Biographical Diversity in Higher Education

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Structure

1. Introduction
2. General Policy Framework
3. Pathways to Higher Education in Germany
4. Prior Research
5. Empirical Analyses
6. Conclusion & Discussion
Introduction

- The term diversity in higher education
- Biographical diversity
The Term DIVERSITY in Higher Education

Non-Traditional Students, typically underrepresented & disadvantaged groups
- People of color / immigrants / non-nationals / refugees / BAME
- Physical or psychological impairments / neurodiversity
- Gender identity / sexual orientation
- Mature students, senior students
- Delayed entries
- First generation students / students from low-income households
- Students with „non-linear educational biographies
- Students without formal higher education entrance certificate (HEEC)
- Students with vocational qualifications
- Part-time students
- Students in distance education
BIOGRAPHICAL DIVERSITY

Non-Traditional Students, typically underrepresented & disadvantaged groups

• People of color / immigrants / non-nationals / refugees / BAME
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• Students in Distance Education
Intersections of biographical diversity with diversity of background and institutional conditions.

**Biographical Diversity**
- Mature students / senior students
- Delayed entries
- Students with „non-linear Educational Biographies
- Students without formal higher education entrance certificate (HEEC)
- Students with vocational qualifications

**Non-traditional institutional conditions**
- Part Time Education
- Lower Tier HEIs
- Distance Education / Work & Study
- Open Education
- Private / Full Cost Education
- Modular Further Education

**underrepresented or disadvantaged individual background**
- People of color / immigrants / non-nationals / refugees / BAME
- Physical psychological impairments / neurodiversity
- First generation / low-income background
General Policy Framework

- Historical development
- Implementation in Germany
Policy framework: The 1970’s

**Expansion** policy: inclusion of underrepresented groups

- Improved **access**: increasing admission & foundation of new HEIs, removal/reduction of financial barriers (grant & loan programs, tuition reforms)
- Institutional **diversification** (e.g. universities of applied sciences, city colleges, short programs etc.)
- First initiatives to introduce **second chance** education

Explicit goal: Reduction of **inequality**

- yet – triggered by sputnik shock (1957) also economic reasoning
- e.g. maintenance of technological and economic **competitiveness** in cold war
- need for highly qualified workforce
- **activation of talent reserves** among women and working classes
Policy framework: The 1990’s

Rising awareness of demographic development:
• New economic threat: shrinking populations and ageing societies
• Anticipated shortage of labour supply
• Rapidly changing labour markets

Equity motives (partly) replaced by effectiveness motives:
• Lifelong learning necessary to maintain a flexible availability of human capital
• Need for earlier transition to labour market: shorter education & longer work lives to compensate demographic threat

Deliberate action to facilitate lifelong learning in higher education:
• Permeability between sectors of post-secondary education
• Establishment of alternative routes to HEEC & Higher Education
• Introduction of sequential structure in HE (first, second, third cycle structure in HE – Bologna Process)
Policy framework: The 2000’s & 2010’s

Core goals:
- Widening participation
- Recognition of prior learning
- Equal Opportunities

2001 Prague communiqué: *lifelong learning as EU policy objective*

„lifelong learning strategies are necessary to face the challenges of *competitiveness* and the use of new technologies, and to improve social cohesion, equal opportunities and quality of life*

2015 Yerevan communiqué: Internationalization, but also *return of equity-considerations*

*We undertake to widen participation in higher education and support institutions that provide relevant learning activities in appropriate contexts for different types of learners, including *lifelong learning*. We will improve *permeability* and articulation between different education sectors. We will enhance the social dimension of higher education, improve *gender balance* and widen opportunities for *access and completion*, including international mobility, for students from disadvantaged backgrounds.*
Implementation in Germany

• Historically, „non-traditional access was always possible
• Since 1970's deliberate establishment of alternative routes to HE
• BUT: inconsistent or even random access regulations across federal states

2009: Conference of the federal ministries of education (KMK)
- Agreement to coordinate the admission regulations for applicants without formal entrance certificate
- Recognition of advanced-level vocational qualifications (technician, industrial master, certified specialists) as HEEC-equivalent
- Recognition of vocational training + 3 years labour market experience as HEEC-equivalent for related fields of study
Implementation in Germany

