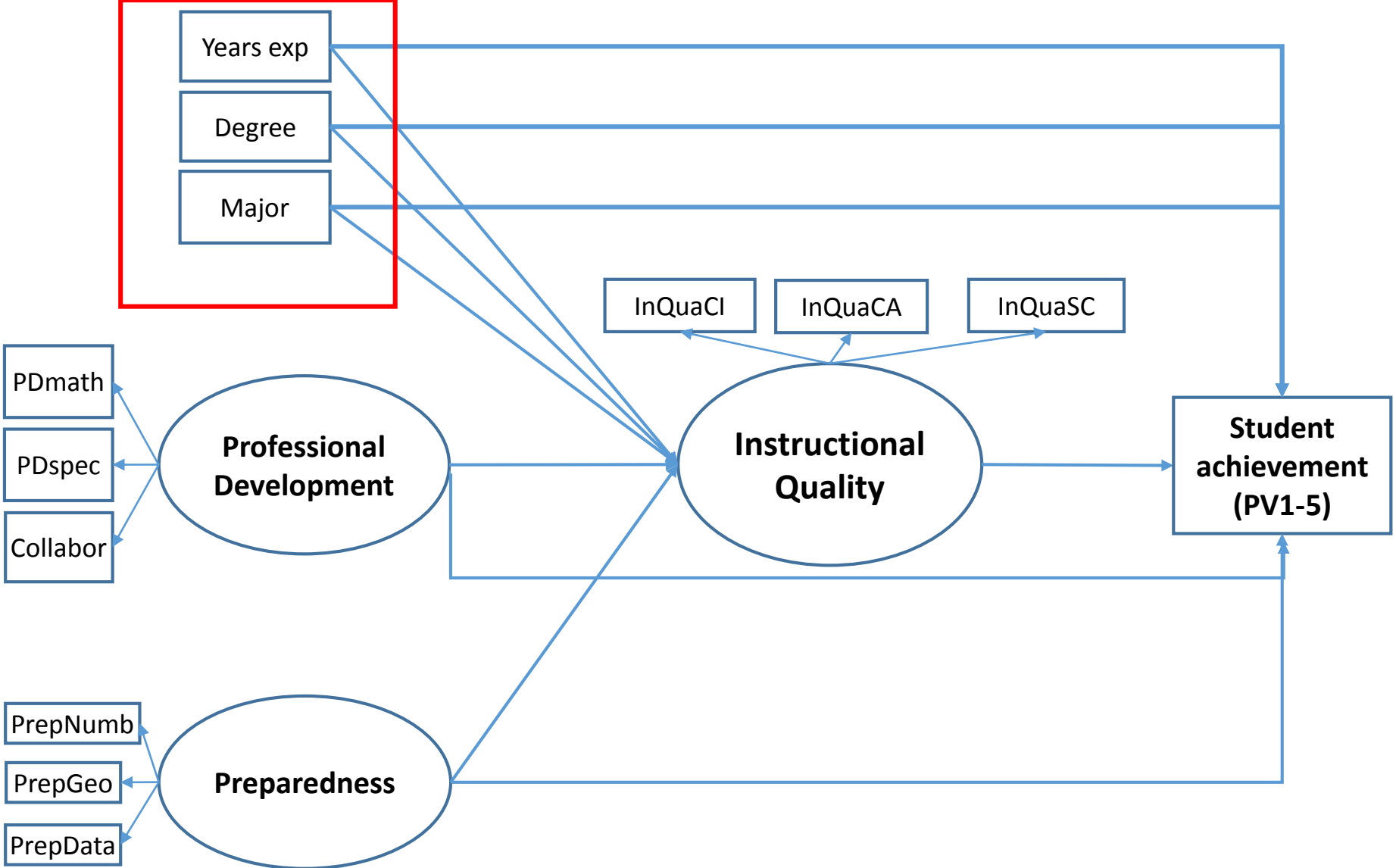
Research questions

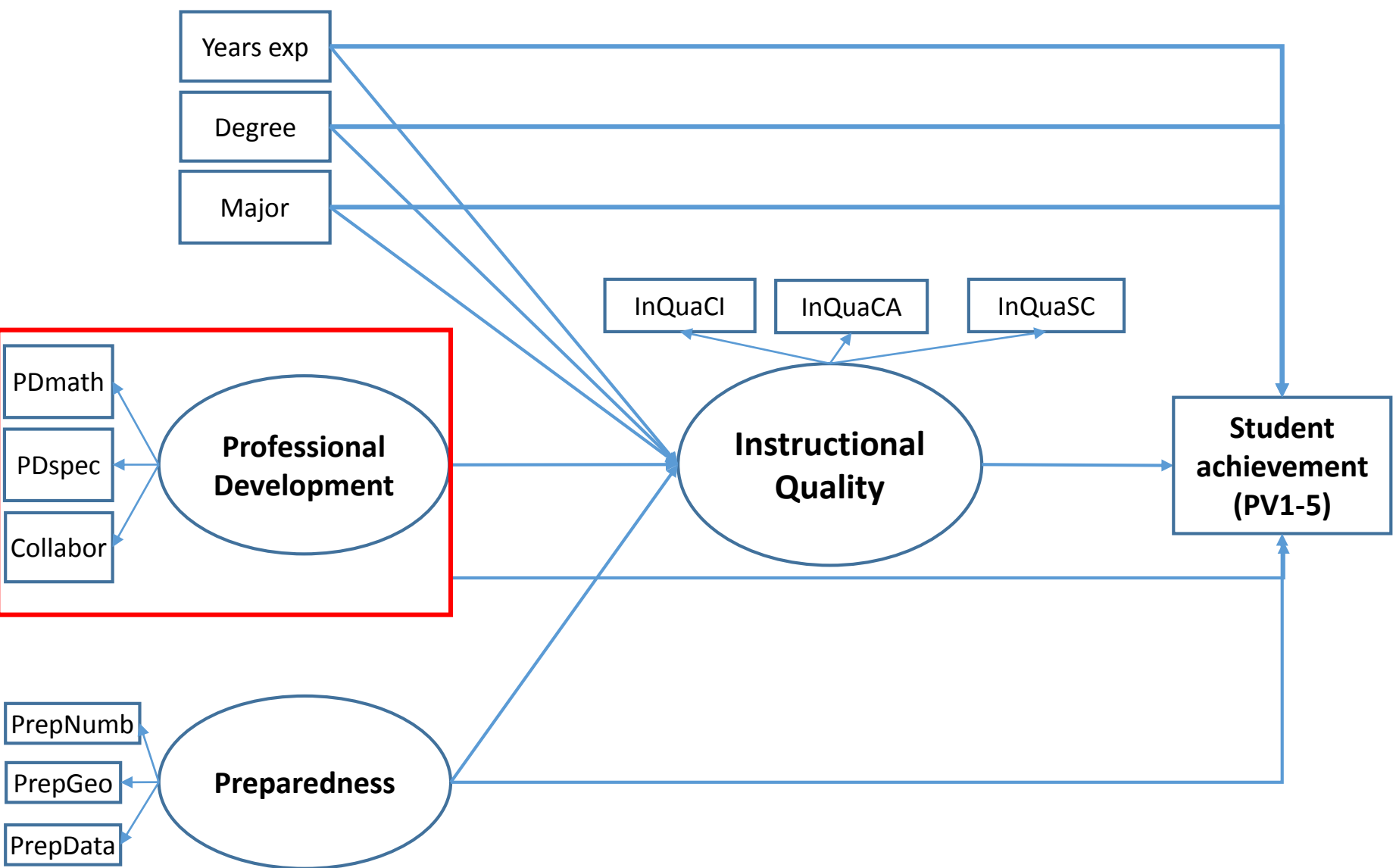
1. Which teacher characteristics are significantly related to instructional quality and/or to student achievement?
2. To what extent do the relations between teacher quality and instructional quality vary by country? Is it possible to identify regions or clusters of countries where similar relational patterns exist?
3. Is instructional quality significantly related to student achievement? Does this relation vary by country, and, does a pattern exist that applies to countries from larger regions or cultures?
4. If teacher quality is significantly related to instructional quality and if instructional quality is significantly related to achievement, does instructional quality partially mediate the relation between teacher quality and student outcomes?

