

The Influence of Parents on Adolescents' Vocational Aspirations

An Empirical Study of Students at the End of Secondary Education in Saxony-Anhalt, Germany

Adele Schulze Niehoff^a, Melanie Baumgarten^b, Laura Arndt^a, Robert W. Jahn^a, Raphaela Porsch^c

^aOtto-von-Guericke-University, Magdeburg, Germany; ^bResearch Institute for Vocational Education and Training GmbH, Magdeburg, Germany; ^cUniversity of Vechta, Vechta, Germany;

Abstract The family background, especially the parents, plays a significant role in vocational development and occupational achievement. To date, very little is known about the influence of family background on occupational ambitions or goals. This study aims to explore how parents and their educational background influence the status (prestige) of adolescents' vocational aspirations. Therefore, we surveyed students of lower secondary education in Saxony-Anhalt, Germany. Aiming to explain variances in the students' occupational ambitions, we analysed path models based on the Social Cognitive Career Theory (SCCT) by Lent et al. (1994). Our data support basic assumptions of the SCCT. Thus, we could verify the impact of students' past performances (grades) on their occupational ambitions, mediated by self-efficacy and outcome expectations. In addition, we found that family background, mothers in particular, influences occupational ambitions.

Title The Influence of Parents on Adolescents' Vocational Aspirations – An Empirical Study of Students at the End of Secondary Education in Saxony-Anhalt, Germany

Keywords Family Background, Occupational Ambitions, Self-Efficacy, Social Cognitive Career Theory, Vocational Development

Article History

Received 02 October 2025

Accepted 18 December 2025

1 Introduction

Vocational development can be understood as a complex task that implies “a matching process, that is, as individuals seeking occupations that satisfy their interests and goals and for which they possess the skills, abilities, and temperament” (Gottfredson, 2004, p. 72). Vocational development is therefore a central and momentous developmental task for adolescents (Erikson, 1968; Havighurst, 1972; Heckhausen & Tomasik, 2002; Hurrelmann & Quenzel, 2013). Although concrete decisions are not made until adolescence, children and adolescents essentially develop specific ideas about

Contact Adele Schulze Niehoff adele.schulze-niehoff@ovgu.de (corresponding author)

© The Author(s).

This work is licensed under the Creative Commons Attribution 4.0 (BY) license.

prospective professional activities even before they finish school. In her theory of circumscription and compromise, Gottfredson (1981), for example, outlines the development of vocational aspirations over several phases during childhood and adolescence. According to Gottfredson (1981), the status (prestige) of vocational aspirations gains importance at the age of 9–13.

Psychological and sociological approaches in research on vocational development provide theories and models to explain complex causal relationships within the vocational development process (Gottfredson, 1981; Lent et al., 1994; Sewell et al., 1969). The social cognitive career theory (SCCT) by Lent et al. (1994) is an internationally recognised theory for explaining vocational development and includes both contextual factors (e.g., family context or the influence of peers) and personal factors (individual abilities, self-efficacy, outcome expectations and interests) that influence vocational aspirations or goals.

The family context is frequently cited as one of the most influential factors in vocational development, including aspects such as socioeconomic status, family structure and relationships, as well as parental expectations, knowledge transmission, accessibility, and involvement (Bryant et al., 2006).

Data from the Statistisches Bundesamt et al. (2021), for example, show that a significant proportion of students attending lower secondary schools [ISCED 24] (40.7%) come from households where the highest educational attainment of at least one parent is also lower secondary education. Within the field of sociological research on inequality, numerous studies also indicate that family background (e.g. measured by the socioeconomic status of parents) predicts not only educational success, but also the future occupational status (in the sense of occupational prestige) of adolescents (Göbel et al., 2011; Gresch, 2012; Luthra, 2010; Mayer & Blossfeld, 1990; Nagy et al., 2007; Pöhlmann et al., 2012; Schwippert et al., 2012; Stanat et al., 2010a; Stanat et al., 2010b). Consequently, the transmission of socioeconomic status to the next generation can be viewed as a pattern moderated by behaviour. Since most studies assume traditional family structures and often focus on parents in general, we still know very little about parents' influence on occupational ambitions, especially about the differences between maternal and paternal influence. In addition, the relation between family background and the (not necessarily realised) vocational aspirations of students, or more precisely, their occupational status, is less frequently the subject of representative empirical investigations (e.g., Jacobs et al., 1991; Lee & Rojewski, 2009; Schoon & Polek, 2011). While the Bildungsbericht 2022 states a correlation between students' career aspirations and parents' socioeconomic status in Germany (Autor:innengruppe Bildungsberichterstattung, 2022), it remains unclear which additional factors influence the occupational status aspirations of young people or moderate the influence of family background on occupational status aspirations. This uncertainty arises because the Autor:innengruppe Bildungsberichterstattung (2022) only reports a univariate relationship. Additionally, the influence of parental education remains unconsidered.

Due to this research desideratum, the article aims to explore whether and to what extent parents' educational attainments, in conjunction with other relevant factors within the SCCT framework, influence students' vocational aspirations with regard to the status associated with them.

We analyse data from the project "SEASA" (Porsch et al., 2021), which provides a representative sample for Saxony-Anhalt based on the data of ninth graders (N = 3,686) from schools at lower secondary education (ISCED level 2, UNESCO Institute for Statistics, 2011). Among others, they include information on family background, socioeconomic status, academic performance, self-efficacy, and career aspirations. The latter can be coded using the International Socioeconomic

Index of Occupational Status (ISEI) scale and thus converted into a status measure (Ganzeboom & Treiman, 1996). This data allows us to investigate the question mentioned earlier and to test models explaining occupational ambitions, taking into account students' family background and individual characteristics.

2 Theoretical Framework

2.1 Vocational Development and Vocational Aspirations

Vocational choice is no longer understood as a single decision at a certain stage in life; rather, career (re)orientation processes become a lifelong biographical task (Straub et al., 2021) and are therefore also referred to as vocational development. However, the first career choice remains a central developmental task for adolescents (Erikson, 1968; Havighurst, 1972; Heckhausen & Tomasik, 2002; Hurrelmann & Quenzel, 2013). In principle, career choice is a free, individual decision. Nevertheless, social structures, expectations and norms, the education system, and developments in the training and employment system affect the choice of occupation and the possibilities of realising this choice. Accordingly, vocational development is defined, among other things, as a "comprehensive process of socialisation and identity formation as well as the social integration of young people, which is geared towards their integration into the system of gainful employment in a society based on the division of labour" (Schober, 1997, p. 104). This involves orientation, learning and decision-making processes that are accompanied by individual and social influences (Driesel-Lange, 2011; Fürstenberg, 1997; Schober, 1997). Selecting an occupation is not just about orienting oneself towards a seemingly suitable field of activity, but also about choosing a lifestyle and a more or less prestigious social position (Pahl, 2017).

The school system is particularly important here. As the German school system is highly stratified, it is necessary to make significant educational and, therefore, also career decisions at an early stage. Early selection also influences further development and thus contributes to the reproduction of a society's social stratification. This manifests itself later in life through educational and career opportunities (Baumert et al., 2006; Emmerich & Hormel, 2021). When such decisions must be made at an early stage, young people need guidance, which they can find implicitly or explicitly in their families. Parents, therefore, play a crucial role in vocational development. Schmude (2009), for example, indicates a connection between the family's socioeconomic background and academic success, envisioned personal goals, and later professional positions. It is assumed that parents' expectations are a key factor in social class-specific educational aspirations, and that the same causal effects hold for career aspirations accordingly (Grünert & Kaufmann, 2019; Zimmermann, 2018).

In a process-oriented understanding of vocational development that relates to the entire lifespan, not only vocational decisions, but also the vocational expectations and aspirations of adolescents are the subject of empirical studies (Baumgardt, 2021). Vocational aspirations can thereby be understood as the "result of a multi-step process of inclusion and exclusion" (Straub et al., 2021, p. 10). Vocational aspirations can be examined from a horizontal (by type of activity) or a vertical perspective (by occupational status; Kriesi & Basler, 2020). Accordingly, the vocational aspiration to become a doctor can be motivated by an interest in medicine (horizontal), but also by occupational ambitions and the desire to acquire a prestigious social position (vertical perspective). To differentiate the two perspectives, we use the term occupational ambitions to refer to the

occupational status of vocational aspirations, whereas interests address the horizontal perspective. In this paper, the focus is on occupational ambitions, therefore, interests are not considered here. However, a distinction must be made between vocational aspirations on the one hand, which describe an ideal career position, and vocational expectations on the other, which put vocational aspirations in a more realistic perspective (Wilson, 2001). For example, the Autor:innengruppe Bildungsberichterstattung (2022) shows that there is a greater discrepancy between the idealistic and realistic career aspirations of young people with a low socioeconomic status compared to young people with a high socioeconomic status.

