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Intersectionality – A “New” Approach to Explain Educational Inequality?

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Outline

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4. Hypotheses
5. Data and Methods
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1. Introduction – Research Questions

- Is the approach actually new?

- Does the intersectionality approach help to explain educational inequality?

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1. Introduction

Social Inequalities…

…condensed in „symbolic artificial figures“
(Becker 2007: 177; Geißler 2005: 72)

- „Migrantensohn bildungsarmer Eltern aus der Großstadt“
  (e.g. Geißler 2005: 95; Allmendinger et al. 2010: 58)

- „Katholische Arbeitertochter vom Lande“
  (Dahrendorf 1965; Peisert 1967; Pross 1969)

➢ Multidimensionality of social inquality in education

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2. Theoretical Approach: Intersectionality

- Current approach to explaining social inequality
  (Crenshaw 1989; Davis 2008; Klinger/Knapp 2008; Knapp 2008; McCall 2005; Lutz et al. 2010; Winker/Degele 2009)

- Term „intersectionality“ established by Crenshaw (1989)

2. Theoretical Approach: Intersectionality

Metaphor “Intersection“

“Consider an analogy to traffic in an intersection, coming and going in all (…) directions. Discrimination, like traffic through an intersection, may flow in one direction, and it may flow in another. If an accident happens in an intersection, it can be caused by cars traveling from any number of directions and, sometimes, from all of them. Similarly, if a Black woman is harmed because she is in the intersection, her injury results from sex discrimination or race discrimination“ (Crenshaw 1989: 149).

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2. Theoretical Approach: Intersectionality

- **Multidimensionality**: multiple social positioning of individuals by belonging to several social groups at the same time
- **Intersectionality**: various overlaps and relationships between social categories in generating inequality, not only additive main effects but a confoundation of effects
- **Contextuality**: depending on and varying with social contexts

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3. State of Research – Multidimensionality

- Children with low socioeconomic status

(e.g. Autorengruppe Bildungsberichterstattung; Baumert et al. 2006; Becker 2009; Becker/Lauterbach 2008; OECD 2007)

- Male children

(e.g. OECD 2009; Aktionsrat Bildung 2009; Diefenbach 2010; Quenzel/Hurrelmann 2010b)

- Children with migration background

(e.g. Autorengruppe Bildungsberichterstattung 2010; Diefenbach 2007, 2009; OECD 2006, 2007; Stanat 2006, 2008)

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3. State of Research – Intersectionality

Interactions in methodic-quantitative approaches

- **Gender x SES**
  (e.g. Buchmann/DiPrete 2006; Breen et al. 2010; Legewie/DiPrete 2010)

- **Gender x Migration**
  (Daniel et al. 2010; Demie 2001; Feliciano/Rumbaut 2005; Muller et al. 2001; Riegle-Crumb 2006; Støren/Helland 2010)

- **SES x Migration**
  (Heath/Brinbaum 2007; Levels et al. 2008; Riegle-Crumb/Grodsky 2010; Strand 2010)

3. State of Research – Intersectionality

Interaction Gender x SES x Migration

- Especially discussed in pedagogically-oriented educational research, in the framework of the "heterogeneity debate"

  (e.g. Ansalone 2009; Azzarito 2005; Archer 2003; Dill 2002; Gilborn 2000; Grant/Sleeter 1986; Kassis et al. 2009; Kelle 2008; King 2008, Leiprecht/Lutz 2009; Lutz 2001; Skerrett 2006; Weber 2008, 2009)

- Predominantly investigated through qualitative analyses

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4. Hypotheses – Multidimensionality

Gender

Female students attain higher scores in reading, male students higher scores in mathematics.

Socioeconomic Status

Students with high SES get higher scores than those with low SES in reading and mathematics.

Migration

Students without migration background attain higher scores in reading and mathematics than those with migration background.

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4. Hypotheses – Intersectionality

Gender x Socioeconomic Status

Male students with low SES attain especially low scores in *reading*.

Female students with low SES attain especially low scores in *mathematics*.

Gender x Migration Background

Male students with migration background get especially low scores in *reading*.

Female students with migration background get especially low scores in *mathematics*.