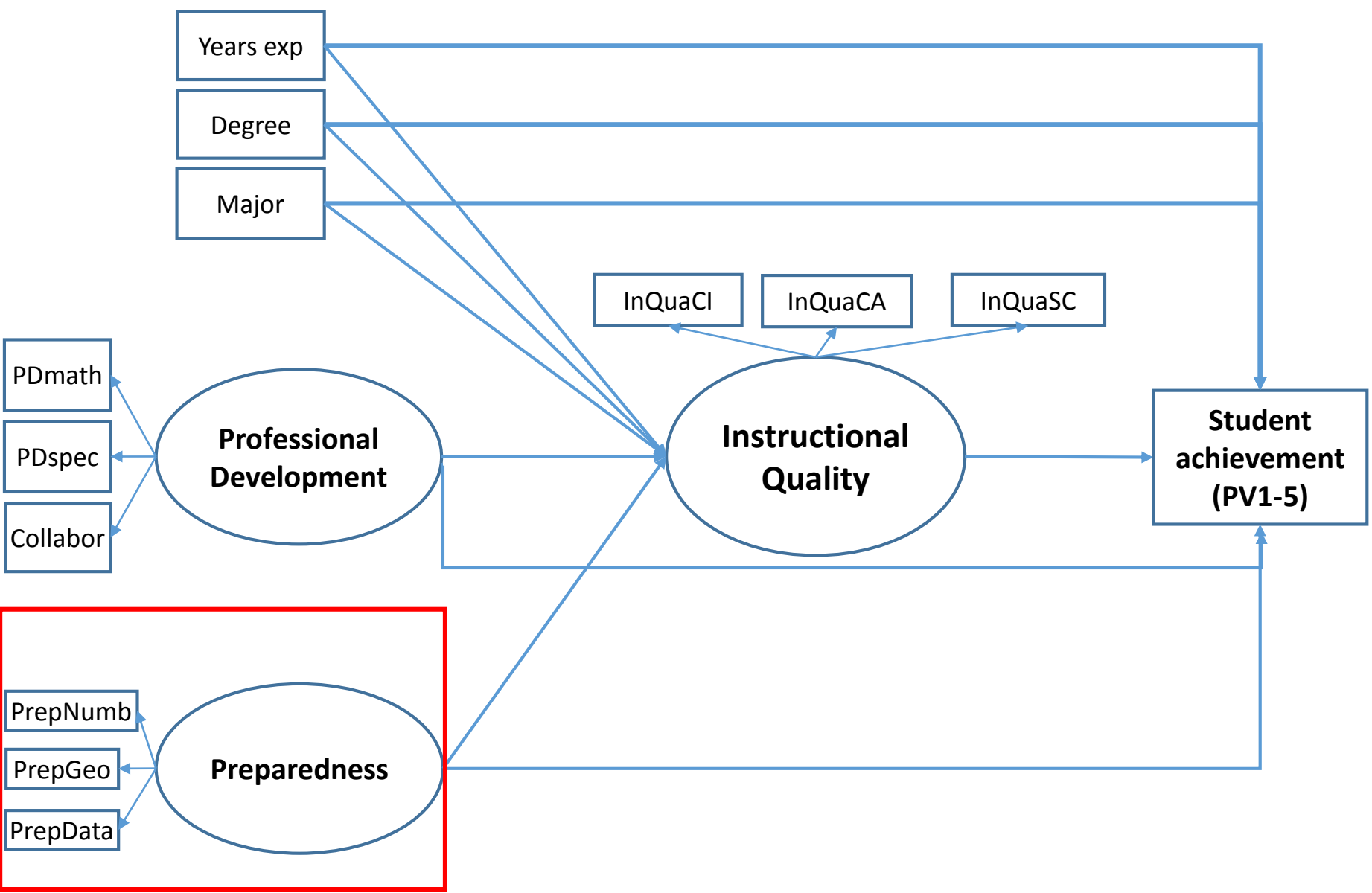
The sample: 4th grade TIMSS 2011

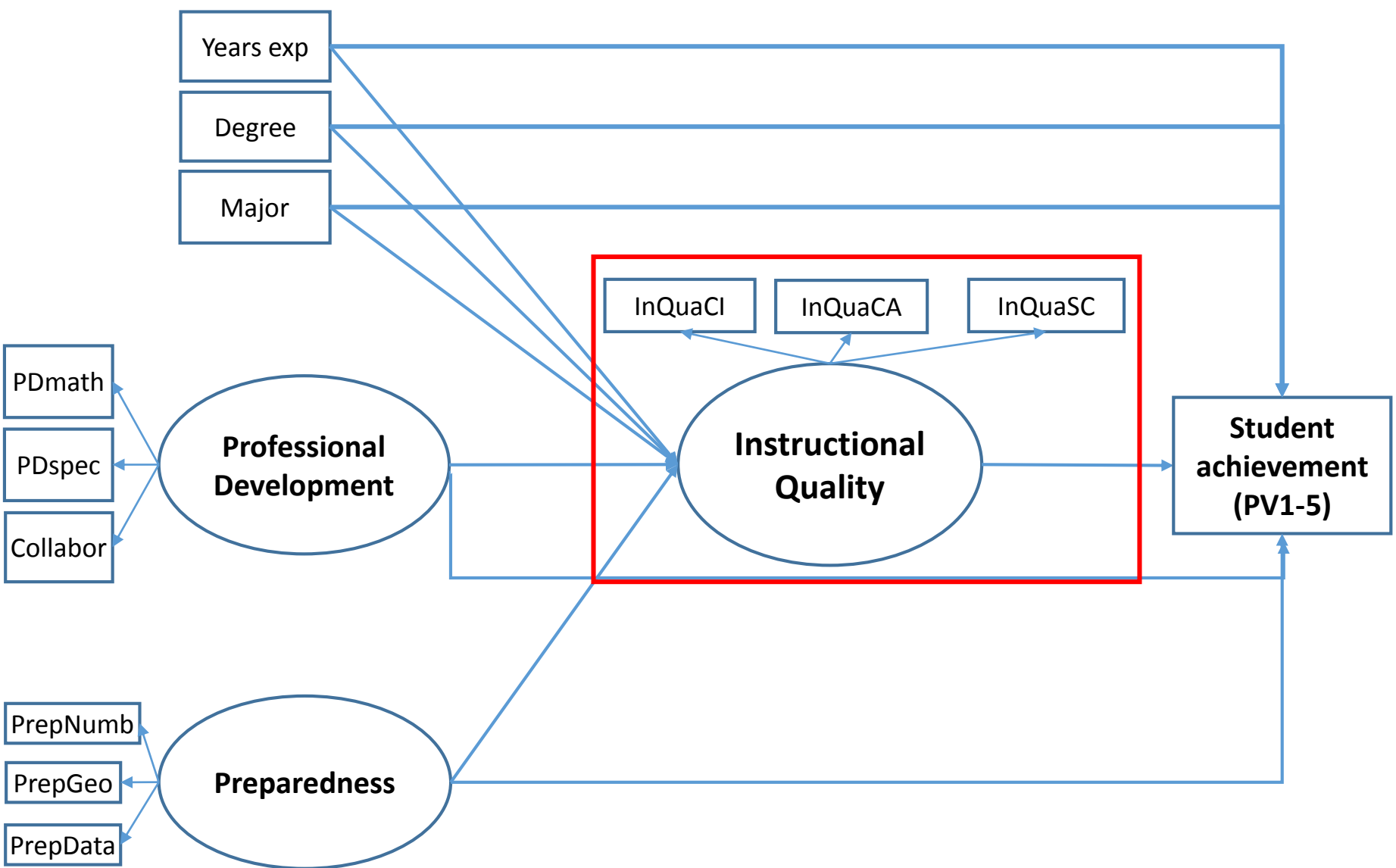
- 47 countries
 - 10 059 classrooms/teachers [67 – 538]
 - 205 515 students [1423 – 11 228]
- Average classroom size = 20 [12 – 34]
- Average ICC = 0,30 [0.07 – 0.56]











