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Research Article

Shifting the Gaze: From the Numerate Individual to Their Numerate Environment

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Abstract

Drawing on the concept of the "literate environment," the authors conceptualise the numerate environment to explore the development of adults' numeracy. Numerate environments provide opportunities, supports, and demands for numeracy practices. Case studies of domestic energy bills in the UK and of the currency conversion process to the euro in the Slovak Republic from 2009 illustrate opportunities, supports, and demands on adults. We use the idea of affordances to understand inter-relations among these three key aspects. We show the importance of considering affordances at different levels of the environment, which we call here individual, mid-level, and societal or national levels. Implications for numeracy policy and learning are explored.

Keywords: numerate environment, opportunities, supports, demands, affordances

This paper contributes to the growing interest and research in adult numeracy by proposing and illustrating a framework for describing and analysing the contexts in which adults engage in numeracy. Several trends have contributed to the increasing attention paid to numeracy as a key adult skill, in addition to literacy and digital literacy. One is the experience of adult literacy tutors over the last 40 or more years in discovering needs for quantitative skills among their students (Coben, 1992). Another is the more recent increase in demands on citizens to manage their own economic and social well-being, with the rise of precarious employment, the roll back of the welfare state in times of austerity (Yasukawa & Evans, 2019), and changes in the way in which "customer service" support is provided by many private firms (Nayak & Beckett, 2008). In addition, large-scale assessments of adults' skills, such as the Organisation for Economic Cooperation and Development (OECD, 2013) Survey of Adult Skills, identify numeracy as one of the "key information-processing competencies' that are relevant to adults in many social contexts and work situations, and necessary for fully integrating and participating in the labour market, education and training, and social and civic life" (p. 5).

In an earlier paper (Evans et al., 2017), we

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introduced the notion of the numerate environment as a way of beginning to interrogate how contexts can both afford and constrain numeracy practices. We argued that this in turn has implications for how we might conceptualise assessments of, and initiatives to support, numeracy development. We aim in this primarily conceptual paper to further develop our concept of the numerate environment, by articulating a framework for analysis. We suggest that a numerate environment has the three dimensions of *opportunities, supports,* and *demands* for adults' numeracy activity, plus *barriers* that individuals may encounter. We now group all four of these dimensions as *affordances* (van Lier, 2000). We explore ways of changing the focus of our analysis of policy and practice in adult numeracy from the (more or less) "skilled" individual to the environment in which that individual functions. We see this environment as made up of various social institutions and organisations, characterised by (recurrent) social practices, that can be understood as functioning at three "levels," we explore these levels in a range of short examples and in two case studies. The three levels we consider here are the *micro* (the individual in small face-to-face groups), the *mid-level* (groups and institutions in civil society), and the *macro* (societal) levels.

We argue that developing the concept of the numerate environment allows those concerned with research and policy to frame the variations in levels of numeracy proficiency among the population, at least partly as a societal, and not merely an individual, problem. Thus, we build on the work of researchers such as Reder (2009) who show how people's literacy and numeracy skills development cannot be fully understood in isolation from their *engagement* in social practices that call upon the use of such literacy and numeracy skills.

Literature Review

Debates on adult numeracy have been indebted to several traditions, including adult education, adult literacy, and mathematics education. They have been marked by a strong sense of the importance of *the context of mathematical / numerate activities* engaged in by adults. Over the years, studies of numeracy practices have emerged drawing on a range of different theoretical resources, including situated cognition, cultural-historical activity theory, and ethnomathematics (Yasukawa, Jackson, et al., 2018). Studies of cognition in practice or "practical intelligence" (e.g., Scribner, 1986) have influenced not only studies of mathematical or numeracy practices, but also literacy practices. In studies of adult education and learning, studies of literacy as social practice (Barton & Hamilton, 1998; Street, 1985) in turn led to studies of numeracy as social practice (Baker, 1998; Street et al., 2005; Yasukawa, Rogers, et al., 2018). In mathematics education, the debate on the context of mathematical thinking has been central for over 30 years (Greeno, 1991; Lave, 1988; Nunes et al., 1993; Saxe, 1994). Socio-cultural theories on learning that have developed from Vygotsky's (1978) work view learning and development as a cultural-historical activity; they thus direct our gaze not only to the individual adult numeracy learners, but also to their environment, and to how the interactions between individuals and the socio-material resources in their environment make learning and development possible for them.

One of the salient features of the social practice studies of numeracy is their use of ethnographic approaches in order to investigate numeracy practices *in-situ* and to generate thick descriptions of what people do with numeracy (Yasukawa, Jackson, et al., 2018). While it would be impractical to generate the thick descriptions of numeracy practices that ethnographic studies do, large-scale

international surveys like the Survey of Adult Skills (PIAAC) and longitudinal studies such as the 10-year study conducted in Portland, Oregon (Reder, 2009) provide substantial data about adults' use of numeracy skills that may point to in-depth, *in-situ* studies, such as that undertaken by Grotlüschen et al. (2019) in the study of numeracy practices of vulnerable adults in the city of Hamburg.

From a socio-cultural and socio-material perspective on practice, understanding adults' use of numeracy skills must involve understanding the context in which the social practices unfold. However, Jackson et al. (2018) found that one of the findings from the studies of numeracy practices is that the contexts of practices themselves are fluid and unstable, and this in turn creates demands for new or modified numeracy practices. For example, they cite the study of migrant workers in Mexico (Kalman & Solares, 2018) who have to establish new relationships and new forms of financial transactions each time they move from one employer to the next. Not only new social relationships, but introduction of new work processes such as lean manufacturing, and new technologies, as well as removal of social safety nets represent changes in the contexts in which people's numeracy skills are used. While many studies of numeracy as social practice have focused on aspects such as the historical, socio-cultural and political dimensions of the numeracy practices, less focus has been given to investigating the ways in which the contexts enable or hinder people's development of numeracy practices.

The Literate Environment

In our earlier formulation, we drew on the concept of a "literate environment" (Easton, 2014) to suggest ways in which the question can be addressed; Easton himself refers to earlier UNESCO conference proceedings (UNESCO UIE, 1997). In these proceedings, a *literate environment* refers to the extent to which, in any given social environment, there is "something interesting and/or necessary to read, or situations that required reading and writing in any form, as well as material and infrastructure available, such as books, newspapers, paper" (Lind, 2008, pp. 82–83). Thus, the literate environment is associated, not with the "supply side" of literacy, curriculum, pedagogy, teacher development, management of teaching, measurement and assessment, but with the "demand side," with the actual practices that adults need to engage in as part of their social lives and social interactions, and the ways in which these are opportunities that are encouraged and supported, or not.

The concept of the literate environment suggests that the ways in which information is sought and used within the social environment determine the use and need for literacy. It reinforces the idea that literacy is not a goal in itself. As Easton (2014) points out, where literacy is seen as "autonomous" (Street, 1985), it is assumed that supply of literacy will create its own demand, that once acquired, literacy will "…generate its own practices, and … inevitably have major effects on both psychic and social development" (p. 42). Easton suggests that a focus on demand provides an important perspective on literacy development: "A lack of concern for the whole environment in which literacy is acquired and used can undermine literacy efforts and offer the learner little chance of using literacy for any desired purpose." (Easton, 2014, p.38)

In its recommendations to the European Commission, the European Union (EU) High Level Group on Literacy (2012) prioritised the development of a literate environment, suggesting that adults' skills respond to and are shaped by the "literate environment" in which they act (Grotlüschen et al., 2016).

The Numerate Environment

Inspired by the concept of the literate environment, Evans et al. (2017) proposed the idea of the numerate environment in order to examine adults' experiences in using and developing numeracy in their lives. They constructed a characterisation of the numerate environment as including a series of *affordances* – including opportunities and supports – and demands for adults to engage in numeracy practices. The numerate environment may also throw up *barriers* to their taking up those opportunities or supports or meeting the demands from their environment. Following van Lier (2000), we use the term affordance in the sense of Gibson (1986) who views affordance as the relationship between the individual and their environment; thus, it would include all four of the dimensions that we have distinguished. Gibson argues affordances refer to the "complementarity of the animal and the environment" (1986, p. 127). While the affordance of the environment does not change as the individual's need changes, what the individual *perceives* in the environment may change. In other words, the existence of the numerate environment is an objective reality, but the individual perceives, and experiences, the affordances within it subjectively.

Demands

We must ask what are the demands (Mallows & Litster, 2016) on adults' numeracy - at work, or in the other settings of everyday life? What numeracy practices are adults required to engage in as part of their lives as citizens, consumers, employees, neighbours and in other social roles that they play?

Workplace numeracy (and literacy) are clearly areas of rapidly changing practices and skills. According to Worthen (2014), there are always two demands on workers in any workplace: one is the workers' need to "earn a living," and the other is the employer's goal of increasing productivity. This means that workers need to be deploying a continually developing set of skills, to keep up. Otherwise, they will not be able to do their jobs, nor will they be able to assess workplace health and safety risks, nor challenge employers' claims about the need for cuts to jobs, etc., on the basis of "financial necessity" (e.g., Yasukawa & Evans, 2019).

In the domain of consumer numeracy, examples abound of why "the buyer should beware." Adults may be mystified by sellers' claims about the "better deal" to be had from multi-buy offers or by "new" or different pack sizes. Or there may simply be "mistakes" by sellers, that consumers need to be able to spot; one example of the common "best-buy" dilemma is given in Evans (2000, p.257).

The increasingly complex demand for financial numeracy is not limited to the purchasing of material consumer goods. The crisis in the vocational education and training sector, leaving hundreds of students with the possibility of large debts due to the operation of unscrupulous operators (Tomazin, 2018) is one example of the risky choices consumers are facing when marketisation takes over traditionally public services.

Our concern should not just be with the increasing complexity of the numeracy required to make informed decisions. We can also identify areas of society in which numeracy demands have been reduced through the use of technology, and other business processes. The Survey of Adult Skills suggests that a high proportion of adults with numeracy at or below Level 1 make little use of their numeracy skills at work. This likely indicates that they are working in jobs that demand little in terms of numeracy.

Opportunities

We give examples here, of opportunities to engage

in numeracy practices afforded by the numerate environment. Organisations like National Numeracy in the UK offer a range of resources on their websites: https://www.nationalnumeracy.org.uk/research-and-resources.

In addition, many opportunities to exercise what might be called "political numeracy" arise from the increasing availability of information in the current "data rich" era (Evans et al., 2019). For example, the Open Data Institute (https://theodi.org), an independent, non-profit organisation, based in London aims to promote the availability and the use of many kinds of data, especially state statistics. Many state statistics (National Statistical Office) websites are increasingly user-friendly. Further, for citizens wanting to get to know the world around them – and their place in it, informative databases have been brought together, and are often freely accessible. For example, Hans Rosling et al.'s Gapminder (https://www.gapminder.org/) focuses on differences on key indicators among countries of the world[1].

Recent developments in measurement, tracking, storage, and presentation of data on mobile devices have led to what might be seen as opportunities to self-monitor an individual's physical activities and bodily functions, and to compare them to what are presented as norms or averages (Lupton, 2016). This may lead to the seeming possibility of being more independent of advice from skilled (though, in some places, increasingly scarce) medical practitioners (Yasukawa & Evans, 2019), and perhaps of strengthening one's health literacy or numeracy.

There is an increasing availability of data on a range of activities in civil society which attract great interest and many "spectators," e.g., sports results and sports performance (e.g., Anderson & Sally, 2013). This data can be used to engage adults in numeracy practices – the creation of "fantasy sports" teams, imaginary teams made up of players from several actual teams (Smith et al., 2006) attests to this. Fans' interest in their sports creates motivation for exploration of relevant statistics and for predictions and creates opportunities for numeracy learning. In countries which have experienced a "lockdown" of normal activities due to the pandemic of early 2020 (the majority), the existence of databases of past sports performances has allowed "simulations" of competitions. Besides providing entertainment, these may also afford an understanding of the potentials and limitations of mathematical simulations and models more generally.

Supports

The numerate environment also provides supports for adults to engage in numeracy practices. In the realm of civic / political numeracy, for example, there are supports helping to make available data sets accessible to particular groups of adults[2]: Thus, many of the databases referred to under "opportunities" also have tools such as dynamic interactive graphics interfaces (and guidance as to how to use them) that support posing questions and investigating them; see Rosling et al. (2018).

In many countries, professional statisticians offer volunteer support to laypersons wanting to use data; for example, in the UK, the Royal Statistical Society and in the United States, Statisticians without Borders. In an era sometimes characterised as increasingly subject to fake news, fact-checkers have sprung up which monitor the statistics and logic used in policy debates in many countries: for example, the BBC and Full Fact in UK (Sippitt, 2019).

The mass media also offer some supports. Among broadcasters, BBC Radio presents "More or Less" (https://www.bbc.co.uk/programmes/b006qshd); see

also Blastland & Dilnot (2008). Among newspapers, Ionika Smeets writes a long-standing column in *De Volkskrant*, in the Netherlands (Smeets, 2018), which began as a blog from two math girls; see also Paulos (1996). Many financial institutions, as well as national and transnational agencies such as the OECD (https://www.oecd.org/financial/education/resources/) offer support for the development of "financial literacy" / numeracy, especially for younger people still at school.

Barriers

Adults also face barriers in accessing the affordances of their numerate environment. These barriers may affect their ability to make the most of the opportunities offered, or to gain support in meeting the demands placed on them. Such barriers can be related to the adults' numeracy, but also to their socio-economic position, and their consequent access to material and social resources.

For example, political parties often fail to give the basic numerical (or other) information that any citizen would need, in order to be able to make informed decisions. The December 2019 election in the UK provided a number of illustrations in the parties' manifestos and spokespersons' statements. In workplaces, the power relations in the workplace can hinder or extend workers' mathematical knowledge. In Williams and Wake's (2007) study in an industrial chemistry lab, the workers were responsible for providing data to their manager, but were completely "black-boxed," or excluded from information about the detailed workings of the calculation process, because the managers controlled the models that produced the calculations and the resulting decisions themselves. Further, people have sometimes suspected free-market firms of trying to obscure and confuse customers, by the complication or proliferation of pricing. In 2014 the UK Energy ombudsman responded by requiring energy firms to reduce the proliferation of tariffs (https://www.ofgem.gov.uk/sites/default/files/docs/2014/03/assessment_document_published_1.pdf).