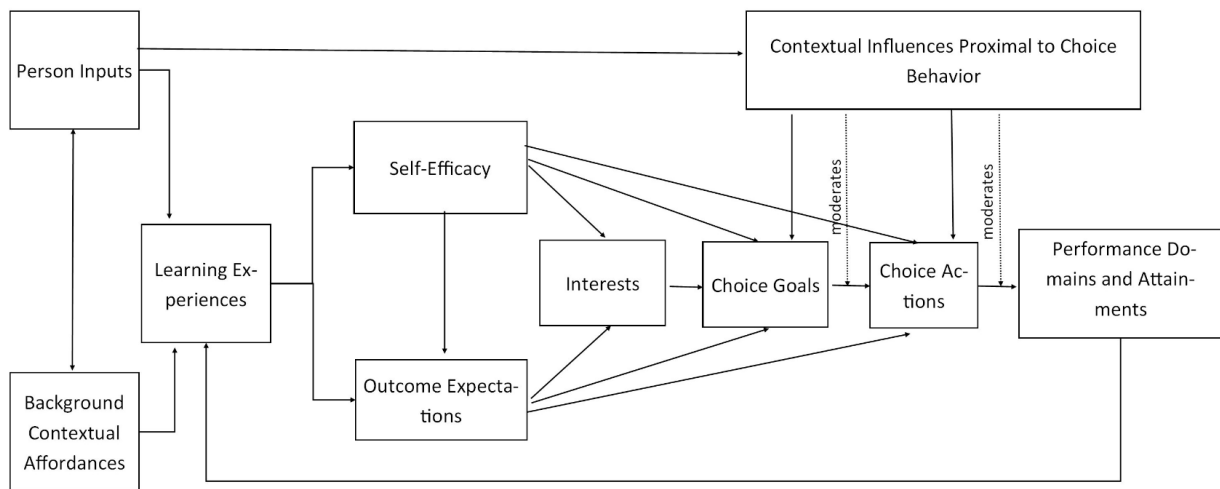
2.2 Family Background and Vocational Aspirations in the Context of the Social Cognitive Career Theory

Several theoretical approaches examine the influence of social determinants on vocational development. For instance, Gottfredson's well-known theory highlights the influence of gender and prestige on vocational aspirations, whereas Beck et al. (1979) emphasize the impact of social background – particularly family, parents, and the social milieu – on vocational decision-making. To understand vocational development, both environmental and personal factors, as well as their mutual influence, must be taken into account. In this context, the SCCT by Lent et al. (1994) provides a now-established model of vocational development (Hirschi & Baumeler, 2020), which is based on Bandura's (1986) social-cognitive theory. The reciprocal relationship between person, environment, and behaviour forms the centre of the social-cognitive approach. While the focus on cognitive, self-regulatory, and self-reflective processes emphasizes the personal dimension, the social dimension concerns the interaction between person and environment. As core elements of the SCCT, self-efficacy is the individual's self-assessment of their ability to successfully perform certain actions (behaviour), whereas outcome expectations are individual beliefs about the outcome or consequences of these actions.

According to Lent et al. (1994), vocational development is therefore influenced by both personal (e.g., predispositions, gender, ethnicity) and environmental determinants (e.g., family background, structural barriers). Within this process, learning experiences play an important role as a mediator between contextual factors (family background) and vocational development (Lent & Brown, 2019). Learning experiences are categorised into four types: past performance, vicarious learning, social persuasion and physiological and affective states (Lent & Brown, 2019), which influence self-efficacy, outcome expectations, and the formation of interests and goals. Among these four types, Byars-Winston et al. (2017) identify past performance as the strongest predictor of self-efficacy (.51).

As a theoretical framework, the SCCT integrates a variety of determinants (Figure 1) and can therefore be applied to different stages of the career choice process. For more specific application, the SCCT originally differentiated three conceptually different but overlapping sub-models, with a fourth sub-model added later: "(1) the development of interests, (2) the making of choices, (3) the influences on and results of performance and (4) the experience of satisfaction, or well-being, in educational and occupational sphere" (Lent, 2013, p. 120). While the sub-models each describe different aspects or stages of career development, the basic cognitive-person elements a) Self-efficacy, b) outcome expectations and c) goals are part of each sub-model. We conclude that contextual factors influence those elements, mediated by learning experiences (especially past performance). This provides the foundation for the base model and its variations in this study. The purpose of this model is to explain the goals that we associate with occupational ambitions.

Figure 1: Model of Person, Contextual, and Experiential Factors Affecting Career-Related Choice Behavior



Note. Adapted from "Social cognitive career theory at 25: Empirical status of the interest, choice, and performance models," by R.W. Lent and S.D. Brown, 2019, *Journal of Vocational Behavior*, 115, p.3. (doi.org/10.1016/j.jvb.2019.06.004). Copyright 2019 by Elsevier. Inc.

The SCCT and the relationships between its components are frequently applied internationally in studies of career choice (Ali et al., 2005; Byars-Winston et al., 2017; Huang & Hsieh, 2011; Lee et al., 2014; Lent et al., 2018; Yang, 2004). Self-efficacy and outcome expectations are particularly frequently investigated as central elements of SCCT. In a meta-analysis of the science, technology, engineering, and mathematics field, Lent et al. (2018) noted a high correlation (.49) between self-efficacy and outcome expectations as well as a strong correlation of both factors with career goals (>.50). The meta-analysis also showed that self-efficacy influences career goals rather indirectly via outcome expectations.

Family background is considered an influential contextual factor in the concept of SCCT and is repeatedly discussed in other works (Ali et al., 2005; Huang & Hsieh, 2011). SCCT conceptualises contextual factors as either distal or proximal influences (Figure 1). Lent and Brown (2019), for example, name parents as role models and opportunities to acquire skills as distal influences. Thus, they influence goals indirectly via learning experiences, self-efficacy and outcome expectations (Figure 1).

A variety of empirical studies state the influence of family background on educational and vocational development, focusing on different aspects, such as parenting behaviour (Bryant et al., 2006) or parental educational level (Asthleitner & Vogl, 2023). To develop vocational aspirations and choose a suitable career, children need to acquire knowledge about different kinds of employment. Bryant et al. (2006) state the importance of parents as sources of knowledge, values, and beliefs about work. In this context, the literature review examined parents' accessibility, including availability, communication skills and approachability, and concluded that mothers were generally viewed as more helpful in this regard (Bryant et al., 2006). Looking into the mechanisms of social

class reproduction, Asthleitner and Vogl (2023) examined the vocational ambitions of Austrian students. The parents' educational level, as a proxy for social class, positively correlated with students' occupational ambitions. The influence of the family's socioeconomic status as an environmental factor on social cognitive determinants is analysed by Ali et al. (2005). Using multiple hierarchical regression, 52 % of the variance in vocational aspirations can be explained by self-efficacy and outcome expectations, as well as the socioeconomic status of the family. Other determinants, such as the influence of teachers or friends, were hardly significant. Huang and Hsieh (2011) also confirm a significant correlation between socioeconomic status and self-efficacy expectations in Chinese culture. However, a direct correlation between socioeconomic status and outcome expectations could not be confirmed.

In conclusion, research on parental socio-economic influence on educational and vocational development and attainment is substantial. Yet, there is little empirical data on parental influence on occupational ambitions, especially when considering both parents separately. Given the correlations described between past performance, self-efficacy, outcome expectations, and goals, the SCCT appears very promising for explaining status differences in vocational aspirations.

3 Research Questions

Building upon the theoretical framework and empirical findings discussed earlier, this study aims to explore how family background influences young people's occupational ambitions. The evidence provided by Ali et al. (2005) and Huang & Hsieh (2011) highlights the impact of socioeconomic status on self-efficacy and career outcomes, which motivates us to investigate specific familial factors that may further elucidate this relationship. For this purpose, we intend to address the following research questions: (RQ1) Does the base model (model 1, see below, based on Lent et al., 1994) stand up to empirical review? Therefore, we examine whether the school performance achieved (past performance), moderated by self-efficacy and outcome expectations, indirectly influences young people's occupational ambitions.

Since the family background of adolescents and, in particular, their parents has an influence on vocational choice and vocational aspirations (Grünert & Kaufmann, 2019; Lee & Rojewski, 2009; Neuenschwander, 2019; Schmude, 2009; Schnitzler & Granato, 2016), it can be assumed that family background also influences occupational ambitions. Therefore, the second research question is: (RQ2) Can adding of the factor "family background" explain an incremental proportion of the variance in occupational ambitions (Model 2a, see below)?

