

# Overcoming Obstacles? Institutional Support for the Pathways to Higher Education at German Vocational Schools

Nadine Dörffer<sup>1,2</sup>  and Nadine Bernhard<sup>1</sup> 

<sup>1</sup> Institute of Educational Sciences, Technische Universität Berlin, Germany

<sup>2</sup> Leibniz Center for Science and Society, Leibniz University Hannover, Germany

**Correspondence:** Nadine Dörffer ([n.doerffer@tu-berlin.de](mailto:n.doerffer@tu-berlin.de))

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## Abstract

The institutionalization of new types of vocational schools in the 1960s and 1970s aimed to open up the German education system and create new pathways for accessing higher education, particularly for socially disadvantaged students. Today, one-third of German students with a higher education entrance certificate graduate from vocational schools. However, these graduates are less likely to pursue or succeed in higher education. This raises the question: How do vocational schools support their heterogeneous student body in transitioning to higher education, and to what extent do differences exist between school types? Sociological research has shown that institutional support for and during transitions is crucial for expanding access to education. In particular, organizational structures and practices play a role in the (re)production of social inequality. To analyze these, we apply the concept of institutional permeability, focusing on information and counseling, financial support, learning organization and pedagogy, and school culture. The study draws on problem-centered interviews with staff from different types of vocational schools in one German federal state, analyzed through qualitative content analysis. The results reveal significant variations in how schools aim to prepare students for higher education. Specifically, students of *Fachoberschule* face a double disadvantage due to their social background and institutional structures, which hinder their higher education pathways. The lack of personalized support at vocational schools complicates students' orientation process, placing much of the responsibility on students and a few dedicated teachers.

## Keywords

Germany; higher education; institutional permeability; institutional support; school types; social background; study orientation; vocational schools

## 1. Introduction

Beyond the traditional route through grammar schools, vocational school types that lead to a higher education entrance certificate (HEEC) play a crucial role in the existing pathways to higher education (HE) in Germany. Vocational schools account for one-third of all HEECs (Autor:innengruppe Bildungsberichterstattung, 2024). Students often attend these school types after completing vocational education and training (VET), following employment, or coming from non-academic lower secondary school tracks. Due to the high stratification within the German secondary education system, a significant proportion of students from socially disadvantaged backgrounds enroll in vocational school types that provide access to a HEEC. Thus, vocational schools can be seen as institutionalized “permeability bridges” aimed at creating more opportunities and overcome the obstacles to HE access for socially disadvantaged students. However, vocational school graduates are less likely to pursue HE (Lörz, 2013; Van den Broeck et al., 2020) and more likely to drop out (Heublein et al., 2017; Tieben, 2020).

Nationally and internationally, few empirical studies have examined vocational school types, their certificates, and students’ transitions to HE (Bodin & Orange, 2018; Imdorf et al., 2017; Leemann et al., 2016; Murdoch et al., 2016; Schindler, 2014; Schuchart, 2019; Schuchart & Schimke, 2022; Watermann & Maaz, 2006). These studies often focus on the individual level, examining students’ transition behavior and aspirations. Research has shown that students’ HE aspirations and transitions vary considerably depending on the vocational school type and their students’ social background (Imdorf et al., 2017; Schuchart, 2019). However, the role of vocational schools as organizations—and the structures and practices within them—has been largely overlooked. This gap is notable given that educational research consistently shows that structures and practices at the organizational level strongly influence the (re)production of social inequality (Bourdieu & Passeron, 1971; Emmerich & Feldhoff, 2021; Smyth & Banks, 2012). Organizational structures, such as institutionalized information and counseling on future education options, and pedagogical practices that are sensitive—or insensitive—to students’ habitus and social differences, have been shown to affect students’ educational behavior (Ehlert et al., 2017; Erdmann et al., 2022; Horvath, 2018; Lange-Vester et al., 2019; Pfahl, 2012).

We argue that vocational school structures and practices can support or hinder students’ transitions to HE. However, we still lack knowledge about how institutional and organizational support varies across different types of vocational schools in Germany. Therefore, we ask: How do vocational schools support their diverse learners in transitioning to HE, and how does this support differ between vocational school types? To address these questions, we structure our analysis around four bundles of support structures and practices that can facilitate institutional permeability for heterogeneous learners: information and counseling, financing, pedagogy and learning organization, and organizational culture (Bernhard, 2017). In addition, we examine how these vocational schools support their socially diverse student body and how this contributes to re(pro)ducing inequality within the education system.

Following, we will describe the different types of vocational schools in the German education system, their student populations, transitions, and success in HE. Using the theoretical concept of institutional permeability (Bernhard, 2017), we present current knowledge on school-based study orientation. Our qualitative-exploratory study is based on document analysis and qualitative interviews conducted with school staff from various types of vocational schools in Lower Saxony. The data were analyzed using

theory-guided qualitative content analysis. Our findings suggest that schools' support structures and practices are not well-aligned with the needs of their student populations. The aim of preparing students for HE varies by school type, with socially disadvantaged students, particularly those enrolled at *Fachoberschule* (FOS), facing a double disadvantage in their transition to HE due to their social background and teaching practices. Overall, we found a lack of individualized support within schools, leaving much of the responsibility to students and a few dedicated teachers.

