The relationship between subjective fit and academic success

An application of the person-environment fit theory

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Agenda

- Academic success and person-environment fit
- Research questions
- Methods
- Results
- Implications

Academic success

- e. g. academic performance (grades, self-reports) or study satisfaction (Camara, 2005; Hell, Linsner & Kurz, 2008)
- Predictors of academic success
  - General personal prerequisites (e. g., high school grades; Trapmann, Hell, Weigand, & Schuler, 2007)
  - Personality traits (e.g., Trapmann, Hell, Hirn, & Schuler, 2007)
  - Self-efficacy (e.g. Chemers, Hu, & Garcia, 2001)
  - Match between student and university (e.g., Georg, 2008)

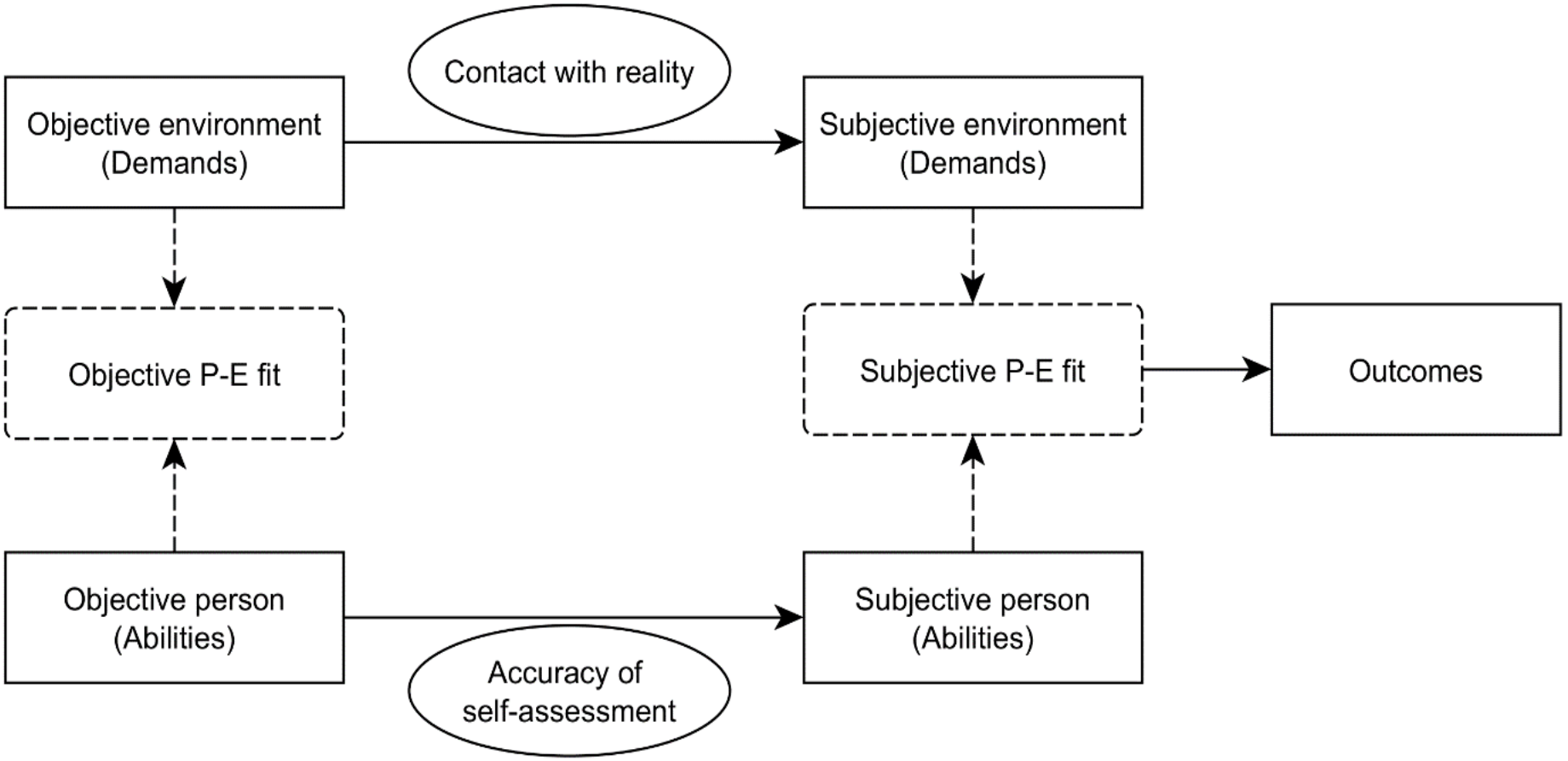
Person-environment fit (PE fit) Theory

- Originally developed in the context of research on organizational behavior (Edwards, 1991)
- Well investigated in working contexts (e.g., Kristof-Brown, Zimmerman, & Johnson, 2005)
- A fit (congruence, match, similarity, correspondence …) between personal factors (e.g., individual abilities) and situational factors (e.g., work requirements) leads to positive outcomes (e.g., satisfaction, performance, commitment, and well-being) (e.g., Edwards, Cable, Williamson, Schurer Lambert, & Shipp, 2006)
- Types of fit (Cable & DeRue, 2002)
  - Person-Organization
  - Needs-Supplies
  - Demands-Abilities