The Programme for International Student Assessment (PISA) studies (Mang et al., 2021) indicate a notable gap in young people's awareness of their parents' educational and vocational qualifications in Germany. Specifically, 18.1% of participants did not provide information on their mothers' highest educational attainment, and 20.5% reported missing data on their fathers. The gap is even more pronounced regarding vocational qualifications, with 36.5% of mothers and 23.3% of fathers not accounted for. These missing values suggest that a significant portion of students may lack knowledge about their parents' educational and occupational backgrounds. We propose that this knowledge - or lack thereof - reflects the extent of communicative engagement within families about educational and vocational matters. Our hypothesis is that having detailed knowledge of parents' educational and vocational trajectories implies active dialogue and the presence of parents as both role models and informational resources, which significantly shape young people's occupational ambitions. Therefore, we investigate: (RQ3) Can adding the factor "knowledge of

parents' educational and vocational qualifications" (instead of the qualifications) explain an incremental proportion of the variance in occupational ambitions (Model 2b)?

4 Methods

To answer the research questions, a quantitative online survey was conducted at schools in lower secondary education in Saxony-Anhalt. First, the sample is presented, followed by the applied instruments and analysis methods.

In the 2020/21 school year, ninth graders from 79 schools at lower secondary education (ISCED level 2) participated in an online survey. Overall, the 3,262 students (female = 1,551) were on average 14.79 (SD = .84) years old and 94.5 % (N = 3,084) had no migration background.

In this section, we operationalise the theoretical constructs of the models derived from the SCCT (Lent et al., 1994). A detailed description of the applied scales and descriptive statistics can be found in the scale manual (Baumgarten et al., 2021) of this study.

Past Performance

The students were asked to report the grades on their last report card. Subsequently, the average grade was calculated for the subjects Maths, Biology, Physics, German and English. On average, the ninth graders reported an average grade of 2.87 (min = 1.00; max = 6.00; SD = .70). In the German grading system, a lower grade (1-6) indicates a higher performance.

Self-Efficacy

Self-efficacy was measured using seven items (Pfänder et al., 2018) with a five-point scale ranging from strongly disagree to strongly agree. For example, the students were asked to rate themselves on the following item: "I can also solve the difficult tasks in class if I make an effort". Due to negative item discrimination one item had to be excluded from the scale computation. The remaining items have a Cronbach's alpha of .86 (rit-range = .61-.70) and a scale mean of 3.35 (min = 1.00; max = 5.00; SD = .72).

Outcome Expectations

The question "What qualification are you likely to finish school with?" was used to determine the expected school-leaving qualification. The students could choose between the following response options: Leave school without leaving certificate (0.2 %, N = 8), Hauptschulabschluss (ISCED 2) (13.8 %, N = 449), Realschulabschluss (ISCED 2/3) (78.7 %, N = 2,562) and Abitur (ISCED 3) (7.3 %, N = 237). The expected school leaving qualification implies a conditional connection to vocational opportunities regarding their prestige.

Occupational ambitions (goals)

The vocational aspirations of the ninth graders were analysed by asking the question "Imagine you had every opportunity to become whatever you wanted. What would be your dream job?" (similar to the Nationale Bildungspanel, 2016) in an open-response format. The professions mentioned vary from both a horizontal and vertical perspective. The ISEI has become an established measure in empirical research to represent occupational status on a continuum. Socioeconomic indices such as the ISEI depict a person's socio-economic position by considering their relative income and the years of education required for a given occupation. However, it should be noted that the ISEI can only be determined for occupations that are classified according to the International Standard

Classification of Occupations (ISCO; Schimpl-Neimanns, 2004). Additionally, other socio-economic factors, such as fixed-term employment, additional qualifications within an occupation, and distinctions between self-employment and employment are not taken into account (Schimpl-Neimanns, 2004).

To assign a numerical status value to vocational aspirations, they were first coded according to ISCO-88 (Figure 2). Based on this, the occupational status can be assigned using the ISEI. ISCO-88 classifies occupations based on two concepts: the activities and tasks involved, and the skills required to perform these tasks (Elias, 1997). The skills are distinguished by their level of sophistication in terms of the complexity and variance of the tasks, and, by specialisation regarding the knowledge required, the materials or tools used, the goods and services produced, etc. (Elias, 1997). This results in a coding scheme that conveys information about the type of activity in the horizontal dimension and the level of skills required in the vertical dimension. No values were assigned to very general or non-codable vocational aspirations, or to no given information. The latter refers to a significant proportion of the surveyed ninth graders being unable or unwilling to specify a desired occupation ($N = 691$). Cases that were formulated either too generally or too specifically to allow an unambiguous assignment are particularly problematic in the coding process. Since the status of vocational aspirations, and thus a reliable ISEI value, is particularly relevant to this study's research interest, preserving information on the vertical dimension was prioritised in decision-making, which could result in generalising vocational aspirations regarding specialisation. Approximately 40 % of the data was tested for intercoder reliability in a second round ($N = 660$). This test with two raters provided satisfactory results (Cohen's Kappa = .81, Krippendorff Alpha = .79). For comparison, Maaz et al. (2009) report Kappa-values of just .40 to .55 for the four-digit ISCO.

Figure 2: Coding Process for Vocational Aspirations

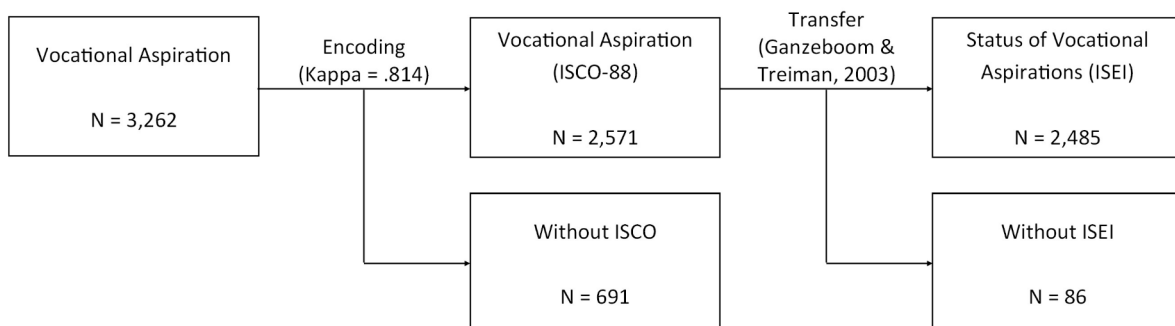


Table 1 shows the activity-related distribution of vocational aspirations across the main ISCO categories. Occupational groups 2 (scientists), 3 (technicians), 5 (service occupations), and 7 (skilled trades) are most frequently named as vocational aspirations.

Table 1: Distribution of the ISCO Main Groups

ISCO-88 Major Groups	Expected School Leaving Qualification (%)				Sum
	No school leaving qualification	Hauptschulabschluss (ISCED 2)	Realschulabschluss (ISCED 2/3)	Abitur (ISCED 3)	
Armed Forces Occupations (0)	0	4.01	2.54	1.27	2.64
Managers (1)	12,5	5.57	2.89	2.11	3.22
Professionals (2)	0	7.35	12.49	42.62	13.94
Technicians and Associate Professionals (3)	0	6.24	15.26	13.08	13.82
Clerical Support Workers (4)	0	3.56	2.65	2.53	2.76
Service and Sales Workers (5)	37,5	30.37	27.83	14.35	27.27
Skilled Agricultural, Forestry and Fishery Workers (6)	0	0.89	0.31	0	0.37
Craft and Related Trade Workers (7)	25	16.93	12.30	83.38	12.32
Plant and Machine Operators and Assemblers (8)	0	2.45	1.44	0	1.47
Elementary Occupations (9)	0	1.34	1.05	0	1.01
No vocational Aspiration (-)	25	20.94	21.23	20.68	21.16
Sum (100%)	8	449	2.562	237	3.256 ¹

¹ no information given on expected school leaving qualification (N = 6)

The ISEI values can be derived from the ISCO data. The ISEI, as a measure of occupational status, is based on the assumption that occupations serve as a mediator between education and income (Ganzeboom & Treiman, 1996, 2003). The authors therefore arrange the occupations on a linear scale, maximising the indirect influence of education on income in a path model. The ISEI is considered an internationally proven standard indicator and has been utilised, for example, in PISA 2000 and in the Education Report 2022 (Autor:innengruppe Bildungsberichterstattung, 2022; Maaz et al., 2009). The vocational aspirations within occupational group 0 (armed forces) were not assigned, since there are no corresponding ISEI values (N = 86). This leaves 2,485 students (76.2 %) with vocational aspirations to which an ISEI value can be assigned (Figure 3). The ISEI values are not normally distributed in the sample (M = 44.44; SD = 16.97; Min = 23, Max = 85).

Family background

The student's family background was determined by their parents' educational and vocational qualifications. The ninth graders were asked to state, separately for their mother and father, their parents' highest educational and vocational qualification. Table 2 shows the absolute and percentage frequencies of responses in each category.