The Australian Competition and Consumer Commission (ACCC) has warned consumers about several sorts of barriers: "a business predicting the health benefits of a therapeutic device or health product without evidence that such benefits can be attained; a company misrepresenting the possible profits of a work-at-home scheme, or other business opportunity" (ACCC, n.d., para. 1).

Nested Environments

We also consider the importance of adults' existing in multiple environments in which they interact to varying degrees. In our analysis below of two more substantial case studies, we use a taxonomy of levels of the environment – individual / face-to-face, mid-level, and societal – to refer to the nested environments with which the individual interacts[3]. The individual-level environment consists of household / family, and other regular face-to-face relationships and personal social networks. The individual is also located in mid-level settings, including perhaps a workplace, a cultural or religious institution, their labour or trade union - social institutions with which the individual may interact little or not at all, but which can constrain or enable the individual's actions. Finally, we can consider the societal or national level (including supra-national groupings such as the European Union (EU)) in which the individual is a resident and/ or a citizen; by virtue of "belonging" to this level, the individual is supported or constrained in certain ways (e.g., tax obligations, ability to work, access to social benefits). We can think of an adult's numerate environment from this nested perspective and consider not only what individual adults

perceive as learning affordances, but also how the interactions and the interconnectedness between the elements of the different levels of the environment enable the adults to perceive the affordances.

Case Study 1: Domestic Energy Bills

In this section, we draw on data from a study by the National Research and Development Centre for adult literacy and numeracy (NRDC) of domestic energy bills in the UK, in order to explore the literacy and numeracy demands, opportunities, supports, and barriers that they provide for individuals. The study was carried out for OFGEM, UK government regulator for the energy market (Europe Economics, 2011). It suggests that something as apparently straightforward as "reading" a gas or electricity bill places significant demands on adults' numeracy.

In assessing the numeracy skills required to access information in the bills, references were made to the English Adult Numeracy Core Curriculum which lists the types of numerical tasks which individuals working at each level would be expected to perform.[4] Given the nature of the mathematics required to read such documents a distinction was drawn between *understanding the information* presented in the bills, the main charges and payment dates, and *interrogating that information*, comparing tariffs and working out how the charges have been calculated.

Demands

Understanding the *Total Charge* in the bill and the date the payment is due allows the bill-payer to meet the *demands* of the bill, to pay it. In a typical bill, the numeracy needed to extract this basic information is simpler than the numeracy required to check that the *Total Charge* is correct, or to interrogate the basis for the calculation. For example, in order to check the *Total Charge* for a gas bill, it is normally necessary to:

- Understand that the total amount was arrived at by multiplying units and p/KWH (pence per kilowatt hour), even though there are no multiplication signs and no pound sign is used in the p/KWH column
- Multiply a number without decimal points (but with a comma separating thousands and hundreds) by another number that has three decimal points)
- Take 5% of pre-VAT (value-added tax) total charge to check the VAT calculation.

Of course, there is no need for an individual to understand how their bill has been calculated. As long as the bill is paid, the demand has been met and the service will continue. However, this places the adult in a passive role, without access to the information needed to make informed choices, such as how to reduce their bill by changing their behaviour or switching energy provider. They may have further questions about the reasons why they are being offered different options about tariff plans or choices about the proportion of their energy usage they want to be matched by energy produced by renewable sources. They may also wonder about the actual material difference any of these choices would make to their financial situation, say, and more widely, to the quality of the environment. An active or *critical* reader of the bill would be able to make more informed decisions based on the data available.

Opportunities

The inclusion of particular information in the bill, and the consumer's interrogation of it, provides an *opportunity* for energy customers to make informed choices about the value of their particular plan. For example, the bill may contain information about the energy usage for the same period in the

previous year, shown as a comparison in the form of a bar graph. It may contain information about the projected usage for the next 12 months, or suggestions about ways of lowering consumption or about different tariff plans. There may also be information about options for switching to a plan that increases the proportion of renewable energy matched with their total energy use.

These may be perceived by the consumer as *opportunities* to take actions that would reduce their energy costs and/ or be more environmentally responsible. However, this requires them to engage in more demanding numeracy practices. The energy bill can thus also be seen as affording *opportunities* for individuals to engage in numeracy practices that may support the development of their numeracy beyond the identification of how much they need to pay and by when.

Supports

A citizen's individual environment is uniquely constituted – materially and socially. Their successful negotiation of the energy bill (pay the bill, make or ignore optional choices, take account of or ignore information about their projected usage) may be supported by other actors within this immediate environment. These actors – family members, friends, colleagues may explain what needs to be paid, by when and how, or discuss and explain the reasons behind the options that may be presented to them (e.g., environmental considerations). Individual citizens may be able to find support within their community outside of their immediate household or social networks through, for example literacy mediators (Baynham, 1995) in the community who can read and interpret the information and assist in the action demanded by the energy bill. This may be a service provided by a librarian in a public library – or by a multilingual person in an immigrant's ethnic community, for example. The support may consist of facility in a shared language other than the language of the energy bill, relevant numerate skills and/or knowledge about relevant debates and trends concerning energy consumption and utility services.

Barriers

Responding to the demands and opportunities presented by an energy bill may present barriers to some and require support. For a recent immigrant – even for a migrant from another part of the country (Kalman & Solares, 2018) – some of the language, currency, payment options, overall layout and composition of an energy bill may be unfamiliar. Depending on whether the immigrant is supported within a community who could assist in the deciphering of the elements of the utility bill, by a multilingual information sheet that deconstructs the bill or by another family member who has the linguistic and other necessary resources to assist, they may find it difficult to overcome the barriers.

The OFGEM study also found that the language used in the main body of typical energy bills was clear and relatively easy to understand, but that the small print, often where explanations of the basis of calculations was explained, was far more complex, and thus difficult to access. For some, the presentation of "choices" itself may present barriers because they require new calculations or comparisons.

Case Study 2: Converting the National Currency in Slovak Republic

We can also study the relationship between the numerate environment and the development of adults' numeracy skills and practices where national policy decisions have led to changes in the demands on people's numeracy. We could for example consider the (partial) introduction of the metric

system in countries such as the UK and Canada, in the 1970s, or those countries where the unit of currency has been changed by a factor of 100 (e.g., France in 1960), or 10,000 (Romania in 2005).

A simpler, less numerical change was undertaken by state and society in Swedish society in 1967 – from driving on the left-hand side of the road to the right-hand side. Yet spatial awareness was certainly important in that change and plays a key role in a broad sense of numeracy (cf. Kane, 2018).

In these examples from recent history, we see that the ecological levels of state and society can be very important. When a whole country adopts such a goal, it requires pervasive and long-lasting involvement of national and local institutions, as well as the participation of individuals. This has happened impressively in conversions to the euro, over a period of more than 20 years, in 19 European countries (to date).

The euro conversion process in Slovakia (2008-11) was described by Kubascikova et al. (2019). We analyse it here as a numerate environment that faced every citizen every day in Slovakia. However, it was experienced in somewhat different ways by individuals, depending on their circumstances and the resources they could deploy.

Thus, adults learned to make currency conversions in varying situations, and to develop / extend the required numeracy practices, including:

- calculation (e.g., using conversion rates);
- estimation (including judging an appropriate level of precision);
- comparison of values (e.g., judging if apparent differences are worth bothering about, given one's circumstances);
- deciding which strategies might be appropriate, for dealing with the conversion demands relevant to the adult, their family, workplace and social groups, and their practices requiring the handling of money; and
- developing these strategies and practices in context (Austria's conversion in 2002, at approx. 13.76 Austrian Schillings to one euro, raises different numeracy problems for citizens than the Slovak rate of 30.126 SKK to one – see Kubascikova et al., 2019).

The researchers nonetheless found evidence of the same types of adaptation strategies in Slovakia as found by Hofmann et al (2007) in Austria during the euro conversion from 2002. These included: (1) direct conversion; (2) marker value; (3) anchor; and (4) intuition strategies; see Table 1.

Table 1: Adaptation Strategies used during Euro Conversion in Austria (ca. 2002)

Strategy	Description
Conversion Strategy	Converting (by numerical calculation) each euro price into the old currency – exactly, or by rule of thumb. A range of conversion tactics used by French respondents were identified by Lemaire and Lecacheur (2001).
Marker Value Strategy	Specific values are learned: for example how much 5€, 10€, 20€ is worth in the familiar currency.
Anchor Strategy	Learning (remembering) prices, mostly the regularly bought products. The remembered prices are used as an anchor, a basis for evaluating other prices.
Intuition Strategy	No conversion or comparison of the euro to the old currency. People rely on their developing "price intuition", buying what they need.

Source: Based on Hofmann et al. (2007, p. 373).

Opportunities and Demands

We can analyse Slovakia in transition between currencies as a numerate environment. The situation provided *opportunities* to learn: how to convert prices from the new to the old currency, and vice versa. These might also be described as *demands* to engage in consumer practices in new ways. Thus, the relationship here between opportunities and demands is complex. The consequent need to engage in particular numerate practices in their everyday life made new demands on people's numeracy skills – and also provided opportunities for learning to take place. To understand the take up of those opportunities we look at the available supports in that particular numerate environment.

Supports

Of course, many Slovaks had had previous individual opportunities to use the euro, elsewhere in countries already using the euro. Once Slovakia joined the euro, national and European agencies provided substantial resources for supports – especially for citizens with limited access to information or unusual needs. Here we analyse the supports offered at national / European (macro) level, mid-level meso and individual / family (micro) level.

At the national level, pedagogic materials were aimed at upper secondary students and others, relating to basic notions about the euro and "financial literacy." Tools such as pre-programmed calculators were provided to support adults wishing to produce exact conversions at any stage. In addition, "revision" of "times tables" was offered to adults.

For adults using the *marker value strategy*, supports included conversion tables widely distributed nationally, giving equivalent numbers of euros and crowns. For those developing an *anchor strategy* (as one of several), a "Bundle of Shopping" poster, showed what items could be purchased for 10 euros, 20 euros, and other amounts, was displayed nationally.

At the mid-level, there were local programmes to help specific groups with limited access to information, including: the elderly; the visually / hearing impaired; the economically vulnerable, e.g. the Roma, using drama and performing arts.

There were also interventions at the mid-level, which aimed to generate individual / family supports. Special sessions were organised by a Slovak commercial bank (VUB), using hip hop music and rap, to convey basic information about the euro to school children. The children were encouraged to write their own euro problems, for example how much things cost in euros and vice versa. The intention was to get children interested in the hope that they both would learn something about the euro, and pass it on to their families, friends and neighbours (Kubascikova-Mullen, 2013, p. 100).

Barriers

We may also consider examples of *barriers*, factors which threatened to constrain the individuals' ability to engage in the necessary practices to act effectively with their new currency. For example, some Slovaks feared price inflation due to the introduction of the euro, for several reasons, including experiences elsewhere in Europe. This widespread perception at the individual level led to societal level supports. For example, before the transition, businesses were encouraged to sign a voluntary "Ethical Code" concerning fair rules for conversion of prices. During the transition period, prices were closely monitored by official bodies and changes in price levels published. This helped to reassure citizens. Thus, an added aim

of the *supports* was to produce positive attitudes towards the currency transition. It illustrates the importance of maintaining positive attitudes towards such a change, thus underlining an important point about numeracy (and other practices): effective *engagement* in practices involves *affective, as well as cognitive*, aspects (Evans, 2000).

Overall, this national effort provided an example of *collective* learning, supported by the state, of new numerate practices, with self-reinforcing effects.

Discussion

In this paper we have been seeking insights into how adults in the community experience and negotiate numeracy related demands in their everyday life. We have considered a number of illustrations, and two case studies in more detail above. This has shown the value of considering *demands* for engagement in numeracy practices, along with *opportunities, supports and barriers,* together as *affordances*. Our analysis also shows the importance of considering all these aspects at different levels of the numerate environment, which we have called here individual, mid-level, and national levels.

The concept of the numerate environment also helps us to see how individuals may perceive opportunities to develop new numeracy practices to negotiate the demands of their environment. Material and social supports may be afforded by the individual's immediate environment (skilled and knowledgeable family members or friends), mid-level environment (public libraries, community centres or workplace colleagues) or at the national level (state-produced factsheets and websites, consumer protection laws). Equally, however, individuals can experience *barriers*, not only to responding to the demand but also to taking up opportunities and supports for development - again in the different levels of the environment. These barriers may be material (e.g., lack of technological resources to access further information or to do calculations) or social (e.g., absence of a literacy mediator to help read the text outlining the demand).

Grotlüschen et al (2016) suggest that those with low numeracy and literacy proficiencies also tend to be less active in their community. We might thus speculate that when individuals experience significant barriers within their immediate or mid-level environment, they may struggle to access any support available at the national level, even if such were to exist. For example, someone who is struggling to negotiate the new method of payment of a bill and who is not connected to a social network or support services may require some "outreach" from those making the demand or within the community who is able to act as a numeracy mediator, similar to the role played by literacy mediators in communities or others participating in community organisations, mediating the numeracy practice within the individual's zone of proximal development (Vygotsky, 1978).

Researchers including Murray (2009) have argued in the context of literacy, that if the demands on many adults' skills are low, these skills may decline or fail to develop, leaving a large sub-class excluded from the literate environment and relying on others for interpretation and access to information. If engaging in practices develops skills proficiencies and prevents skills loss (OECD, 2013, p. 24), then such adults risk losing the skills that they do have, by not using them. This vicious circle of underuse and consequent loss of skills should be a major concern for policy makers.

Conclusions and Recommendations

Analysis using the numerate environment has suggested that insights into adults' competence in negotiating their everyday numeracy demands can be gained through an ecological perspective. Where individuals are socially connected to skilled and resourceful communities, they may be much more able to negotiate the numeracy demands than individuals who are socially isolated and/or living in resource-poor communities (e.g., Grotlüschen et al., 2019). Understanding numeracy practices and development as a collective activity removes the "deficit" label on individuals and creates a demand for policy makers to consider the importance of *collective numeracy* and examine what opportunities and supports are afforded by the individuals' social environment.

The numerate environment is a concept that governments can employ in order to understand numeracy demands on the adult population, identify opportunities for numeracy learning that those demands present, and design social and material supports for flexible, contingent systems of learning. It reinforces the idea that poor numeracy is a social rather than an individual responsibility, suggesting the need for more campaigns and public information around numeracy, as well as careful consideration of the use of numeracy in public communications. It also suggests that policies aimed at developing a more numerate adult population are likely to succeed if they are developed in tandem with social policies aimed at reducing social isolation and other factors that may limit individuals' capacity to access supports.