The analysis

Step 1: Establishing the item parcels

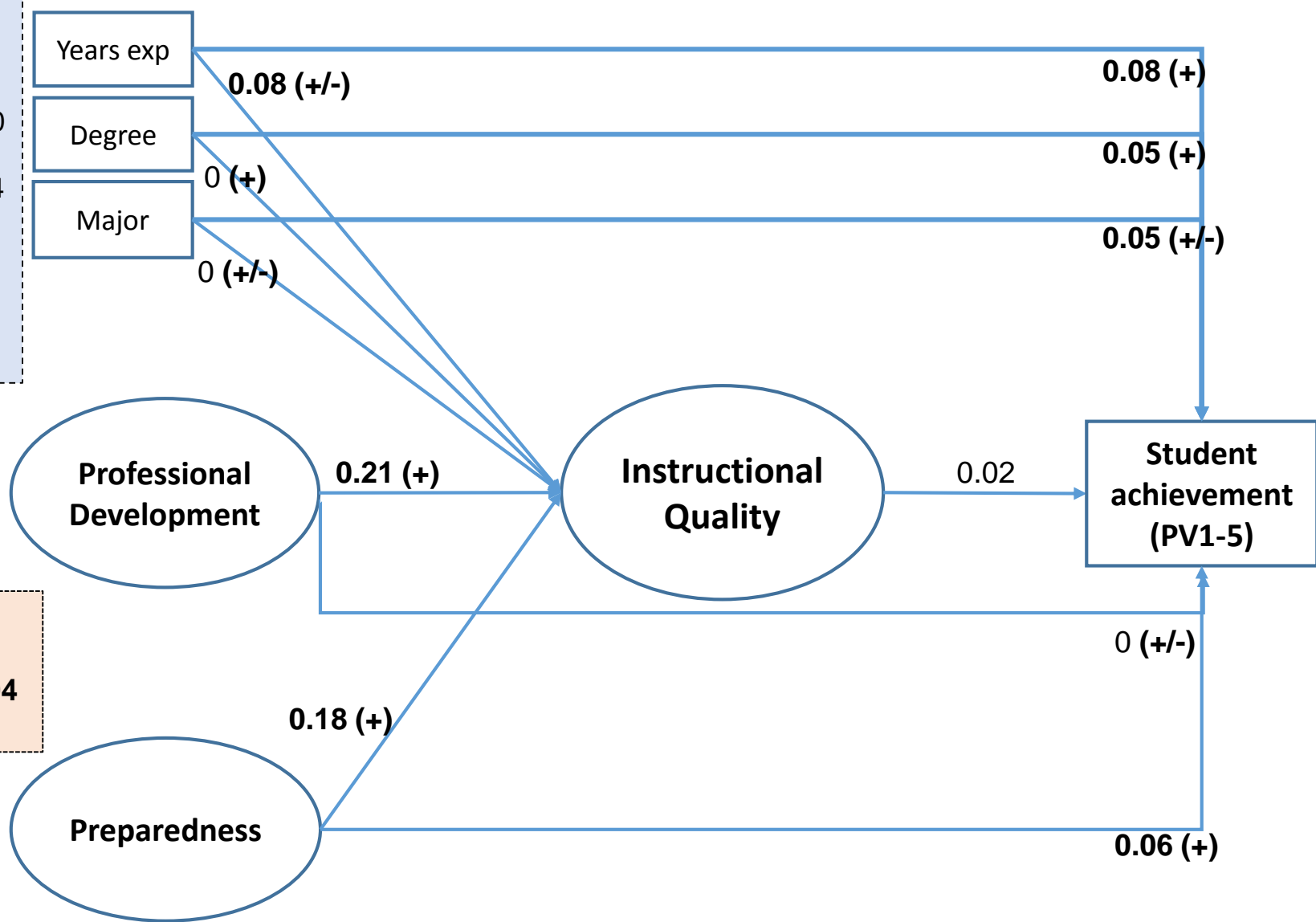
Step 2: Measurement invariance testing of the latent constructs
(multiple group CFA)

Step 3: Single group analysis of the whole sample

Step 4: Multiple group analysis of the whole sample

- $P < .05$ within and $p < .10$ between level
- ML with robust sandwich SE
- Missing handled by using FIML

Model fit:
 $X^2/df = 3.9$
[.9 - 2.7]
RMSEA=.00
[.01 - .03]
SRMR = .04
[.05 - .11]
CFI=.97
[.65 - 1.0]
TLI=.97
[.55 - 1.02]



Level 1 controls:
Gender -.04
SES .21



Conclusions and discussion

- Metric invariance and model fit
- Proximal vs distal features of TQ
- Universal vs country-specific models
- Important measures of TQ not included
- Limited measures of InQua