Knowledge of parents' educational and vocational qualifications

Table 2 shows that about a third of the students have no knowledge of their fathers' educational and vocational qualifications, and more than a quarter do not know about their mothers' ("I don't know"). Two dichotomous variables were created separately for the mother and father to show whether students knew their parents' educational and vocational qualifications. The results show that 61.1% of students knew both the educational and vocational background of their mother, while 53.7% knew both qualifications of their father. The family circumstances are unknown in this study, but since only about 7% of children have no contact with an absent parent after separation (Langmeyer et al., 2022), this can be neglected.

Statistical Analysis

The questions are examined using path analyses for continuous and ordinal or categorical variables in Mplus (Muthén, L.K. & Muthén, B.O., 1998–2017). Weighted least square parameter estimates were chosen as the estimator in order to do justice to the non-normal distribution of the ISEI value.

Table 2: Absolute and Percentage Category Frequencies of Parents' Educational and Vocational Qualifications

	Mother	Father
Educational Qualification (general education)		
No School Attendance	0.6% (N = 20)	0.5% (N = 15)
Left School Without Certificate	1.9% (N = 61)	1.7% (N = 55)
Hauptschulabschluss (ISCED 2)	6.5% (N = 212)	6.7% (N = 220)
Realschulabschluss (ISCED 2/3)	50.7% (N = 1,655)	46.4% (N = 1,515)
Abitur ¹ (ISCED 3)	14.0% (N = 456)	10.7% (N = 350)
Don't know	26.1% (N = 851)	33.8% (N = 1,101)
Vocational Qualification		
No Vocation/Apprenticeship Not Finished	4.9% (N = 158)	2.1% (N = 68)
Successful Apprenticeship (<i>Lehre/Ausbildung</i>)	58.6% (N = 1,909)	54.4% (N = 1,772)
Study at University/University of Applied Science	6.6% (N = 215)	6.7% (N = 218)
Don't know	29.9% (N = 975)	36.8% (N = 1,197)

¹Qualification to Study at a University

5 Results

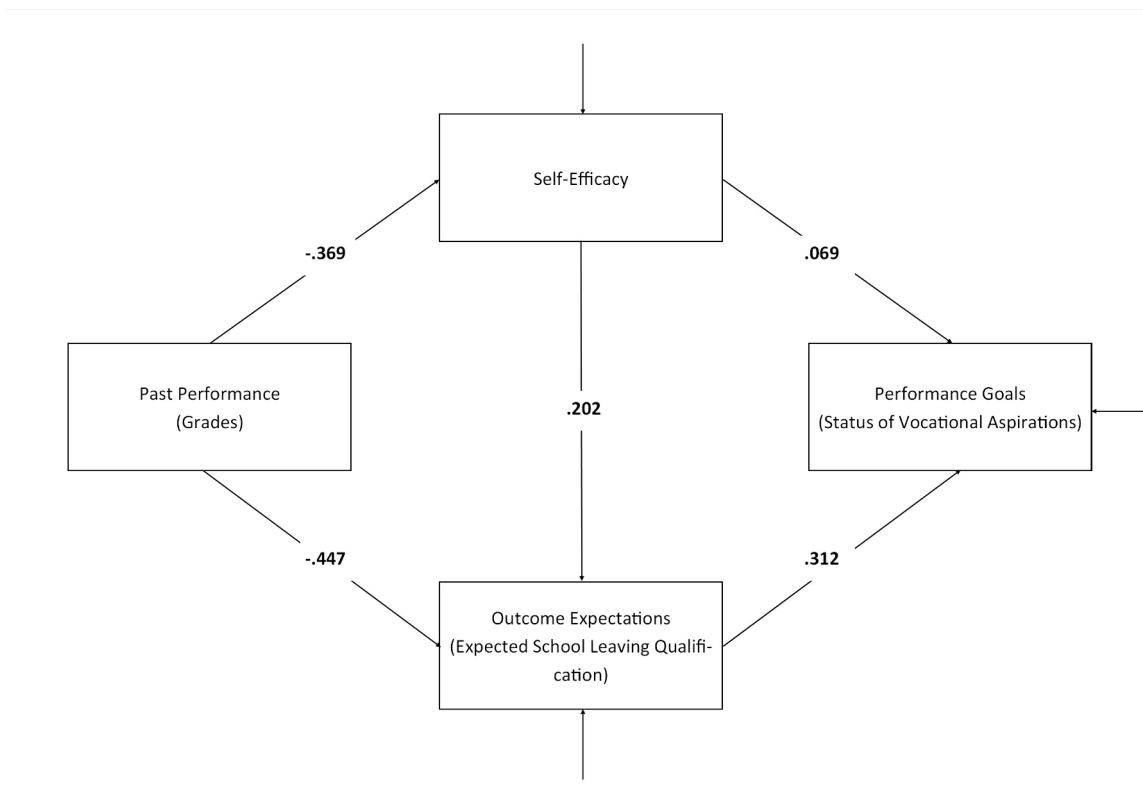
In accordance with the theoretical derivation, three models were estimated and analysed. The first step was to verify whether the empirical data supported Model 1. Very good fit indices (Hu & Bentler, 1999) were identified for Model 1 (Table 3). In addition, all path coefficients in Model 1 were significant and are illustrated in Figure 3. Past performance (measured in terms of past grades) has an expectation-compliant influence on self-efficacy and outcome expectations (operationalised via the expected school-leaving qualification). As grades are inversely coded, the base model (figure 3) also indicates that good grades lead to higher self-efficacy and outcome expectations. Expected educational attainment is influenced both directly by grades and indirectly by self-efficacy, which in turn is also determined by other factors. As expected, self-efficacy and outcome expectations then have an influence on goals (operationalised via the status of vocational aspirations). However, self-efficacy only has a weak effect on the ISEI and is possibly only significant by the large sample. The path coefficient of outcome expectations, on the other hand, has a medium effect on the ISEI.

Table 3: Fit Indices of the Path Analyses

Model	Fit indices				RMSEA (CI)	R ² Grade	R ² ISEI	N
	χ ²	df	p	CFI				
1	2.865	1	.0905	.999	.024 (.000; .059)		.118	3.238
2a	111.904	5	<.001	.931	.081 (.068, .094)	.030	.115	3.262
2b	36.356	5	<.001	.979	.044 (.031; .058)	.013	.117	3.262

Note. Model 1 = path model with grade average, self-efficacy, expected school-leaving qualification and occupational ambitions as manifest variables; Model 2a = Model 1 extended by the students' family background, operationalised by both parents' educational and vocational qualifications (factor values of a confirmatory factor analysis); Model 2b = Model 1 extended by the students' family background, operationalised by the knowledge of both parents' educational and vocational qualifications.

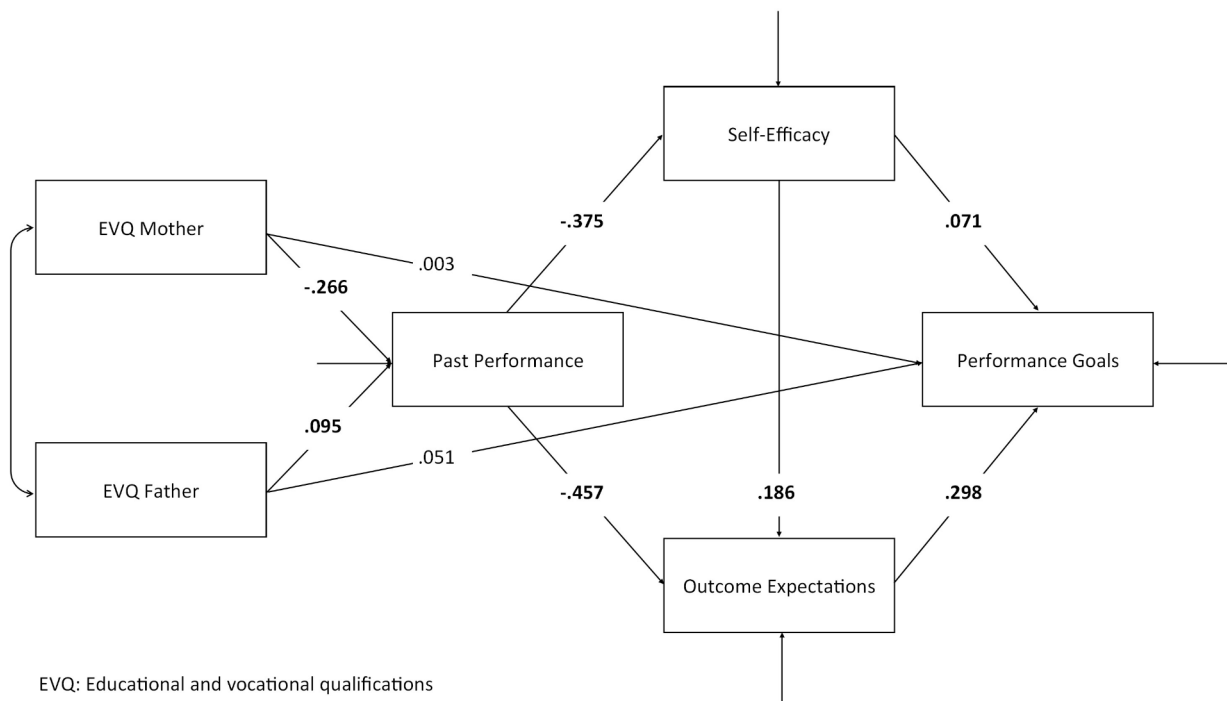
Figure 3: Path Model 1. (Standardized Coefficients), * $p < .05$



