

## Low literacy in Germany: Results from the second German literacy survey

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### Abstract

*When Germany performed the first national assessment on reading and writing skills among adults in 2010 (LEO), it was late compared to other European countries such as England or France. Now the results of the second round of that survey reveal a higher average literacy level in Germany compared to the preceding survey. In this paper, we briefly discuss the state of literacy research in large-scale surveys and offer some critical viewpoints. Next, we present the results of the two LEO surveys from 2010 and 2018. Besides providing information about the composition of the low-literate adult population in Germany (aged 18–64 years), we selected results that might help to critically revise current stereotypes about adults who have difficulties reading and writing.*

**Keywords:** Assessment; literacy; literacy practices



## Introduction

The field of literacy research is diverse and contested. Much of that research relies on qualitative work, often associated with the New Literacy Studies (NLS). In that approach, literacy is not interpreted as a unique set of skills that can be precisely defined and measured but as a diverse social practice. Brian Street made the influential distinction between an autonomous model and an ideological model of literacy (Street, 2003). Part of the history of that debate, however, seems to be forgotten (Hamilton, 2018). Large-scale surveys like the International Adult Literacy Survey (IALS), the Adult Literacy and Lifeskills Survey (ALL), and—more recently—the Programme for the International Assessment of Adult Competencies (PIAAC) had a strong impact on how literacy is defined and understood (for a critical appraisal, see Hamilton, Maddox, & Addey, 2015). Regarding the history of the ‘rise of international large-scale assessments’ (Addey, Sellar, Steiner-Khamsi, Lingard, & Verger, 2017) Grek (2010) elaborates on the role of international organizations in this development - especially the role of the Organization for Economic Cooperation and Development (OECD). This paper reports on another large-scale survey on literacy in Germany: the 2018 LEO survey. We know from earlier research that using large-scale data may not only reinforce existing deficit-oriented stereotypes about low-skilled adults but may also help challenge such stereotypes (Grotlüschen, Riekmann, & Buddeberg, 2015). The 2018 LEO survey started with the objective to combine an assessment module on reading and writing *skills* with an extensive questionnaire regarding literacy-related *practices* and basic competencies. The correlation between skills and practices has been reported by PIAAC data (OECD, 2013, p. 214), for example, or by the Longitudinal Study of Adult Learning (LSAL) (Reder, 2012). PIAAC used a number of questions on skills use (Reder, 2017). The survey on which this paper is based was carried out in the context of a national basic skills strategy, the ‘National Decade for Alphabetization and Basic Education’ (Nationale Dekade für Alphabetisierung und Grundbildung), which is financed and organized by the German Federal Ministry for Education and Research (BMBF) and the state governments (*Länder*). The survey asked questions on practices regarding different life domains, including financial affairs, politics, health, digitalization/mediatization, work, or family life. The objective of the present study is to examine whether low literacy *skills* (measured in the assessment module) show correlations with literacy-related *practices*.

This paper will present key results of the survey, including the proportion of low-literate adults in Germany, and compare them with those of the earlier 2010 survey. A smaller section deals with practices and their use in some of the fields mentioned. The presentation of first results is mainly descriptive; aspects for further analysis are discussed in the final section.

## State of research

### *Large-scale literacy research*

Internationally, the reading and writing skills of adults have already been studied over time. The number of panel studies is relatively small, however, with the exception of the National Educational Panel Survey (NEPS) in Germany (Blossfeld, Roßbach, & Maurice, 2011) or the LSAL (The Longitudinal Study of Adult Learning) in the United States (Reder, 2012). For some other countries, it was possible to compare the results of cross-sectional studies, because they participated in more than one international assessment, such as the International Adult Literacy Survey (IALS) (OECD & Statistics Canada,

2000), the Adult Literacy and Lifeskills Survey (ALL) (OECD & Statistics Canada, 2005), or the Programme for the International Assessment of Adult Competencies (PIAAC) (OECD, 2013). Trends between these surveys are reported in Desjardins (2017). Given that Germany did not participate in ALL and that the German dataset of IALS has technical weaknesses, no trend could be reported regarding low literacy over time. This was the starting point for a second round of the LEO survey in 2018, which had been conducted before as LEO – Level One Survey in 2010 (Grotlüschen & Riekmann, 2011). In England, there were two national surveys (Skills for Life Survey) (Department for Business Innovation and Skills, 2011; Williams, 2003). In France, there were two rounds of the IVQ survey (ANLCI - Agence Nationale de la Lutte contre l'Illettrisme, 2005, 2012; Jeantheau, 2007, 2015).

