PERFORMANCE OF STUDENTS WITH SPECIAL EDUCATIONAL NEEDS IN GERMANY FINDINGS FROM PISA 2012

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Abstract

The reporting of findings from PISA *(Programme for International Student Assessment)* is an important part of educational monitoring in Germany. However, until now the subsample of students with Special Educational Needs (SEN) had been too small to single out this group and report findings. In PISA 2012, the sample of ninth-grade students in Germany was thus expanded by students with SEN in inclusive settings and students with SEN in an oversample of 49 special schools. This article describes and compares the proficiency of students with SEN in inclusive settings and in special schools. In all three PISA domains assessing Literacy, Reading, Mathematics, and Science, students with SEN in inclusive settings achieve proficiency level 2, while students with SEN in special schools achieve proficiency level 1. It turns out that students with SEN have a lower average socioeconomic status than regular students, especially those in special schools. Possible explanations for the higher achievement of students with SEN in inclusive settings are discussed.

Keywords: Inclusion, Special Educational Needs, Secondary School, Educational Achievement

Theoretical Background

Inclusion of students with *Special Educational Needs* (SEN) into mainstream schools was supported by the Salamanca Statement on Special Needs Education (UNESCO, 1994) and the Convention on the Rights of Persons with Disabilities (UN Assembly, 2007) in Europe. In German education statistics, an inclusive setting is defined as a placement of students with SEN in regular classrooms with additional support of special education teachers. In Germany in 1999, 11% of all students with SEN attended regular schools. The rate of inclusion rose to 28.2% in 2012 (Autorengruppe Bildungsberichterstattung, 2014; KMK, 2010, 2012). In 2012, 6.6% of all students were diagnosed with SEN; 40% of all students with SEN have a diagnosed SEN *in the area of Learning* (SEN-L), 16% in *intellectual disabilities*, 11% in *language disorders*, 14% in *social and emotional disorders*, 7% in *physical disabilities*, 5% *without attribution*, 3% in *hearing impairments*, 2% in v*isual impairments*, and 2% attend school in a hospital. The categorization of students with SEN-L in Germany is based on a traditional school approach, where special need teachers identify students according to the law of their respective federal state. Students with SEN-L are the biggest group (Autorengruppe Bildungsberichterstattung, 2014). These students have basic difficulties in various learning areas. The German definition of students with SEN-L is similar to the international definition of Learning Disabilities (LD) by Lloyd, Keller, and Hung (2007) or the international definition of Specific Learning Disorder (American Psychiatric Association, 2013). The definition of LD refers to significant academic difficulties in school, for which neither other disabilities (e.g., sensory impairment, intellectual disability, or emotional and behavioral disorders) nor lack of schooling can be found as a cause (Lloyd et al., 2007). Students with a diagnosed *dyslexia* or *dyscalculia* are not identified as students with SEN in Germany (Büttner & Hasselhorn, 2011; Grünke, 2004).

In Germany, the average level of achievement differs between students with SEN and students without SEN. The size of this gap identified in German research is similar to the results of the meta-analysis of Pijl and Pijl (1998). Students with learning disabilities are ranked at the 8th percentile and students with intellectual disabilities at the 1st percentile on a standardized achievement scale (Pijl & Pijl, 1998). Students with SEN showed a delay in school achievement of at least two years compared to students without SEN of a corresponding grade (Haeberlin, Bless, Moser, & Klaghofer, 1991; Wocken, 2000; Wocken & Gröhlich, 2007). In the United States, longitudinal studies of the school performance of students with SEN draw a similar picture. In ninth grade, the delay ranges from three to five

years on average for students with LD, one to three years for students with *emotional disturbance* and more than five years for students with *intellectual disabilities* (Blackorby, Chorost, Garza, & Guzman, 2003). The individual development over three school years varies widely, but in general, there are no significant differences in the magnitude of growth between the students with different types of SEN (Blackorby et al., 2003). This kind of longitudinal study is missing in the German-speaking countries. However, the German National Educational Panel Study conducted a pilot study including students with SEN in order to implement students with SEN in the regular panel (Heydrich, Weinert, Nusser, Artelt, & Carstensen, 2013).