In the second step, we tested the extended Model 1, including the students' family background (Model 2a). In this study, family background was operationalised by the parents' educational and vocational qualifications (see above), which feature an ordinal data level. Since exogenous variables in a path model require a dichotomous or metric scale level, the four variables on the parents' educational and vocational qualifications were subjected to a confirmatory factor analysis (robust weighted least squares estimator) (Muthén, L.K. & Muthén, B.O., 1998–2017). Responses of “don't know” were treated as missing values. The assumed model of two intercorrelated latent factors (mother and father) with their respective educational and vocational qualifications achieved good fit indices: $\chi^2=111.904$, $df=5$, $p<.001$, $CFI=.931$, $RMSEA=.081$, $CI (.068, .94)$. The estimated factor values of the mother's educational and vocational qualifications (EVQMother) and father (EVQFather) are included as exogenous variables (social origin) in the path analysis of Model 2a (Figure 4). The identified fit indices for Model 2a are acceptable (Table 3). This model is also supported by the empirical data. However, neither the intercorrelations between the two exogenous variables (EVQMother and EVQFather) nor the direct path coefficients from family background to the students' occupational ambitions were significant.

The assumed direct paths of family background on occupational ambitions (goals) were not significant. However, the parents' educational and vocational qualifications have a significant direct effect on past performance (students' grades). To be specific, mothers with increasing educational

Figure 4: Path Model 2a. (Standardized Coefficients), * $p < .05$

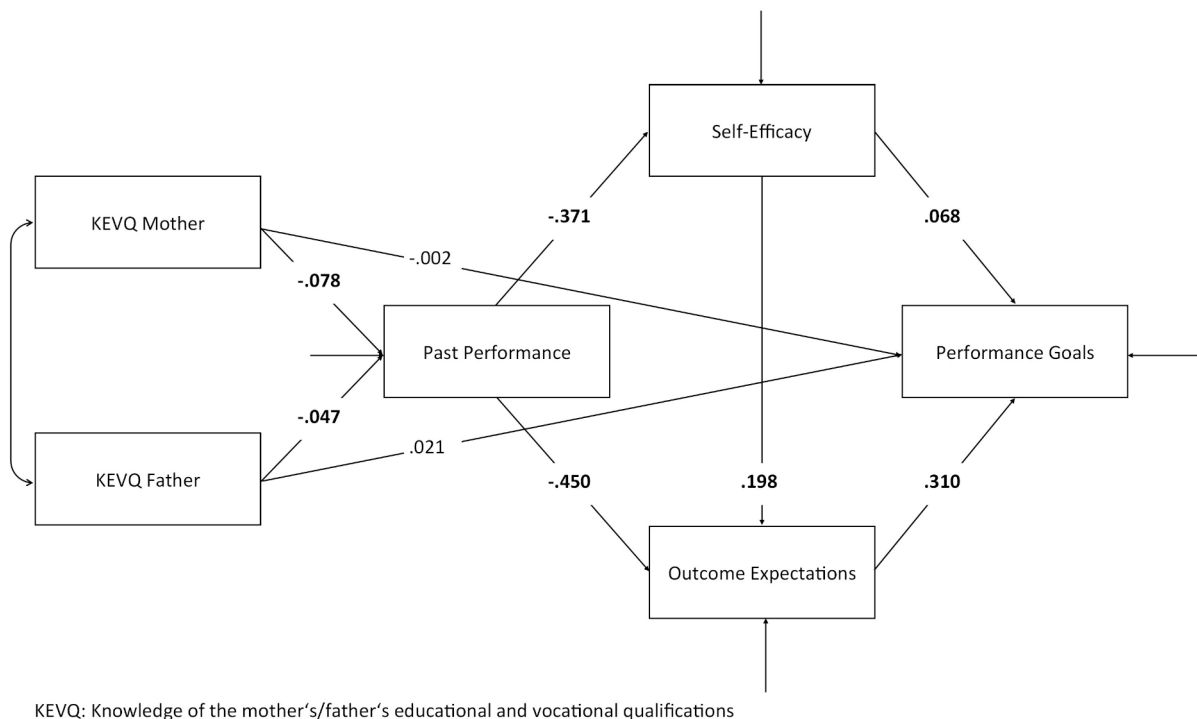


Note. EVQ = educational and vocational qualifications.

and vocational qualifications have a positive effect on the grades of their children, while the influence of fathers is smaller and inverse. Fathers' lower educational and vocational qualifications tend to be associated with better performance in school. The other correlations did not differ substantially from the basic model in terms of content or level. Model 2a, therefore, shows that parents' educational background has an indirect effect on vocational aspirations and the occupational ambitions articulated in them, mediated by school performance.

Finally, knowledge of parental vocational and educational qualifications was alternatively included as an exogenous variable in the path analysis of Model 2b. The fit indices tend to be better for Model 2b, which models a more direct influence of parents and operationalises their influence via knowledge of parental educational and vocational qualifications (KEVQMother, KEVQFather) (Table 3). Once again, the intercorrelations between the exogenous variables and the direct path coefficients from family background to the students' occupational ambitions were not significant (Figure 5). According to the model, knowledge of the parents' vocational and educational qualifications has a significant positive effect on school performance (due to the inversely coded grades), although only weak effects can be reported. The other correlations are similar to Model 1 and Model 2a.

Figure 5: Path Model 2b. (Standardized Coefficients), * $p < .05$



Note. KEVQ = Knowledge of the mother's/father's educational and vocational qualifications

6 Discussion and Future Research

This article investigated, how family background and key determinants of the SCCT predict young people's occupational ambitions. Regarding the question of whether the basic model fits the empirical data (RQ1), it was shown that past performance, mediated by self-efficacy and outcome expectations, influences young people's occupational ambitions. Students in ninth grade, therefore, have higher occupational ambitions if they expect to acquire higher educational qualifications. This finding is consistent with the results of, for example, the Autor:innengruppe Bildungsberichterstattung (2022). This may be due to the fact that they already factor in their chances of accessing their desired professions and, in accordance with Gottfredson's (1981) theory, exclude unrealistic professions. Self-efficacy, on the other hand, has a more indirect influence on occupational ambitions via outcome expectations. These correlations are consistent with earlier findings (Lent et al., 2018). Therefore, it is not enough to simply strengthen students' self-efficacy if they are to develop higher occupational ambitions regardless of their family background. Instead, they must also expect to achieve good results or qualifications based on their past school performance. This is important for school career and vocational counselling.

With reference to Model 2a (RQ2), the more dominant and positive influence of mothers on school performance, identified in our data with students from Saxony-Anhalt, will be discussed here. According to the data, the higher the mothers' level of education, the better the school performance, which in turn influences occupational ambitions via the educational qualification aimed for. Röhr-Sendlmeier (2009) also provides empirical evidence of a positive correlation between the children's school performance and the mother's employment. In particular, qualifications and employment are seen as an important resource for the educational success of children, which is explained, among other things, by the modelled motivation to achieve, a broader horizon of experience, a more pronounced ability to explain complex issues and general parenting behaviour (Röhr-Sendlmeier, 2009). The stronger influence of mothers seems reasonable, as they presumably are more engaged in their children's education as part of their care work (Bryant et al., 2006). The lower influence of fathers may be due to Saxony-Anhalt having the second-highest rate of single mothers in Germany (Lenze, 2021). Consequently, the stronger effect of mothers may also be due to fathers playing a minor role in the family, and rather serving as role models from which to stand apart (BMFSFJ, 2021). This may also be reflected in the fact that fathers' educational and vocational qualifications are more often unknown (Table 2).

As an alternative to extending the basic model to include the parents' level of education, Model 2b (Figure 6) includes the students' knowledge of their parents' vocational and educational qualifications. This knowledge, as an expression of vocational development being discussed within the family, has a small but significant effect on academic achievement (RQ3). It seems plausible, especially in light of social cognitive learning theories, that not the parents' educational level per se, but its role as a topic of interest in family communication makes a difference. However, neither a dominant influence of mothers nor a direct effect on occupational ambitions can be identified here. When parents' educational and career paths are discussed within the family and children and/or parents show interest in each other's vocational development, it enhances school performance and indirectly also occupational ambitions of young people.