Types of fit in higher education

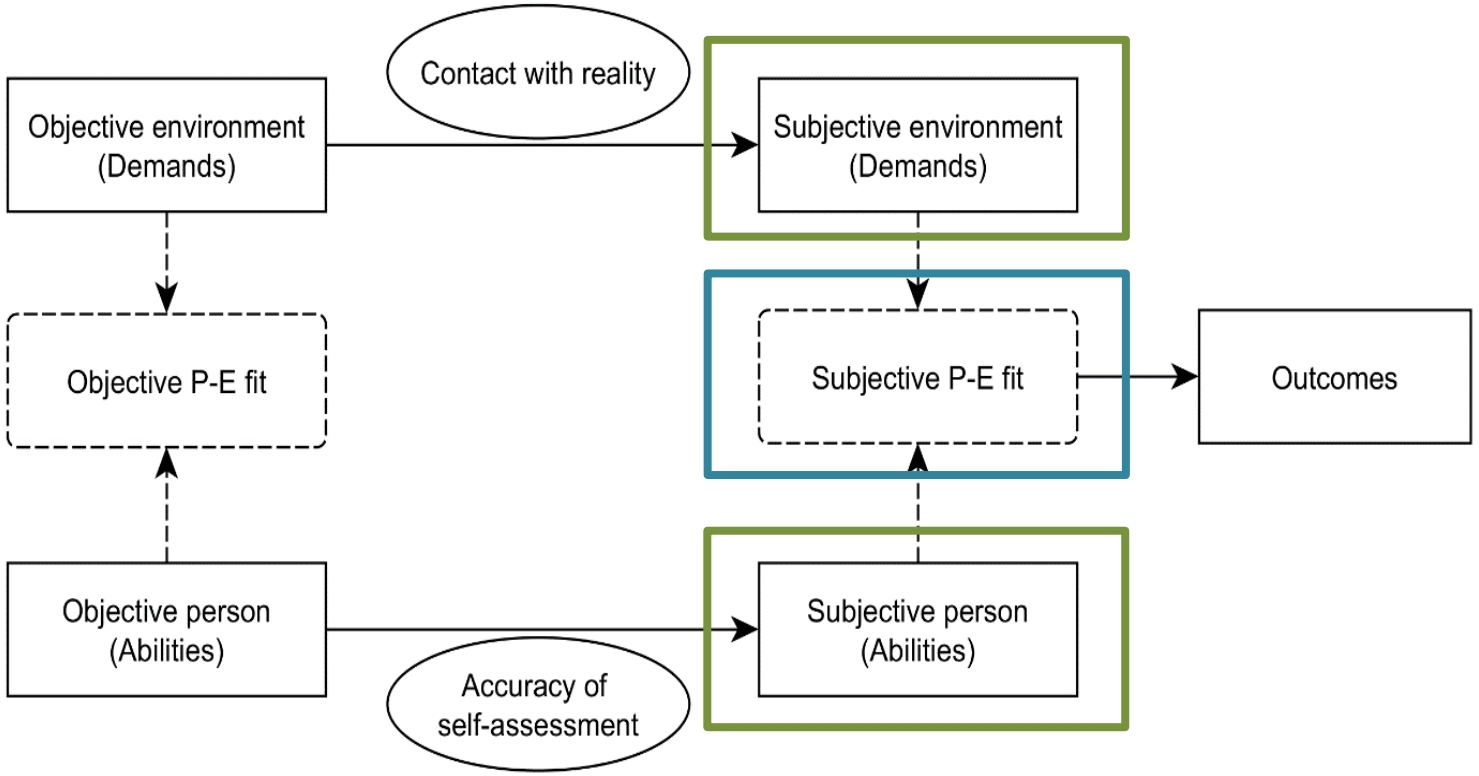
- Focus on person-organization fit
  - student-university fit
    (e.g., Gilbreath, Kim, & Nichols, 2011)
  - interest-major fit
    (e.g., Feldman, Smart, & Ethington, 2004; Schmitt, Oswald, Friede, Imus, & Merritt, 2008; Tracey & Robbins, 2006; Wessel, Ryan, & Oswald, 2008)
- Less common: demands-abilities fit
  - Major topic in context of higher education
  - Predicts academic achievement and study satisfaction
    (Etzel & Nagy, 2015; Heise et al., 1997; Li, Yao, Chen, & Wang, 2012)