The first LEO survey was conducted in Germany when Skills for Life and IVQ had already entered the second round. LEO 2018 now offers the opportunity to look at the development of basic literacy skills in Germany.

### *Literacies and low literacy*

In the tradition of the ‘New Literacy Studies’ (Street, 2003), literacy may be understood as a social practice that varies from context to context, and even from person to person. These diverse ‘literacies’, however, are not considered to be equal. For the German language, spelling reforms and the *Duden* dictionary of the German language take up conventions and thus record a specific kind of literacy. Public administrations, schools, and universities are bound by the application of this kind of literacy. Hence these conventions are established as supposedly ‘correct’ or ‘legitimate’ literacy in society at large (Grotlüschen, 2011; Street, 2003). The competence tests of LEO 2010 and LEO 2018 measured literacy determined in this way, also known as dominant literacy.

Low literacy in the context of the LEO survey and in the context of the National Decade for Alphabetization and Basic Education means that a person can only read and write up to the level of simple sentences. In the classification of the LEO survey, low reading and writing competencies are described with a set of so-called ‘alpha levels’, introduced on a large-scale in 2010. Alpha levels 1, 2, and 3 indicate low literacy (for more detailed information on the alpha level classification scheme, see Grotlüschen & Riekmann, 2011).

- Competencies at alpha level 1 correspond to the level of single letters. It is very rare for a person in Germany to be literate only at the level of letters.
- Competencies at alpha level 2 correspond to the word level. At this alpha level, people are able to read or write individual words, but they fail at the level of sentences. Even common words are often composed letter by letter when reading and writing.
- Competencies at alpha level 3 correspond to the sentence level. At this alpha level, people are able to read and write individual sentences, but they fail at the level of coherent texts, even shorter ones.

Low literacy in the sense of the above-mentioned literacy concept of LEO 2018 includes these three alpha levels. Persons may be restricted in their autonomous participation in society or be vulnerable to exclusion in various areas of life due to their limited competence.

- Competences at alpha level 4 describe noticeable incorrect spelling, even in common and simple vocabulary.

In their definition of literacy, the publications of the National Decade for Alphabetization and Basic Education place special emphasis on the relationship between written language and minimum social demands (for a critical discussion of what is a suitable minimum, see Black & Yasukawa, 2014). Low literacy is often operationalized through so-called functional illiteracy:

We speak of ‘functional illiteracy’ if the written literary competencies of adults are lower than those that are minimally necessary and taken for granted in order to meet the social requirements of a given situation. [A functionally illiterate] person is not able to read and make sense of one or more pieces of information directly contained in a simple text and/or is at a comparable level of competence in writing (Egloff, Grosche, Hubertus & Rüsseler, 2011, p. 14, translation by the authors).

The term *functional illiteracy* (German: *funktionaler Analphabetismus*) figured very prominently in the German discussions of recent decades. It is now regarded as stigmatizing and unsuitable for adult education practice. In addition, experience following the LEO – Level-One study has shown that the term is misleading because it requires a great deal of explanation and is difficult to transfer to the international discussion (Steuten, 2014). Moreover, the terms *functional illiteracy* and *functional literacy* share a focus on the functionality of literacy skills in their respective social contexts but differ in their implied perspective and purpose. While functional illiteracy focusses on an (individual) deficit, functional literacy might be used to describe an educational aim or policy. To circumvent these unwanted implications, LEO 2018 uses the terms *low literacy* or *low-literate adults*—always in relation to dominant literacy in Germany.

## Research questions

The survey followed two main objectives. The first was to quantify the proportion of low-literate adults among the German-speaking population aged between 18 and 64 years. The first LEO survey in 2010 reported a proportion of 14.5 per cent of low-literate adults, which adds up to about 7.5 million persons (Grotlüschen & Riekmann, 2011).

The second objective was to widen the focus from literacy assessment to an understanding of literacy as represented by practices. The survey thus aimed to provide insights into how the level of literacy interacts with the frequency of the use of certain practices and with domain-specific basic competencies.