In the context of our research questions, our base model, grounded in the SCCT, has demonstrated resilience in empirical evaluation and appears suitable for explaining occupational ambitions (RQ1). They are influenced by past performance – moderated by self-efficacy and expected

educational qualifications. Adding the factor “family background” (RQ2) or “knowledge of parents' educational and vocational qualifications” (RQ3), an indirect effect on vocational ambitions, mediated by past performance, can be demonstrated. In this respect, our findings indicate that parental educational and occupational level and family communication about career choice, which can be framed as contextual factors according to the SCCT, affect school performance and, via this, occupational ambitions (Lent, 2013).

Finally, some limitations of this study should be stated. The variance explained by the base model is relatively low. Furthermore, the effects of family-related factors on grades (past performance) are significant but marginal. Moreover, this sample consists exclusively of students from lower secondary schools in Saxony-Anhalt and is representative of this group. However, it cannot be assumed without further research that these findings apply to learners at other types of schools (e.g., Gymnasium at upper secondary level) or to peers from other states.

The operationalisation of the constructs used must also be critically examined. For example, it is questionable whether outcome expectations are adequately operationalised through the characteristic of the expected school-leaving qualification, which allows only for a rough distinction here. The expected grade of the school-leaving certificate might also be recorded. Alternatives to the construct of family background should also be considered, since the parents' educational and vocational qualifications only operationalise the (formally documented) educational background of the parents. In addition, we only address the parents here. However, other reference groups (peers and teachers) as well as the media also play an important role for adolescents during the period of vocational orientation, often referred to as “significant others” (Lent et al., 2013). Therefore, their role and influence should also be examined. In this context, it would also be interesting to see whether a kind of inheritance of professional aspirations occurs. Therefore, subsequent research (similar to the PISA studies, for example; Mang et al., 2021) should record the occupations practised by the parents and code them accordingly, as the Autor:innengruppe Bildungsberichterstattung (2022) has done. Based on this, it might be interesting to examine whether and under what conditions upward tendencies in vocational ambitions emerge.

This study shows that it matters whether students know something about their parents' educational and vocational background. We interpret this as an indication of family communication about vocational development and interest. It should also be asked whether this can be recorded more explicitly and in a more process-oriented way, rather than merely in a binary, product-oriented manner (knowledge). Moreover, we tested the influence of parents' educational and vocational qualifications and of children's knowledge thereof separately. Additional data from the parents' perspective would allow for a better understanding of how the two factors correlate.

Although the coding of vocational aspirations using the ISCO occupational classification is an established procedure, there is always a certain amount of room for interpretation, given that some vocational aspirations can be rather fanciful. Despite satisfactory intercoder reliability, coding is not always unambiguous (Elias, 1997). This must be taken into account when interpreting the results, as the ISEI value is derived from this ISCO coding.

Gottfredson (1981) points out that gender also significantly influences vocational development processes. Gender conventions and family role models continue to be important even for young people in gender-atypical occupations (Wehner, 2015). Model 2a shows a differentiated indirect influence of fathers and mothers on occupational ambitions. The question then arises as to whether this influence is also gender-specific, i.e. whether boys are more likely to be influenced by their fathers and girls by their mothers.

Since this study focuses on the vocational goals at a given developmental stage, it might also be a logical next step to examine in a longitudinal setting, how the findings of this study translate to career outcomes and attainments.

The potential of this study is measured by the fact that it is not the professional field but the social status of the desired profession that is to be predicted. The SCCT by Lent et al. (1994) serves as the theoretical framework. Its core elements are further extended to take into account not only individual but also family influences. Given the replication crisis (German Research Foundation, 2017), re-examining the model (and its modifications) appears significant. This paper contributes to a better understanding of the development of young people's vocational aspirations and ambitions in relation to their family background. Multiple starting points for supporting the vocational orientation process can be derived from incorporating social-cognitive concepts.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

References

- Ali, S. R., McWhirter, E. H., & Chronister, K. M. (2005). Self-efficacy and vocational outcome expectations for adolescents of lower socioeconomic status: A pilot study. *Journal of Career Assessment*, 13, 40–58. <https://doi.org/10.1177/1069072704270273>
- Autor:innengruppe Bildungsberichterstattung (2022). *Bildung in Deutschland 2022: Ein indikatorengestützter Bericht mit einer Analyse zum Bildungspersonal* [Education in Germany 2022: An indicator-based report with an analysis of education personnel]. wbv Publikation. <https://doi.org/10.3278/600182ohw>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
- Baumgardt, I. (2021). Berufliche Orientierung in der Primarstufe – der Beruf aus der Perspektive von Grundschulkindern [Career guidance in primary education – careers from the perspective of primary school children]. In U. Weyland, B. Ziegler, K. Driesel-Lange, & A. Kruse (Eds.), *Entwicklungen und Perspektiven in der Berufsorientierung. Stand und Herausforderungen* (pp. 97-113). Bundesinstitut für Berufsbildung. urn:nbn:de:0035-0937-9
- Baumgarten, M., Porsch, R., Jahn, R.W. (2021). Schulische und unterrichtliche Determinanten von Schulerfolg und Schulabbruch an Sekundar- und Gemeinschaftsschulen in Sachsen-Anhalt [School and teaching determinants of academic success and dropout rates at secondary and comprehensive schools in Saxony-Anhalt] (SEASA): Skalenhandbuch zur Dokumentation der Erhebungsinstrumente. Waxmann. <https://doi.org/10.25656/01:23943>
- Baumert, J., Stanat, P., & Watermann, R. (2006). Schulstruktur und die Entstehung differenzieller Lern- und Entwicklungsmilieus [School structure and the emergence of differential learning and developmental milieus]. In J. Baumer, P. Stanat & R. Watermann (Eds.). *Herkunftsbedingte Disparitäten im Bildungswesen: Differenzielle Bildungsprozesse und Probleme der Verteilungsgerechtigkeit: Vertiefende Analysen im Rahmen von PISA 2000*, (pp. 95-188). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-90082-7_4
- Beck, U., Brater, M. & Wegener, B. (1979). *Soziale Grenzen beruflicher Flexibilität. Ergebnisse einer empirischen Untersuchung über Probleme der Berufswahl unter Bedingungen knapper*

Lehrstellen [Social boundaries of professional flexibility. Results of an empirical study on problems of career choice under conditions of scarce apprenticeship positions]. In *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung*, 12(4). https://doku.iab.de/mittab/1979/1979_4_MittAB_Beck_Brater_Wegener.pdf

- Bundesministerium für Familie, Senioren, Frauen und Jugend (BMFSFJ, 2021). *Neunter Familienbericht: Eltern sein in Deutschland – Ansprüche, Anforderungen und Angebote bei wachsender Vielfalt: Stellungnahme der Bundesregierung* [Ninth Family Report: Being a parent in Germany – expectations, requirements and services in an increasingly diverse society: Statement by the Federal Government] (Drucksache 19/27200). Deutscher Bundestag. <https://www.bmbfsfj.bund.de/bmbfsfj/service/publikationen/neunter-familienbericht-eltern-sein-in-deutschland--179394>
- Bryant, B. K., Zvonkovic, A. M., & Reynolds, P. (2006). Parenting in relation to child and adolescent vocational development. *Journal of Vocational Behavior*, 69(1), 149-175. <https://doi.org/10.1016/j.jvb.2006.02.004>
- Byars-Winston, A., Diestelmann, J., Savoy, J. N., & Hoyt, W. T. (2017). Unique effects and moderators of effects of sources on self-efficacy: A model-based meta-analysis. *Journal of Counseling Psychology*, 64(6), 645–658. <https://doi.org/10.1037/cou0000219>
- German Research Foundation. (2017). *Replicability of Research Results. A Statement by the German Research Foundation.* <https://www.dfg.de/resource/blob/172846/99ba9a8d7b814c8cd5f3415cb7e27120/170425-stellungnahme-replizierbarkeit-forschungsergebnisse-en-data.pdf>
- Dreisiebner, G. (2019). *Berufsfindungsprozesse von Jugendlichen. Eine qualitativ-rekonstruktive Studie* [Career choice processes among young people. A qualitative reconstructive study]. Springer. <https://doi.org/10.1007/978-3-658-27283-8>
- Diesel-Lange, K. (2011). *Berufswahlprozesse von Mädchen und Jungen. Interventionsmöglichkeiten zur Förderung geschlechtsunabhängiger Berufswahl* [Career choice processes of girls and boys. Intervention options for promoting non-gender-specific career choices]. LIT.
- Elias, P. (1997). *Occupational classification (Isco-88): Concepts, methods, reliability, validity and cross-national comparability.* (OECD Labour Market and Social Policy Occasional Papers No. 20). <https://doi.org/10.1787/304441717388>
- Emmerich, M., & Hormel, U. (2021). Unequal Inclusion: The production of social differences in education systems. *Social Inclusion*, 9(3), 301-312. <https://doi.org/10.17645/si.v9i3.4322>
- Erikson, E. H. (1968). *Identity. Youth and crisis.* Norton.
- Fürstenberg, F. (1997). *Wirtschaftsbürger in der Berufsgesellschaft* [Economic citizens in professional society]? Fromm.
- Ganzeboom, H. B. G., & Treiman, D. J. (1996). Internationally comparable measures of occupational status for the 1988 International Standard Classification of Occupations. *Social Science Research*, 25, 201–239. <https://doi.org/10.1006/ssre.1996.0010>
- Ganzeboom, H. B. G., & Treiman, D. J. (2003). Three internationally standardised measures for comparative research on occupational status. In J. H. P. Hoffmeyer-Zlotnik & C. Wolf (Eds.), *Advances in cross-national comparison* (59–193). Springer. https://doi.org/10.1007/978-1-4419-9186-7_9
- Göbel, K., Rauch, D., & Vieluf, S. (2011). *Leistungsbedingungen und Leistungsergebnisse von Schülerinnen und Schülern türkischer, russischer und polnischer Herkunftssprachen*