Objective and subjective P-E fit



(Adapted from Edwards et al., 1998, p. 29; Harrison, 1978, p. 176)

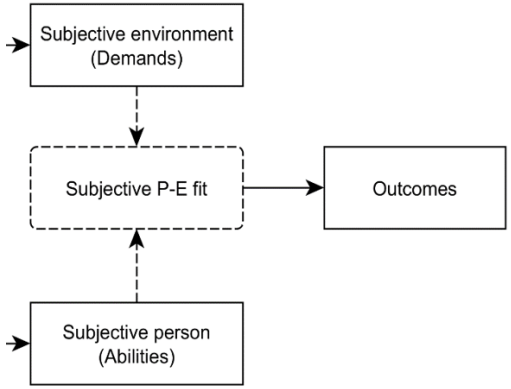
Assessing subjective P-E fit



(Edwards et al., 2006)

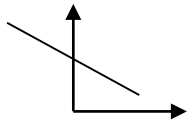
Disadvantage of molar approach

- Relevant information lost
  - One value represents two factors
  - Individual weighting of the factors unknown
- Perceived abilities already known to be associated with outcomes
  (e.g., Robbins et al., 2004)
- Atomistic approach allows to separate the effects of perceived ability and fit



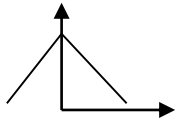
Atomistic approach: Difference Score

- Algebraic difference: demands – abilities



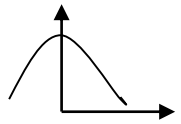
  - Fit: one factor exceeding the other factor

- Absolute difference: |demands – abilities|



  - Fit: perfect correspondence between the factors
  - „optimal“ level of fit
  - Fit score: measure of distance to the optimal level

- Squared difference: $(\text{demands} - \text{abilities})^2$



Research questions

1) Which conception of fit is relevant? Do abilities and requirements lead to higher academic success if the abilities exceed the requirements or if the abilities equal the requirements?
2) Is there a relationship between academic success and subjective fit even if perceived abilities are controlled?

Sample and procedure

- Online-questionnaire at Paderborn University
- 693 students from teacher preparation program (77 % female, *M* = 6.06 semester [*SD* = 3.78])

- Rating of general requirements of their academic programs on 5-point-scale
  - own ability
  - relevance for study
- Criteria for academic success

Measurement instruments

	k	Example	α1	α2
Self-discipline	4	Accurate and careful execution	.87	.77
Learning strategies	4	Linking learning material with prior knowledge, previous experience and practical examples	.81	.60
Academic activities	4	Take time for study of literature	.83	.58
Study satisfaction	3	Overall, I'm satisfied in my present study.	.85	-
Perceived performance	4	How would you evaluate yourself (compared to students, who are similarly far as you) ... regarding your performance in written tests?	.66	-
Grades	1	-	-	-

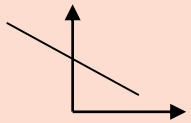
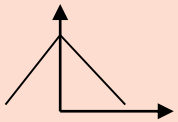
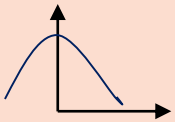
Note. k = number of items per scale; α1 = Cronbach's alpha; α2 = Cronbach's alpha for difference scores (adjusted according to Peter et al., 1993).

$$r_D = \frac{\sigma_1^2 r_{11} + \sigma_2^2 r_{22} - 2r_{12}\sigma_1\sigma_2}{\sigma_1^2 + \sigma_2^2 - 2r_{12}\sigma_1\sigma_2}$$