International studies have shown that students with SEN in inclusive settings show superior school performance and, in the long run, develop higher social skills than students in special schools (Baker, Wang, & Walberg, 1995; Lindsay, 2007; Ruijs & Peetsma, 2009). In Switzerland (Eckhart, Haeberlin, Lozano, & Blanc, 2011; Haeberlin et al., 1991) and Germany (Merz, 1982; Tent, Witt, Bürger, & Zschoche-Lieberum, 1991) similar positive effects of inclusion were found. A limitation of these studies is that they had only regional samples. Additionally, a national study of a state wide test (Stanat, Pant, Boehme, & Richter, 2012) found that students with SEN-L in inclusive settings had better scores in German and math than students from special schools. These results were still stable when students were matched by intelligence, age, socioeconomic status, and educational background (Kocaj, Kuhl, Kroth, Pant, & Stanat, 2014). A limitation of the study is that the degree of disability has not been controlled (e.g., by Myklebust, 2002), as the state wide test focused on regular students and tests are not adapted for students with severe disabilities. Furthermore, the study shows the trend that more students with mild disabilities, higher socioeconomic status, and higher educational background attend regular schools.

In Germany there are no high stake state wide tests like in the USA or the National Pupil Database in England. Beside the IQB-Ländervergleichstest in Germany (comparison of the federal states of Germany), there are only international assessments like the Progress in International Reading Literacy Study (PIRLS), the Trends in International Mathematics and Science Study (TIMMS) and the Programme for International Student Assessment (PISA) in use. Students with SEN were excluded from the tests as soon as they were not able to participate in them without assistance. The regular PISA sample comprises students who are attending special schools. Their numbers of the total sample in Germany varies from year to year: 108 students in 2003, 160 in 2006, 179 in 2009, and 139 in 2012. This number is

sufficient to statistically represent the proportion of SEN students within the student population as a whole, but it is too small to be analyzed as a specific subgroup. In an analysis of PISA 2003, all students with SEN of all countries were taken together (OECD, 2007). The students were identified through the Student Tracking Form. In PISA 2003, 311 students with functional disabilities and 1,815 students with cognitive disabilities participated. The sample is unevenly distributed across countries, because countries were not obliged to test students with SEN in PISA. Furthermore, the way of diagnosing SEN differs between countries (Sideridis, 2007). Despite the study's limitations, it is at present the best available data source with regard to academic performance of students with SEN in PISA. Students with functional disabilities had an average mean in mathematical competence of M = 459 (SD = 102) and in reading competence of M = 452 (SD = 115). Students with cognitive disabilities had an average mean in mathematical competence of M = 390 (SD = 91) and in reading competence of M = 376 (SD = 102). In PISA 2006 (OECD/JRC, 2009) students with SEN of the Baltic and South Eastern Europe states were analyzed. Regular students of these states achieved in mathematical competence M = 439 (SD = 94) and in reading competence M = 423 (SD = 102), students with functional disabilities in mathematical competence M = 409 (SD = 103) and in reading competence M = 399 (SD = 99) and students with cognitive disabilities had an average mean in mathematical competence of M = 342 (SD = 79) and in reading competence of M = 323 (SD = 92). The limitation of these results is that the number of students with SEN per country is quite small and not representative. Therefore, the results are only explorative analyses, which should be supported by further data.

Research Questions

The report of findings from PISA *(Programme for International Student Assessment)* in Germany is an important part of educational monitoring. Students with SEN are included as a subsample in all the analyses of the total sample with regard to their proportion of the student population investigated in PISA. The size of this subsample was, however, far too small to investigate the group of SEN students explicitly. In order to be able to describe SEN students as a group in PISA 2012, special schools were given specific consideration by means of drawing an oversample of 49 special schools for children with SEN. Therefore, it is possible to examine the subgroup of students with special educational needs who can handle the test without additional help and have sufficient knowledge of the test language. The aim of the present study was to measure the performance of students with SEN who are either taught in

special schools (group 1) or in integrative settings in Germany (group 2). The following research questions guided our study:

- Do students with SEN in regular schools differ from those in special schools with regard to their academic achievement?