Several programs of the Federal Ministry of Education (BMBF) to develop procedures to improve

• recognition of prior learning
• access for people without a formal HEEC
• affordability of higher education for mature students

BUT

• Only very slight increase (number & share) of students without formal HEEC (Wolter et al 2014, 2017, Otto, 2021)
• Instead: expansion of alternative routes to HEEC (e.g. via vocational education) (Schindler 2014, Tieben & Rohrbach Schmidt 2014, 2021)
• Concentration of non-traditional students in particular institutions and programs, limited access to general university programs
• Competition between vocational and higher education
• Little support from industry and chambers of commerce for further expansion of higher education
3. Pathways to Higher Education in Germany

- Terms & Definitions
- „traditional & „non-traditional Students
- a classification
Biographical Diversity - Diversity of Terms & Definitions

Mature student
- GB: Typically, this will mean students who are over 21 years of age at the beginning of their undergraduate studies, or over 25 years of age at the beginning of their postgraduate studies. (UCAS homepage)

Delayed entry
- The term delayed transition students refers to students who enter higher education with a delay of more than 24 months after leaving school for the first time (Eurostudent homepage)

Senior Student
- In Anglo-American context: Student in 4th year
- In Germany: entered HE after active work-life, usually retired, often graduated at young age, no qualification motivation

Non-traditional student
- Unspecific umbrella term for students with non-traditional pathways or study conditions
- In Germany: student who entered without formal entrance certificate

Student with vocational qualification
- In Germany: Students who have a formal qualification for the skilled labour market, not necessarily non-traditional or mature

Student with non-linear educational biography
- Unspecific umbrella-term for students who did not take the standard/academic pathway but detours
Biographical Diversity – Diversity of Terms & Definitions

Delay in Germany

• Typically through qualification, employment or voluntary/military service
• Inactive gap years less often than elsewhere
• Non-linear pathways do not necessarily cause delays

Pathway to Higher Education more relevant for Definition

1. Pathway to entrance certificate
2. Pathway from entrance certificate to higher education
The German Educational System: General Structure

Primary school

- Lower secondary school (academic track)
- Lower secondary school (non-academic tracks)

- General upper secondary school
- Vocational upper secondary school
- Vocational training

- Higher Education Entrance Certificate (HEEC)
- Vocational Certificate

- Higher education
- Adult education

- Academic labour market
- Skilled labour market
Pathways to higher education: Traditional Students (TS)

Primary school
- Lower secondary school (academic track)
- Lower secondary school (non-academic tracks)

Lower secondary school
- General upper secondary school
- Vocational upper secondary school
- Vocational training

Higher Education Entrance Certificate (HEEC)
- Vocational Certificate
- Adult education

Higher education
- Skilled labour market
- Academic labour market

N=8699 (73%)
Pathways to higher education: Double Qualifiers (DQ)

Primary school

Lower secondary school (academic track)

Lower secondary school (non-academic tracks)

General upper secondary school

Higher Education Entrance Certificate (HEEC)

Vocational upper secondary school

Vocational Certificate

Higher education

Skilled labour market

Academic labour market

N=849 (7%)
Pathways to higher education: Restricted Entrance Certificate (RC)

Primary school

- Lower secondary school (academic track)
- Lower secondary school (non-academic tracks)

General upper secondary school

Vocational upper secondary school

Vocational training

Higher Education Entrance Certificate (HEEC)

Vocational Certificate

Higher education

Adult education

Academic labour market

Skilled labour market

N=599 (5%)
Pathways to higher education: Second Chance (SC)

N=1348 (11%)
Pathways to higher education: Non-Traditional (NT)

Primary school

Lower secondary school
(academic track)

Lower secondary school
(non-academic tracks)

General upper secondary school

Vocational upper secondary school

Vocational training

Higher Education Entrance Certificate (HEEC)

Vocational Certificate

Higher education

Adult education

Academic labour market

Skilled labour market

N=474 (4%)
Distribution of Pathways

- Majority (73%) enters via direct pathway
- 23% take non-linear pathways, but have HEEC
- 4% enter without HEEC
4. Prior Research

- The core questions
- National & international empirical research
- Open questions
The core questions

Is biographical diversity associated with...