Analyses

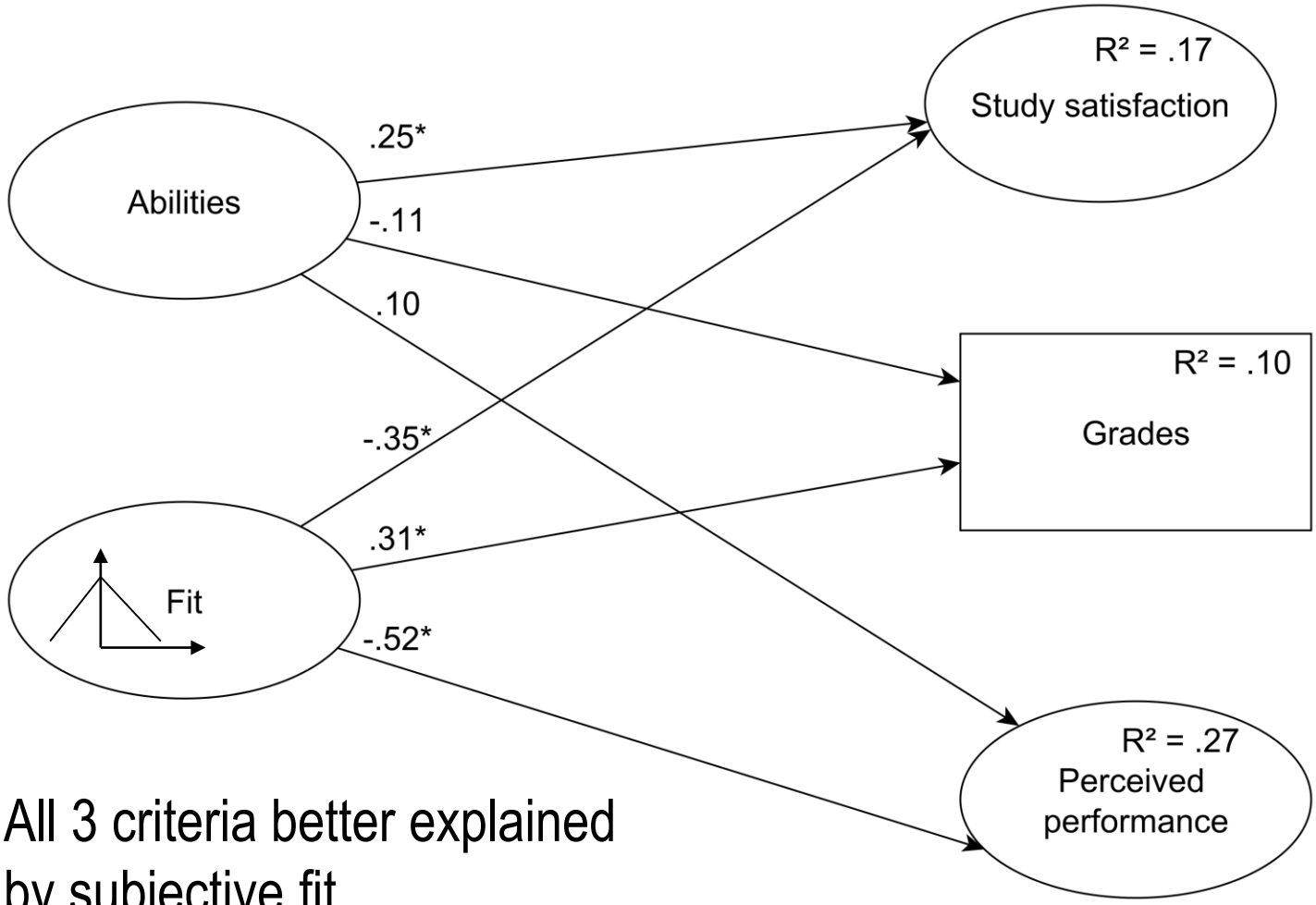

Abilities
Self-discipline
Abilities
Learning strategies
Abilities
Academic activities
Abilities
Perceived performance
Grades
Difference between
Demands and Abilities
Self-discipline
Difference between
Demands and Abilities
Learning strategies
Difference between
Demands and Abilities
Academic activities
Fit
Study satisfaction

Results | Research Question 1

Model	Difference	|Difference|	Difference²
			
Chi²	2619.13 (449)	1006.39 (449)	1059.45 (449)
CFI	.78	.92	.92
RMSEA	.08 90 % CI: .08 – .09	.04 90 % CI: .04 – .05	.04 90 % CI: .04 – .05
AIC	49277.74	47426.25	63035.77
BIC	49781.80	47930.30	63539.83

→ Model with absolute difference shows the best fit
→ There is an „optimal“ level of fit
→ It is not sufficient when individual abilities exceed situational demands

Results | Research Question 2



→ All 3 criteria better explained by subjective fit

→ Stronger consideration on P-E fit in research on academic success

Limitations and implications for further research

- Academic success as self-reports
- Only one university
  - Transferability of results
  - but teacher training students are heterogenous group
- Cross-sectional design
  - No causal interpretation possible
  - Longitudinal (intervention) studies necessary

Practical implications I

Improve objective demands-abilities fit

- Selection before admission
- Modifying central student ability
  - Extra-curricular training session
- Additional programms for talented students
  - Faster study program
  - Extra certificates
  - Integration in additional research tasks

Practical implications II

Tighten relationship between objective and subjective fit

- Transparent requirements
  - Keeping homepages up to date
  - Becoming aware of implicit requirements
- Regular ability feedback
  - Lecturers, other students
  - Computer-generated or from the tasks

Thank you!

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