Test Conception and Design

In PISA the concept of functional literacy is primarily concerned with assessing student knowledge and skills at the end of compulsory schooling. Basic knowledge and skills are of central importance for students' participation in social life and for subsequent education and training processes. *Mathematical literacy* includes mathematical content areas and processes that are located in specific real-life contexts. According to the conceptual assessment framework of PISA 2012, the content areas of *change and relationships, space and shape, quantity,* and *uncertainty and data* (OECD, 2014) are distinguished. With regard to *reading literacy* in PISA 2012, the revised and expanded conceptual framework was acquired in PISA 2009. Reading literacy is in this conception understood as a multi-dimensional and multi-faceted ability when registering various aspects of *reading, reading situations, text formats* and *text types* (see Hohn, Schiepe-Tiska, Sälzer, & Artelt, 2013). *Scientific literacy* is based on a competency model that distinguishes three sub-skills, namely the *recognition of scientific questions, describing, explaining and predicting scientific phenomena* and the *application of scientific evidence to make decisions.* These are embedded in practice-oriented contexts, focusing on students' personal situation and relating to social and community as well as the global situation. The basis for these sub-skills is a more subject-specific scientific knowledge and a more process-oriented, cross-disciplinary knowledge of the natural sciences (OECD, 2014).

To capture the social background of students in PISA, different indices are used. Central in the context of the present analysis are the *International Socio-Economic Index of Occupational Status (ISEI)* and the *Erikson-Goldthorpe-Portocarero classification (EGP),* which are both based on the *International Standard Classification of Occupation (ISCO).* Using the ISCO coding scheme, the information of the students about the occupation of mother and father as well as the details of their parents were classified in an internationally comparable manner. In both the PISA 2012 main survey and corresponding PISA 2012 oversamples, the classification of students' social background is determined on the basis of the revised ISCO-08 (International Labour Office, 2012). The ISEI determines the socio-economic position on the basis of professional qualifications, characteristics, educational

attainment and income. It is hence an index that reflects the reputation which comes with a certain occupation. Values on the ISEI range from 10 to 90. In order to determine a family's ISEI-value, the higher value from either father or mother was selected for analysis (HISEI = Highest ISEI value). In PISA, immigration status is assigned if a student or their parents were born abroad. If only one parent is born abroad, the student is assigned immigration status as well. The variable *immigration status* is a dichotomous variable.

Methodology

In PISA, each assessment domain (Reading, Mathematics, and Science) is tested using numerous test items. Students' answers to these items are analyzed and interpreted by assessment domains so that each participating country has an average score and a standard deviation per competence. The higher the students' score derived from the test questions, the higher is the students' competence in the respective assessment domain.

In order to make students' competence interpretable and comparable across countries, students' answers to the test items have to be scaled. Scaling means that based on the students' correct, partly correct or incorrect answers to easy, intermediate or difficult test items, an average competence score for each country is estimated. The scaling follows strict standards and rules. It relies on a multi-level and multidimensional estimation procedure according to the Item Response Theory (IRT, Adams & Wu, 2007; Adams, Wilson, & Wang, 1997). By means of so-called *Plausible Values*, that is, five drawn values from the a posteriori distribution of the observed student responses, it is possible to estimate unbiased population parameters dependent on variance (a specific and detailed documentation of scaling procedures in PISA can be found in chapter 10 of the German PISA 2012 report, see Heine, Sälzer, Borchert, Sibberns, & Mang, 2013).

Sample and population

The sample of ninth grade students includes both students with SEN in special schools and students with SEN in inclusive settings in regular schools. Our sample thus consists of two PISA 2012 oversamples (one grade-based and one-school based), which have been drawn together with the regular, internationally standardized sampling of the PISA study (OECD, 2014). Hence, all procedures are based on the international PISA guidelines. The grade-based part of the oversample contains two complete grade 9 classrooms. On the other hand, the sample comprises an oversample of 49 special schools with all grade 9 classes (school-based oversample). Within this subset of schools, those grade 9 students who are able to participate

in the test without additional help were selected. Furthermore, all students with SEN who are taught in inclusive settings were included in the sample.

The sample was drawn in two stages. Firstly, the schools were sampled as primary sampling units according to the size of the federal state and the school type. Secondly, two grade 9 classes were sampled in regular schools as well as all existing grade 9 classes in special schools to get enough classes sampled to receive unbiased estimates for class analyses.