1. socio-demographic / socio-economic characteristics?
2. Study conditions
3. academic preparation / competence?
4. academic development / success?
Delays, Detours and Success in Higher Education…

Delayed transitions to higher education are associated with

- Lower levels of **academic preparation** and **low high school GPA** (Bozick and DeLuca 2005; Heather 2007; Roksa and Velez 2012, Tieben and Knauf 2019, Tieben 2021).
- Lower **socio-economic** backgrounds, higher **financial restrictions** (Tieben 2021)
- High commitment to **labour market** or **family obligations**, time restrictions (Roksa and Velez 2012, Wolter et al 2014)
- Slower progression, longer time-to-degree (Wolter et al 2017)
- Higher **motivation**, higher **goal commitment** and **better performance** in college (Cantwell et al. 2001; McKenzie and Gow 2004; Birch and Miller 2007; Heath 2007; Martin 2010; Parker et al. 2015)
- Clear **vocational orientation** (Schneider and Stevenson 1999; Arnett 2004; Crawford and Cribb 2012)
- An increased risk of **dropping out** (leaving higher education without a degree) (Hearn 1992; Bozick and DeLuca 2005; Milesi 2010, Wolter et al 2017)
The Paradox…

- NTS seem to bring in experiences, motivation and dedication that may compensate lower levels of general academic preparation.
- In Germany, they often choose a field of study similar to their prior vocation.
- Most performance comparisons between NTS and TS (i.e. grades in HE) show equal or even better performance in HE.
- BUT: drop out is more likely among NTS.

Core conclusion of my previous research: Vocational qualification is a paradoxical double buffer:
- on the hand vocational skills and work experience are helpful in higher education
- on the other hand a vocational qualification is a safe return ticket into the old job.
... and the discussion about academic readiness

Assumptions of Conservative Perspective

- Primarily **general upper secondary education** equips students with the knowledge & skills necessary to succeed in higher education
- **Insufficient academic preparation** of students from alternative routes
- **Bad fit** between students from alternative routes and the academic culture in higher education institutions

Empirical Research

- School-leavers from vocational upper secondary education have lower performance levels in maths, languages etc. than school leavers from general upper secondary education (Köller et al 2004, 2013)
… and the discussion about academic readiness

BUT:

- Study examined school-leavers, not enrolled students
  - likely positive selection of higher performers into HE
- Study examined general upper secondary curriculum skills
  - proved to be powerful predictors of later performance
  - likely that other skills are relevant for success in HE
- Conservative assumptions ignore that non-traditional students may profit from
  - prior training and work experience
  - good match between prior vocation and field of study

➢ Current discussion about academic readiness, initiatives to define a set of skills and individual attributes that measure academic readiness more accurately than high school achievement (e.g. Porter & Polikoff 2012; Trautwein & Bosse 2017, Klasik & Strayhorn 2018.)
Research Questions

1. How do the 5 pathway types differ regarding basic socio-demographics
2. How do the 5 pathway types differ regarding their program choices & study conditions?
3. How do the 5 pathway types differ regarding objective and subjective measures of academic preparation?
4. Empirical Analyses

- Data
- Socio-demographics and age structures at transition to HE
- Objective & Subjective Academic Readiness
- Subjective Graduation Probability
The Data

• National Education Panel Study (NEPS)
• Cohort of approx. 12,000 Students
• First enrolment in HE in winter semester 2010/11
• Follow-ups 2x/year
• Item & methods rotation across waves

My analyses
• Information from 1st year surveys (waves 1&2)
• Reason: maximal sample, few losses due to panel attrition
• Drawback: only assessment of early phase, no reliable information about objective success measures (graduation, GPA, progress, dropout, etc.)
General student population: Age at transition

- 76% enter before age 22
- 95% enter before age 28
- Less than 2% are older than 35

➢ **Lifelong learning does not seem to happen in German HE**
Socio-demographics: Age at transition

- TS & RC lowest mean & standard deviation
- Interesting: vocational training does not necessarily drive the transition age (RC on the go)!
- DQ & SC = time consuming pathways, sometimes prolonged occupational careers
- 95% enter HE before age 28
- NT: pronounced standard deviation suggests that