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4. Hypotheses – Intersectionality

Socioeconomic Status x Migration Background

Students with low SES and migration background get especially low scores in reading and mathematics.

Gender x Socioeconomic Status x Migration Background

Male students with low SES and migration background get especially low scores in *reading*.

Female students with low SES and migration background get especially low scores in *mathematics*.

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4. Hypotheses – Contextuality

Gender

Score differences in reading and mathematics between male and female students are smaller in countries with high gender equity.

Socioeconomic Status

Score differences in reading and mathematic between students with high and low SES are greater in countries with high income inequality (GINI-Index).

Migration Background

Students with migration background attain lower scores in reading and mathematics in schools with a high proportion of students with migration background.

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5. Data and Methods

- International PISA data (2006):
  - 398,750 students (age 15)
  - 14,365 schools
  - 57 countries
- Data on country level (2005):
  - Human Development Report (UN 2007/2008)
  - National Reports (UN)
- Fixed effects models with random effects for main variables (Snijders 2005)
- MI of missing data via ICE-ado (Royston 2004)

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5. Data and Methods

How to model the intersectionality approach?

- Multidimensionality
  → Multivariate analysis
- Intersectionality
  → Interaction terms
- Contextuality
  → HLM with cross-level effects

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5. Data and Methods

Table 1. *Data on Country Level (n=57)*

Variable	Obs	Mean	SD	MIN	MAX	% MV
GINI-Index (2005)	56	35.2	8.1	24.7	58.6	1.8
GEM (2005)	52	0.638	0.164	0.297	0.910	8.8
GDP per capita (2005)	56	23624	19520	1927	122100	1.8

GEM: Gender Empowerment Measure

- Seats in Parliament held by women (% of total)
- Female legislators, senior officials and managers (% of total)
- Female professional and technical workers (% of total)
- Ratio of estimates female to male earned income

5. Data and Methods

Table 2. *Data on School Level (n=14,365, weighted by „final school weight“)*

Variables	Obs	Mean	SD	MIN	MAX	% MV
Prop. migrants	14,354	0.05	0.12	0	1	0.08
Prop. test language ≠ spoken at home	14,345	0.15	0.29	0	1	0.14
Prop. parents with university degree	14,351	0.24	0.23	0	1	0.10
Private school	13,187	0.19	0.40	0	1	8.20
School size (# students)	13,604	492.01	515.87	3	10,000	5.30
Prop. certified teachers	10,189	0.84	0.30	0	1	29.07
Prop. qualified teachers (ISCED 5a)	11,233	0.76	0.31	0	1	21.80
Prop. girls	13,604	0.49	0.13	0	1	5.30
Community size:						
Village	13,747	0.33	0.47	0	1	4.30
Small town	13,747	0.22	0.41	0	1	4.30
Town	13,747	0.22	0.41	0	1	4.30
City	13,747	0.15	0.36	0	1	4.30
Large city	13,747	0.09	0.28	0	1	4.30

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5. Data and Methods

Table 3. Data on Student Level (n=398,750; weighted by „final student weight“)

Variable	Obs	Mean	SD	MIN	MAX	% MV
DV: plausible values math	398,750	454.22	105.15	0.62	921.01	0.00
DV: plausible values reading	393,139	446.14	109.91	0.12	1083.51	1.41
Gender (1=female)	398,746	0.50	0.50	0	1	0.00
Migrant	388,458	0.07	0.25	0	1	2.58
HISCED (1=ISCED 0-2)	390,890	0.27	0.44	0	1	1.97
HISEI	377,402	46.41	17.40	16	90	5.35
Age	398,734	15.78	0.29	15.17	16.33	0.00
Test language ≠ spoken at home	384,488	0.14	0.34	0	1	3.58
# books at home:						
0-10 (Ref.)	390,779	0.18	0.39	0	1	2.00
11-25	390,779	0.22	0.41	0	1	2.00
26-100	390,779	0.29	0.45	0	1	2.00
101-200	390,779	0.15	0.35	0	1	2.00
201-500	390,779	0.10	0.31	0	1	2.00
>500	390,779	0.06	0.23	0	1	2.00