- [Performance conditions and performance results of students of Turkish, Russian and Polish native languages]. *Zeitschrift für Interkulturellen Fremdsprachenunterricht*, 16(2), 50–65. http://zif.spz.tu-darmstadt.de/jg-16-2/beitrag/Goebel_Rauch_Vieluf.pdf
- Gottfredson, L. S. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology*, 28(6), 545–579. <https://doi.org/10.1037/0022-0167.28.6.545>
- Gottfredson, L. S. (2004). Using Gottfredson's theory of circumscription and compromise in career guidance and counseling. In S. D. Brown, & R. W. Lent (Eds.). *Career development and counseling: Putting theory and research to work*. John Wiley & Sons. (pp. 71–100). <https://www1.udel.edu/educ/gottfredson/reprints/2004theory.pdf>
- Gresch, C. (2012). Der Übergang in die Sekundarstufe I. Leistungsbeurteilung, Bildungsaspiration und rechtlicher Kontext bei Kindern mit Migrationshintergrund [The transition to lower secondary school. Performance assessment, educational aspirations and legal context for children with migration background]. Springer. <https://doi.org/10.1007/978-3-531-18660-3>
- Grünert, H., & Kaufmann, S. (2019). Berufswünsche und Zukunftsvorstellungen von Jugendlichen: Ergebnisse aus der wissenschaftlichen Begleitung eines Modellprojektes zur Berufsorientierung [Career aspirations and future prospects of young people: findings from scientific monitoring of a pilot project on career guidance]. Otto Brenner Stiftung. https://www.otto-brenner-stiftung.de/fileadmin/user_data/stiftung/01_Die_Stiftung/04_Stiftung_Neue_Laender/02_Publikationen/SNL_o8_Jugend_LR.PDF
- Havighurst, R. J. (1972). *Developmental tasks and education* (3rd ed.). Longman.
- Heckhausen, J., & Tomasik, M. J. (2002). Get an apprenticeship before school is out: How German adolescents adjust vocational aspirations when getting close to a developmental deadline. *Journal of Vocational Behavior*, 60(2), 199–219. <https://doi.org/10.1006/jvbe.2001.1864>
- Hirschi, A., & Baumeler, F. (2020). Berufswahltheorien – Entwicklung und Stand der Diskussion [Career choice theories – development and state of discourse]. In T. Brüggemann, & S. Rahn (Eds.), *Berufsorientierung. Ein Lehr- und Arbeitsbuch* (2nd ed., pp. 31–42). Waxmann. <https://doi.org/10.36198/9783838552491>
- Huang, J. T., & Hsieh, H. H. (2011). Linking socioeconomic status to social cognitive career theory factors: A partial least squares path modeling analysis. *Journal of Career Assessment*, 19(4), 452–461. <https://doi.org/10.1177/1069072711409723>
- Hurrelmann, K., & Quenzel, G. (2013). *Lebensphase Jugend. Eine Einführung in die sozialwissenschaftliche Jugendforschung* [Life stage youth. An introduction to social science on youth]. (12th ed.). Beltz.
- Jacobs, J. A., Karen, D., & McClelland, K. (1991). The dynamics of young men's career aspirations. *Sociological Forum*, 6(4), 609–639. <https://doi.org/10.1007/BF01114404>
- Kriesi, I., & Basler, A. (2020). Die Entwicklung der Berufswünsche von jungen Frauen und Männern in der Schweiz [The development of career aspirations of young women and men in Switzerland]. *Social Change in Switzerland*, 23. <https://doi.org/10.22019/SC-2020-00006>
- Lee, I. H., & Rojewski, J. W. (2009). Development of occupational aspiration prestige: A piecewise latent growth model of selected influences. *Journal of Vocational Behavior*, 75(1), 82–90. <https://doi.org/10.1016/j.jvb.2009.03.006>
- Lee W., Lee M.-J., & Bong M. (2014). Testing interest and self-efficacy as predictors of academic self-regulation and achievement. *Contemporary Educational Psychology*, 39, 86–99. <https://doi.org/10.1016/j.cedpsych.2014.02.002>

- Lent, R. W., & Brown, S. D. (2019). Social cognitive career theory at 25: Empirical status of the interest, choice, and performance models. *Journal of Vocational Behavior*, 115, 103316. <https://doi.org/10.1016/j.jvb.2019.06.004>
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, 45(1), 79–122. <https://doi.org/10.1006/jvbe.1994.1027>
- Lent, R. W., Sheu, H., Miller, M. J., Cusick, M. E., Penn, L. T., & Truong, N. N. (2018). Predictors of science technology engineering, and mathematics choice options: A meta-analytic path analysis of the social-cognitive choice model by gender and race/ethnicity. *Journal of Counseling Psychology*, 65, 17–35. <https://doi.org/10.1037/cou0000243>
- Lenze, A. (2021). Alleinerziehende weiter unter Druck. Bedarfe, rechtliche Regelungen und Reformansätze [Single parents still under pressure. Demands, legal regulations and reform approaches]. Bertelsmann Stiftung. <https://doi.org/10.11586/2021059>
- Luthra, R. R. (2010). Assimilation in a new context: Educational attainment of the immigrant second generation in Germany (ISER Working Paper Series 21). <https://hdl.handle.net/10419/65936>
- Maaz, K., Trautwein, U., Gresch, C., Lüdtke, O., & Watermann, R. (2009). Intercoder-Reliabilität bei der Berufscodierung nach der ISCO-88 und Validität des sozioökonomischen Status [Intercoder reliability in occupational coding according to ISCO-88 and validity of socioeconomic status]. *Zeitschrift für Erziehungswissenschaften*, 12(2), 281–301. <https://doi.org/10.1007/s11618-009-0068-0>
- Mang, J., Seidl, L., Schiepe-Tiska, A., Tupac-Yupanqui, A., Ziernwald, L., Doroganova, A., Weis, M., Diedrich, J., Heine, J.-H., González Rodríguez, E., & Reiss, K. (2021). PISA 2018 Skalenhandbuch. Dokumentation der Erhebungsinstrumente [PISA 2018 Scale Manual. Documentation of the survey instruments]. Waxmann. <https://doi.org/10.31244/9783830994961>
- Mayer, K. U., & Blossfeld, H. P. (1990). Die gesellschaftliche Konstruktion sozialer Ungleichheit im Lebensverlauf. In P. A. Berger, & S. Hradil (Eds.), *Lebenslagen, Lebensläufe, Lebensstile* (pp. 297–318). Schwartz. <https://hdl.handle.net/21.11116/0000-0002-0891-1>
- McGinn, K. L., Ruiz Castro, M., & Lingo, E. L. (2019). Learning from mum: Cross-national evidence linking maternal employment and adult children's outcomes. *Work, Employment and Society*, 33(3), 374–4. <https://doi.org/10.1177/0950017018760167>
- Muthén, L. K. & Muthén, B. O. (1998–2017). *Mplus user's guide* (8th ed.). Muthén & Muthén. <https://www.statmodel.com/download/Muthen-Schultzberg%20RMA.pdf>
- Nagy, G., Neumann, M., Becker, M., Watermann, R., Köller, O., Lüdtke, O., & Trautwein, U. (2007). Mathematikleistungen am Ende der Sekundarstufe II [Mathematics performance at the end of upper secondary education]. In U. Trautwein, O. Köller, R. Lehmann, & O. Lüdtke (Eds.), *Schulleistungen von Abiturienten. Regionale, schulformbezogene und soziale Disparitäten* (pp. 71–112). Waxmann.
- Nationale Bildungspanel. (2016). Dokumentation der Startkohorte Klasse 5 [Documentation of the starting cohort, grade 5] (SC3) Version 9.0.0. <https://www.neps-data.de/Datenzentrum/Daten-und-Dokumentation/Startkohorte-Klasse-5/>
- Neuenschwander, M. P. (2019). Übergänge in die Berufsausbildung [Transitions to vocational education and training]. In B. Kracke & P. Noack (Eds.), *Handbuch Entwicklungs- und Erziehungspsychologie* (pp. 425–438). Springer. https://doi.org/10.1007/978-3-642-53968-8_19
- Pahl, J.-P. (2017). *Berufe, Berufswissenschaft und Berufsbildungswissenschaft* [Professions, vocational science and science of vocational education and training]. Bertelsmann.