## 2. Pathways to HE in Germany

### 2.1. General Structure of the Education System

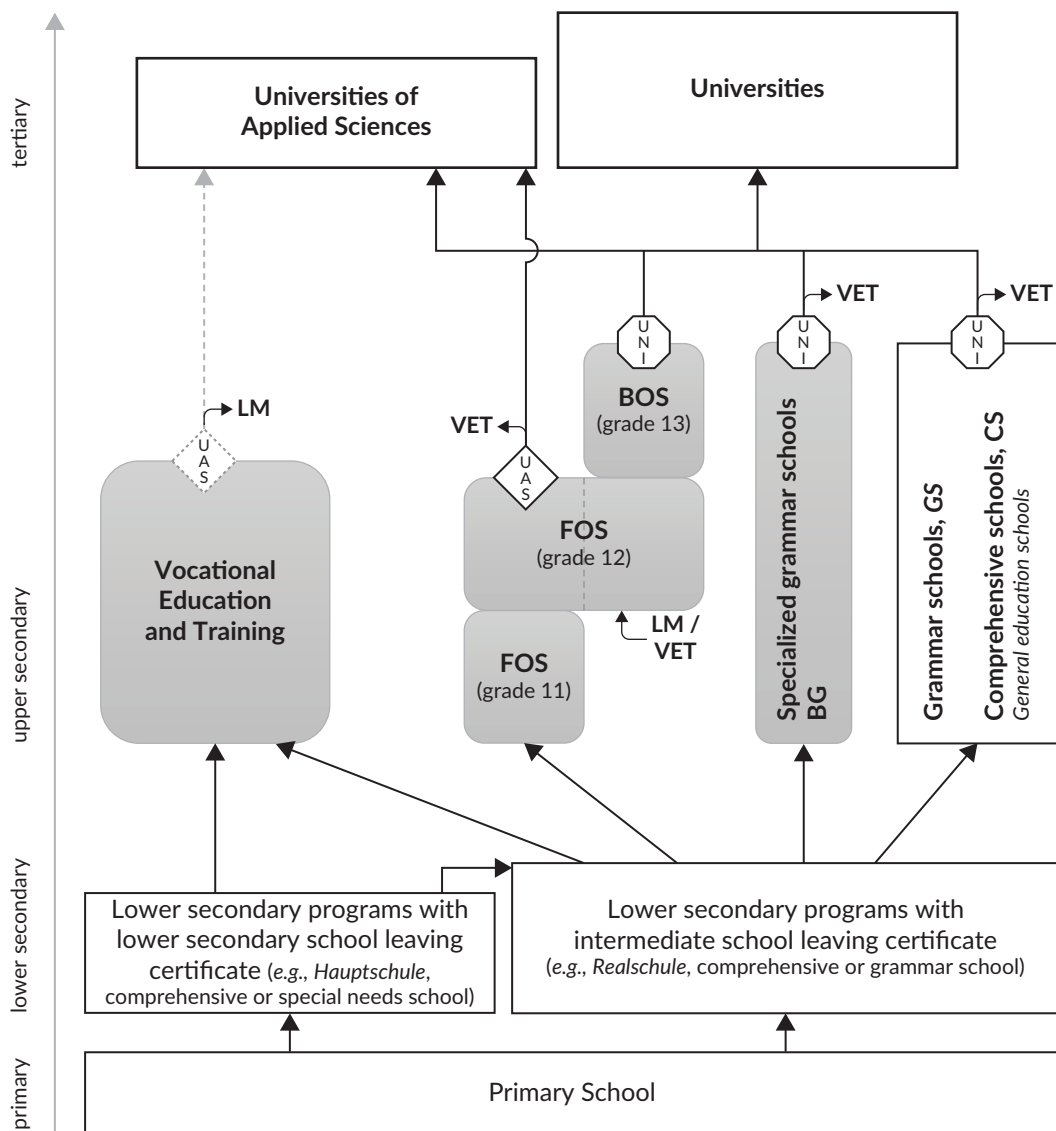
The German education system is known for its pronounced stratification (Allmendinger, 1989; Kerckhoff, 2001). Traditionally, after primary school, students were tracked into three different types of lower secondary schools, in addition to special needs schools (*Förderschulen*), based on their performance, each leading to distinct post-secondary education pathways. As a result of this early selection, *Realschule*, *Hauptschule*, and, to some extent, *Förderschule* led to VET, while grammar schools (*Gymnasium*) led to HE. However, in recent decades, lower and upper secondary education have become more permeable and diversified, evolving into a system of general education that can be described as two-tiered. While grammar schools remain the dominant direct pathway to HE, other secondary school types, such as comprehensive schools (*Gesamtschulen*), have emerged. These schools offer different lower secondary school leaving certificates and access to HE. Additionally, a variety of vocational school types now exist, also offering pathways to HE (see Figure 1).

Access to HE is regulated through various types of HEECs. General education schools, such as grammar and comprehensive schools, primarily award general HEECs (*allgemeine Hochschulreife*), which grant access to all HE institutions and subject areas. Vocational schools, on the other hand, often award subject-restricted HEECs (*fachgebundene Hochschulreife*), limiting access to specific subject areas, or type-restricted HEECs (*Fachhochschulreife*), which allow access only to universities of applied sciences (UASs). UASs are generally considered less prestigious than full universities. Historically, in Germany, VET has been regarded as an attractive alternative for graduates with a HEEC, leading to qualified and well-paid professions (Pilz et al., 2020). Moreover, dual study programs combining VET and HE have become increasingly popular. These programs are typically offered by UASs, vocational academies (*Berufsakademien*), or dual universities (Cedefop & Bundesinstitut für Berufsbildung, 2022). For simplicity, we do not describe these hybrid organizations of HE (Graf, 2013; Graf et al., 2024) in detail in Figure 1.