Federal Structure of Germany

Germany is administratively divided into 16 federal states (so-called *Laender*, sing. *Land*), each of them is sovereign in terms of their educational system. This means that each Land has its own educational authority and educational system. It is a requirement of the PISA sampling procedure to explicitly stratify Germany according to the 16 federal states (16 strata) plus two extraordinary school types, that is, schools for children with special educational needs and vocational schools. This is to ensure that all federal states, but also these unique school types, are part of the sample. Germany's secondary school level is tracked, meaning that after completing primary school, children are grouped into different school types according to their prior achievement. The only secondary school type that is prevalent in all 16 Laender is the *Gymnasium*, a merely academic track comprising secondary levels I and II and qualifying for tertiary education. Apart from this, we distinguish two school types offering secondary level I education, namely *Hauptschule* (5 years of secondary schooling) and *Realschule* (6 years of secondary schooling). Two other school types combine several tracks within one school, either by within-school streaming (*Integrative Gesamtschule*) or by within-school tracking (*Schule mit mehreren Bildungsgängen [MBG]*).

Sample

Overall, the sample comprises 279 schools with N = 10,740 grade 9 students, consisting of students in regular schools without SEN, inclusively taught students with SEN, and students with SEN taught in special schools. Altogether, 98.5% of the sampled schools and 93.1% of the sampled students participated. The participation rate of students in special schools was 84.1% and 73.9% in inclusive settings. A total of 705 *students with SEN-L*, 123 *students with emotional or social disorder (ED)*, 12 *students with hearing impairment*, 21 *students with speech-impairment*, and 11 *students with physical disability* took part. Only *students with LD* and *students with ED* are covered in a sufficiently large number in the sample. However, the other disability types are not and, therefore, these disability types were joined together in one group to gain appropriate numbers per group (see Table 1): *Students with hearing-*

impairment, *speech-impairment* and *physical disability* are assigned to the construct *students with functional disabilities (FD).*

Table 1.

Distribution of *Students with SEN* in the Sample across School Settings

	Special School	Inclusive Setting	Total
Learning disabilities (SEN-L)	705	30	735
Emotional and social disorders (ED)	99	24	123
Functional disabilities (FD)	16	28	44
Total	820	82	902

Table 1 shows the distribution of 902 students with SEN in the sample across school settings. Of these, 820 of the students with SEN attended a special school and 82 a regular school. The students in integrative settings attended four of the five different school tracks in secondary school in Germany. The track *Hauptschule* had 10 students with SEN-L, 6 students with ED, and 5 students with FD. Of the sample, 8 students with SEN-L, 17 students with ED, and 15 students with FD attended the so-called MBG schools. The *integrative Gesamtschule* had 12 students with SEN-L, 1 student with ED, and 4 students with FD, and the *Realschule* had 4 students with FD.

Migration Background and Highest Socioeconomic Status

Table 2 contains numbers and percentages of students with a migration background and an extra column for the group of students who did not complete the student questionnaire (*missing*). The percentage of students with SEN who are German natives is lower than the percentage of regular students who are German natives‘. But the rate of missing data is high. In Germany, participation in PISA is mandatory, but the completion of the student questionnaire after the test is voluntary. Table 2 contains:

Table 2.

Numbers and Percentages of Students with Migration Background

	Native			Migration Background			Missing		
	N	*%*	*SE*	*N*	*%*	*SE*	*N*	*%*	*SE*
Regular students	6,151	63.28	1.19	1,670	17.27	0.82	1,874	19.45	0.91
Inclusive Setting									
Learning disabilities (SEN-L)	13	51.92	9.96	2	6.93	3.93	15	41.15	8.79
Emotional or social disorders (ED)	12	49.86	11.07	5	21.87	10.19	7	28.28	18.48
Functional disabilities (FD)	28	60.60	12.23	6	21.60	8.78	9	17.80	7.58

Special School									
Learning disabilities (SEN-L)	349	52.29	3.34	126	19.64	3.12	230	27.06	3.06
Emotional or social disorders (ED)	40	44.07	5.28	17	15.39	3.38	12	40.55	5.46
Functional disabilities (FD)	8	44.27	12.39	1	5.80	1.28	7	49.93	13.59

Table 3 displays the mean of the socioeconomic status of the students' parents (HISEI). Regular students had the highest scores. Students with SEN did not differ significantly between special schools and inclusive settings. The number of cases is very small (see also the high standard error for these mean estimations). From a descriptive point of view, it can be stated that students with SEN-L in special schools had the lowest score.

Table 3.

