The development of learning strategies in higher education: Impact of gender and prior education

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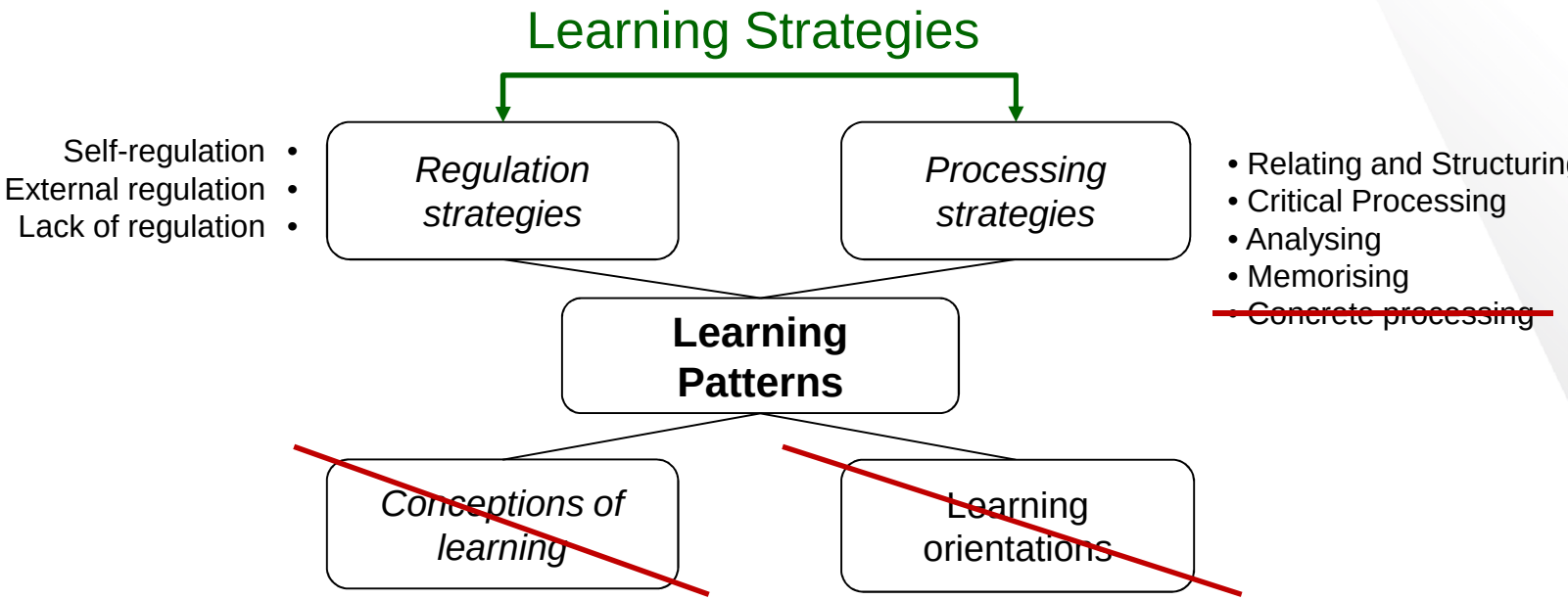
1. Introduction

- Increasing interest on development of learning strategies throughout higher education from both a social and an academic angle.
  - Does higher education enhance the learning strategies we want it to enhance?
  - Is higher education able to have an effect on individual differences existing at the start?
  - How stable are learning strategies?
  - How de pre-entry characteristics affect growth?
- **However:** methodological critique: Few data-gathering moments (2) and short research period (<1year) *(Singer & Willet, 2003)*

2. Theoretical Framework

Learning pattern-model *(Vermunt & Vermetten, 2004)*



Based on Vermunt, 1998

3. Research: growth patterns

- Results of a review study points out that students evolve toward a more meaning oriented learning pattern in higher education. However, dimensions of a reproduction-oriented learning pattern seem resilient to change *(Vanthournout et al., 2010).*

3. Research: Individual differences

- Catrysse et al. (2015):
  - Differential growth for all learning strategies
  - Students become more homogeneous
- Coertjens et al. (2014):
  - No individual differences

3. Research: pre-entry factors

- **Prior education:**
  - Educational types, preparing for higher education:
    - More deep processing, self-regulation
    - Less stepwise processing, external regulation, lack of regulation

- **Gender**:
  - *Girls:* more stepwise processing an external regulation
  - *Boys*: more self-regulation and lack of regulation

4. Research questions

- **RQ1:** How do learning strategies (processing strategies and regulation strategies) evolve throughout higher education?