Despite the development of new, hybrid HE institutions and study programs, tracking within the German education system persists and is associated with social segregation. Socially privileged students are more likely to transfer to grammar schools, obtain a HEEC, and attend universities than socially disadvantaged students (Buchholz & Schier, 2015; Schindler & Bittmann, 2021; Shavit & Müller, 2000).

### 2.2. Vocational Schools as Pathways to HE

Across Germany, various vocational school types offer a wide range of qualifications. This article focuses on vocational school types that lead to a HEEC rather than a vocational qualification. Figure 1 provides a



**Figure 1.** Pathways from vocational schools to HE. Notes: UAS (diamond) = type-restricted HE; UNI (octagon) = general or field-restricted HE; dashed and greyed arrows = exceptional HE; LM = labor market; VET = vocational education and training.

schematic overview of common vocational school types, their access routes, and the opportunities available after graduation. However, due to Germany’s federal education system, school types and regulations vary significantly between states.

Specialized grammar schools (*Berufliches Gymnasium*, BG) lead to a general HE within three years. The BG is similar in structure to grammar or comprehensive schools but is distinguished by its vocational subject-specific orientations. Across Germany, BGs award the most general HEs among all vocational school types, accounting for 32% of all HEs at vocational schools (Statistisches Bundesamt, 2023). The specialized upper secondary school (FOS) leads within two years to type-restricted HEs. It is more accessible to students from non-academic lower secondary tracks, as its formal entry requirements are lower than those of BG (Kultusministerkonferenz, 2010, 2021). FOS begins in grade 11 with an extensive internship, and students who have already completed VET can shorten the duration of FOS by entering

grade 12 directly. FOS awards the most type-restricted HEECs in Germany, making up 29% of all HEECs at vocational schools (Statistisches Bundesamt, 2023). The two-year full-time vocational school (*Berufsoberschule*, BOS) provides students who have completed VET with subject-restricted or general HEECs through the years 12 and 13. In some federal states, such as Lower Saxony, grade 12 is completed at FOS, followed by a one-year BOS course (*Aufbauschulform*). Compared to BG and FOS, BOS is much less common, accounting for only 5% of all HEECs at vocational schools (Statistisches Bundesamt, 2023). Other vocational school types that also offer vocational qualification certificates (e.g., trade and technical schools/*Fachschulen*, full-time vocational schools/*Berufsfachschulen*) or unusual combinations of school type and HEEC (e.g., FOS awarding a general HEEC) make up the remaining 34% of HEECs at vocational schools (Statistisches Bundesamt, 2023).

The limited research on the social backgrounds of vocational school students and their transitions to HE reveals differences between school types. Most students across all vocational school types come from non-academic backgrounds (Schuchart & Schimke, 2022; Watermann & Maaz, 2006). Students at FOS and BG often come from non-academic tracks in lower secondary schools (Schuchart & Schimke, 2022; Trautwein et al., 2011). Overall, BG students have higher aspirations to pursue HE than FOS students (Schuchart & Schimke, 2022). In addition, graduates of vocational schools are more likely to drop out of HE compared to graduates from general education schools, particularly those with a type-restricted HEEC (Heublein et al., 2017; Tieben, 2020).

In summary, vocational school types offer institutionalized pathways to HE for socially disadvantaged students. However, vocational school students are less likely to enroll or complete HE. While the literature highlights differences between school types, it primarily focuses on the individual level, neglecting the organizational level. This article addresses this gap by examining how school structures and practices support or hinder the transition to HE.

### 3. Support in the Transition to HE as a Component of Institutional Permeability

Conceptually, we aim to develop a better understanding of how different vocational school types and organizational contexts can promote institutional and social permeability to HE. Institutional permeability refers to the removal of institutional barriers between educational sectors, facilitating transitions and enhancing educational mobility (Bernhard, 2017, 2019). Permeability in the education system is closely tied to social opening and closure, particularly in meritocratic societies where social positions are primarily mediated and legitimated through the education system (Meyer, 1977; Solga, 2005). In Germany, the traditionally highly stratified institutional design and tracking into either vocational or academic education contribute to processes of social closure (Allmendinger, 1989; Shavit & Müller, 2000). Vocational school types that offer qualifications for HE can serve as institutionalized “permeability bridges” for individuals who do not follow the traditional route through general education schools to HE. However, since the literature indicates this is not always the case (Schindler, 2014; Schuchart & Schimke, 2022), it is essential to examine where new closure mechanisms have emerged and how permeability is being hindered.

Research on educational inequality consistently highlights the role of educational organizations in reproducing social inequalities. Studies inspired by Bourdieu and Passeron’s (1971) work on the cultural fit of learners to educational organizations have shown that there is often an alignment between the habitus of

learners from high and medium social backgrounds and the habitus institutionalized as requirements and structures of schools and HE organizations. This alignment disadvantages students from low social backgrounds (Horvath, 2018; Kramer & Helsper, 2010; Lange-Vester & Vester, 2018; Schmitt, 2010). Additionally, research on institutional discrimination (Gomolla, 2021; Gomolla & Radtke, 2009; Hasse & Schmidt, 2022) underscores the significance of institutionalized structures and practices at the organizational level. Therefore, we consider two central levels of institutional permeability: the *education system level*, by examining types of vocational schools (tracks), and the *organizational level*, by scrutinizing the institutionalized structures and practices within individual schools. Tracks and organizations are not always congruent, as multiple school types are often located within a single vocational school.