The framework described in this paper also has implications for adult numeracy education practice. Shifting the gaze from the numerate individual to their numerate environment suggests that learning should start from an understanding of each learners' numerate environment: the demands it places upon them, as well as the opportunities that it offers. Their learning within the classroom can then be linked to the contexts in which they encounter numeracy demands and opportunities. This also allows the teacher to support the learner in recognising and using the supports that are available within and outside the classroom, and to "hear" learners' accounts of barriers they encounter. It also has implications for taking account of the literacy demands involved in any numerate practice, as illustrated in Case Study 1 (see also Tout & Gal, 2015).

The shift in focus, from numeracy as an individual competence to the environment in which that competence is used, allows for the formulation of policy that addresses adult numeracy as a social, rather than an individual responsibility. For such policies to be successful there is also a need for a change in policy focus, from supply to demand, from formal systems of skills acquisition to support for informal learning, and the nurturing of engagement in numeracy practices (Reder, 2009).

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Endnotes

1 At the national level in the UK, Ridgway et al.'s Constituency Explorer (http://www.constituencyexplorer.org.uk/) portrays socio-economic and other differences among 600+ UK Parliamentary constituencies (Ridgway et al, 2019).

2 Nevertheless, we are sceptical of many claims made for "Big Data", by proponents. For example, much of it is decidedly not available to citizens at large – but is often harvested / appropriated by private concerns. There are tricky ownership / ethical issues; see Evans, Ruane & Southall (2019, especially Sec. 1).

3 Van Lier drew on a more elaborate version of Bronfenbrenner's (1981) ecological framework which is a nested ecological system represented by four layers of concentric circles.

4 In order to calculate the percentage of adults in England able to carry out these tasks, data was used from the 2011 Skills for Life Survey (Harding et al, 2012). The Skills for Life Survey provides a national profile of adult literacy, numeracy and ICT skills in England.

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Research Article

Participation and Independence with Low Literacy: Selected Findings of the LEO 2018 Survey on Low Literacy in Germany

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Abstract

This paper presents findings by the *LEO Survey 2018 – Living with Low Literacy*. It found that in Germany 12.1% of the adult population (aged between 18 and 64 years) have low literacy skills. This paper questions existing assumptions about the everyday life of adults with low literacy. Based on variables on everyday practices, we work out in which areas of life low literacy leads to exclusion from participation – specifically in terms of health, politics, and digital practices. While our analysis did not find an exclusion in online writing, it revealed differences in the autonomy and in the ability to understand information and to assess its trustworthiness for adults with low literacy skills.

Keywords: low literacy, educational benefits, participation

The discussion on basic education and on literacy often focuses on the relationship between literacy skills and one's autonomy and participation in daily life. Adult education promises to be beneficial for societal and economic development (Organisation for Economic Co-operation and Development [OECD], 2013, 2018) as well as for individual wellbeing:

> Adult education and training (AET) represent an important opportunity for adults with low literacy and numeracy proficiencies to improve their competences and consequently their chances for better integration in the economic and social life and overall personal wellbeing. (Grotlüschen et al., 2016, p. 10)

The large-scale literacy assessment *LEO Survey 2018 – Living with Low Literacy* (LEO 2018) looked at the German-speaking adult population between 18 and 64 years of age. The survey found that in 2018 in Germany 12.1% of the adult population have low literacy skills. These 12.1% equal 6.2 million adults (Grotlüschen et al., 2020a). Based on these data, we look at the specific relation between literacy skills and individual benefits in term of autonomy and participation. To this end, we have examined several everyday practices and basic skills for their connection with the level of literacy. In some cases, we find a clear correlation between these practices and the level of reading and writing skills.

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Literature Review

Literacy as More Than Reading and Writing

Talking about *literacy*, we often look at a continuum between literate and illiterate as the competence to read and write. This literacy is then related to social exclusion. Sometimes we might even look for a concrete threshold, a suitable minimum, beyond which social participation is granted and below which education is required and offered. As a result, educational research and practice are directed towards short-term, quantifiable educational outcomes (e.g., higher literacy scores, cf. Tillmann et al., 2008; Waldow, 2009). In this paper, we use a large-scale survey to argue for a broader and more diverse understanding of education and basic competences instead. Relating literacy scores to everyday practices and self-reported competences allows us to question in which areas of everyday life a "minimum" of literacy skills is actually required to facilitate participation and in which areas other skills or factors need to be taken in account instead of or in addition to literacy.

The term *basic education* is often used to describe a minimum level of competences that people must have in order to participate in society. To this end, specific areas must be defined, and competences have to be identified.

LEO 2018 draws on a definition of literacy, which emphasizes the importance of reading and writing skills as a societal requirement. Here, a low level of literacy is described as reading and writing skills below the suitable minimum, which is required and assumed necessary for fulfilling social requirements (Egloff et al., 2011).

However, definitions of literacy are diverse and competing (UNESCO, 2005). Street (1984, 2003) introduced a view of literacy that acknowledges the performative impact of power structures on literacy practices. The skill, its use, assessment, and value are embedded in a social context (Reder, 2017). In this embeddedness, one can no longer assume just one "right" literacy, but rather multiple literacy practices that emerge from different social contexts (cf. 2003; Reder & Davila, 2005).

One of these multiple implementations of literacy is *critical literacy*. Referring to Freire (2014), critical literacy describes a critical orientation in and through one's literacy. It is relevant for transforming environments as well as one's position in them. Among the essential competences of a person are the abilities to read about one's environment, to write and participate in public debates, as well as to understand, question and reflect written information in order to comprehend one's own relation to the environment (Negt, 1969, 1993; Zeuner, 2007).

Quantitative surveys report some correlations between the level of reading and writing skills and various sociodemographic and socioeconomic factors like age, gender, educational level, employment or first language (OECD, 2013; Grotlüschen et al., 2014; Grotlüschen et al., 2020b). Andreasson (2015) has described a fundamental inequality in the distribution of benefits and risks of digitalization. Health related issues and their correlation with sociodemographic and socioeconomic factors have been reported in the European Health Literacy Survey (HLS-EU; Sørensen et al., 2015). The influence of individual characteristics as education or gender on political actions is well documented (van Deth, 2016). In addition to these sociodemographic variables, confounders like a general interest in a topic (such as health

or politics) can be assumed to increase one's frequency and depth of engagement with the topic.

Literacy and Vulnerability

There is broad (mainly qualitative) research on the meaning and impact of (low) literacy in everyday life situations (e.g., chapters in Barton et al., 2003; Zeuner & Pabst, 2011). It often elucidates that specific vulnerability resulting from low literacy needs to be examined in more detail. We define vulnerability as "an identifiably increased likelihood of incurring additional or greater wrong" (Hurst, 2008, p. 191). To identify these likelihoods, different areas of life need to be examined which might show elements of exclusion or participation. In this paper, we focus on digital, political, and health-related practices, as these belong to the main domains of adult basic education in the framework of the national campaign on adult basic education in Germany (Grotlüschen, 2016).

Digital Practices

The internet represents an increasing opportunity to find information, for example on topics related to health risks or benefits. Online sources can offer a valuable supplement to conventional sources of information (Andreassen et al., 2007) but also present new challenges. The means to cope with these new challenges, however, are not distributed equally across the general population. The term "digital divide" or "digital inequality" describes a consolidating inequality in internet access (Andreasson, 2015). This unequal distribution is not limited to the question of access, but also impacts different usage patterns. The benefits of digital opportunities are distributed unequally, depending on technical, financial, and social resources. Zillien and Marr (2013) therefore assumed, that "the Internet will reinforce or even increase existing social inequalities" (p. 64). One of these cultural resources determining the benefits of online inclusion might be literacy. Smythe and Breshears (2017) discuss that most internet services appear to be designed for "model users" and systematically exclude certain subgroups.

Political Practices

A lower literacy level is accompanied by lower *political* self-efficacy expectations and less social trust, as a secondary analysis of Program for the International Assessment of Adult Competencies (PIAAC) data showed (Grotlüschen, Chachashvili-Bolotin, et al., 2020). It appears to be more difficult to express a political opinion for those having low literacy skills, also because they feel not competent or entitled to express an opinion on political topics (Bremer & Pape, 2017). Especially those means of political expression that include sophisticated forms of language and literacy are more difficult to master for adults with low literacy skills. Means of political expression with lower literacy thresholds might not always be acknowledged by narrower concepts of political participation. These practices are often seen as less valuable or valid (Zeuner & Pabst, 2011), or simply as "less political." Further quantitative research showed that political practices like volunteering, reading papers, party membership or debating political issues, are not predominantly determined by literacy proficiency but by general educational background and social circumstances of living (Dutz & Heilmann, 2019).

Health-related Practices

Another possible impact of low literacy skills may be higher *health* risks. A correlation between the general educational attainment

and health outcomes can be shown (Borgonovi & Pokropek, 2016, p. 2) as well as relation of health-related competences and health outcomes (Sørensen et al., 2015). Although there is a fundamental aim to provide basic health and medical care, which is accessible to everyone, still health disparities and social selectivity are apparent. Age (Lampert & Kroll, 2010, p. 3), social class (Geyer, 2008), income, education, and work (Richter & Hurrelmann, 2009, p. 13) are key factors to determine health inequalities.

These differences are not determined by behavioral preferences that are specific to one social class (Cutler & Lleras-Muney, 2010), but rather an accumulation of multiple educational and environmental factors (Vahtera et al., 1999). The HLS-EU points out, that access to information can be a relevant factor for health (Sørensen et al., 2015). Especially if a health-relevant information is mainly or exclusively available in written form, this could pose additional obstacles for adults who have low literacy skills. Harris et al. (2019) particularly discuss the aspect of eHealth literacy, which creates further possible sources of unequal access to information.

Research Questions

Given the embeddedness of literacy and, increasingly digital literacy, in daily life, we need to ask how and where a low level of literacy might become a factor of exclusion. We looked especially at exclusion in terms of (1) digitalization, (2) autonomy and (3) critical skills as three possible moments of exclusion. As these are not expected to be solely related to literacy skills but rather to a multiplicity of social, demographic, and educational circumstances, we choose to add multiple background variables. Educational attainment, employment status, age, or native languages have been shown to relate to and influence behavior and practices.

As digitalization is offering new opportunities but also new barriers, we need to know what role literacy competences play in order to better understand how literacy education could improve adult's digital participation. For some people, the digital world can mean a gain in independence. To cover this perspective on literacy skills, we ask two research questions:

- (1a) Controlling for employment status, educational attainment, etc., how does searching the internet for information on health-related topics correlate with literacy skills?
- (1b) Controlling for employment status, educational attainment, etc., how does writing comments about articles on the internet correlate with literacy skills?

Based on earlier research our hypothesis is that both literacy practices are positively related with literacy skills: Adults with low literacy skills perform these literacy practices less often.

Being independent and autonomous can be described as a basic human need (Doyal & Gough, 1991, p. 59). Therefore, it would be problematic if societies would penalize low literacy skills with dependency. To analyze this aspect, we ask the following two questions:

- (2a) Controlling for employment status, educational attainment, etc., how does the need for support when filling out health-related forms correlate with literacy skills?
- (2b) Controlling for employment status, educational attainment, etc., how does the need for support when filling out official forms correlate with literacy skills?

Here our hypothesis is that the need for support when dealing with forms is negatively related to literacy skills: Adults with low literacy skills require support more often.

Especially in situations of dependency, it is important to understand and critically reflect those dependencies in one's own life in order to break free. This critical understanding of information and interrelations is necessary for a self-determined life, which should not be only available to highly literate people. To get some insight into these relations, our research questions are:

- (3a) Controlling for employment status, educational attainment, etc., how does the ability to critically judge the trustworthiness of media coverage about a disease correlate with literacy skills?
- (3b) Controlling for employment status, educational attainment, etc., how does the ability to understand and assess important political issues correlate with literacy skills?

Finally, we hypothesize that the ability to critically judge information and issues is positively related to literacy skills: Adults with low literacy skills have more difficulties when it comes to critically judging and assessing such topics.

To answer these research questions and to test our hypothesis, we will use the LEO 2018 data to look at the relation of these practices and competences with low literacy among adults in Germany. For each of the research questions, we chose two exemplary practices or competences that are either digital, politic-related, or health-related. With these examples, we will present indicators towards the inclusion and exclusion of adults with low literacy regarding digitalization, independence, and critical literacy.

Data and Method

The LEO 2018 is a household survey based on a sample of 7,192 cases. It was conducted by Hamburg University and funded by the German Federal Ministry for Education and Research in the context of the so-called *National Decade for Alphabetization and Adult Basic Education*. It is representative for the German speaking population living in private households aged between 18 and 64 years. It comprises an extensive questionnaire and a literacy assessment. The questionnaire covers four domains of practices and competences: health, politics, financial, and digital. Across these domains, everyday practices as well as self-reported practical and critical competences are surveyed. At the end of the interview, a literacy assessment was carried out.

In the context of the theoretical framework of LEO 2018 literacy skills are measured in so-called alpha levels. Three *alpha levels* are describing the lower end of that scale. Literacy skills on **alpha level 1** correspond to reading and writing on a level of letters. Adults who have literacy skills equivalent to **alpha level 2** can read and write on the level of words. Skills in **alpha level 3** describe reading and writing of simple sentences. Reading and writing of continuous texts – even short ones – goes beyond these skills. In LEO 2018, the term *low literacy* subsumes skills on these three levels. Adults with skill in **alpha level 4** can read and write texts but show substantial difficulties with orthography. All those **above alpha level 4** are grouped together without further distinction, as the focus of the LEO-survey lies at the lower end of the literacy scale (Grotlüschen et al., 2019).

Dependent Variables

The first set of research questions (1a) and (1b)

on the digital ways of gathering and sharing information was operationalized by the following two questions:

> (1a) How often do you search the internet for information on health-related topics such as nutrition, exercise and sport, illnesses or types of treatment?
>
> (1b) How often do you write comments about articles on the internet, e.g. on news websites or on Facebook?

The objective of these questions is to find out about the frequency the practices are applied. The question does not directly allow answering about the motives for doing so (or not doing so). The response scale for both questions is *daily*, *at least once a week but not daily*, *less often than once a week, less often than once a month*, or *never*. To get a binary variable for the logistic regression models we grouped the respondents into two categories: Those who *never* search the internet for information on health-related topics respectively *never* write comments about articles on the internet, compared to those respondents who do so, at least infrequently.