- **RQ2:** Are there individual differences in the development of learning strategies?

- **RQ3:** Do gender or prior education predict initial scores and growth-trajectories of learning strategies?

5. Research design

- **Participants:**
  - A cohort of students participating in a professional Bachelor program in teacher-education in Flanders

- **Instrument:**
  - *Inventory of Learning Styles, short version* *(Donche & Van Petegem, 2008)*
  - 30 items, scored on a five point Likert scale

5. Research design

- **Data gathering:**

DG1	DG2	DG3	DG4
0 months	12 months	22 months	34 months
560	185	198	228

Prior education	General	Technical	Vocational	Arts
% of students	31%	37%	13%	8%

Gender	Female	Male
% of students	66%	33%

5. Research design

- **Preliminary analyses:**
  - Confirmatory factor analysis
  - Longitudinal measurement invariance
  - Reliabilities

- **Longitudinal analyses:**
  - Latent growth modelling
  - Comparison of up to three models (linear, quadratic, free times)
  - Models ran for each learning strategy
  - AIC, BIC
  - Significant differences in intercept and slope variance
  - Gender and prior education as predictors in best fitting model

6. Results

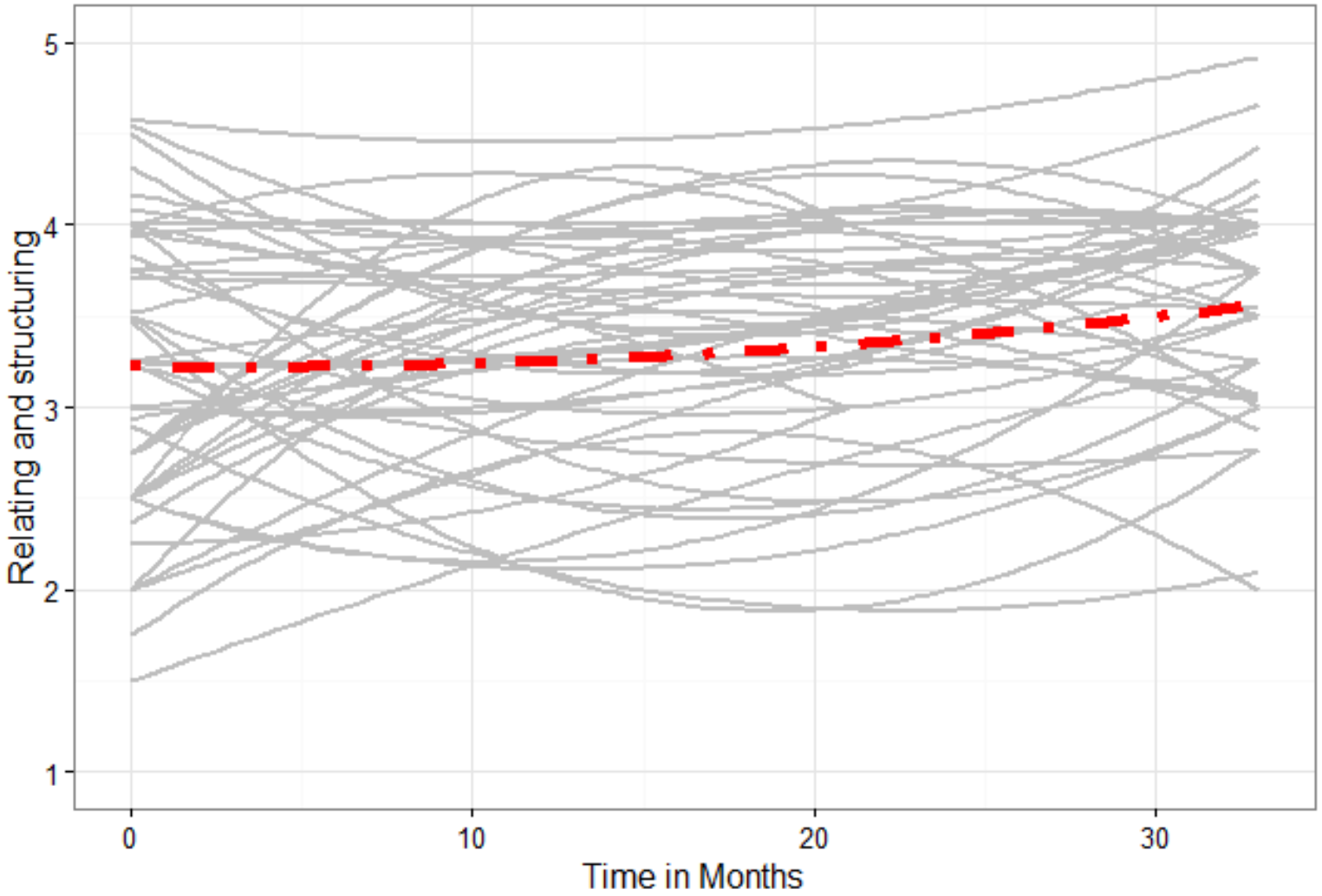
Processing strategies

	Linear?	Quadratic?	Free times	Individual?	Trend
Relating & Structuring		☺			→ ↑
Critical Processing		☺			→ ↑
Analysing	☺				↑