Permeability can be analytically divided into several aspects, including support for learners' heterogeneous needs (Banscherus et al., 2016; Bernhard, 2017). We focus on learner support at vocational schools as students transition to HE. Within the concept of permeability, Bernhard (2017, 2019) distinguished four bundles of support structures and practices: (a) information and counseling, (b) financial support, (c) learning organization and pedagogy, and (d) organizational culture.

Firstly, schools should provide information and counseling structures and practices regarding educational opportunities to mitigate information asymmetries based on social background (Bernhard, 2017). It is essential to investigate the extent to which vocational schools institutionalize information and counseling tailored to diverse student groups. Studies emphasize the significance of such measures for HE choices, particularly for socially disadvantaged students (Ehlert et al., 2017; Erdmann et al., 2022; McGuigan et al., 2014; Plank & Jordan, 2001; Smyth & Banks, 2012; Smyth & Hannan, 2007; Stephan & Rosenbaum, 2013). Individualized and target group-oriented counseling measures have proven more effective than standardized, informative measures (Herbaut & Geven, 2020; Whiston et al., 2003). However, research on vocational orientation in German general education schools indicates a lack of differentiated provision (Ohlemann, 2021; Schmidt-Koddenberg & Ganß, 2023), raising the question of the situation at vocational schools.

Second, the availability of financial aid for prospective students and accompanying counseling on these options significantly influence enrollment decisions, particularly for socially disadvantaged students (Bernhard, 2017). Research indicates that education costs are a crucial factor for socially underprivileged individuals when choosing their educational trajectories (Becker & Hecken, 2009; Breen & Goldthorpe, 1997; Daniel et al., 2018; Engelhardt & Lörz, 2021). Means-tested, early, and sufficient financing support has been shown to increase enrollment among socially disadvantaged students, unlike merit-based or one-time financial assistance (Herbaut & Geven, 2020; Peter et al., 2017).

Third, the organization and adaptation of learning and teaching to the learners' needs play a critical role in student success and preparation for HE (Bernhard, 2017). This raises questions about the alignment of teaching content and curricula with the academic preparation for HE (Nylund & Rosvall, 2016; Tarabini & Jacovkis, 2022; Wheelahan, 2007). In addition, the heterogeneous needs of diverse student groups can be addressed through difference-sensitive teaching and learning organizations (Lange-Vester & Teiwes-Kügler, 2014) or by recognizing social differences within the student body (Behrmann, 2021). However, little to nothing is known about how vocational schools prepare their students for HE.

The fourth support bundle focuses on fostering an organizational culture that embraces the diverse needs of learners and recognizes the importance of study orientation support (Bernhard, 2017). School culture plays a significant role in shaping teacher behavior and student opportunities (Helsper, 2008), as a positive climate can encourage the decision to pursue HE (Bornkessel et al., 2011; McDonough, 1997; Reay et al., 2001; Smyth, 2016; Smyth & Hannan, 2007). Teacher attitudes also shape school culture, affecting their perception of student competencies and visions for students' future educational pathways (Schuchart, 2019; Tarabini & Jacovkis, 2022). Therefore, it is essential to institutionalize difference-sensitive support structures for learners, reducing reliance on individual teacher or counselor practices (Bernhard, 2017). This can be achieved through internal school concepts, designated staff for career counseling, school conferences, or teacher training (Lembke, 2021).

While research highlights the importance of the organizational level in reproducing social inequalities, there remains a significant need for further study of vocational schools, their study orientation, and difference-sensitive support during the transition to HE.

#### 4. Data and Methods

To empirically investigate how vocational schools support students' transition to HE and how different types of vocational schools differ in this regard, we conducted an exploratory study using qualitative interviews at various vocational school types and document analyses of school home pages and legal regulations. This qualitative-exploratory approach allows us to examine a topic where research is generally scarce and no quantitative data exist at the organizational level. Quantitative data sets that include vocational schools typically only enable the analysis of students' preferences between school types (with a notable exception being Schuchart, 2019). Our exploratory qualitative approach allows us to focus on specific school types and to open the "black box" of vocational schools as organizations. Given the federal structure of Germany's education system and the substantial differences in the availability and institutional design of vocational school types, we limited our study to the federal state of Lower Saxony. As one of the largest federal states in terms of area and population, Lower Saxony features a wide regional spread, encompassing both rural and urban as well as socially privileged and disadvantaged regions. Additionally, it has historically pursued progressive educational policies to foster socially open access to HE (Banscherus et al., 2016). Therefore, Lower Saxony represents a most likely case (Gerring, 2007) where structures and practices promoting permeability can potentially be observed in vocational schools.

The sampling of cases (schools) was conducted in two steps. First, we selected three vocational school types (BG, FOS, BOS) that are full-time institutions leading to HEECs rather than vocational qualifications. These school types differ significantly in student composition and HE aspirations. Although only a few BOS remain in Lower Saxony, previous findings from Bavaria indicate that BOS students have high HE aspirations, and a considerable proportion come from socially disadvantaged backgrounds (Gensch, 2008, 2009). Therefore, we included BOS in our analysis.