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6. Results – Reading

Table 4. *Hierarchical Linear Models (HLM): Determinants of Reading Competences*

Model	**(1)** Coeff. (T-ratio)	**(2)** Coeff. (T-ratio)	**(3)** Coeff. (T-ratio)
Student level (level 1)			
Gender (1=male)	–29.53 (–81.72)***	–34.03 (–35.67)***	–37.38 (–8.91)***
Migrant	–9.66 (–13.32)***	–18.04 (–9.47)***	–18.42 (–7.98)***
Low educ. of parents (HICED<3)	–3.12 (–7.89)***	–5.28 (–10.04)***	–7.43 (–1.39)
HISEI	0.55 (56.36)***	0.51 (39.83)***	0.55 (3.02)**
Migrant*HISEI		0.17 (5.41)***	0.04 (1.20)
Migrant*low educ. parents		–0.46 (–0.35)	0.31 (0.23)
Migrant*male		0.82 (0.75)	1.27 (1.15)
Male*low educ. parents		4.54 (7.05)***	2.45 (3.67)***
Male*HISEI		0.06 (3.91)***	0.07 (4.17)***
School level (level 2)			
Prop. migrants	–66.22 (–4.49)***	–65.59 (–4.41)***	–72.03 (–5.33)***
Country level (level 3)			
Gini-Index	–0.72 (–0.97)	–0.71 (–0.96)	–0.68 (–0.88)
Gender emp. measure (GEM)	190.50 (4.12)***	191.55 (4.15)***	193.67 (4.13)***
Cross-level effects			
Gini*HISEI			–0.00 (–0.18)
Gini*low educ. of parents			0.01 (0.09)
GEM*male			4.64 (0.77)
Prop. migrants*migrants			9.02 (0.75)
deviance (# estimated parameters)	4,578,813 (46)	4,578,593 (91)	4,575,655 (113)

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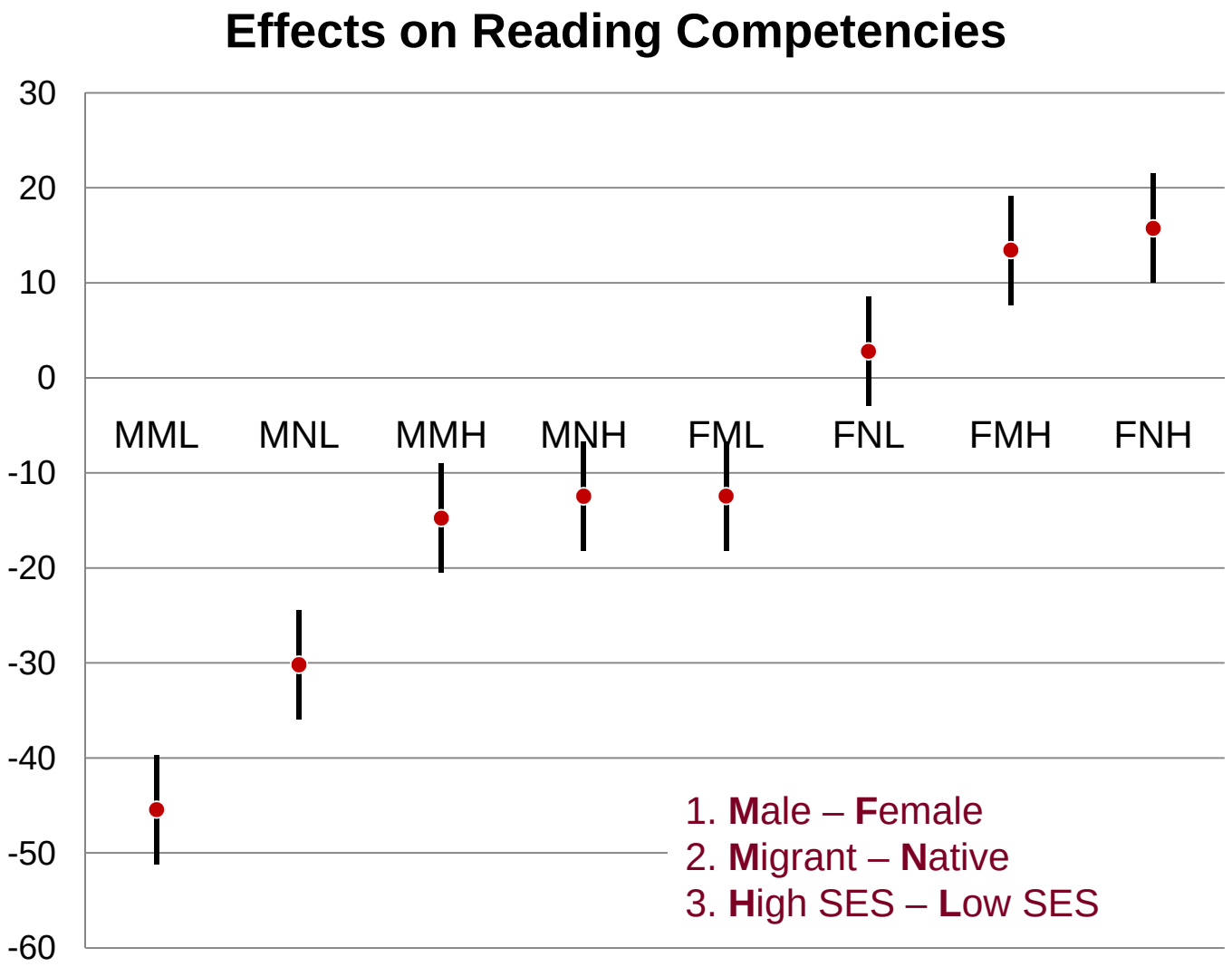
6. Results – Reading