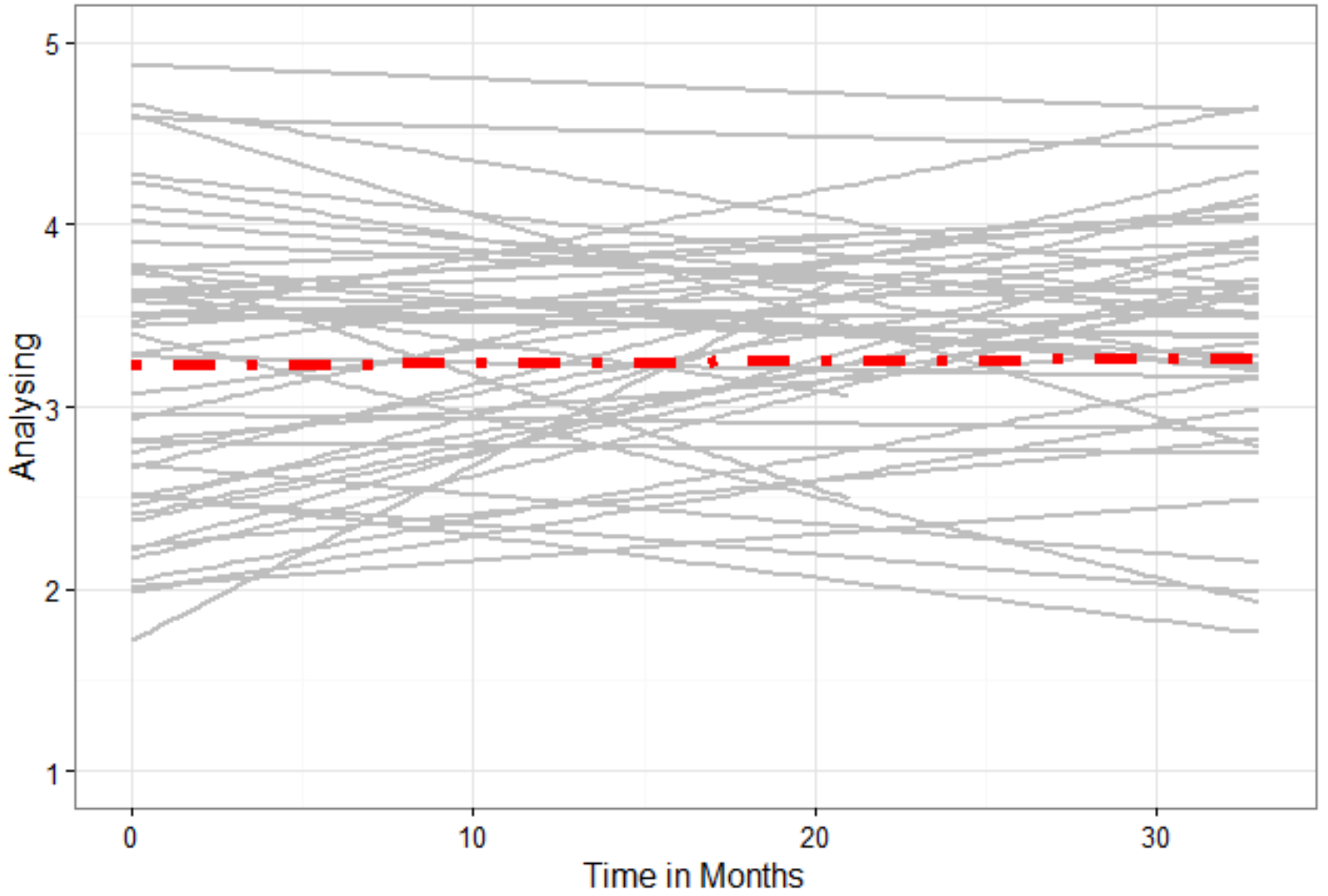
Regulation strategies

	Linear?	Quadratic?	Free times	Individual?	Trend?
Self-regulation	☺			☺	↑
Lack of Regulation	☺				↓