For the second set of questions (2a and 2b), we looked at two variables on adult's usage of assistance in filling in official forms.

> (2a) Do you fill out [health-related] forms (e.g. doctor's forms, hospital forms, nursing home forms or health insurance forms) on your own or are you looking for support?
>
> (2b) Do you fill in applications with authorities such as the employment agency, the social welfare office or the housing benefit office independently … or … with support?

The response scale for both questions is *independently*, *sometimes with support*, or *always with support*. For the regression models we formed two groups for each question, one group representing respondents who *always* fill out mentioned paperwork with support, another group who depends on support less frequently or fills out forms independently.

Finally, we answered the third set of research questions (3a and 3b) on critically judging information with the help of two questions on critical competences.

> (3a) Is it for you easy … or difficult to judge whether media coverage about a disease is trustworthy?
>
> (3b) Do you think you can understand and assess important political issues well?

Here the response scale for both questions is *easy*, *rather easy*, *rather difficult* and *difficult*. In order to obtain a binary variable for the logistic regression models we formed two groups of respondents: those who answered *easy/rather easy* and those who answered *difficult/rather difficult* on the other hand.

Analytical Approach

For each of those variables two regression models were constructed. The first one relates the variable to the different Alpha Levels and therefore describes the correlation between literacy and the variable without controlling for any other factors. In the respective second model, we added background variables to the regression analysis (the reference category in parentheses): literacy (above Alpha Level 4), educational attainment (high educational attainment); employment status (full-time employed); age groups (18-24); German as a second or foreign language (German as first language), general interest in health topics/political topics (no reference category, continuous variable). Further control variables are specified for each analysis. The selection of control variables is based on an assessment of earlier research mentioned above.

We used binary logistic regression analyses to determine the role that literacy plays in the execution of everyday practices and in understanding and judging information.

Findings

Overall, the analyses showed different degrees of correlation between adults' experience in their practices, competences, and literacies. In this paper we cannot present all bivariate results differentiating the practices and competences by literacy levels. Part of these findings are reported in English in Grotlüschen et al. (2019, 2020a). The full set of results is reported in German in Grotlüschen and Buddeberg (2020).

Reading and Writing Online

A main aspect of social participation in the 21st century is the ability to use and interact with digital media. The internet can be a source of information, for example regarding treatment for illnesses or on staying healthy. Especially in social media, writing and commenting can be forms of social participation on the internet.

Both practices of the first two research questions (searching the internet for health-related information and writing comments on the internet) include aspects of reading and writing as well as context-specific abilities and literacies. Based on the LEO questions, we can have a closer look at the relation of having low literacy skills and the ability to perform these practices. Table 1 shows these results. In the uncontrolled models (Models A1 and B1), an immediate difference between the two variables appears. Adults with literacy in the first three alpha levels are less likely to search on the internet for health-related information but having low literacy skills has no significant relation to writing a comment online. This table (as all further tables as well) depicts the odds ratios of the predictor variables. They can be understood as the change of probability that comes along with the respective predictor variable statistically. The Model A1 shows that adults who scored in alpha level 4 are almost half as likely (0.55) to search for health-related information on the internet than the reference group, which are those adults who score above alpha level 4. The probability that an adult in alpha level 2 does so is one third of that of an adult above alpha level 4. When we control this relation for the background variables, which could influence health-related behavior (Model A2), we see that the odds ratios for the alpha levels remain significant. Adults whose literacy scored in alpha level 1 are on average only four percent as likely to look for health-related information on the internet as adult with a high literacy (above alpha level 4). Other significant predictors for the use of the internet to find health-related information are the educational attainment and one's general interest in health topics. Adults with a high educational attainment are about twice as likely to use this practice as other adults, even if they have an equivalent literacy level. These findings indicate that literacy does play a role for online health searches, but educational attainment, which might indicate towards social class, seems to be an additional predictor.

Interestingly, the literacy practice to comment on online news articles does not show any significant values for literacy or educational attainment. Instead, the general interest in political topics and different age groups show to be statistical predictors for this practice. This means that the older a person is the less likely they are to comment online regardless of their attributed alpha level.

Table 1: Odds ratios for models of the predictors of using the internet to ...

	... search for health-related information								... comment on news articles						
Predictor	**Model A1**				**Model A2**				**Model B1**				**Model B2**		
Intercept	4.05	***	(1.05)		29.25	***	(1.32)		0.30	***	(1.05)		0.58	*	(1.27)
Literacy Level (ref.: Above level 4)				---				---				---			
Alpha level 1	0.03	**	(3.03)		0.04	*	(3.60)		0.28		(4.04)		0.24		(4.03)
Alpha level 2	0.33	***	(1.33)		0.39	*	(1.45)		1.36		(1.35)		1.53		(1.37)
Alpha level 3	0.44	***	(1.21)		0.57	*	(1.25)		1.25		(1.22)		1.32		(1.25)
Alpha level 4	0.55	***	(1.13)		0.7	*	(1.15)		1.09		(1.12)		1.13		(1.14)
Educational attainment (ref.: high attainment)															
No educational attainment					0.48	**	(1.26)						0.94		(1.28)
Low educational attainment					0.43	***	(1.14)						0.96		(1.13)
Medium educational attainment					0.52	***	(1.12)						1.01		(1.11)
Still going to school					0.44	**	(1.34)						1.06		(1.36)
Employment status (ref.: full-time employed)															
Part-time employed					1.22		(1.12)						0.98		(1.11)
Unemployed					0.81		(1.19)						1.11		(1.19)
in school, university, vocational training, voluntary year					1.20		(1.22)						0.99		(1.18)
Pensioner					0.83		(1.18)						1.00		(1.19)
Unable to work					0.65		(1.35)						0.76		(1.34)
other					1.33		(1.18)						0.80		(1.15)
Age group (ref.: 18-24 years)															
25-34 years					0.95		(1.18)						0.89		(1.16)
35-44 years					0.93		(1.19)						0.59	**	(1.18)
45-54 years					0.96		(1.19)						0.40	***	(1.18)
55-64 years					0.73		(1.19)						0.38	***	(1.19)
Low general interest in health/political topics					0.46	***	(1.05)						0.87	***	(1.04)
Non-native German speaker					1.37		(1.19)						1.24		(1.17)
R^2	0.029				0.159				0.002				0.029		

*Note. Exponents of standard errors are in parentheses. Ref. = reference category. Cont. = continuous variable. Source LEO 2018 – living with low literacy. Base: German speaking adults (n=7.192). *** p < .001. ** p < .01. * p < .05.*

Using Assistance to Fill Out Forms

We then looked at forms and applications that need to be filled in to gain access for example to health care services or social benefits.

Table 2 shows the odds ratios (the changes in probability) for being dependent on assistance when filling out health forms and application forms.

Table 2: Odds-ratios for models of the predictors of always using support to fill in health-related forms and social applications

	Health-related forms						Applications at social offices					
Predictor	**Model C1**			**Model C2**			**Model D1**			**Model D2**		
Intercept	0.01		(1.28)	0.00	***	(2.07)	0.02	***	(1.36)	0.01	***	(2.44)
Literacy Level (ref.: Above level 4)				--			--			--		
Alpha level 1	181.48	***	(2.23)	96.61	***	(2.73)	166.02	***	(2.72)	92.07	***	(3.12)
Alpha level 2	18.65	***	(1.67)	7.84	**	(1.90)	17.50	***	(1.79)	6.78	*	(2.24)
Alpha level 3	7.42	***	(1.48)	3.60	*	(1.67)	6.95	***	(1.58)	3.11	*	(1.73)
Alpha level 4	2.98	*	(1.60)	1.87		(1.73)	2.54		(1.74)	1.23		(1.89)
Educational attainment (ref.: high attainment)												
No educational attainment				10.39	***	(1.80)				7.45	**	(1.83)
Low educational attainment				4.96	**	(1.69)				4.58	**	(1.67)
Medium educational attainment				2.63	*	(1.61)				1.46		(1.66)
Still going to school				3.10		(2.34)				12.58	**	(2.37)
Employment status (ref.: full-time employed)												
Part-time employed				0.58		(1.51)				1.50		(1.77)
Unemployed				0.85		(1.78)				1.26		(1.74)
In school, university, vocational training, voluntary year				1.50		(1.71)				0.95		(2.24)
Pensioner				1.82		(1.62)				4.17		(2.13)
Unable to work				2.60		(1.63)				9.53	**	(2.02)
Other				1.22		(1.55)				1.92		(1.99)
Age group (ref.: 18-24 years)												
25-34 years				0.51		(1.67)				0.49		(1.72)
35-44 years				0.55		(1.80)				0.57		(1.84)
45-54 years				0.53		(1.73)				0.48		(1.81)
55-64 years				0.28	*	(1.74)				0.74		(1.85)
Frequency of facing such forms (cont.)				1.29	**	(1.09)						
Poor subjective health status (cont.)				1.37	*	(1.13)						
Non-native German speaker				0.88		(1.46)				1.59		(1.67)
R^2	0.176			0.252			0.217			0.323		

*Note. Exponents of standard errors are in parentheses. Ref. = reference category. Cont. = continuous variable. Source: LEO 2018 – living with low literacy. Base: German speaking adults (n=7.192). *** p < .001. ** p < .01. * p < .05.*

The Models C1 and C2 in Table 2 depict the regression results for always using support to fill in health-related forms. The Models D1 and D2 depict the results for always using support to fill in application forms at social authorities. All four models show that adults who have low literacy skills are more likely to use support. In both controlled models (C2 and D2), there is no significant difference between adults in alpha level 4 and those above alpha level 4. Adults with literacy scores in alpha level 2 and 3 are multiple times more likely to use assistance in filling out their form and to an even greater extent this applies to alpha level 1. We see again that the educational attainment is a significant predictor. The lower the educational attainment the more likely adults are to be assisted in filling out their forms.

Judging Trustworthiness of Media Information

Reading and writing may be essential parts of participating in certain fields, but these skills are less helpful without understanding and being able to judge whether the found information is trustworthy. In the same way, feeling able to understand political issues might be relevant in taking part in political online discussions.

Having low literacy skills relates to lower feelings of competence regarding understanding and judging information. It is less probable that adults who have low literacy skills feel they can judge the trustworthiness of health-related information in the media (Table 3, Model E1, E2) or understand and assess relevant political topics (Model F1, F2). However, when controlled for background variables the odds ratios for both cases become less significant. Instead, the educational predictor variables are highly significant and show that – in comparison to adults with high educational attainments – adults with medium, low, or no educational attainment are less likely to report these levels of competences. The probability of adults with low or no attainment to feel confident in judging and assessing these topics is half as high as among adults with high educational attainments.

For both competences, the adults who are unable to work also show lower confidence in their competence to judge these topics. Additionally, non-native German speakers are half as likely to feel that they can understand and assess relevant political topics.

Table 3: Odds-ratios for models of the predictors for feeling able to judge and understand information without difficulties

	judge the trustworthiness of health-related information in the media						understand and assess relevant political topics					
Predictor	**Model E1**			**Model E2**			**Model F1**			**Model F2**		
Intercept	1.21	***	(1.04)	2.25	***	(1.25)	8.31	***	(1.07)	266.2	***	(1.42)
Literacy Level (ref.: Above level 4)												
Alpha level 1	0.08		(3.49)	0.14		(3.39)	0.04	***	(2.06)	0.15	*	(2.24)
Alpha level 2	0.40	**	(1.31)	0.58		(1.35)	0.16	***	(1.26)	0.68		(1.37)
Alpha level 3	0.53	***	(1.17)	0.71	*	(1.18)	0.24	***	(1.19)	0.67		(1.26)
Alpha level 4	0.80	*	(1.11)	0.99		(1.11)	0.48	***	(1.18)	0.81		(1.20)
Educational attainment (ref.: high attainment)												
No educational attainment				0.47	***	(1.22)				0.44	**	(1.29)

	judge the trustworthiness of health-related information in the media						understand and assess relevant political topics					
Low educational attainment				0.53	***	(1.10)				0.49	***	(1.19)
Medium educational attainment				0.69	***	(1.09)				0.69	*	(1.16)
Still going to school				1.75	*	(1.32)				0.62		(1.34)
Employment status (ref.: full-time employed)												
Part-time employed				1.17		(1.09)				0.84		(1.15)
Unemployed				0.88		(1.16)				0.71		(1.22)
In school, university, vocational training, voluntary year				0.99		(1.18)				0.67		(1.29)
Pensioner				1.22		(1.13)				0.87		(1.24)
Unable to work				0.65	*	(1.22)				0.48	*	(1.35)
Other				1.12		(1.13)				0.65	*	(1.19)
Age group (ref.: 18-24 years)												
25-34 years				1.01		(1.16)				1.19		(1.25)
35-44 years				1.20		(1.17)				1.41		(1.26)
45-54 years				0.88		(1.16)				1.46		(1.25)
55-64 years				1.02		(1.17)				1.69	*	(1.27)
Low general interest in health/political topics				0.82	***	(1.04)				0.41	***	(1.05)
Non-native German speaker				0.99		(1.14)				0.53	***	(1.19)
R^2		0.013		0.038			0.066			0.260		

*Note. Exponents of standard errors are in parentheses. Ref. = reference category. Cont. = continuous variable. Source: LEO 2018 – living with low literacy. Base: German speaking adults (n=7.192).*** p < .001. ** p < .01. * p < .05.*

Discussion

In summary, we were able to show some exclusion and marginalization in relation to having low literacy skills, mainly regarding autonomy and critical understanding of information. At the same time, we saw that not all practices, which may include reading or writing, automatically exclude adults who have low literacy skills in the same way.

We were interested in the use of internet and specifically different forms of reading and writing digitally. Our findings suggest an ambivalent answer to these questions.

Adults Who Have Low Literacy Skills Are Not Necessarily Excluded from Writing Online

The tendency to write comments on news articles online seems to depend more on the individuals' age and it showed no correlation with having low literacy skills. This confirms findings that lower literacy levels do not necessarily stop adults from interacting in current debates (Dutz & Heilmann, 2019). We cannot make any statements about the form or length in which these comments are written. They may be continuing text or also symbols, single words, short sentences. Partly, the written comments could also be explained by online comments often being conceptionally oral and are subject to different rules and norms (Storrer, 2014). Commenting online does not seem to include significant literacy-related barriers.

This, however, seems not to be true for searching for health-related information online. This practice reveals a larger and significant literacy-related exclusion. This question shows that adults

who have low literacy skills are less likely to search online for health-related information. Keeping in mind that this probably might be a population with higher health risks (cf. Conti et al., 2010), this lower extent of search-behavior might point into the direction of an exclusion.