## Survey Design

The LEO survey 2018 was based on a random sample of adults aged between 18 and 64 years. Only persons living in private households were interviewed. The survey was conducted among persons who speak German well enough to be able to complete a survey of about 60 minutes (including the reading and writing assessment). The net sample comprised 6,681 persons. It was supplemented by an additional sample of 511 persons with lower formal education degrees. The sample was weighted on the basis of socio-demographic key data from the micro census.

The interviews were conducted as computer-assisted personal interviews (CAPI). The first module consisted of an extensive questionnaire about various aspects of their life situation.

- **Digital** practices and basic competencies
- **Financial** practices and basic competencies
- **Health** practices and basic competencies
- **Political** practices and basic competencies
- Text-related practices in the context of **work, family, and everyday life**
- Literacy skills in the context of **continuing education**
- Literacy skills in the context of **immigration and multilingualism**

Whereas literacy was assessed with a paper-based reading and writing test, the basic competencies regarding health, finances, digitalization, and politics were not tested. The information gathered relies on respondents' self-assessment. The structure of the questions regarding the frequency of practices follows the structure of the questions on skills use implemented in the PIAAC questionnaire (Reder, 2017). The questions regarding basic competencies follow the structure of questions implemented in the Health Literacy Survey Europe (HLS EU) (Sørensen, Pelikan, Röthlin, Ganahl, Slonska, Dole, & Brand 2015).

After answering the questionnaire, the interviewees took a competence test featuring reading and writing tasks. All 7,192 persons received a so-called filter test. On average, respondents needed almost twelve minutes to complete the tasks. Those who scored only a few correct answers for the test items presented received additional, simpler items from an in-depth test. In this second run, the average processing time was seven minutes.

The items of the assessment were calibrated using Item Response Theory (IRT). To make LEO 2010 and LEO 2018 comparable, the two studies were also linked on the basis of the 2018 item parameters. A latent regression model was used for population modelling, and nearly all variables measured by the questionnaire served as covariates. Subsequently, ten plausible values were drawn to obtain proficiency scores.

## Results

### *Literacy skills results in Germany 2010 and 2018*

In 2018, the proportion of adults with low reading and writing skills (indicated by alpha-levels 1, 2, and 3) adds up to 12.1 per cent of the German-speaking population aged 18 to 64 years (table 1). This corresponds to 6.2 million adults. Compared to the results of the 2010 LEO – Level-One survey, this represents a decline of 2.4 percentage points. The change is statistically significant ( $p < 0.01$ ).

Table 1: German-speaking adult population (aged 18-64) classified by alpha level (2018)

Literacy level	Alpha level	Percentage of adult population	Number (extrapolated)
Low literacy	alpha level 1	0.6%	0.3 million
	alpha level 2	3.4%	1.7 million
	alpha level 3	8.1%	4.2 million
	alpha levels 1–3	12.1%	6.2 million

Frequent spelling errors	alpha level 4	20.5%	10.6 million
	above alpha level 4	67.5%	34.8 million
Total		100.0%	51.5 million

Source: Universität Hamburg, LEO 2018 – living with low literacy.

Base: German-speaking adults (aged 18–64),  $n=7,192$ , weighted. Deviations from 100% or from total figures are due to rounding.

Table 2 shows that the proportions have changed positively compared to 2010: The percentage of low-literacy adults fell from 7.5 million in 2010 to 6.2 million. There was no significant change among the lowest alpha levels 1 and 2, which might be due to quite small numbers of cases. Significant changes are apparent among alpha levels 3 and 4 (significant decline) and above alpha level 4 (significant growth). This development was reported in a similar way for the two Skills for Life surveys in England (Department for Business, Innovation and Skills, 2012, p. 2).

Table 2: German-speaking adult population (aged 18–64) classified by Alpha Level, comparing 2010 and 2018

Alpha Level	2010 percentage	2018 percentage	Significance of change
alpha level 1	0.6%	0.6%	Not significant
alpha level 2	3.9%	3.4%	Not significant
alpha level 3	10.0%	8.1%	Significant ( $p<0.01$ )
alpha levels 1–3	14.5%	12.1%	Significant ( $p<0.01$ )
alpha level 4	25.9%	20.5%	Significant ( $p<0.01$ )
Above alpha level 4	59.7%	67.5%	Significant ( $p<0.01$ )
Total	100%	100%	

Source: Universität Hamburg, LEO 2018 – living with low literacy; leo. – Level One Study 2010.