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6. Results – Mathematics

Table 5: *Hierarchical Linear Models (HLM): Determinants of Mathematics Competences*

Model	**(1)** Coeff. (T-ratio)	**(2)** Coeff. (T-ratio)	**(3)** Coeff. (T-ratio)
Student level (level 1)			
Gender (1=female)	–16.87 (–62.70)***	–13.05 (–14.23)***	–9.69 (–2.51)*
Migrant	–9.86 (–14.67)***	–17.77 (–9.45)***	–19.90 (–10.42)***
Low educ. of parents (HICED<3)	–2.80 (–8.02)***	–0.82 (–1.66)	–1.97 (–0.38)
HISEI	0.52 (53.31)***	0.53 (41.10)***	0.75 (4.43)***
Migrant*HISEI		0.19 (5.75)***	0.07 (2.11)*
Migrant*low educ. parents		–0.66 (–0.50)	0.01 (0.00)
Migrant*female		–0.79 (–0.83)	–0.50 (–0.52)
Female*low educ. parents		–3.77 (–5.68)***	–2.23 (–3.40)***
Female*HISEI		–0.06 (3.40)***	–0.05 (3.24)**
School level (level 2)			
Prop. migrants	–75.48 (–4.73)***	–74.51 (–4.66)***	–78.94 (–5.39)***
Country level (level 3)			
Gini-Index	–1.23 (–1.57)	–1.23 (–1.57)	–0.70 (–0.81)
Gender emp. measure (GEM)	192.65 (3.90)***	193.27 (3.93)***	231.15 (4.62)***
Cross-level effects			
Gini*HISEI			–0.01 (–1.29)
Gini*low educ. of parents			–0.07 (–0.48)
GEM*female			–5.96 (–1.06)
Prop. migrants*migrants			25.49 (2.46)*
deviance (# estimated parameters)	4,524,322 (46)	4,524,168 (91)	4,520,899 (113)