This, in parts, confirms the research of Zillien and Marr (2013), which showed that the main social inequality does not necessarily appear with the general access to internet, but instead in the usage of online information and opportunities (cf. Reder, 2014; Smythe, & Breshears, 2017). We were able to determine a low level of literacy skills to be one of the resources that affect the benefit one can gain from the internet access. At the same time, digitalization can offer new areas of communication. Rules for reading and writing online differ and therefore allow for more people who have low literacy skills to be included.

Adults Who Have Low Literacy Skills Often Depend on Support to Fill in Forms

Regarding the second set of questions we raised, we were able to show that a low level of literacy skills substantially increases the probability of a person always using support to fill in forms.

If a person always makes use of such an assistance, this might indicate a need to do so and thus a dependency on this assistance. A person who has low literacy skills might not be immediately excluded, hurt by, or at risk through this dependency, but it limits their autonomy and increases their likelihood of being hurt. Following Hurst's (2008, p. 191) definition of vulnerability as being at a greater risk to be wronged, we can identify the required forms at health services and social services as moments of increased vulnerability for adults who have low literacy skills. We were able to show that adults who have low literacy skills are often forced to rely on the support of others and are therefore restricted and limited in their autonomy.

Low Literacy Relates to Lower Competences to Critically Understand and Judge Information and Issues

Our third set of research questions focused on the extent to which adults who have low literacy skills trust themselves to understand different types of information. The two regression analyses demonstrated that people who have low literacy skills are less likely to do so. For them, it is more difficult to understand and assess a political topic and to judge health-related information critically. We have taken up the philosophical considerations on the relevance of critical literacy and critical competences (cf. Negt, 1969, 1993; Zeuner, 2007) and examined what role functional literacy (in the sense of functional competence to read and write) plays for these competences. We were able to show that people who have low literacy skills are clearly disadvantaged. The disadvantage is not explainable by general educational attainments but seems to be more closely connected to literacy skill itself.

Limitations

The literacy levels in the LEO survey can make no statement on individual cases or relations. All practices and competences are self-reported. They may include a response-bias (c.f. Edele et al., 2015). At the same time, certain (political or social) practices may include some socially desirable response sets and thus enhance these responses.

Conclusion and Implications

We set out to identify vulnerability in relation to low literacy skills. Maybe surprisingly, the vulnerability we found is not directly apparent in all writing practices, but more so in those

practices and competences which are indirectly related to literacy. We found an increased exclusion of adults who have low literacy skills regarding access to digital health-related information and regarding the understanding of that information. We found that adults who have low literacy skills have more difficulties with judging whether a health-related information is trustworthy. In cases where they are required to fill in forms for health services or social services, they are more likely to require assistance of others to do so. This dependency additionally increases their vulnerability as well.

Adults who have low literacy skills have more difficulties understanding political issues, but not necessarily participate in online political discussions less frequently. This shows that a low level of literacy skills does not immediately exclude adults from political participation. It also shows the possibilities that online participation might bring. In many online forums, different rules for reading and writing apply and therefore empower especially those adults who struggle using the legitimate literacy. These adult's writing online might also indicate that they read and write in other instances, which have not yet been acknowledged as legitimate literacy practices by adult educators or adult education research. In addition, there is a difference in how independent people are, for example, when it comes to filling out forms.

The non-significant differences for literacy in writing online show that adults do exercise literacy practices that are currently seldom acknowledged as forms of literacy competences in adult education or research. These might be socially relevant for the respective adults and should therefore be more acknowledged. That fact that adults who have low literacy skills make frequent use of social media also gives a hint that social media might be used more systematically to reach future participants in adult basic education.

Both exemplary questions on the autonomy of adults who have low literacy skills showed that especially adults with literacy in alpha level 1 are far more dependent on others when accessing the health care system or social services. While educators should keep these difficult situations in mind, adults who struggle with their literacy might benefit from easier accessible social institutions. Institutions might serve as gatekeepers to adult learning, but it has been shown that authorities and institutions of social counselling rarely put adults with low literacy skills in touch with providers of adult education is often in need of improving (Angermeier & Ansen, 2020; Buddeberg, 2019).

In summary, it may not be enough for adult education to focus on literacy itself. Rather, people also need a deeper contextual understanding and an equal access to trustworthy information as part of adult education.

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Report from the Field

Teaching Writing to Adult Literacy Students from Harlem and the Bronx

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Abstract

This article describes strategies used by the author in intermediate level reading, writing and social studies-history GED classes in Harlem and the Bronx. Since four out of five of the New York State TASC exams are based on reading, I assign extensive reading and discussion, as well as strategies for answering multiple-choice questions. In addition to a textbook, I make copies of readings that emphasize the students' history—beginning with Columbus to African slavery-- and current issues in their communities.

Keywords: adult education; GED; TASC; segregation; discrimination

For the past 5 years, I have been teaching writing in a high school equivalency program that is funded by the State of New York and is based in Harlem. This program prepares adult students for the Test Assessing Secondary Completion (TASC), which, in addition to a 50-minute essay, has reading, mathematics, social studies, and science components. My purpose in this article is to illustrate the importance of writing prompts that are truly relevant to learners because they have the potential to engage them and increase their interest in writing. In this way, their skill development can be supported through motivated practice.

Class Overview

I have intermediate level students in my writing class. After reading their first essays, I learn that they have a broad range of skills in terms of grammar, spelling, organization, and ability to express their thoughts and feelings on paper. Particularly in the case of students who have been out of school for many years, their essays are often one or two paragraphs long, their English grammar is weak, and many have a writing "block" that I have to understand in order to help them become confident writers. At the other end of the skill continuum, students write fluidly with few errors, and they are able to craft thoughtful essays that are between one and two pages long.

Facing these pedagogical challenges, in the course of a semester my goals are three-fold: to teach essential writing skills that have not been covered in the sub-standard high schools that my students have dropped out of; to prepare them to pass the challenging writing section of the TASC; and to empower them to freely express important thoughts and feelings about their life experiences, including why they dropped out

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of high school. As the semester advances and I receive more essays, I am better able to assess and help each student learn new writing skills and self-expression strategies.

Most of the students in this program come from Harlem and the Bronx. They are working class African-Americans, Latinx and recent immigrants. Students range in age from 18 to 60, but the majority are in their 20s. They share the experience of leaving high school before graduation for a variety of reasons. Since then, most have entered the workforce and some have families. My students' reasons for signing up for this program include going to the 2-year community colleges of the City University of New York, finding jobs that pay more than minimum wage and helping their children with their schoolwork. Keeping their goals in mind allows me to help my students develop stronger writing skills.

On a scale of Level 1 to 4, I have been teaching intermediate Level 2 students. The writing work that I have developed for the Monday-Thursday day program is described below, including samples of insightful and moving student work from a recent semester.

The pedagogical method that I follow is to provide essay topics that encourage my students to draw on their rich life experiences, while they practice and improve their writing. My program has a textbook that covers the five subjects on the TASC exam, but its writing section does not meet the needs of my students, who live in poor and working-class communities in New York City that are among the most racially segregated in the country. I have developed a series of essay prompts based on their lives that my students recognize and are encouraged to write about.

One of the advantages of this adult literacy program is that it has small classes. Twelve highly motivated students usually come to my morning classes. This small class size encourages wide-ranging discussions, making it possible for students to listen to and learn from each other. Critical thinking skills develop that allow students to apply their thoughts and life experiences to the essays I assign. Students who volunteer to read their essays in class receive a wealth of feedback and support from other students that often surprises me.

Small classes make it possible to assign regular essays primarily during class but also for homework. I hand back their essays with as many corrections as needed and detailed comments. In New York City's Black and Latinx working-class high schools, most teachers have five classes a day, 5 days a week. Only the most dedicated English teachers will assign and correct 750 essays over the course of 1 week. This system is bound to fail.

Writing Assignments for Adult Literacy Students

The 50-minute essay on the TASC exam is graded by hand. I ask my students to practice outlining their response to a prompt before they write. The template I give them calls for a main idea in the introduction, three to five paragraphs of supporting details, and an appropriate conclusion or a lesson learned from the subject matter of the essay. Since practice is essential, I assign an essay every week over the course of a 13-week semester.

In the first week of the semester, I hand out an essay that is based on a quote by Terry McMillan: "Can't nothing make your life work if you ain't the architect" (Bell, 1996, p. 8). This open-ended prompt is meant to encourage students to open up and write about their lives. It is also valuable to me in assessing where each of my students is on the continuum of writing skills.

In response to McMillan, Robert wrote: "I will rebuild and fulfill my dreams and hopes on a positive path with no looking back on the negative downfalls. I will focus on much greater things in life, not just for me but for my family." Amadou explained: "I have many friends but I'm the one to go back to school. My friends have decided to do two jobs and to make more money than me. I know that after my studies I will earn more money than those who have decided to not go back to school. This gives me more strength to reach my goals in this country."

A second essay is based on a quote by Spike Lee from *By Any Means Necessary: The Trials and Tribulations of The Making of Malcolm X:* "Presently in America a war is being fought. At stake is the way to control the way people think, act or be passive" (Bell, 1996, p.37). Below are excerpts from essays by three young African-American and Latinx students on the subject of images of African- Americans in the media. From TV to the internet and to social media, my students know a great deal about this subject.

RuQuiya wrote: "My viewpoint on the stereotypical African-American is one of pain and disappointment. When it comes to the men, they are aggressive, scary, dangerous, etc. For African-American women like myself, we are often seen as disrespectful, crazy, rude, etc. On TV, African-American women get the worst treatment, being displayed as sex slaves and mistresses. This leads me to believe that the media is consistently assassinating the characteristics of African-Americans. With all of that disrespect, I believe slavery never ended. It's just in a different form."

Katarina explained: "In America we are fighting a battle of discrimination, even though things have changed a little from the past. No matter how much money, education or hard work we have achieved, we are still fighting a war against racism. No matter how the mass media wants to make us look, we decide who we want to be."

Charles wrote: "My viewpoint on images of African-Americans is that they are always portrayed to be criminals, thieves, etc. Every time you hear some white people speak of African-Americans, they always bring up how they are uneducated and are 'ghetto' or drug dealers. There's so much more to Black people."

An essay in the last part of the semester asks students whether 12 million undocumented workers from Mexico and other countries should have a pathway to become U.S. citizens (Gonzalez, 2011). I expect to receive a range of viewpoints among my Latin American and African-American students on this controversial question.

The students from Latin America supported such a pathway. A Peruvian woman wrote: "We left everything in our countries looking for a better quality of life and to help our families. We take jobs that American people are not interested in. It's hard for us to be in the illegal 'shadows,' when we can be separated from our children. This is the worst nightmare." A middle-aged African American woman wrote that immigrants should become citizens because they "have come to work." Two younger African American students said that undocumented workers should apply for citizenship through legal channels.

In the middle of the semester, students write an important essay on the subject of why they dropped out of their high schools. This is directly relevant to twin goals: understanding the period before they joined the TASC program and gaining a deep understanding of their life, family, and work experiences.

In one semester, 11 students replied to this

prompt, with a rich description of obstacles they have faced, including uncaring high school teachers, family turmoil, poverty, unsafe schools, unplanned pregnancy, and getting stuck in dead-end special education programs. Many of these essays appeared in the program's journal at the end of the semester.

RuQuiya wrote a powerful description of her journey from childhood to this TASC program in Harlem: "At one point in my life, I was a great student. My grandmother made sure I was in good Catholic schools and got tutoring. She made sure I was given a proper education. When I was 16 years old, I was on my way to Georgia to find my mom, only to find out that she was mentally unstable and didn't take education seriously. I missed out on my first semester of 9th grade. When I finally made it to 11th grade, I felt left out. Everyone in my classes went to 12th grade, and I was still in the 11th. I had no confidence. I felt I had no hope of passing. . . One day a big situation happened between me and my mother. I left home, which means I left school. I went back to New York to stay with my grandmother. Now my goal is to get my G.E.D. and start nursing school. Never let someone stop you from what you deserve."

Vanessa wrote that she got pregnant in the 11th grade. "I felt like my life was over so I stopped going to school. I stopped hanging out with my friends. I went to my doctor and found out I lost my baby. I never wanted to go back to my old school or see my old friends. I felt like I was going to get judged, and people would say I faked my pregnancy. Five months later I decided to come to the TASC program to get my G.E.D."

Carnetta explained: "I left high school because my parents did not have enough money to take care of their 10 children. I had to get a job at the age of 17, and I started selling drugs. My mom told me that you have consequences that result from the choices that you make. I didn't listen to my mom. My punishment was going to jail. That was a wake-up call up for me. When I got out of jail, I decided to go back to school."

Carlos wrote: "The main reason I didn't graduate high school was because certain teachers didn't teach me, but only stressed me. It got to the point that I didn't even want to go to school. I would get little to no help when I needed it. They ruined it for me. I didn't have the self-motivation I needed to go to school every single day."

Juliette explained: "In junior high school and high school, I went to some of the best public schools in the Montreal area. The issue with my mom was that she always told me that when I turn 18 yrs. old I needed to move out. I started having problems with concentration in school. So I left school at the 11th grade and started working at McDonald's, Burger King, supermarkets and every silly job. I am so happy I moved to NYC in 2002. I have a little girl who is turning five years old, and I want to read to her as she grows up."

Varenda came to live in the United States with her mother when she was 9 years old. She was placed in a third grade special education class instead of the fourth grade. "When I started high school, I still had to be in Special Education classes until the teacher decided that I no longer needed to be in there. But that never happened. Feeling like I'll never get out of the Special Ed class, I stopped participating in class. I got there late, ate, fell asleep and laughed with the other students. But I never did work."

Gina wrote that she was the product of a "broken school system." Her family moved from Puerto Rico to New York City in the late 1960s. "My mother dropped out of school in 3rd grade because she didn't have any shoes to wear to school. In

New York, I learned English by watching TV and listening to the radio. I missed out on someone reading to me at home as a child. I wished that I had someone showing me the way. I was passed from grade to grade without knowing how to read or write. When it came to 11th grade, I dropped out of high school. So here I am at the age of 55, trying to get a high school diploma."