Mean of Socioeconomic Status of the Students' Parents (HISEI) with and without SEN

	N	*M*	SE_M	*SD*	SE_{SD}
Regular student	7,615	50.16	0.36	15.65	0.16
Inclusive Setting					
Learning disabilities (SEN-L)	18	42.60	6.67	20.41	3.82
Emotional or social disorders (ED)	17	44.72	3.77	13.59	2.01
Functional disabilities (FD)	24	44.14	2.40	13.08	2.14
Special School					
Learning disabilities (SEN-L)	383	37.99	0.59	10.31	0.54
Emotional or social disorders (ED)	53	40.57	1.74	11.00	1.92
Functional disabilities (FD)	8	43.39	0.51	14.20	0.08

Results

Mathematics, Reading and Science Competence

As shown in Table 4, students with SEN had a lower mean in mathematical competence than regular students. Furthermore, students with SEN-L (*Cohen's d* = 0.95, *SE* = 0.21) or ED (*d* = 0.63, *SE* = 0.26) in inclusive settings had significantly higher means than students in segregated settings. The difference between students with FD in inclusive settings and special schools had an high effect size (*d* = 0.95, *SE* = 0.21), which is not significant. With regard to the small number of students, the effect would have to be quite big to be significant though. In PISA, the scores are associated with a competence level. If students achieve proficiency level 1, they are able to identify information and carry out routine procedures, but they have problems understanding basic mathematical concepts (OECD, 2014). Inclusive students with ED or FD had an average mean at the proficiency level 2 (above 420). The average mean of students with SEN-L in special schools was below the proficiency level 1 (from 357 to 420). Looking at the percentage values of the students, 59% of students in special schools were below proficiency level 1 and 30% of students in special schools were at proficiency level 1. In inclusive settings, 15% of students with SEN had proficiency lower than level 1 and 35% of students with SEN achieved higher than this level.

Table 4.

Means of Mathematical Competence of Students with and without SEN

	N	*M*	SE_M	*SD*	SE_{SD}
Regular student	9,695	510.22	2.39	83.27	1.20
Inclusive Setting					
Learning disabilities (SEN-L)	30	391.28[a]*	11.15	50.18	6.70
Emotional or social disorders (ED)	24	436.10[b]*	12.36	61.96	7.47
Functional disabilities (FD)	28	444.05[c]	19.83	72.37	13.80
Special School					
Learning disabilities (SEN-L)	705	338.17[a]	4.41	61.52	3.14
Emotional or social disorders (ED)	99	392.93[b]	11.46	74.13	8.99
Functional disabilities (FD)	16	387.56[c]	32.50	124.75	10.13

a, b, c * p = 0.05 comparison between integrative setting and special school

Table 5 shows the reading competence of students with SEN. The differences between students with SEN-L and ED between inclusive settings and special schools were significant. The difference between inclusive settings and special schools had an effect size of *d* = 1.30 (*SE* = 0.22) for students with SEN-L, of *d* = 0.64 (*SE* = 0.30) for students with ED and of *d* = 0.11 (*SE* = 0.43) for students with FD.

Students with SEN-L, ED, and FD in inclusive settings, and students with FD in special schools, had a mean score at proficiency level 2 (above 407). At level 2, readers recognize the main idea of a limited part of a text. The reader can make a comparison between the text and his/her knowledge. At level 1a (334 to 407) the reader recognizes the main theme or the author's purpose in a text about a familiar topic. The average mean of students in special schools was in proficiency level 1a. Below this is the level 1b (226 to 334), in which the reader can find the information in a short, syntactically simple text. In percentages, 18% of the students in inclusive settings were at or above level 2, 32% of students were at level 1a, 35% at level 1b, and 14% below level 1b. In special schools 59% of the students did not achieve the proficiency level 1b, 30% achieved proficiency level 1b, and 11% were at or above proficiency level 1a. Summarized, it can be stated that students with SEN in inclusive settings had a higher reading competence average than students with SEN in special schools.

Table 5.

Means of Reading Competence of Students with and without SEN

	N	*M*	SE_M	*SD*	SE_{SD}
Regular student	9,695	504.76	2.50	81.94	1.47
Inclusive Setting					
Learning disabilities (SEN-L)	30	413.65*[a]	10.81	49.24	7.57
Emotional or social disorders (ED)	24	425.60*[b]	14.52	62.34	9.51
Functional disabilities (FD)	28	432.63[c]	26.68	91.49	17.17
Special School					
Learning disabilities (SEN-L)	705	327.37[a]	6.86	80.04	4.40
Emotional or social disorders (ED)	99	370.10[b]	21.94	105.19	11.19
Functional disabilities (FD)	16	421.02[c]	33.96	114.43	12.83

a, b, c * p = 0.05 comparison between integrative setting and special school

In science, students with SEN-L and FD differed between inclusive settings and special schools (see Table 6). The effect size of the difference was for students with SEN-L d = 1.00 (SE = 0.24), for students with ED d = 0.76 (SE = 0.27) and of d = 0.53 (SE = 0.43) for students with FD.