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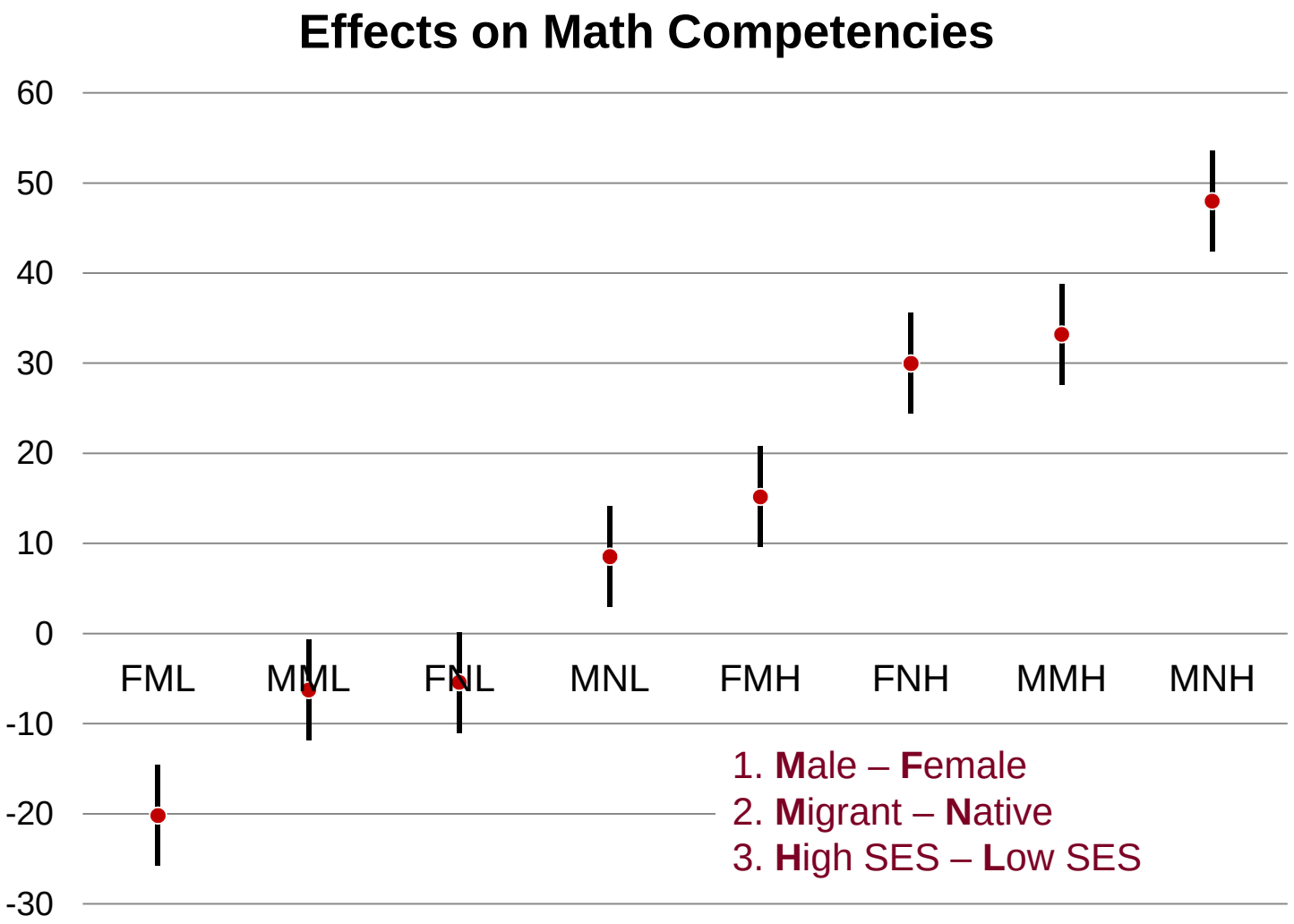
6. Results – Mathematics



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7. Conclusion

- Considering various interactions and subgroups does make sense.
- Modeling the social context with cross-level interactions explains only a small part.
- Does the intersectionality approach help to explain educational inequality?
  - Yes.
- Is the approach actually new?
  - No.

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Thank you for your attention!

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Comparison of Model Fit

Mathematics	Deviance (# estimated parameters)	Chi^2 (df)	p-value
Model (1) versus (2)	4,524,322 (46) 4,524,167 (91)	154.21 (45)	0.000
Model (2) versus (3)	4,524,167 (91) 4520899 (113)	3268.06 (22)	0.000

Reading	Deviance (# estimated parameters)	Chi^2 (df)	p-value
Model (1) versus (2)	4,578,813 (46) 4,578,593 (91)	219.08 (45)	0.000
Model (2) versus (3)	4,578,593 (91) 4,575,655 (113)	2937.23 (22)	0.000

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