After working on 13 essays over the course of a semester, nearly all of my students' writing, including their grammar, spelling and organization, show a marked improvement. Some of the students who have relatively strong writing skills at the beginning of the semester move to a higher, more sophisticated level, including in the length of their essays. The students who begin with relatively weak writing skills make the most visible improvements. Wherever they are on the writing skills continuum, my students demonstrate that they are better able to write about their thoughts and feelings, especially about their families and jobs.

Conclusion

Though my intermediate Level 2 students are not ready to take the TASC, most of them graduate to Level 3 or 4, which have a greater focus on exam preparation. I do not automatically receive TASC test scores, possibly with student privacy concerns in mind. However, some students have shown their test scores to me and asked for suggestions on strategies they can use for future study and test-taking.

We also participate in an important celebration. At the end of a semester, the program hosts an evening celebration of student achievement at a church in Harlem. Many family members, friends, teachers, and staff members attend. Essays by many of my students are published in the TASC program booklet, which is distributed at this event. This is the first time that these students have been published and recognized by their peers. They are still on the journey, but they already are becoming "architects" of their lives.

The experiences of these students also point to the urgent need to transform New York City's segregated, working-class Black and Latino high schools. Many of the strategies that I have used to teach writing and empower students in this adult literacy program can be applied to teaching writing in these high schools to keep students from dropping out in the first place. An alliance of students, progressive teachers, parents, and community-based organizations can be a force to fight for high-quality schools in these communities.

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Viewpoint

"Naming the Elephant": Literacy Classism, Human Rights and the Need for a New Conversation.

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Abstract

Adult literacy has been on the margins of postsecondary education for so long that many in our field assume our ongoing struggle for adequate funding and a better image is somehow "normal." It is *not normal* that some 107,000,000 adults across North America are marginalized, with many hidden in society due to low literacy. This article argues it is time to reconsider the position of our field concerning funding and image beginning with a new conversation concerning literacy classism—the "elephant in the room."

Note: My thanks to Margaret Patterson and Leona English for their input to this article.

Keywords: adult literacy, marginalized populations, classism

"Adult education is a phrase originally meaning the education of adults who have not been properly educated as children."

—Encyclopedia Brittanica, 1953

In an earlier life, I was responsible for the ABE and GED programs offered through a Canadian province's colleges and career/technical institutions. One of my darkest moments was in a budget meeting seated around the table with other program managers. I had the (rare) opportunity to make the case for more funding for adult literacy and basic education (ALE). I began with the latest "shocking" low-literacy statistics and went on to describe the economic benefits our province could realize with added funding for these programs. I then started in with some of our learners' success stories when, suddenly, a department head interrupted me and, in a too-loud voice, demanded: "Why should we invest more money into programs for 'losers?'" The ALE budgets were all reduced that year. The reason given was: "lack of resources."

However, virtually all the other college and career/technical programs got an annual increase. The following year saw even more funding cuts to ALE. A grassroots letter-writing campaign arose and the Minister of Advanced Education received hundreds of letters from adult learners and practitioners across the province demanding more funding and improved program access. That year, more funding was found. But only for that year.

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Over the years since, I have asked: "What made the other career/technical programs such higher priorities?" Further, "Why did no one disagree with that blatant 'losers' statement?" Even more important today: "Why has so little changed? After a more than 150-year history of adult literacy education in North America (Quigley, 2017), "Why is adult literacy education still seen as a 'temporary need?'" Given our long history and given the sheer numbers of adults living with low literacy: "Why is ALE typically only funded with annual grants?" Further, "Why is long term planning and staff job security so unheard of in ALE?"

This leads to some deeper societal questions. For example, Beder (1991) observed, "[While it is] no longer socially acceptable to publicly denigrate Blacks, Hispanics, and welfare recipients, it is acceptable to denigrate…illiterates." (p. 140). Today, we could add it is unacceptable to denigrate the LGBTQ community, those living with HIV/AIDS, those with disabilities, the aged, Native Americans; and, here in Canada, First Nations, Métis, and the Inuit. These changes tell us there is hope. Over the past few decades, such previously marginalized populations have gained a voice, at least some levels of respect, and have now some degree of greater equity. Yet, why is it that, "It is still "acceptable to denigrate…illiterates."

We have an estimated 107,000,000 adults living with low literacy in North America, many of whom are hidden in society (Quigley, 2017). This population comprises one of the last major marginalized groups in our society. A population that remains invisible and voiceless.

After almost 50 years as an ALE practitioner, administrator, government worker and academic, I ask a larger question: "Why is our learner population still assumed to be a 'societal problem' needing to be 'solved'?" What other adult education program is seen as a "problem to be solved?" My research leads me to the conclusion the answers lie not in budget meetings, but in the class structure we have inherited from history. Our "elephant in the room" is the hegemony of literacy classism.

The Ladder of Resources and Prestige

We have a "ladder of resource allocations and prestige" in governmental and postsecondary institutions that consciously or unconsciously mirrors our class structure. Accordingly, adult ALE programs are typically placed on the "lowest rung" of funding and prestige. Meanwhile, in the world of North America's thousands of literacy volunteer tutors and administrators, the ongoing search for funding ranges from government to charities, to bake sales. How can this be understood?

As colleagues and I have discussed elsewhere:

> An invisible caste system exists in North American society, one that is burdened by wage inequalities, educational discrepancies, government policies and is forgotten in most university and college adult education degree programs…Another term for this 'caste system;' is social class, whereby lower 'castes' are typically the under-educated, under-employed or unemployed low-wage earners (Zacharakis et. al., 2021, p. 420).

There is a growing viewpoint that resource allocations for ALE are merely the tip of a societal stigma, a viewpoint I believe should be seen as "literacy classism. If we are to see any real change in our field, we need a new discussion—a discussion that advocates for human rights for adults living with low literacy in our programs and in our society.

Naming the Elephant

As discussed by Zacharakis et al., the concept of classism denotes: "a negative relation between

classes where one class treats another class differently based on the first group's perception of cultural values and social status in the second group" (p. 420). As we discussed, having such a view is not always a conscious act; nevertheless, literacy classism is undeniably part of our society. And has been for millennia (Quigley, 2017).

If we turn the clock way back, according to Fischer (2003): "It is possible that the ability to read and write…was one of the distinguishing qualities of aristocracy [as early as] the third millennium BC [sic]" (p. 20). As history tells us, with the rise of the Roman Empire, the skills of "accessing and sharing written knowledge" (Fischer, 2003, p. 149) became so important, so powerful, that the ability to read and write lead to the rise of a privileged class that managed the empire. A privileged class called the *litteratus* arose (Fischer, 2003, p. 149). As such, "accessing and sharing written knowledge" was exclusively in the language of Latin. Latin, alone, was the accepted "vehicle of Christendom and all learning" (Fischer, 2003, p. 149). As Fischer points out, such societal control by a privileged class, "demonstrates how literacy in any society is not simply a question of who can read and write, but rather the accommodation of prevailing values" (Fischer, 2003, p. 149). From the Roman era we have inherited terms such as "literate," "illiterate," "literacy" and "literature." We have also inherited an age-old prejudice towards those with lower levels of formal education.

Two Reasons for Adult Literacy Education Through Time

A history of reading and literacy is beyond the scope of this article, but it is significant that the first published history of an organized literacy school for adults in the English-speaking world that had a lasting influence was by Dr. Thomas Pole. Today known as *Pole's History* (original 1816, reprinted by Verner, 1967), Pole argued the case for teaching adults to read using the Bible. He described the successes of the Bristol School Movement as established in Bristol, England in 1812 and how its religious founders held the fervent belief that reading the Bible would improve the moral conduct of the "illiterate poor." As Pole argued, being able to read the Scriptures would surely inculcate: "the great truths of Christianity amongst those classes of our fellow creatures who have hitherto been unhappily neglected and suffered to remain in a state of lamentable degradation and moral turpitude" (p. 11). Not only that, reading the Bible would mean: "Industry, frugality, and economy will be their possession." And, "they will have also learned better to practise meekness, Christian fortitude, and resignation" (p. 19).

But there was a reason besides morality for teaching the "illiterate Poor" to read. Literacy would reap economic benefits (p. 19). As Pole argued: "Our poor rates will thus be lightened, our hospitals, alms-houses, dispensaries, and other public charities less encumbered" (p. 19).

Here then was the basic two-fold archetype of reasons for supporting adult literacy that we still see today. The rhetoric has changed but the purposes are still: unburdening taxpayers and enhancing the economy, and improving morals and instilling the "prevailing values" of society (Fischer, 2003). These two purposes are not mutually exclusive (Quigley, 2017). The countless negative stereotypes of adults living with low literacy, then and now, are still assumed to be linked. As Stevens (1987) stated: "Bible literacy [in the 19th century] could allow the poor to do their religious duty…it would also help them to acquire the habits of industry and thrift. And a sense of their place in the social order" (p. 107).

The Peril of the Republic

Prejudice towards adults with low literacy was widespread in North America in the early years of the 20th century. As President Calvin Coolidge insisted in 1926: "When it is remembered that ignorance is the most fruitful source of poverty, vice, and crime, it is easy to realize the necessity of removing what is a menace [i.e., illiteracy], not only to our social well-being, but to the very existence of the Republic" (as cited in Quigley, 1997, p. 92). During the halcyon days of the War on Poverty, the 1966 *Adult Education Act* brought adult literacy to the forefront of public attention. The same occurred in Canada with the passing of the federal *Adult Occupational Training Act* and ALE programs became an established part of postsecondary education on both sides of the US-Canada border.

Literacy campaigns flourished (Quigley, 1997). The media took up the cause and a near "genre" of adult literacy stereotypes grew up in the popular literature. This "genre" was so prevalent that, elsewhere (1997), I was able to discuss whole categories of literacy stereotypes. For example, in the category of "The "Heroic Victim" (1997, pp. 51-53), the public could read how tragic low literate figures were forever "struggling to survive" (p. 51). The *Saturday Evening Post* claimed: "They suffer in silence and try to hide their problem in shame" (Harr, 1988, p.46). In the *Harper's Bazaar*, the author tells readers he had, "Never encountered people as hopeless, as sad and as full of loss as those who cannot read or write (Smith as cited in Quigley, 1989, p. 52).

Tellingly, these "heroic figures" were typically White males. The category of "The Simple African American and Simple Southern Whites" (pp. 58-60) was even more demeaning. These one-dimensional figures had to "first acknowledge their ignorance and then come humbly, and directly, to the more knowing teacher" (Quigley, p. 58). Only then could they be "saved" by literacy programs. This surge of media stereotypes reached the point that, in 1987, Woodring wrote in the *New York Times*: "More nonsense is being written about illiteracy than any other subject" (cited in Hechinger, 1987, p. III-7). Nevertheless, what Woodring called "nonsense" in 1987 had had more than a decade to build and reify literacy classism. These demeaning images have been well engrained in the psyche of North America and, to my knowledge, they have never been seriously challenged in the media or in public discourse.

Rethinking ALE in Postsecondary Education

While more research and discussion are needed on literacy classism in society, we need to understand how literacy classism impacts our own practice. In the absence of postsecondary research, we can turn to recent research in higher education. Rosinger et al. (2016) reported on what they called a "prestige economy" in North American universities. They found higher education resources "are not distributed randomly" in universities (p. 33). Instead, the "driver for resource segmentation" (p. 34) is the simultaneous pursuit of "money and prestige" (p. 48). Greater resources and more prestige were allocated to those faculties able to raise significant external research funding. Departments such as engineering, law and medicine were "high resource" faculty (p.48). They received more internal resources, more autonomy, and more prestige than "low resource" faculties such as humanities, education and human services. Low resource faculty typically could not secure significant external funding and, therefore, had to rely on "the favour of administrators" (p. 45) for their resources and they also had to carry larger teaching loads.

I am not aware of similar research regarding our postsecondary systems but I can draw on my own experience whereby more resources and prestige are typically awarded to "high resource" programs such as nursing, business and instructional technology since they can enter major training and research contracts with corporations or the health sector. Low resource programs such as social work, education and our ALE programs, by contrast, rely on "the favours of administrators" for resources. These "favours" typically extend through our institutions to sponsors' board tables, not unlike the one I sat at in that earlier life that I mentioned earlier. For all these reasons, our vulnerable ALE programs are typically placed on the bottom rung of our institutions' ladder of resources and prestige.

Towards a New Discussion

If we are to see any real change for our learners and our practice into the 21st century, I hope the following topics might be explored:

- Learners need a far more significant voice in what is, after all, their own future. If even a third of our learners and graduates were to write to political decision-makers lobbying for adequate, stable funding, the thousands of letters could not be ignored.
- Raising learner awareness of social structures, inequalities, human rights and the potentialities of democratic change should be a major curriculum objective.
- International Literacy Day was established by UNESCO in 1965 to "actively mobilize the international community and promote literacy as an instrument to empower individuals, communities and societies." Every September 8th should be a day of media exposure with "marches for literacy" involving large numbers of learners. Delegations from across the volunteer and postsecondary systems should lobby decision-makers for change on September 8th. We need to be visible.
- If practitioners were to unionize across states and/or provinces, it would build a major voice for change. Imagine if states and/or provinces went on strike. If they did, the USA and Canada would definitely hear our issues.
- Finally, we need greater professional credibility. While few fields can rival ours for unselfish dedication, today's professional norms demand demonstrable skills and a verifiable knowledge base. Unfortunately, gaining professional development at the university level includes lobbying universities and state/provincial governments to make more ALE programs available, along with subsequent incentives for participating.

In closing, while I realize not all will agree with these suggestions, few of us entered the field to become "political," I nevertheless ask one last question: "Can we agree it is time for a new conversation?" If we don't name the elephant in the room—give it a push—who will?

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Research Digest

Using Data in Practice: What Does It Look Like and What Does It Take?

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Note: *This manuscript previously appeared on the ProLiteracy website. It has, however, been updated into APA 7 format.*

Adult practitioners share a laudable goal—to help vulnerable adults learn and improve their lives.

To determine whether their learners are making progress or have achieved a specific outcome, most practitioners rely on data generated by a variety of formal and informal assessments. Practitioners may use these measures to adapt instruction as needed, for example, to identify learners who are struggling and need more intensive or differentiated instruction (Supovitz & Klein, 2003; Wayman & Stringfield, 2006). Practitioners may also find data useful for evaluating and improving instructional practices (Halverson et al., 2007; Supovitz & Klein, 2003). Learners can use data on their own performance to inform their approach towards achieving an outcome (Hamilton et al., 2009; May & Robinson, 2007; National Research Council, 2012). At the administrator level, program-wide data can be used to assess whether curricula or special initiatives are having the desired effect, and it can inform a change in course when needed (Kerr et al., 2006; Marsh et al., 2006).