Secondly, we drew on the idea of theoretical sampling (Strauss & Corbin, 1996) to choose individual schools based on minimal and maximal contextual contrasts. Schools were selected according to the criteria of urban/rural and socially privileged/disadvantaged regions (see Table 1). By "socially disadvantaged regions," we refer to areas characterized, for example, by higher unemployment rates and a greater incidence of

**Table 1.** Four-field matrix for selecting individual schools.

	Rural region	Urban region
Socially privileged region	3× individual schools (3× BG, 2× FOS)	1× individual school (1× BG, 1× FOS)
Socially disadvantaged region	1× individual school (1× BG, 1× FOS)	2× individual schools (2× FOS, 2× BOS)

child-raising assistance (socio-educational support from the Children and Youth Welfare Office). We focused exclusively on schools within the subject area of economics to minimize variation between different subjects and ensure a mixed student population (e.g., in terms of gender).

The dataset for subsequent analyses consists of 47 interviews (49 interviewees, including two paired interviews) conducted at seven schools (five BG, six FOS, and two BOS) between September and December 2021. The interviewees were evenly divided between males and females. Most had several years of work experience and were aged between 46 and 60 (32 out of 49). Notably, the majority of interviewees had obtained a vocational qualification prior to assuming their roles as teachers or counselors (35 out of 49).

We conducted problem-centered interviews (Witzel & Reiter, 2012) with episodic elements (Flick, 2016) to focus on our research interest: how schools support the transition to HE. Our interview guidelines were based on questions derived from theory and literature. The basis of our guidelines were questions regarding the support structures and practices outlined in the permeability concept. For example, we asked: “What opportunities for information and counseling on career and study orientation are offered?” “To what extent is study orientation and preparation regularly discussed as a fixed goal among school staff?” Additionally, we included questions deemed relevant based on the current state of research, such as inquiries about the schools’ characteristics and student population. We often incorporated episodic elements with narrative stimuli, prompting interviewees with questions like: “Please describe how you provide this support using examples or by recalling specific situations.” This approach encouraged the free narration of practices and descriptions of structures within the schools, enriching the problem-centered approach of the interviews with more exploratory elements.

Interviews were conducted with school heads (SH), department heads (DH), teachers (T), and counseling staff of the school (C) and the Federal Employment Agency (FEA). Department heads oversee the various branches of vocational schools, such as BOS, FOS, or BG. This selection allowed us to gain deeper insights into the school culture, counseling practices, and differences in pedagogy and didactics across subjects or school types. We chose to interview school staff rather than students because we were primarily interested in the support structures and practices offered by the school, as understood by its personnel. However, the absence of student interviews also presented limitations, which will be discussed later.

In preparation for the interviews, we analyzed school home pages and legal regulations using theory-guided content analysis based on Gläser and Laudel (2010). This approach allows for both the deductive inclusion of overarching categories from the concept of permeability in the category system, as well as other factors identified as relevant from the existing research. In addition, we incorporated inductive codes based on the individual perspectives of the interviewees. The specific subcategories within the theoretically defined



categories were also gathered inductively. In the following paragraphs, we provide examples of the deductively and inductively derived categories used in our analyses.

Beyond the apparent category of “support structures and practices,” we deductively defined overarching categories such as “interviewees’ biography,” “characterization of the school,” and “characterization of the students.” The latter category was particularly important for understanding how students are perceived (e.g., as legitimate candidates for HE or not) and to what extent interviewees recognize differences among their students (e.g., in terms of resources, educational biography, family background, work ethics, barriers, and future aspirations/fears). We also aimed to determine whether this awareness of differences translated into appropriate support for students on their path to HE.

The central category of “support structures and practices” was further divided into four theoretically predefined categories: (a) information and counseling, (b) financial support, (c) learning organization and pedagogy, and (d) school culture of support. In interpreting the material, we employed our theoretical understanding of, for example, support structures and practices and social closure, as sensitizing concepts for further categorization. For example, in the area of information and counseling, we identified subcategories such as information activities by teachers, distribution of leaflets, information provided by HE institutions, and information shared during job fairs. In examining pedagogical practices, we defined subcategories such as propaedeutic work, implicit orientation toward HE during lessons, and teaching key competencies for HE (e.g., learning, presenting, and working independently).

To ensure the reliability of our study, we collectively coded the initial interviews and documents within the project team using a primary coding scheme adapted throughout the process. The same trained project members performed subsequent coding of interviews and documents. We regularly discussed coding issues, problematic cases, and questions within the project team.

## 5. Empirical Findings on School Support in the Transition to HE

Our presentation of empirical findings aims to address how vocational schools support their heterogeneous students’ transitions to HE and the extent to which school types differ. The presentation is structured around the four bundles of support for heterogeneous learners.

### 5.1. *Lack of Targeted Information and Counseling, Especially for Socially Disadvantaged Groups*

Information and counseling on HE are provided at all schools and across all school types. The foundation for this is the institutionalized services of the FEA, which are mandatory by law (Kultusministerkonferenz & Bundesagentur für Arbeit, 2017). FEA services include one or two general information sessions for each cohort and individual counseling upon request. These information sessions cover a broad range of post-graduation options, such as dual and school-based VET, dual studies, or HE, and are scheduled around application deadlines for dual VET and dual study programs (S1\_FEA; S6\_FEA). One-on-one meetings with an FEA counselor occur only if students actively request them (S3\_FEA; S6\_FEA). Responsibility for personalized counseling is thus shifted to the students, and access to this service is limited as counselors are only available at schools on specific days.