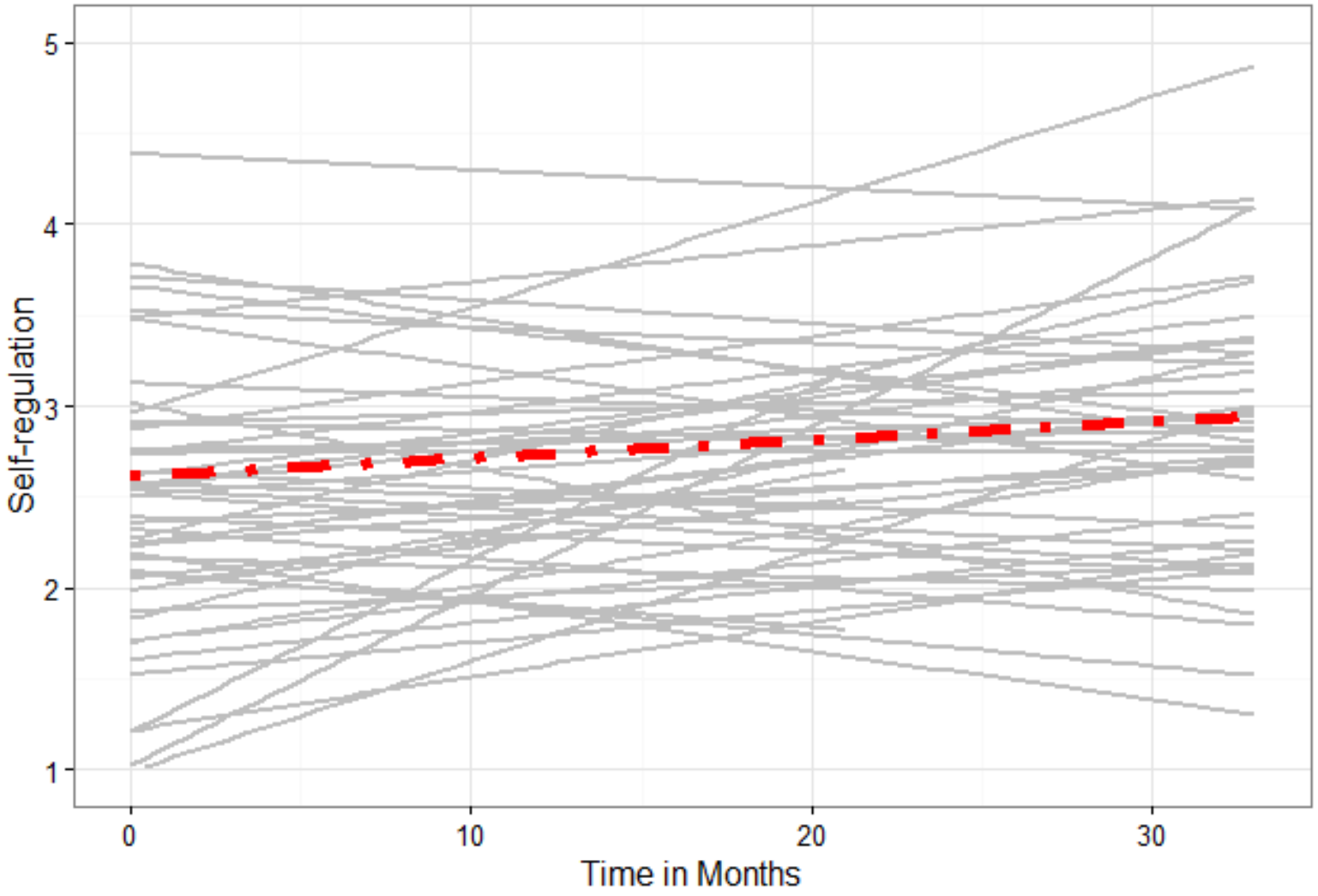
6. Example 1: Relating and structuring



6. Example 2: Analysing



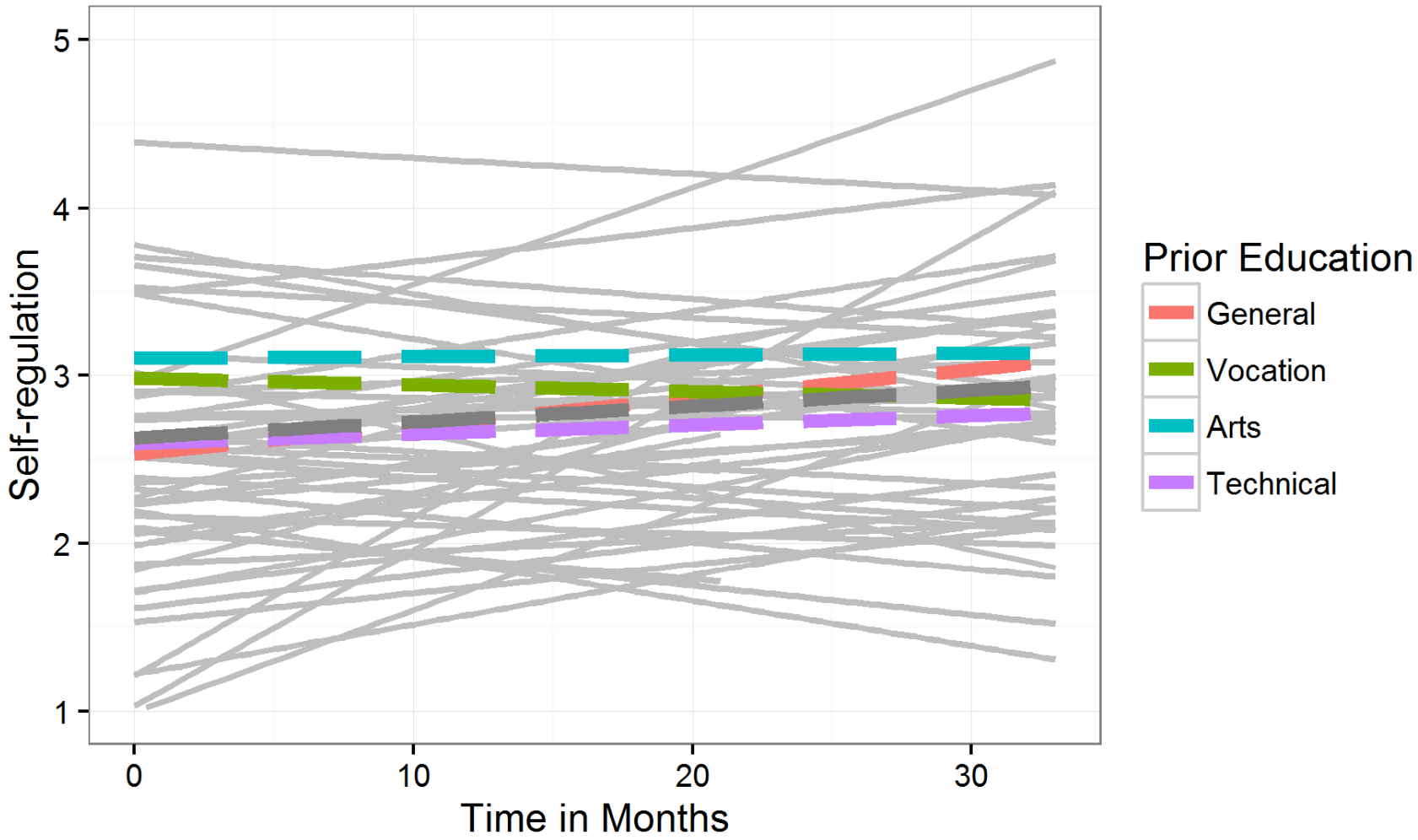
6. Example 3: Self-regulation



6. Pre-entry characteristics

	Gender start	Gender growth	Prior start	Prior growth
Relating and structuring	☹	☹	☹	☹
Critical processing	☺ M	☹	☹	☹
Analysing	☺ F	☹	☹	☹
Self-regulation	☹	☹	☺ Vocation (+) Arts (+)	☺ Vocation (-)
Lack of regulation	☺ V	☹	☺ Technical (+)	☹

6. Pre-entry characteristics



7. Conclusions

- Psychometric problems with memorising and external regulation scales.
- Students evolve towards a more meaning-oriented Learning pattern (relating & Structuring, self-regulation), but growth not always straightforward
- (Systematic) individual differences in growth only for use of self-regulation strategies. Students become more homogeneous.
- Most individual differences are not compensated for. However, they also do not increase …
  Within-class differentiation in HE?

8. Discussion

- **Methodological improvements for follow-up analyses:**
  - Investigating non-response (Vanthournout et al., 2010)
  - Mixed-method design

- **Suggestions for further research:**
  - Include other malleable factors as predictors (motivation?)
  - Get a grip on the learning environment of students (perceptions of the learning environment, NSTB, fit?)

Thank you for listening!!

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