To understand the types of outcomes data that may be useful to practitioners and how they may be used effectively, we first review existing theory and research on using outcomes data in practice. We then suggest implications for practice but also highlight gaps in this research.

Guiding Frameworks

Existing frameworks for using outcomes data in education, referred to by a variety of labels such as data-driven or data-informed decision making, are not specific to adult education. Mandinach et al., (2006) developed a commonly cited framework which conceptualizes data use as a continuum that transforms data into the actionable knowledge and understanding needed to implement effective practices. This continuum begins with collecting and analyzing data, then summarizing findings in a way that creates usable information. For example, this could be compiling math sub-scores for a program that is trying to improve instruction. This information is then synthesized to form knowledge that is useful to guide decisions and action. More specifically, a comparison of math sub-scores before and after implementing a new curriculum could be used to evaluate its success in improving learners' math outcomes. A key assumption of this model is that practitioners need both tools and knowledge—

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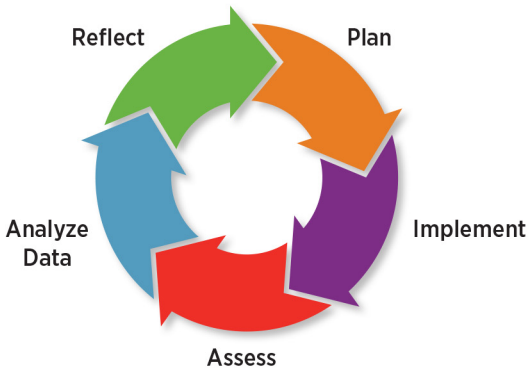
"data literacy"—to access and effectively analyze and make use of available data.

Marsh et al. (2006) adapted and added to this framework by making explicit the different purposes for using high-stakes assessment data and other sources. These include setting goals and assessing progress toward them, addressing individual or group needs, assessing effectiveness, or reallocating resources in response to outcomes. They also identified factors that influence data use, such as the accessibility, quality, and timeliness of data.

Means et al. (2009) conducted a large-scale implementation study to inform the development of a framework with five main actions for data use: reflecting on areas that need improvement, planning and implementing strategies to address them, collecting and analyzing assessment or other outcomes data, and reflecting on the findings to fine-tune implementation (see Figure 1). Most usefully, they detailed the critical need to focus on the conditions required for successful data use: accessible data systems, leadership focused on educational improvement and data use, tools for generating actionable data, social structures and time for analyzing and interpreting data, professional development and technical support for data interpretation, and tools for acting on data.

Figure 1. Conceptual Framework for Data-Informed Decision Making



Prerequisites and Supporting Conditions

1. Data systems	2. Leadership for improvement and use of data	3. Tools for generating data	4. Social structures and time set aside for reflection on data	5. Professional development and technical support for data interpretation	6. Tools for acting on data

From: Means, Padilla, DeBarger and Bakia (2009). Implementing Data-Informed Decision Making in Schools: Teacher Access, Supports and Use. U.S. Department of Education, Office of Planning, Evaluation and Policy Development, Washington, D.C., 2009.

Effects of Using Data

Little rigorous research has been done on the effects of using data to improve learner outcomes; what does exist was conducted in K-12 settings and has shown mixed or null results. However, a small number of promising findings have emerged. For example, May and Robinson (2007) found that providing secondary students with detailed performance information led to greater persistence and improved performance in retaking the state's graduation test. An additional suggestion based on a systematic evidence review is to create a "cycle of inquiry" to help learners use formative data to reflect on their progress and become their own data-driven decision makers (Hamilton et al., 2009).[1] These findings are tempered, however, by another evidence review which suggests that providing learners with timely, individualized, and ongoing qualitative feedback such as immediate identification and explanation of errors—and especially feedback that is presented within the context of a learner's goal—is more useful than sharing only test scores (National Research Council, 2012).

Several others have tested the guided use of formative or interim assessments to inform instruction and found positive effects on learning at the elementary and secondary levels

1 Note, however, that the level of evidence was considered to be low, based on this review.

(Carlson et al., 2011; Supovitz et al., 2018). However, impacts in one study were found only for schools with a high level of readiness to implement a data-based intervention (West et al., 2016). These findings echo the guiding frameworks described previously and reinforce the idea that there are important contextual factors to consider in using data effectively.

Considerations for Practitioners

Create and Engage in a Culture of Data Use

Creating and engaging in a culture of data use is perhaps the most all-encompassing and promising strategy to promote the effective use of data in daily practice (Means et al., 2009; Gerzon, 2015). This means that everyone who touches and is impacted by outcomes data—including learners—is supported in understanding and engaging with data because of the guidance it can provide.

Yet, creating a culture of data use in adult education programs is challenging. For example, many programs are staffed with part-time instructors, which limits their administrative, planning, and instruction time. This may contribute to low receptivity for engaging with data beyond man- dated reporting requirements. Instructors and other staff may be very receptive to integrating data into their decision making, but their access to it may be limited. Barriers like these can be addressed through supportive practices.

Provide Access to and Expert Guidance on Interpreting Data

Ongoing access and guidance on understanding and using data within a data for decision-making framework are crucial (Means, et al., 2009; Knapp et al., 2006). Strategies to accomplish this may be structural—for example, by ensuring that all instructors and paraprofessionals have access to real-time and easily understandable data and a glossary of data definitions (Jimerson & Wayman, 2015). Tools such as data dashboards and ongoing coaching on the interpretation and application of data (see below) serve to enhance understanding and support practitioners (Murray, 2014; Means et al., 2009; Knapp et al., 2006). Additionally, it is important to ask practitioners what data would be useful to them. If request- ed data are not currently captured, staff should collaborate on ways to integrate additional data collection within an existing or future data collection system (Means et al., 2009; Knapp et al., 2006).

Provide Professional Development on Data Use

Often professional development related to data focuses on collecting and reporting information to comply with accountability mandates. Although this is necessary for all publicly funded adult education programs, it may not encourage instructor ownership of data. Helping practitioners understand, interpret, and use the data they collect to drive instructional decisions creates a meaningful context for data collection and use (Marsh et al., 2006; Murray, 2014; Shen & Cooley, 2008). Potential strategies for accomplishing this goal include incorporating data-based scenarios and designating time in staff meetings to discuss, interpret, plan, and evaluate data results and trends. This can create opportunities to use data to inform instruction, develop or revise curriculum, and provide tailored guidance for learners.

Implement Data Teams or Data Learning Communities

Similar to the potential role of professional development, multi-disciplinary data teams or facilitated, peer-to-peer data learning com- munities can serve programs and learners by promoting a collaborative, continuous quality improvement

approach (Gummer & Mandinach, 2015; Jimerson & Wayman, 2015). For example, a team comprised of a program coordinator, career navigator, literacy specialist, and ESL and ABE instructors can review learner data and collectively identify trends, outliers, challenges, and opportunities. It can hypothesize on root causes of identified issues and potential solutions or replicate promising practices for both individual learners and the program. This might include implementing activities to increase learner engagement for a specific demographic, recognizing course or service duplication, or analyzing why and how to replicate learner successes across program offerings. This process may also help identify team gaps and focus new staff recruitment on missing competencies or identify adult education partners who can help address them.

Incorporate Data to Support Learner-Led Decision Making

Instructors and other adult education staff, including career counselors, navigators, and case managers should also consider using outcomes data with learners to help them identify and periodically review progress toward the goals that first brought them to adult education (Marsh et al., 2010; Hamilton et al., 2009). This could include connecting attendance with progress towards attainment of a needed credential or certification. Or it could involve using successful high school equivalency (HSE) completion or a demonstrated increase in measurable skills gains as discussion points with individual learners for career development. Sharing data and what it means with learners may help them reflect on their persistence and highlight how to incorporate data into a résumé or use it during a job interview as an example of their potential to be successful (Murray, 2014). In this way, learners can leverage data to recognize progress and accomplishments, set new benchmarks, and identify next steps. Using data in this manner also helps professionalize the classroom by replicating the type of engagement and discussion around individual goals that may occur in the workplace.

Give Data a Face and Tell a Story

Because adult education data represents actual learners, it can be used to tell their stories as a way to increase awareness of program services and impacts. Data can inspire funders, learners, and instructors to engage with education issues and support improved learning outcomes (Gerzon, 2015; Gummer & Mandinach, 2015). Whether it is used to show a student's successful completion of an HSE exam, progression to the next level, or fulfillment of requirements for postsecondary admission, data can be used to illustrate the journey and outcome and reinforce the value of adult education.

Considerations for Research

While existing frameworks and research offer insights into best practices for using data, there is much more to be learned. These are some of the questions that remain:

- What constitutes program readiness to use data, and how can it be supported?
- What are promising approaches to developing data literacy?
- What types of data are most useful, to whom, and for what purposes?
- How can data best be collected and made available in a format that practitioners can readily use?
- What impact does data-informed practice have on learner engagement and progress?

Additional research can inform these questions and contribute to increasing effective data use among adult education program managers, practitioners, and learners.

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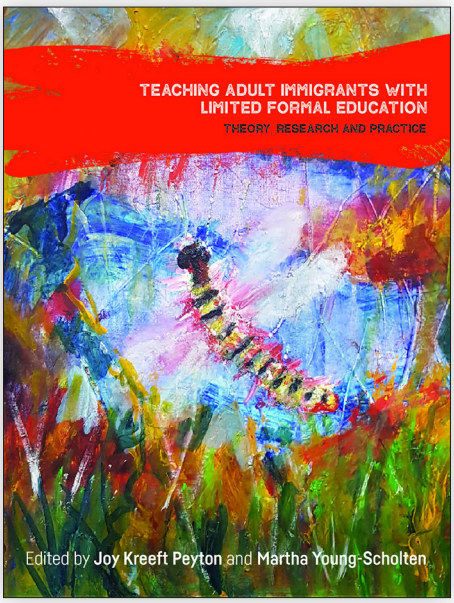
Book Review

Review of *Teaching Adult Immigrants with Limited Formal Education: Theory, Research and Practice*

Aydın Yücesan Durgunoğlu, University of Minnesota Duluth

Around the globe, there are almost 80 million people who have been forcibly displaced, which is the highest level the world has ever experienced (United Nations Refugee Agency, n.d.). When these adults arrive to highly literate societies, they are required to rapidly develop both oral and written language skills in order to survive, gain employment, become citizens and help their children thrive. It is a tall order for individuals who have left their homes under horrible circumstances and may have had their education interrupted because of war, conflict, economic struggles, cultural constraints (Durgunoğlu & Nimer, 2020). Some of these immigrants are developing literacy skills for the first time and in a new language. This book focuses on this often-overlooked population, adult immigrants with limited formal education, and it is a timely addition to the field.



Except for the last chapter, this is not a book on effective practices in the classrooms, rather the chapters primarily provide an overview of linguistic and sociocultural concepts that are important for teachers to know. This is praiseworthy, because as Fillmore and Snow (2000) recommended two decades ago, teachers should learn more about language in order to be effective communicators, educators, evaluators. This book introduces the multifaceted and complex constructs that constitute what we call "language." In each chapter, contributors give an overview of one aspect of literacy development, and then apply those findings to this specific adult population. This book is a good resource in education programs preparing adult educators. It can also benefit teachers who work with adults developing literacy for the first time in a new language, irrespective of the language.

Peyton, J. K., & Young-Scholten (Eds). (2020). ***Teaching Adult Immigrants with Limited Formal Education: Theory, Research and Practice***. Multilingual Matters. 208 pages, $34.95, paperback. ISBN: 9781788926980

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In their overview in Chapter 1, Peyton and Young-Scholten explain that their book emerged from a project that developed six modules to train teachers around the world who were working with adults with low or limited literacy. In countries that have welcomed immigrants, adult educators face similar challenges despite teaching different languages. In Chapters 2-6, different authors discuss the cognitive, sociocultural, and educational aspects of the challenge of both learning a new language and becoming literate in it.

In Chapter 2, "Language and Literacy in Social Context," Suni and Tammelin-Laine describe the situation in Finland. Although Finland is one of the top-performing countries on global literacy and numeracy tests such as PIAAC or PISA, there is a serious gap between migrant versus non-migrant learners. This chapter emphasizes that literacy is culturally mediated, consequently teachers and learners may have different perspectives on the value and use of literacy. The concept of "affordance" is highlighted, describing how learners perceive different learning opportunities in the environment and select to focus on those they determine to be worthwhile or needed. The authors emphasize the usefulness of collaborative learning, scaffolding and support both inside and outside of the classroom.

Chapters 3, 4 and 5 discuss the cognitive foundations of literacy development. In Chapter 3, using a psycholinguistic perspective, Sosiński provides an overview of both bottom-up and top-down processes of literacy and provides examples of literacy activities in Spanish. Next, in Chapter 4, Rohde et al. offer a thorough overview of the complex clusters of information (semantic, syntactic, orthographic, morphological, pragmatic, relational) that characterize vocabulary knowledge and the challenges for second language (L2) learners. Because of limited research on vocabulary development of adults with low literacy, the authors draw heavily from research on the vocabulary development of children in their early years, when they are not yet literate. The authors also offer practical strategies for teaching vocabulary.

In Chapter 5, Young-Scholten and Naeb cover the acquisition and assessment of morphosyntax knowledge, which plays an important role in reading comprehension. This chapter reviews research based on the target group of interest, adult L2 learners, but of course, the educational backgrounds of this population are varied, and most recent research is conducted with college and high school students learning a foreign language, after they are fully literate in their first language (L1). To their credit, the authors of this chapter refer to research from the 1970s with migrant adults. One strong claim of the chapter is that an adult's acquisition of morphosyntax in an L2 follows a developmental pattern that is largely independent of the learner's L1, age at exposure to this new language, educational background and whether the learning occurs inside or outside the classroom. This conclusion assumes common stages in morphosyntactic development for L1 and L2 speakers of a language and has strong implications for teaching morphosyntactic constructs in a sequential order.

Chapter 6 by Haznedar provides an extensive overview of bilingual children and their education. Although this chapter is not directly related to the education of adult immigrants with limited schooling, teachers may use this particular chapter to discuss with adult immigrants their children's bilingualism and ways to maintain their heritage language.