Base: German-speaking adults (aged 18–64),  $n=7,192$  (2018),  $n=8,436$  (2010), weighted.

Deviations from 100% are due to rounding.

The general decline seems to be an effect of changes in the composition of German society. Compared to 2010, a larger share of adults is employed, and a larger share of adults obtained higher formal school qualifications, that is, the average number of years spent in school has risen (similar results were reported for France, see Jeantheau, 2015, p. 181). An entropy balancing procedure (see Hainmueller, 2011, p. 30) was carried out to compare the two samples from 2010 and 2018. This statistical method is used to weight the sample of one survey against a second survey, making it possible to show which change would have occurred if the 2018 sample composition (regarding employment level, educational level, demographic change, percentages of adults with German as a first language) had been the same as the 2010 sample. The entropy balancing shows that there would not have been a remarkable decline between LEO 2010 and 2018 if these compositional changes had not occurred.

Only persons with a sufficient oral command of German were interviewed, as for technical reasons the interviews were conducted in German. Therefore, adults without sufficient oral command of German are not part of the sample. Due to this methodological limitation—which applies also to other national and international assessment surveys—it is important to mention that the figures reported by the survey only represent a specific part of the adults with a first language other than German. It is not possible to reliably

quantify the respective number of adults. According to the German Socio-Economic Panel (SOEP), about 75 per cent of migrants report good or very good skills in German (regarding oral communication), meaning that about 25 per cent have lower language skills (Brücker et al., 2019, p. 7). But some of these 25 per cent would probably have been able to follow the interviews, nonetheless.

### *Structure of the low-literate subpopulation*

This section displays the profile of the subpopulation of 6.2 million adults with low literacy skills. The tables therefore do not refer to the entire sample of 7,192 adults but only to the low-literate subsample (n=781 in the unweighted dataset). The results are organized by gender, age group, first language, formal education, employment, and marital status.

Based on the dataset of the first survey, a multivariate regression analysis showed that low formal education (or school dropout), first language spoken, and family educational background are the strongest predictors of low literacy. Compared to these factors, gender and age are of minor relevance (Grotlüschen, Riekmann, & Buddeberg, 2012, pp. 40-42).

#### Gender

As in the 2010 survey, the results indicate that the 6.2 million low-literate adults include more men than women. The male proportion is 58.4 per cent, whereas the female proportion is 41.7 per cent. The 2018 proportions differ only slightly (and not significantly) from the 2010 values: In 2010, 60.3 per cent of adults with low literacy were men and 39.7 per cent were women.

Table 3: Proportion of men and women among the low-literate population

	2010	2018
Men	60.3%	58.4%
Women	39.7%	41.7%
Total	100%	100%

Source: Universität Hamburg, LEO 2018 – living with low literacy.

Base: German-speaking adults (aged 18–64) with low literacy skills, n=867, weighted. Deviations from 100% are due to rounding. Figures for 2010 from Grotlüschen et al., 2012, p. 24.

#### Age groups

Adults older than 50 years of age make up a large proportion of the low-literate adults. The two oldest age groups (aged 40–49 and aged 50–64) account for 56.9 per cent of low-literate adults. The middle birth cohorts (aged 30–39) include 23.7 per cent of the low-literate adults. The youngest age group (aged 18–29) account for 19.5 per cent. These results correspond to results from international surveys like PIAAC (OECD, 2013). They contradict the hypothesis popular among cultural pessimists that low literacy skills of sections of society are a product of the recent past.

Table 4: Proportions of different age groups among the low literate population

	2010	2018
18–29 years	19.9%	19.5%
30–39 years	20.6%	23.7%
40–49 years	27.0%	20.6%
50–64 years	32.6%	36.3%
Total	100%	100%

Source: Universität Hamburg, LEO 2018 – living with low literacy.

Base: German-speaking adults (aged 18–64) with low literacy skills, n=867, weighted.

Figures for 2010 from Grotlüschen et al.2012, p. 25.

#### First language

First language, or the language of origin, refers to languages acquired by people during their childhood. These languages are used daily in the family and in the child's environment, meaning they acquire it through this language contact. First language may be one language, but it may also be two or more languages. The concept of origin does not refer to a geographical origin but to a family origin.