Beyond this minimum standard, schools often supplement their information and counseling services with external resources, such as career or study fairs. University information days play an important role, with attendance typically being mandatory for BG students, while participation is often optional for FOS students (S1\_T2; S4\_SH). One reason for the voluntary nature of these events for FOS students is that many are not interested in pursuing HE or find the university information days discouraging, as they tend to compare themselves to other graduates:

But most of them only dream of going to university....There is also the university information day, where they realize who they are competing with. The others, the grammar school graduates, ask their questions very precisely. And that is what I always hear: "Oh my." (S3\_T2, 45)

Preparation and follow-up for university information days in class are rarely conducted in any school. Only in exceptional cases do students attend university information days with prior preparation and ongoing reflection (S3\_BOS\_T1; S4\_BG\_T3), again placing the responsibility for meaningful study orientation on the students and their families.

In contrast, BG classes, and especially FOS classes, regularly attend internal or external career fairs, where regional employers—primarily seeking apprentices or dual study students—are represented (S3\_FOS\_T2; S4\_BG\_T3). Regional HE institutions, particularly private universities, are occasionally present at these fairs. One popular career fair provider is highly regarded by teachers because its staff helps prepare students for the event in class, alleviating some of the burden on teachers (S2\_DH; S4\_T3).

In addition, four out of the five BGs we studied offer collaborations with specific UASs (S4\_BG; S5\_BG; S6\_BG; S8\_BG). In contrast, none of the BOS and only two out of six FOS (S5\_FOS; S8\_FOS) collaborate with HE institutions. One example of such cooperation is the *Frühstudium* (early studies) program, where students not only receive information about university life but can also earn credit points for future studies at a private UAS while still in school (S4\_BG; S5\_BG; S8\_BG). Higher-achieving students, often selected and approached directly by teachers, tend to benefit most from these opportunities.

Information or counseling initiatives provided by school staff are rare and typically do not extend beyond distributing informational materials or offering ad hoc advice during grade discussions (S6\_T4, S8\_DH1). When more comprehensive initiatives do exist, they are generally the result of individual teachers' personal commitment (S6\_T5). Further, these efforts are usually not institutionalized, revealing a structural gap in the implementation of study orientation at vocational schools. The schools' severely limited financial and time resources compel staff to plan only basic information events for all student groups. As a result, the burden of information gathering shifts to the students, exacerbating information asymmetries between those from different social backgrounds.

## 5.2. Non-Systematic Support for Financial Aspects

Overall, research indicates that students generally find it challenging to obtain information on financing HE, especially those who need financial support and lack access to knowledgeable individuals in their social circles (Lörz, 2013; Müller & Pollak, 2008). In Lower Saxony, however, there is no legal requirement for vocational schools to provide structured support or information on financing options for studying. Although schools

recognize the importance of financial considerations in HE decisions, few formal support structures are in place to address this need.

Aside from a few individual initiatives by dedicated teachers and social workers, there are no offers on student financing issues within schools. Teachers often find the topic too complex for their counseling and refer students to the FEA, expressing a desire for proactive external support (S1\_T3). The limited individual initiatives that do exist are typically based on personal educational experiences, such as a teacher who, having been a first-generation student herself, now provides information on financing opportunities for HE:

And I think that it [the question of financing] plays a big role, especially for students who cannot afford it or whose parents cannot afford it....However, I do think that this is a very, very big hurdle for many. And I also experienced that when I brought up the subject of scholarships, the students reacted like this: "Ah, I will not get it anyway. I am not highly gifted. With my [grade point] average, it will not work anyway." So, either that is so ingrained, or they do not even know what a scholarship is. (S6\_T5, 56)

School social workers possess counseling skills, are more attuned to social differences, and assist students in applying for financial aid:

How often do I have students here who apply for student loans, and I say: "It is good that we have done this now. You will need this knowledge later when you go to university." (S5\_C, 104)

However, career counseling is not the primary responsibility of school social worker; this role falls to FEA counselors (S2\_HP; S4\_HP; S5\_HP; Kultusministerkonferenz & Bundesagentur für Arbeit, 2017). In their financing counseling, FEA counselors primarily direct students to external information services, such as student service organizations (S3\_FEA; S6\_FEA). As a result, professionals often refer students from one resource to another. Only one school occasionally invites a non-profit organization to inform interested FOS and BG students in the afternoon about admission and financing questions, specifically addressing socially unequal cost considerations in decisions regarding HE (S8\_DH1).

### 5.3. School-Specific Study Preparation Through Learning Organization and Pedagogy

At all types of schools, achieving university readiness is defined as a formal goal of the educational program (Niedersächsisches Kultusministerium, 2014a, 2014b, 2020). University readiness (*Studierfähigkeit*) is a concept not universally defined in Germany; it encompasses the skills and characteristics necessary for success in HE. It is primarily discussed in relation to university students without a school-based HEEC (Kerst & Wolter, 2022). To achieve university readiness, teaching at all school types should orient students towards scientific propaedeutics (Niedersächsisches Kultusministerium, 2014a, 2014b, 2018b). While a scientific orientation should theoretically also be trained in FOS, teachers highlight the differing curricular requirements among the school types:

In terms of the curriculum, [study preparation] is not yet as strongly pronounced at FOS 12 as at the *Berufsoberschule*. At the FOS, it is integrated into the curriculum to the extent that independent work is also a learning area....Otherwise, there are more normal subjects. (S3\_SH\_62)

These curricular differences are reflected in teaching practices, with varying emphasis on skill promotion depending on the school type. At BG and BOS, lessons incorporate clear scientific propaedeutic measures (e.g., citation and research) to prepare students for HE. University materials and practices, such as simulated lectures, are also utilized for this preparation (S2\_BG\_T4; S2\_BG\_T2; S3\_BOS\_T1, S8\_BG\_DH1). The proportion of theoretical units is intentionally higher to foster in-depth specialist knowledge. In contrast, FOS in grade 11 focuses on teaching basic skills for work and learning (e.g., learning independently, working cooperatively, basic competencies in math and German), along with some specialist (economic) knowledge, some of which is considered an implicit preparation for further studies (S3\_FOS\_T2; S5\_FOS\_T1).