- Pfänder, H., Schurig, M., & Bos, W. (2018). Skalenhandbuch [Scale manual] Ganz In II - Dokumentation der Erhebungsinstrumente der zweiten Projektphase. Technische Universität Dortmund. <https://doi.org/10.17877/DE290R-19798>
- Pöhlmann, C., Haag, N., Stanat, & P. (2012). Zuwanderungsbezogene Disparitäten [Immigration-related disparities]. In H. A. Pant, P. Stanat, U. Schroeders, A. Roppelt, T. Siegle, & C. Pöhlmann (Eds.), IQB-Ländervergleich 2012. Mathematische und naturwissenschaftliche Kompetenzen am Ende der Sekundarstufe I (pp. 297–330). Waxmann. <https://elibrary.utb.de/doi/pdf/10.31244/9783830979906>
- Porsch, R., Jahn, R. W. & Baumgarten, M. (2021). Schulische und unterrichtliche Determinanten von Schulerfolg und Schulabbruch an Sekundar- und Gemeinschaftsschulen in Sachsen-Anhalt [School and teaching determinants of academic success and dropout rates at secondary and comprehensive schools in Saxony-Anhalt] (SEASA). Abschlussbericht zur Untersuchung im Auftrag des Ministeriums für Bildung des Landes Sachsen-Anhalt.
- Röhr-Sendlmeier, U. M. (2009). Berufstätige Mütter und die Schulleistungen ihrer Kinder [Working mothers and their children's school performance]. *Bildung und Erziehung*, 62(2), 225–242. <https://doi.org/10.7788/bue.2009.62.2.225>
- Schimpl-Neimanns, B. (2004). Zur Umsetzung des internationalen sozioökonomischen Index des beruflichen Status (ISEI) mit den Mikrozensus ab 1996 [Implementation of the International Socio-Economic Index of Occupational Status (ISEI) using Mikrozensus since 1996]. *ZUMA Nachrichten*, 28(54), 154–170. <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-207705>
- Schmude, C. (2009). Entwicklung von Berufspräferenzen im Schulalter: längsschnittliche Analyse der Entwicklung von Berufswünschen [Development of career preferences during school age: longitudinal analysis of the development of career aspirations]. Habilitationsschrift. Humboldt Universität Berlin. <https://d-nb.info/1014975034/34>
- Schnitzler, A., & Granato, M. (2016). Duale Ausbildung oder weiter zur Schule? Bildungspräferenzen von Jugendlichen in der 9. Klasse und wie sie sich ändern [Vocational education or continuing school? Educational preferences of young people in Year 9 and how they change]. *Zeitschrift des Bundesinstituts für Berufsbildung*, 45(3), 10–15. <https://www.bibb.de/veroeffentlichungen/de/publication/download/7988>
- Schober, Karin (1997). Berufswahlverhalten [Career choice behaviour]. In D. Kahsnitz, G. Ropohl & A. Schmid (Eds.), *Handbuch zur Arbeitslehre* (pp. 103–122). Oldenbourg Verlag. <https://doi.org/10.1515/9783486788389.103>
- Schoon, I., & Polek, E. (2011). Teenage career aspirations and adult career attainment: The role of gender, social background and general cognitive ability. *International Journal of Behavioral Development*, 35(3), 210–217. <https://doi.org/10.1177/0165025411398183>
- Schröder, E., Schmitt-Rodermund, E., & Arnaud, N. (2011). Career choice intentions of adolescents with a family business background. *Family Business Review*, 24(4), 305–321. <https://doi.org/10.1177/0894486511416977>
- Schwippert, K., Wendt, H., & Tarelli, I. (2012). Lesekompetenzen von Schülerinnen und Schülern mit Migrationshintergrund [Reading skills of students with a migration background]. In W. Bos, I. Tarelli, A. Bremerich-Vos, & K. Schwippert (Eds.), *IGLU 2011. Lesekompetenzen von Grundschulkindern in Deutschland im internationalen Vergleich* (pp. 191–208). Waxmann.
- Sewell, W. H., Haller, A. O., & Portes, A. (1996). The educational and early occupational attainment process. *American Sociological Review*, 34(1), 82–92. <https://doi.org/10.2307/2092789>

- Stanat, P., Rauch, D., & Segeritz, M. (2010a). Schülerinnen und Schüler mit Migrationshintergrund [Students with a migration background]. In E. Klieme, C. Artelt, J. Hartig, N. Jude, O. Köller, M. Prenzel, W. Schneider, & P. Stanat (Eds.), *PISA 2009. Bilanz nach einem Jahrzehnt* (pp. 200–230). Waxmann. DOI: 10.25656/01:3536
- Stanat, P., Schwippert, K., & Gröhlich, C. (2010b). Der Einfluss des Migrantenanteils in Schulklassen auf den Kompetenzerwerb. Längsschnittliche Überprüfung eines umstrittenen Effekts. In C. Allemann-Ghionda, P. Stanat, K. Göbel, & C. Röhner (Eds.), *Migration, Identität, Sprache und Bildungserfolg* (pp. 147–164). Beltz. <https://doi.org/10.25656/01:6952>
- Statistisches Bundesamt, Wissenschaftszentrum Berlin für Sozialforschung, Bundesinstitut für Bevölkerungsforschung (Eds.) (2021). *Datenreport 2021. Ein Sozialbericht für die Bundesrepublik Deutschland [Data Report 2021. A social report for the Federal Republic of Germany]*. Reihe Zeitbilder. Bundeszentrale für politische Bildung. <https://doi.org/10.6084/m9.figshare.22548619>
- Straub, S., Baumgardt, I., & Lange, D. (2021). Berufs- und Arbeitswelt in der politischen Bildung. Über Bildungs- und Berufsvorstellungen Jugendlicher am Ende der Sekundarstufe I in Deutschland und Österreich [The professional and employment world in political education. On the educational and vocational aspirations of young people at the end of lower secondary education in Germany and Austria]. Springer. <https://doi.org/10.1007/978-3-658-34304-0>
- Wehner, N. (2015). *Krankenpfleger und Elektrikerinnen [Nurses and electricians]*. *Sozial Extra*, 39(1), 10–12. <https://doi.org/10.1007/s12054-014-9010-7>
- Wilson, S. (2001). *Direct and indirect effects of social class on career expectations and likelihood of compromise in an adolescent sample [Unpublished doctoral dissertation]*. University of Northern Colorado. <https://digscholarship.unco.edu/cgi/viewcontent.cgi?article=1277&context=dissertations>
- Yang H.-J. (2004). *Factors affecting student burnout and academic achievement in multiple enrollment programs in Taiwan's technical-vocational colleges*. *International Journal of Educational Development*, 24, 283–301. <https://doi.org/10.1016/j.ijedudev.2003.12.001>
- Zimmermann, T. (2018). Die Bedeutung signifikanter Anderer für eine Erklärung sozial differenzierter Bildungsaspirationen. *Zeitschrift für Erziehungswissenschaften*, 12, 339–360. <https://doi.org/10.1007/s11618-017-0781-z>

Author Information

Adele Schulze Niehoff
Otto-von-Guericke-University
Faculty of Humanities
Department I: Education, Vocation and Media
adele.schulze-niehoff@ovgu.de
<https://orcid.org/0009-0009-8965-4134>

Dr. Melanie Baumgarten
Research Institute for Vocational Education and Training GmbH
melanie.baumgarten@f-bb.de
<https://orcid.org/0009-0004-1473-1397>

Laura Arndt
Otto-von-Guericke-University
Faculty of Humanities
Department I: Education, Vocation and Media
<https://orcid.org/0009-0005-3940-4154>

Prof. Dr. Robert W. Jahn
Otto-von-Guericke-University
Faculty of Humanities
Department I: Education, Vocation and Media
<https://orcid.org/0000-0003-4015-2191>

Prof. Dr. Raphaela Porsch
University of Vechta
Faculty I/Educational Sciences
raphaela.porsch@uni-vechta.de
<https://orcid.org/0000-0002-1548-3776>