For the situation in Germany, this can be substantiated as follows: Children from migrant families grow up with the language of their family's origin; it is not unusual for more than one language to be spoken. At the latest when they leave their parents' home for kindergarten or school, German is added as the surrounding majority language. (Gogolin & Krüger-Potratz, 2012, p. 12, translated by the authors)

Only persons who have mastered the German language orally to such an extent that they can follow a survey in the German language were interviewed. Immigrants without sufficient oral knowledge of German were not interviewed. It is therefore important to note that all results relate to reading and writing skills in German.

Table 5 shows that of the 6.2 million low-literate adults, 3.3 million (52.6%) grew up in family environments where German was spoken. Around 2.9 million (47.4%) initially learned a language other than German. We conclude that more than half of the low-literate adults in Germany learned German in childhood. In 2010, the proportion of people with German as their language of origin was 58.1 per cent, whereas the proportion of people with a different language of origin was 41.9 per cent. Compared to 2010, this change is not statistically significant.

Table 5: Proportion of adults with different first languages among the low-literate population

	2010	2018
German is first language	58.1%	52.6%
Other first language	41.9%	47.4%
Total	100%	100%

Source: Universität Hamburg, LEO 2018 – living with low literacy.

Base: German-speaking adults (aged 18–64) with low literacy skills, n=867, weighted.

Figures for 2010 from Grotlüschen et al., 2012, p. 27.

There is a connection between the age at which someone migrated to Germany and the assessed reading and writing competence. Of those migrants who moved to Germany by the end of primary school, around 16 per cent have low literacy skills. Among those who immigrated at the age of 31 or older, this proportion is slightly more than 50 per cent.



Research on language acquisition indicates that literacy skills in one language can be an important predictor of learning to read and write another language (Dünkel, Heimler, Brandt, & Gogolin, 2018). Adults who migrated to Germany after school age and who at a certain point show low skills in reading and writing the German language over time might acquire higher skills, especially if they are literate in their language(s) of origin. Respondents in LEO 2018 were asked to assess their (written) language skills in the languages they understand or speak. 77.8 per cent of those with a different language of origin who are low literate in German state that they are able to read and write complex texts in their first language (see table 6). Even if we have to rely on self-assessments at this point, reading and writing complex texts with some degree of certainty indicates a high level of literacy far beyond the level of sentences.

Table 6: Self-assessment by adults with low literacy (alpha levels 1–3) and a first language other than German of their ability to read and write complex texts in their first language.

	2010	2018
Able to read and write complex texts	Not reported	77.8%
Not able to read and write complex texts	Not reported	22.2%
Total	Not reported	100%

Source: Universität Hamburg, LEO 2018 – living with low literacy.

Base: Adults (aged 18–64) with low literacy skills in German, who did not learn German as their first or only first language, n=523, weighted.

#### Education qualifications

One of the common stereotypes about low-literate adults is that most of them dropped out of school early. Survey results show the opposite. About three quarters (76%) of the low-literate population earned some form of school-leaving qualification. Compared to 2010, this proportion decreased slightly (2010: 80.1%). Most of these adults (40.6%) obtained school-leaving certificates on the lower secondary level (in Germany: *Hauptschule*, *Volksschule*) or an equivalent degree. Nearly one quarter (22.3%) of low-literate adults do not have any form of school-leaving qualification, a slightly higher proportion compared to the first survey (2010: 19.3%). Among the low-literate adults, about 10.8 per cent attended a school abroad before coming to Germany. This proportion does not include persons who spent part of their schooling abroad and earned a school leaving degree in Germany.

Table 7: Proportions of adults with different degrees of formal education among the low-literate population

	2010	2018
Upper secondary	12.3%	16.9%
Intermediate secondary	18.9%	18.5%
Lower secondary	47.7%	40.6%
No school leaving certification	19.3%	22.3%
Still at school or not specified	0.6%	1.6%
Total	98.8	100%

Source: Universität Hamburg, LEO 2018 – living with low literacy.

Base: German-speaking adults (aged 18–64) with low literacy skills, n=867, weighted. Deviations from 100% are due to rounding. Figures for 2010 from Grotlüschen et al, 2012, p. 29. The answer ‘not specified’ was not displayed for 2010.