Only students in inclusive settings had an average mean at proficiency level 2 (409 to 484). The mean scores of students in special schools were in the range of proficiency level 1 (334 to 409). At level 2, students can provide explanations of science in familiar contexts. At level 1, the students are able to follow and present scientific explanations that are obvious. 43% of students in special schools were below level 1, 36% at level 1, and 21% were at or above level 2. In inclusive settings 9% of the students with SEN were below level 1, 22% at level 1, 40% at level 2, and 27% at level 3 or above. As for reading competence, students with SEN also achieve better results for science in inclusive settings than in special schools.

Table 6.

Mean of Science Competence of Students with and without SEN

	N	*M*	*SE*	*SD*	*SE*
Regular student	9,695	518.62	2.55	85.36	1.38
Inclusive Setting					
Learning disabilities (SEN-L)	30	413.65*[a]	10.81	49.24	7.35
Emotional or social disorders (ED)	24	453.94*[b]	17.19	78.36	7.53
Functional disabilities (FD)	28	452.42[c]	23.42	84.62	14.40
Special School					
Learning disabilities (SEN-L)	705	327.37[a]	6.86	80.03	4.47
Emotional or social disorders (ED)	99	389.53[b]	13.71	91.78	11.20
Functional disabilities (FD)	16	396.91[c]	35.44	122.84	9.95

a, b, c * p = 0.05 comparison between integrative setting and special school

Discussion

In Germany, students are diagnosed with SEN-L when they have basic difficulties in various learning areas. This is defined by the nationwide diagnostic criteria in Germany (KMK, 1994). Our study confirms previous studies about students with SEN-L in Germany (cf. Wocken, 2000; Wocken & Gröhlich, 2007). Students with SEN-L showed lower competence than regular students or students with ED and FD. Furthermore, students with SEN-L in special schools had lower scores in all competences than students with SEN-L in inclusive settings. Kocaj et al. (2014) found similar scores in the primary education large scale assessment. One plausible interpretation of our results could be that students with SEN learn more in inclusive settings than in special schools (e.g. Myklebust, 2002; Tent et al., 1991). However, the most likely interpretation of the results is that students with a severe type of disability are more likely to attend special schools than students with a mild disability (Blackorby et al., 2003; Myklebust, 2002). Our study cannot answer the question about the effect of inclusive schooling, because a measurement of the degree of disability has not been implemented in PISA or other Large-Scale assessments.

Students with FD and students with ED are taught according to the regular curriculum in Germany. Students with FD and a proportion of students with ED learn with supporting measures. In contrast to students with SEN-L, who have been diagnosed with learning problems, there should be only a small achievement gap between students with FD or ED and students without SEN (Blackorby et al., 2003). In PISA 2012, students with ED and FD in inclusive settings attained proficiency level 2 and in special schools proficiency level 1 or 2. Hence, students with FD or ED could achieve a basic understanding in math, reading, and science, and only show a slightly poorer performance than regular students if they attended inclusive schools.

One limitation to our study is that we could not control the severity of the disability. Furthermore, the number of students with SEN in inclusive settings was quite small and cannot be seen as a representative sample of all students with SEN in inclusive settings in Germany. In addition, due to German privacy protection laws, the study has much missing data on the voluntary answers of the socioeconomic background. Nevertheless, the results are of scientific relevance because this is the first oversample study in an international large scale assessment and the first descriptive overview of students with SEN in ninth grade in Germany. Students with SEN in PISA 2003 (OECD/JRC, 2009) and in PISA 2006 from the Baltic and South Eastern Europe (OECD/JRC, 2009) had similar scores in their competence to the German students with SEN. Although a direct comparison is not possible, because the definition of SEN is different between the states, and the percentage of excluded students in the samples differs, one can assume that this oversample measured valid results.

Further analyses are substantially needed. It is therefore necessary to implement the assessment of students with special educational needs in large scale studies and to measure the degree of the disability. Promoted by the UN Convention on the Rights of Persons with Disabilities, there is a trend towards inclusive education in Germany and the number of students with SEN in inclusive settings will prospectively increase.

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