![Age at transition by pathway graph]

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS</td>
<td>20.0</td>
<td>1.34</td>
</tr>
<tr>
<td>RC</td>
<td>20.7</td>
<td>2.83</td>
</tr>
<tr>
<td>DQ</td>
<td>24.2</td>
<td>3.33</td>
</tr>
<tr>
<td>SC</td>
<td>24.0</td>
<td>4.83</td>
</tr>
<tr>
<td>NT</td>
<td>30.0</td>
<td>8.22</td>
</tr>
</tbody>
</table>
Socio-demographics: Education Parents

- Students from non-linear pathways have lower educated parents
Socio-demographics: Gender

- Students from non-linear pathways have **lower educated parents**
- They are **more likely to be male** – except the double-qualifiers
### Type of Institution

- Majority of students with non-linear biographies choose **universities of applied sciences**

- UAS were established in the 1970’s to accommodate students from vocational pathways

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<table>
<thead>
<tr>
<th>Type</th>
<th>TS</th>
<th>RC</th>
<th>DQ</th>
<th>SC</th>
<th>NT</th>
</tr>
</thead>
<tbody>
<tr>
<td>research university</td>
<td>88.4</td>
<td>66.1</td>
<td>70.7</td>
<td>53.3</td>
<td>47.5</td>
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<tr>
<td>university of applied sciences</td>
<td>11.6</td>
<td>29.3</td>
<td>29.3</td>
<td>46.7</td>
<td>52.5</td>
</tr>
</tbody>
</table>
Field of study

- **Engineering** and **LESS** most popular fields of study among all non-linear pathways
- Fields with good **connectivity** with popular vocational training programmes in finance & industry
Study Conditions: Distance & Part Time Education

- Distance & Part time Education particularly popular among NTS, but not among other groups.
- Possibly effect of institutional policy: distance institutions with established procedures for recognition of vocational qualifications & admission of students without formal HEEC.
Academic Readiness

Objective & Subjective Measurements
Test scores: Maths and Reading Competence

**Maths**
- All groups with non-linear biographies below average
- RC, SC & NT: no sig. differences, DQ

**Reading**
- Similar pattern, but averages of non-linear slightly higher
- Distance to TS smaller than maths
Test scores: Maths and Reading Competence

Important to note

- Default formatting obscures that group differences are **significant but not large**!

  ➢ Always check on the **range of values on y-axis** before judging the group differences!

![Graphs showing test scores for Maths and Reading Competence across different pathways.](image)
Self Assessment: Maths, German, English, IT-Competences

- **RC** seem to *overestimate* their skills  
  Possibly peer-group effects from vocational upper secondary school…
- **NT** seem to *underestimate* their skills  
  Possibly salient lack of formal certificate
- Interesting: all non-linear groups report higher levels of IT-preparation than NT
Self-Assessment: General Academic Preparation

Preparation in scientific methods
- All non-linear groups slightly below average
- TS significantly above, DQ significantly below average
- NT report particularly low values (sign. diff. relative to ALL other groups)

Lack of important skills
- Similar but reverse pattern

Generally well-prepared
- DQ same level as TS (no sign. diff)

Knowledge sufficient for 1st semester
- Interesting: high deficit-awareness among NT, but also little concerns that preparation might be insufficient
Self-Assessment: Graduation probability

- Likert scale: 1=very unlikely, 5=very likely
- Expectations generally optimistic after first year
- Again: small but significant group differences
Summary & Conclusion

• Quantitative overview confirms qualitative findings: **non-linear biographies are associated with (perceived) deficits in academic preparation**

BUT

• Comparison with TS reveals **surprisingly small differences**
• **Optimism** among all groups
• Deficits **must be taken seriously**, but are possibly **not sufficient explanation for higher drop out rate**
Future Research

- **Longitudinal analyses**
- Closer look at *actual* performance, progress & graduation patterns
- Closer look at *resources & restrictions*
  - compensation strategies
  - finances
  - family & work obligations
- Closer look at *double-buffer of vocational skills & knowledge*
  - beneficial effects of *vocational field congruence & work experience*
  - pull-factor *labour market* (return-ticket)
THANK YOU!
References


References