As the concept of lifelong learning implies that learning does not end after finishing school, the survey also captured information about participation in adult education. One general finding in surveys about adult education like the Adult Education Survey (AES) is that the lower the formal qualification, the lower is participation in continuing education (‘Matthew principle’). It is therefore not a surprising result that adults with low literacy skills participate less than the national average – just 28.1 per cent of adults with low literacy skills took part in any type of continuing education activity in the last twelve months before the survey. The share in 2010 was quite similar (2010: 28%)<sup>1</sup>. We conclude that participation rates have stagnated since 2010. Participation rates of the adult population as a whole increased from 42.0 per cent in 2010 to 46.9 per cent in 2018.

Participation in adult education classes explicitly focusing on adult basic education and reading and writing is very low. Only 0.7 per cent of low-literate adults participate in this type of classes. Statistics from Germany’s adult education centres (Volkshochschulen) correspondingly display low attendance figures for basic education and literacy-related courses (Reichart, Huntemann, & Lux, 2019, p. 47).

#### Employment status

Another common stereotype about low-literate adults is that the majority of them are unemployed and dependent on social transfer payments. Again, survey results show a different picture. Nearly two thirds (62.3%) of low-literate adults are employed. This proportion increased from 56.9 per cent in 2010 with an even stronger increase of employment for the population as a whole. Still, unemployment is higher among low-literate adults. 12.9 per cent of this subpopulation are unemployed, a decrease compared to 2010 (16.7%).

Table 8: Proportions of adults with different employment status among the low-literate population

	2010	2018
Employed	56.9%	62.3%
Unemployed	16.7%	12.9%
Homemaker	9.0%	8.1%
Retired	6.3%	5.6%
Others or not specified	11.1%	11.0%
Total	100%	100%

Source: Universität Hamburg, LEO 2018 – living with low literacy.

Base: German-speaking adults (aged 18–64) with low literacy skills, n=867, weighted. Deviations from 100% are due to rounding, figures for 2010 from Grotlüschen et al., 2012, p. 35.

Blue-collar jobs are of specific importance for low-literate adults who are employed. About 40.1 per cent describe themselves as blue-collar workers (entire population: 18.4%); 45.5 per cent describe themselves as white-collar workers (entire population 62.1%).

Low-literate adults report that they are less satisfied with their overall situation at work. On a scale ranging from 0 (very dissatisfied) to 10 (very satisfied), the entire employed population would rate at 7.6. The average satisfaction rating for adults with low literacy skills is 6.7. This difference is statistically significant ( $p < 0.01$ ). Moreover, low-literate adults report higher concerns about job security. Nearly one quarter (23.0%) of adults with low reading and writing skills stated that they were worried about losing their jobs. This proportion is twice the size of that among the total working population (11.8%). Monthly personal incomes are clearly below average, and a larger proportion of low-literate adults report difficulties in making ends meet.

#### Material status

Another stereotype about low-literate adults is that they live in some form of social isolation. Again, the survey results show a different picture. At 54.2 per cent, married persons are the largest sub-group of all low-literate adults with low literacy skills (entire population: 55.0%). A further 30.7 per cent are single (entire population: 33.3%).

Table 9: Proportions of adults with different marital status among the low-literate population

	2010	2018
Married	61.8%	54.2%
Single	27.2%	30.7%
Divorced	8.0%	12.2%
Widowed	2.5%	2.4%
Others or not specified	0.5%	0.5%
Total	100%	100%

Source: Universität Hamburg, LEO 2018 – living with low literacy.

Base: German-speaking adults (aged 18–64) with low literacy skills,  $n=867$ , weighted.

Figures for 2010 from Riekman, 2012, p. 177.

Independent of marital status, 20.9 per cent of low-literate adults live by themselves. The national average for people living in single-person households is slightly lower at 16.9 per cent. Regarding the numbers of children within a household, there are only slight differences between low-literate adults and the total population. Just over one third of all households include one or more children.