At all school types, study projects lasting several weeks are considered an important method for promoting skills necessary for HE. While project work must be documented in a written report at BG, this requirement is often not mandatory at FOS (with some exceptions: S4\_FOS\_T1; S8\_FOS\_T2). By writing a project report, BG students may be better prepared for HE than their FOS and BOS counterparts. However, there are indications that BG students could be disadvantaged in their HE preparation relative to peers from general education schools, as teachers perceive the reports as less science-oriented (S6\_BG\_T2).

While there is minimal differentiation in learning organization and pedagogy at BG and BOS, significant variation exists within individual FOS organizations (S1\_FOS, S3\_FOS, S4\_FOS). Typically, FOS students who have completed VET learn alongside those coming directly from lower secondary schools in grade 12. However, teachers observe substantial differences between these student groups in terms of their subject knowledge, behavior, and practical experience:

Well, I always have the feeling that those [students] who have completed VET: They want to, they are more stringent, they are somehow more organized. And for those [students] who come through grade 11, I sometimes think: "Man, they are not mature yet." (S1\_DH1, 56)

The organizations respond to this heterogeneity in various ways. For example, some FOS implement internal tracking, allowing students who have completed VET and are deemed more competent to be taught in separate classes:

Some schools even teach them together. In our case, if we have enough students, we can separate the classes. They are also very different. In terms of age, of course. And, of course, in terms of their background experience and, in some cases, their determination to achieve their qualifications....To be honest, I am glad and very grateful that we can separate the two [groups]. I think it is a good opportunity for the students. (S1\_T3, 14)

This tracking, or "ability grouping," at FOS results in less academic preparation and a reduced emphasis on scientific work and in-depth theoretical topics for students without a vocational qualification. In contrast, preparation for VET is more firmly integrated for these FOS students, such as through an intensive internship in grade 11. The need for segregation of student groups at FOS appears to be influenced by the school's social and regional context, with greater segregation in learning organization observed in socially disadvantaged and urban areas (S1\_FOS, S3\_FOS) compared to socially privileged or rural regions (S6\_FOS, S8\_FOS). However, in some FOS, heterogeneity is leveraged as a resource, where learners who have completed VET support their peers, often pedagogically encouraged through the formation of mixed working groups (S6\_T4, S8\_T2).

Overall, FOS students are disadvantaged in terms of pedagogy and learning organization, while BG and BOS place a stronger emphasis on preparing students for HE pedagogically. The tracking based on completed VET at some FOS results in varying levels of support for different student groups, reinforcing inequality (Gamoran et al., 1995; Oakes, 2005).

#### **5.4. Lack of Importance of Study Orientation in School Culture**

Study orientation and preparation are rarely institutionalized in schools' structures or practices. None of the schools have a formal concept for vocational orientation (S1\_HP; S2\_HP; S3\_HP; S4\_HP; S5\_HP; S6\_HP; S8\_HP), which is prescribed for general upper secondary schools in Lower Saxony (Niedersächsisches Kultusministerium, 2018a). Although all school stakeholders identify FEA counselors as contact persons for career counseling, there are no internal study counseling officers with broader responsibilities. Day-to-day teaching activities are largely disconnected from a long-term, shared goal of study orientation and preparation among the teaching staff. Instead, teachers share material for lessons and exams to ensure students pass their final exams successfully (S2\_T1; S2\_T5; S8\_DH1). Staff meetings seldom address study orientation and preparation, and further teacher training in this area is rarely attended (S5\_T2; S6\_T5). These findings across all school types highlight the need for organizational prioritization of study orientation and preparation, as well as the institutionalization of measures to support students' orientation process in a manner equivalent to that of general education schools.

In addition, the openness of school staff toward the heterogeneous needs of learners and the significance of collective support in study orientation are noteworthy. On the one hand, across all school types, there is an emphasis on the respectful approach that vocational schools take toward students perceived as low-achieving (S4\_T3; S8\_DH1). Some teachers demonstrate particular sensitivity to those with disrupted educational biographies and limited self-confidence regarding their potential for studying:

So, the concerns are mostly...that, firstly, they don't even know where you can study specific programs....And the second question is often: "What do you think? Can I do it at all?"...And they actually want to get some reassurance, a nudge in the direction of: "Wow, my teacher also said that I can do it."...Some of them really need that and, in my experience, these are often students who [are] more working-class children. (S8\_DH1, 121-122)

On the other hand, significant differences in the attribution of university readiness emerge based on school type, as reflected in teachers' attitudes. For BG graduates, both VET and HE are viewed as realistic options (S2\_BG\_DH; S8\_BG\_T2). In contrast, at FOS, many teachers favor subsequent VET for students without a vocational qualification, perceiving them as not yet "university ready" (e.g., S1\_FOS\_DH2; S3\_FOS\_T2; S5\_FOS\_SH; S8\_FOS\_DH2) and having unrealistic expectations about school, HE, and the workforce:

They are also really naive to a large extent....They really believe not only that they will get their degree but also that they will go to university. What they will study, they often do not know. They assume: "The main thing is to get a type-restricted HEEC, then I will study, and then I will have 5000 euro net." Then I always say: "What has gone wrong in your life?" (S1\_DH2, 52)

In contrast, FOS and BOS students who have completed VET are viewed as a target group for HE:

We can clearly say that those who come via the vocational route are significantly stronger, significantly more goal-oriented. There is a guaranteed correlation that those who are goal-oriented also graduate better. Accordingly, these are our elite classes, so to speak, when they come via the profession. (S1\_T4, 37)

However, some FOS teachers emphasize the school type's actual goal of preparing all students for HE (S1\_FOS\_SH; S6\_FOS\_T4; S8\_FOS\_T2). Consequently, there are variations in teachers' attitudes toward their students' university readiness and within different organizations. FOS students who have not completed VET, in particular, are at a disadvantage, which may further dissuade them from pursuing HE.

## 6. Conclusion

Viewed through the concept of permeability, school structures and practices can either overcome or erect obstacles to HE, thereby influencing the social opening or closing of the education system. Our empirical findings reveal examples of both phenomena. However, the potential of vocational schools to enhance permeability has yet to be fully realized.

Overall, our empirical findings confirm existing knowledge about study orientation at general education schools while expanding it to focus specifically on vocational schools. We found that staff at vocational schools often lack sensitivity to the socially differentiated needs for study orientation and preparation. For example, only one school actively informs socially disadvantaged students about financing options to address distorted cost perceptions. A one-size-fits-all approach, characterized by limited individualized counseling, prevails across all vocational school types. This aligns with current literature emphasizing the importance of individualized and target group-oriented information and counseling for socially disadvantaged students (Erdmann et al., 2022). Furthermore, we found that vocational schools often shift the responsibility for individualized orientation onto the students, with few teachers stepping in to offer the necessary support. This strong individualization of responsibility, coupled with a lack of institutionalized supportive measures, exacerbates social inequalities in the transition to HE.

This article highlights the disparities among school types, particularly disadvantaging FOS and, in some cases, BOS. FOS and BOS students face compounded challenges due to socially disadvantaged backgrounds and institutional barriers that hinder their access to HE. BOS students experience a lack of informational support and counseling, while FOS structures fall short in terms of effective information dissemination and pedagogical approaches. Specifically, FOS tends to prioritize VET over preparation for HE, a viewpoint reinforced by teachers who often view FOS students primarily as candidates for VET and question their suitability for HE. Our qualitative findings enhance the understanding of why lower transition rates and higher dropout rates are especially prevalent among students in vocational schools with a type-restricted HEEC (Lörz, 2013; Tieben, 2020), as well as the declining aspirations for HE during their schooling (Schuchart & Schimke, 2022). In contrast, BOS and BG provide more comprehensive preparation for HE, including more scientifically oriented study projects. Our organizational perspective corroborates previous findings that students from socially disadvantaged backgrounds in BG are comparatively well prepared for HE, even though VET remains a pedagogically prepared option (Watermann & Maaz, 2006).

Overall, the organizational analysis has provided valuable insights for transition research by exploring the “how” and “why” of school support during the transition to HE (McDonough, 1997). This finding is relevant not only for analyzing the German system but also for enhancing the understanding of support in the transition to HE within international research contexts.

However, several unanswered questions remain for further research. The results revealed variations not only across school types but also between individual schools. Notably, at FOS, differences emerged that were likely influenced by the social context of the school. For instance, teachers may adopt practices that separate students based on perceptions of their abilities, distinguishing between those who have completed VET and are considered high achievers and those who have entered grade 11 and are considered less capable. This introduces a new categorical social distinction (Tilly, 1998) based on vocational qualifications. Overall, the data provide opportunities for further individual case analyses within the realm of permeability, including the examination of variations in segregation practices among FOS based on school context and clarifying individual school differences in information and counseling provision.

As a limitation, our study adds to a series of state-specific publications on vocational schools in Germany (Schuchart, 2019; Watermann & Maaz, 2006), highlighting the need for a more comparative approach in future research. Additionally, the analysis is limited to the subjectively reported support structures and practices of school staff, which excludes the perspectives of students discussed in other publications (Giese, 2011; Köhler et al., 2017).

In summary, our article emphasizes the importance of examining different national vocational school types to understand the various factors contributing to the reproduction of inequality within the education system.

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## About the Authors



**Nadine Dörffer** is a PhD candidate in Sociology at Leibniz University Hannover and a lecturer in educational sciences at Technische Universität Berlin. Her work focuses on alternative pathways to higher education, social and institutional permeability in education systems, the social opening of higher education institutions towards socially disadvantaged and non-traditional student groups, and mixed methods research.



**Nadine Bernhard** (PhD) is a professor of higher education in the context of digital transformation and diversity at Technische Universität Berlin. She received her PhD in sociology at FU Berlin and the Berlin Social Science Center (WZB). Her main research interests focus on comparative and international education (concentrating on VET and HE), institutional change and governance, research on social inequality, social and institutional permeability in education systems, digital transformation in HE, and diversity in education.