The last chapter by Faux and Watson is the one that is most directly related to instruction. The

authors list topics to consider when working with adults developing literacy skills for the first time and in an unfamiliar language. These topics include: preparing relevant, socioculturally-sensitive materials, getting to know the learners and their existing literacy experiences, acknowledging the emotional aspect of instruction and creating a safe space, and finally, considering the kinds of learning that takes place outside of the classroom. This chapter also addresses the challenge of how to teach a class that includes learners with varying levels of literacy and L2 proficiency.

One concern that I have is that, for a book that covers the literacy development of adults, across the chapters there is a very strong emphasis on child oral and written language development. Drawing too many parallels with child development may lead practitioners to overlook what adults already know and bring from their L1s. Despite low levels of literacy (hence the parallel with children beginning to read), adults have already well-developed oral language skills. They also possess life experiences, problem-solving skills, and social networks. Some immigrants are likely to speak two or more languages and thus have metalinguistic awareness about how languages represent concepts. If classroom teachers use child research findings as a direct guide to understand L2 development in adults, they may unintentionally discount adults' L1 knowledge, experiences, and most of all the adult mind. After all, as Young-Scholten & Naeb state in Chapter 5, "adults are more cognitively sophisticated than children."

Overall, this volume is a good resource for educators to understand the foundations of oral and written language development. Armed with this knowledge, teachers can then develop effective classroom practices to address the needs of this understudied, and yet rapidly growing group of adult learners.

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Resource Review

Review of *Teaching the Skills That Matter*

Kathy Olesen-Tracey, Illinois Community College Board

Teaching the Skills That Matter (TSTM) is an innovative and relevant training and professional development initiative funded by the Office of Career, Technical, and Adult Education and led by the American Institutes for Research. Designed to support states and WIOA-funded grantees, the main component of the project is the TSTM Toolkit, which includes instructional models and curricular examples used to train teachers in the highly relevant content areas of civics education, digital literacy, financial literacy, health literacy, and workforce preparation.

The TSTM Toolkit, developed by adult education experts, is grounded in three research-based instructional approaches: problem-based learning, project-based learning, and integrated and contextualized learning. These approaches enable teachers to provide in-depth instruction in the nine central skills that matter, skills that will be familiar to most practitioners. The nine TSTM central skills are: adaptability and willingness to learn, communication, critical thinking, interpersonal skills, navigating systems, problem-solving, processing and analyzing information, respecting difference and diversity, and self-awareness.

Located on the LINCS platform, the TSTM Toolkit is organized in a clear and easy-to-navigate manner. Because the toolkit was created by educators for educators, it resonates with both teachers and learners. The resources available in the TSTM Toolkit are applicable for all levels of adult basic education and English language learning classrooms.

The toolkit begins with an overview and is organized around the five content/topic areas, each of which includes an issue brief, a case study, six standards-based lesson plans, and an annotated bibliography. The TSTM lesson plans offer adult education teachers the necessary support to meaningfully integrate the nine central skills into instruction.

The well-designed lesson plans in the TSTM Toolkit feature content that is highly relevant and engaging to adult learners. For instance, the civics education section of the toolkit includes a lesson plan on "First Amendment Rights" with a partner reading activity on the Montgomery Bus Boycott

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and Martin Luther King Jr.'s use of nonviolence. Another lesson plan is on the Flint water crisis. Equally rich content in the digital literacy section includes lessons on workplace safety and the appropriate use of social media. The financial literacy section provides background knowledge on purchasing a car and managing a budget while the lessons in the health literacy section engage learners in defining good health and critiquing health information on the internet. These lesson plans build knowledge and skills in the social sciences while also supporting and enhancing learners' digital literacy skills. Each of the lesson plans model best practices and provide guidance on developing future lessons at the local level.

Included in the "Other Tools and Resources" part of the TSTM Toolkit is an action plan template and guiding questions for integrated and contextualized learning, problem-based learning, and project-based learning. Teachers can use these guiding questions when applying the Teaching Skills That Matter processes to their existing curriculum. With this detailed guidance, coupled with the flexibility of design, the TSTM resources support educators to explore and apply fresh ways of working with adult learners.

The TSTM site also features brief videos of lesson implementation from actual adult education classrooms. The currently available videos focus on each of the three instructional approaches. The project-based video highlights the lesson "Eating Healthy on a Budget." The multi-level ESL classroom featured in the video is engaged in planning a healthy and affordable meal. This lesson provides instruction in English language acquisition, health literacy, and financial literacy while providing learners with a highly relevant learning experience. In the video on problem-based learning, we see a multi-level ESL class engaging in a real-world workforce preparation lesson on "Unmet Workplace Performance." The video on the integrated and contextualized instructional approach, features a class of intermediate- to high-level ABE learners engaged in the financial literacy lesson on "Household Cash Flow" In this video, we see learners working collaboratively to discuss finances and decide how to manage money. Five additional classroom videos are planned on each of the TSTM topic areas

Moving instruction from theory to practice can be challenging. The TSTM Toolkit addresses this concern by including clear and concise sections that conclude with templates and tools to support transference of learning, making the toolkit easy to use by professional development trainers, adult education program managers, and instructors who seek opportunities for independent learning. There is even a tool for analyzing lesson plans to determine how the central skills can be incorporated into a teacher's regular curriculum.

With clearly outlined sections, the TSTM Toolkit as well as the classroom videos can be used at the local program level for staff development or through teacher training efforts statewide. As adult education strives to meet the needs of diverse learners and multi-level classrooms while preparing students to move into postsecondary education and sustainable employment, integrating the skills that matter into instruction creates a clear connection between content and real-world skill development that can improve outcomes for all learners.

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Digital Navigation Services

David J. Rosen, Newsome Associates

This issue's Technology Solutions column does not follow the typical order of *education challenge* followed by *technology solution*, although ultimately one of the main purposes of a digital navigator solution is to address an education challenge, especially when remote or online learning is involved, and when in-person learning options are unavailable. The challenge in this column is: good computer or Chromebook access to broadband internet from home for education purposes. The solution, this time, focuses on the human help needed to address the challenges of reliable broadband internet access from home and help with the digital literacy skills needed for online learning.

Technology Challenges: Helping adult learners obtain affordable home broadband access to the internet; affordable digital devices such as discounted desktop and laptop computers or Chromebooks for use at home; and digital literacy skills needed for learning online and possibly also for work or finding employment, finding health-related information and services, or to meet other pressing needs for navigating digital devices and the internet.

Human Solution: Digital navigation services provided by a digital navigator

The parts of an Infographic appearing in this article were published in a report Literacy Minnesota produced with funding from the Minnesota Department of Education. They are included here with Literacy Minnesota's permission. The whole infographic will be found at https://www.literacymn.org/sites/default/files/uploads/MDE docs/Digital Navigator Model Infographic.png and also at https://www.digitalinclusion.org/wp-content/uploads/dlm_uploads/2021/04/DN-Infographic.pdf

What Is a Digital Navigator?

Someone who helps people to find their way to and in the online world, for example, who helps them:

- Find affordable internet access from home or elsewhere
- Find an affordable internet-accessible digital device such as a desktop or laptop computer, electronic tablet, or Chromebook
- Acquire the digital skills they need to accomplish online learning, online health tasks, online job

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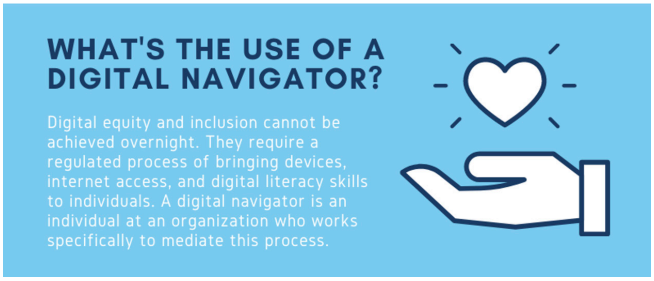
application or job-related goals, to access online banking and complete online banking tasks, and for other important needs that can be met online



Where Can Local Digital Navigators Be Found?

Digital navigators can work for or volunteer with:

- Public libraries
- Adult basic skills education programs and schools
- Mayor's offices
- Hospitals and community health centers
- Companies and corporations
- Labor unions
- Universities and colleges
- Other organizations; or coalitions, collaboratives, or partnerships of organizations

Currently they can be found in 18 states.

A digital navigator could be a new full-time or part-time in-person, on-phone, and/or online position, or a set of digital navigation services integrated into an existing job, for example, in the job of a reference librarian, community health worker, or a company's human resources department staff member.

Why Is This Role Needed and What Kinds of Digital Navigation Services Are Provided?

The COVID-19 pandemic has dramatically demonstrated that students in K-12, higher education and adult basic skills education need reliable and affordable home access to the internet, and that they may also need a home digital device and/or specific digital literacy skills. Digital navigators, available by phone, in person, and for those who have reliable broadband access by internet, can help them, one-on-one, and sometimes in small groups, to meet these needs for technology and digital literacy skills. Sometimes digital navigators address a wide range of needs; at other times they may address a small number of contextualized needs. For example, a digital health navigator may focus on how to help patients use:

- A hospital health portal, for example to schedule appointments, get test results, and communicate with their health provider team members
- Telehealth or telemedicine services and/or
- A digital device such as a smartphone that is capable of transmitting vital data to their health provider team in connection with a particular disease.

Digital Navigators in Adult Basic Skills Education Programs

In addition to helping students access the internet or get an affordable home digital device, a digital navigator in an adult basic skills education program may focus on helping students get the digital skills they need to use the program or school's online learning platform. This may be its course management system or learning management system, or a teacher-created class website that includes assignments and links to text-, audio- and video-based learning resources.

In at least one adult basic skills program, in Boston, "trained bilingual Digital Navigators attend trainings to help students remotely onboard to using apps through a variety of ways, such as one-on-one sessions after class or during class in a breakout room. Navigators assist students with day-to-day digital inclusion problems and also coach them on how to use the programs more proficiently to learn. Navigators are evolving to become classroom assistants, having an even more direct role in the students' learning" (Sharma et al., 2021, para. 5).

In some cases—Digital Charlotte's digital navigator program in North Carolina is one example—"digital navigators have adapted into the role of guide—supporting clients through each step—rather than merely sending them off with referrals without ensuring all their digital inclusion needs are met" (Sharma et al., 2021, para. 9).

How Is Help With Digital Navigation Skills Provided?

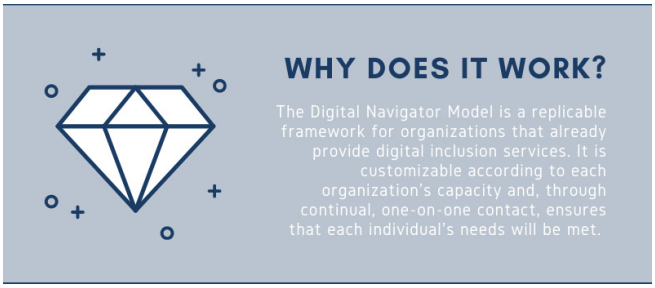
Through as-needed, in-person, one-on-one and small group support when possible, and/or by voice telephone, email, texting, and video chat.

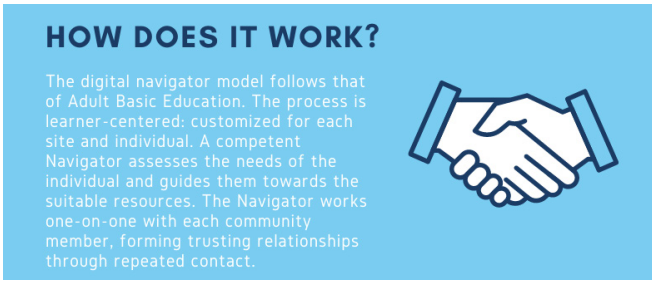
How Do Those Who Need These Services Find Out About Them?

- From community organizations as diverse as a fire station, a cultural heritage center, a community health center or hospital, or a faith-based organization
- Through social media
- From adult basic skills program practitioners and from statewide organizations
- From laptop lending programs, for example at libraries or in school districts or community colleges

How Can I Learn More About Digital Navigators and Digital Navigation Services?

- The Digital US Digital Navigators web pages https://digitalus.org/digital-navigators/
- The Digital US Digital Navigator Resources hub https://digitalus.org/digital-navigator-resources/
- The Digital US Digital Navigator Playbook https://digitalus.org/digital-navigator-playbook/ A comprehensive guide that details steps and considerations as programs and systems set up or improve their Digital Navigator services
- The Digital US Blog Series: https://edtech.worlded.org/digital-navigators-awareness-of-services-impact/ ; https://edtech.worlded.org/digital-navigators-adaptability-key-in-design/ and https://edtech.worlded.org/digital-navigators-trust-drives-impact/
- The National Digital Inclusion Alliance Digital Navigator Model https://www.digitalinclusion.org/digital-navigator-model/





Reflections

Because of the pandemic, a great many people including legislators and other policy makers and private funders are now aware of the extensive digital divide in the United States and how it has directly affected the learning goals of children and adults. There are a number of federal, state, and local public and private sources of funding now that adult basic skills programs may be able to access to address this problem, and because of advocacy organizations like the National Digital Inclusion Alliance, more funders now understand that in addition to internet access and home computers teaching digital literacy skills is also essential for many students. There are many ways to address this problem, of course, including digital skills courses, integrating digital skills into basic skills or occupational courses, and through technology coaches. Digital navigation services support is a new, and promising role that many adult basic skills programs, or the collaboratives of which they are a part, might consider.

References

Sharma, P., Gonzalez, C., Cabrera Holguin, N., & Nuchprayoon, P. (2021, May 28). *Digital navigators: Adaptability key in design.* EdTech Center. https://edtech.worlded.org/digital-navigators-adaptability-key-in-design/

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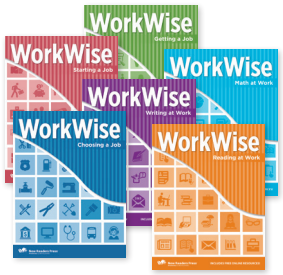

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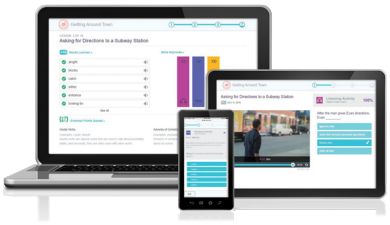

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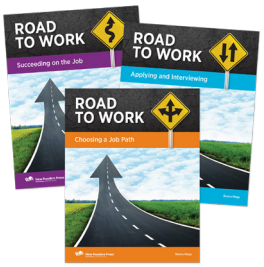

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