Concepts of family literacy have recently gained prominence in literacy research (Wasik & van Horn, 2012). These concepts focus on promoting the development of reading and writing skills in the family environment. Frequent positive literacy-related experiences within the family help to promote children's literacy skills (McElvany, Becker, & Lüdtke, 2009). Family reading behaviour influences the acquisition of reading skills (Bracken & Fischel, 2008; Burgess, Hecht, & Lonigan, 2002). Studies on reading aloud to children (*Vorlesestudien*) of the German Reading Foundation (Stiftung Lesen) show a correlation between parents' formal education and the frequency with which they read to their children (Ehmig & Reuter, 2013). LEO 2018 used the respective question to analyse a correlation between literacy level and reading activities. Low-literate parents spend less time reading to their children than parents with a higher level of literacy. Among the entire adult population with children living in their households, 44.8 per cent indicated that they read to their children daily (up to the age of twelve). In contrast, 30.7 per cent of parents with low literacy skills read to their children every day. Now, a share of nearly one third of low-literate adults who read aloud to their children daily appears surprisingly high. A deeper analysis shows that out of these 30.7 per cent, the majority of

74.0 per cent does not speak German as their language of origin. It can be assumed that they read to their children in other languages than German.

### *Practices*

We understand literacy practices as context-dependent and diverse. Therefore, besides measuring dominant literacy *skills* in an assessment test, one other goal of LEO 2018 was to report the literacy *practices* of low-literate adults. The objective was to show whether, and if so how, low-literate adults perform certain literacy practices, and whether they compensate for their low-literacy by performing non-written practices more often. The practices can be related to several domains of everyday life. In the following, we will present results from an exemplary list of practices from the domains digitalization, financial affairs, health, and politics. The aim is to give a brief overview of the results of LEO 2018 regarding literary practices and a short discussion of the results.

LEO 2018 asked participants how often they engage in certain practices such as writing emails or reading newspapers. The structure of the questions and the response format were similar to the questions used in PIAAC (Reder, 2017). The percentages in table 10 show the proportion of people per group who perform certain practices regularly. This means that they perform the respective practice either at least once a week or, in response to some questions, ‘often’ or ‘quite often’.

Table10: Proportion of adults performing domain-specific practices at least once a week, low-literate adults compared to the total population

	<b>Low-literate adults</b>	<b>Total population</b>
Digital practices		
Regularly write emails	35.9%	63.7%
Regularly send voice messages	39.1%	37.4%
Regularly write in social networks	23.5%	19.4%
Regularly read in social networks	41.8%	41.4%
Financial Practices		
Frequent use of online banking <sup>2</sup>	40.6%	65.3%
Frequent use of bank transfer forms	42.3%	25.1%
Health-related practices		
Frequently check dosage instructions in pharmaceutical packaging	55.8%	68.7%
Frequently check with your doctor or pharmacist for signs of illness	60.5%	62.0%
Political practices		
Regularly read a newspaper (print or online)	44.5%	63.2%
Regularly watch the news (on TV or online)	82.6%	84.4%

Source: Universität Hamburg, LEO 2018 – living with low literacy.  
 Base: German-speaking adults (aged 18–64), n=7,192, weighted.

Looking at digital practices, low-literate adults are less likely to engage in most written digital practices. Only 35.9 per cent of adults with low literacy write emails regularly, compared to 63.7 per cent of the total population. Looking at a mostly oral practice we cannot find this difference: Low-literate adults send voice messages more often (39.1%) than the total population (37.4%). This margin is small but indicates a common trend regarding practices: The difference in the frequency with which a practice is performed is smaller or disappears if the practice is mostly (conceptually) oral. Participating in communication via social networks is an exception to this general trend. Reading or writing in social networks is a text-related practice which low literate adults use at least as often as the entire population.

Low-literate adults use online banking less frequently than the total population (40.6% to 65.3%). Conversely, 42.3 per cent of adults with low literacy fill out bank transfer forms frequently. The total population is less likely to do so: Only 25.1 per cent use bank transfer forms frequently. This may indicate two things: First, practices that require the use of relatively complex apps or websites are more difficult for low-literate adults compared to the population. Second, low-literate adults are more likely to look for support when confronted with forms or documents, for example by asking family members or a bank clerk for assistance when filling out forms.

Health practices show another trend regarding literacy practices. When looking for health-related information, low-literate adults check dosage instructions in pharmaceutical packaging less often than the total population: 55.8 per cent of low-literate adults and 68.7 per cent of the total population check dosage instructions regularly. But when checking with a doctor or pharmacist for signs of illness and how to explain and treat these signs—a non-text-based but face-to-face practice—this difference nearly disappears. 60.5 per cent of low-literate adults and 62.0 per cent of the population talk to their doctor or pharmacist frequently. Again, difference occur as long as reading and writing is required. They get smaller when alternative practices are available.

A similar picture emerges when looking at political practices. Although a quite high percentage of adults with low literacy report reading a newspaper (print or online) at least once a week (44.4%), the proportion is still higher in the total population (63.2%). But again, when asking for a similar non-written practice, the differences between the groups disappear: 82.6 per cent of low-literate adults and 84.4 per cent of the population watch the news on television or online at least once a week.

Our conclusion is therefore that written practices can be partly substituted by oral practices or can be managed with assistance. This partial exclusion is problematic in itself, but it is even more so because digital practices and the use of complex computer interfaces will become more and more important, while the number of local bank branches or post offices is in decline.

## Discussion

The second round of the LEO survey showed positive results regarding a decrease of low literacy among adults in Germany. The figures refer to adults between 18 and 64 years and they refer to reading and writing in German. This decrease cannot exclusively be explained by higher participation in adult basic education. Additionally, changes in the social structure of the adult population in Germany are to be seen as reasons for the

decrease from 14.5 per cent to 12.1 per cent of low-literate adults between 18 and 64 years of age.

The composition of the heterogeneous group of 6.2 million adults in most respects did not change significantly compared to the first LEO survey in 2010. Within this group, we find more men than women, more older adults than younger adults, and slightly more adults with German as their first language. The majority of those adults who learned a language other than German as their first language and who have difficulties reading and writing has high competencies in reading and writing in their first languages. The age at which people moved to Germany has a strong influence on their reading and writing proficiency in written German. Since migrants have had systematic access to language courses since 2005, further analyses should examine differences between recent and established immigrants in terms of their literacy skills. It should be noted as well that the majority of the large numbers of migrants coming to Germany in 2015 were not part of the sample if they lived in collective accommodation (and not in private households) and/or did not have the necessary German language skills.

The employment rate of low-literate adults rose from 56.9 per cent in 2010 to 62.3 per cent in 2018, probably caused by the positive development on the German labour market. It may additionally be seen as an effect of deregulation, especially in the low-wage sector (Nachtwey, 2016). In fact, employed adults with lower literacy skills (or low formal education) on average earn less and report lower job satisfaction and higher concerns about job insecurity. The majority of low-literate adults holds some type of school-leaving certification. There are no significant differences in marital status between low-literate adults and the total population. These last three findings (employment, formal education, and family situation) confirm earlier results based on the 2010 survey. They counter common stereotypes about low-literate adults. These stereotypes evoke images of a group of people who are mainly unemployed, left school early, and live in some form of social isolation (Grotlüschen et al., 2015).

The objective was to widen the focus from people's abilities (assessment) to people's activities in their daily lives (practices). Results show that in most practices, there is a correlation between reading and writing skills and reading and writing practices. This is in line with results from PIAAC (OECD, 2013) and with practice engagement theory (Reder, 1994). An interesting exception is the participation in digital social networks. This field of mediatization does not show a tendency of excluding low-literate adults from using this type of communication. If, however, social networks are also used by people who have difficulties reading and writing, this has implications for the planning of educational programmes in the field of adult basic education as well. Adults who have some difficulties reading and writing might also choose practices that are not strictly text related or provide assistance by networks of support (Buddeberg, 2019).

In the context of the German National Decade for Alphabetization and Basic Education, there is a strong bias towards reading and writing. Survey results support an alternative view. Reading and writing certainly is a relevant field of work in adult basic education. However, it is not the only relevant field. Results regarding health-related practices indicate the significance of health literacy. Results regarding financial practices indicate the significance of financial literacy and so forth. Literacy—in the sense of reading and writing skills—is embedded into these practices (Reder, 2017). What might be common sense in international discussions is a relatively new aspect in the discourse in Germany. Finally, it can be shown that there is demand for adult basic education, but this demand not only refers to low-literate adults. This paper pointed out correlations regarding reading and writing skills. Further multivariate analysis should examine further correlations, for instance between practices and age, practices and formal education, or

practices and first language. The domains examined in the survey (politics, health, finances, digitization) are fields for adult basic education for different subgroups of the adult population.

## Notes

<sup>1</sup> In LEO 2010, the definition of adults with low literacy skills that was used to calculate participation rates in continuing education was based on a different set of methodological principles than those used in 2018. There are therefore limitations to the comparability of the continuing education data for LEO 2010 and LEO 2018.

<sup>2</sup> This question was only given to people who had previously stated that they had access to the internet (n=6,645).

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