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Data in the Field of Adult Education and Lifelong Learning: Present Situation, Improvements and Challenges

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Corinna Kleinert and Britta Matthes

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Data in the Field of Adult Education and Lifelong Learning: Present Situation, Improvements and Challenges

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Abstract

Over the last years, political and scientific debates have stressed the growing importance of adult education. Currently important research questions call not only for data sources that collect detailed information on adult education with repeated measurements and in different cohorts, but they should also include data on other life spheres such as education and working histories, partnership and household information, as well as competence development.

In Germany, there are several large-scale datasets containing information on adult education. While general panel studies do not provide a systematic overview of educational activities of adults, studies focusing on adult education are either small-scale or cross-sectional and contain little context information. A study that covers information on all educational activities in the life course as well as repeated competence assessment is still missing.

In part, these deficits will be resolved by large-scale longitudinal studies focused on adults and education that were either recently conducted or are currently prepared. Thus, we do not call for new data sources on adult education. What is far more important in the next years is analyzing the data of the new large-scale data sources thoroughly, but also developing new theoretical approaches to adult education.

Keywords: adult education, further education, lifelong learning, continuing training, life course, competencies, data access

1. The Need for Analyses in the Area of Adult Education

Over the last few years, political as well as scientific debates have stressed the growing importance of adult education (Becker and Hecken 2005; European Commission 2000). The significance of this area is largely justified with reference to ongoing globalization, skill-biased technological change, and the development of the knowledge society - changes that have crucial effects on the working lives of the population in (post-)industrial countries. Education is no longer viewed as an asset achieved in youth that remains of constant value during an uninterrupted and stable employment career. Today and in the future, adults must learn continuously to keep up with the flexible requirements of the workplace and to be able to find employment in different and rapidly developing fields.

As a result, there is an urgent political need for knowledge about how to achieve the following goals: How can we enlarge the skill potential among those that have been largely underexploited up until now (e.g., the unemployed or marginally employed, low-skilled, or older workers)? Do these groups have the necessary prerequisites for continuous learning, particularly in terms of basic skills? How can we ensure that higher-skilled adults continue to learn after completing their initial education? How can they be enabled to flexibly adapt to the changing requirements and new technologies of working life, beyond their employers' immediate needs? How can lifelong learning be organized efficiently in society as a whole so that it reaches all groups of individuals - integrating all the different institutions and organizations involved in adult education? A great deal of empirical research is needed to answer these questions.

In contrast to this evident need, the first national report on education in Germany devoted only sixteen pages to adult education due to the "particularly difficult data situation of adult education" (Konsortium Bildungsberichterstattung 2006, 123). The report merely covered diverging participation rates of subgroups in different types of adult education in Germany, differentiated by educational background, age, gender, occupation, and position (Kuwan et al. 2006). Thus, we know that lifelong learning increases with growing education, occupation, and position, and declines with age (e.g., Pfeiffer and Pohlmeier 1998; Schömann and Becker 1995; Bellmann and Leber 2003; Schiener 2006). Furthermore, men participate more frequently in adult education than women, and natives more frequently than persons with a migration background (e.g., Pfeiffer and Pohlmeier 1998; Becker 2003). In comparison with other nations, we know that the participation rate in adult education in Germany is relatively

low (OECD 2006). Finally, the costs of adult education in Germany are mainly borne by firms, the participants themselves, and the Federal Employment Agency (*Bundesagentur für Arbeit*), but figures on financing vary according to different data sources (Beicht et al. 2005).

Apart from these facts, there are many research questions, particularly of a longitudinal nature, that have not yet been answered. This deficit becomes apparent for example when searching for results on (*cumulated*) *long-term returns of educational activities* in youth as well as in adult life. Since most of the existing data is only cross-sectional, this issue cannot be analyzed. The exceptions to this deficit are the training schemes financed by the Federal Employment Agency. In various evaluation studies the success of these programs with regard to subsequent labor market integration is analyzed (e.g., Hujer et al. 2006; Schneider and Uhlenborff 2006). While the returns of (adult) education are mostly understood economically - for example by analyzing income, wages, labor market integration, mobility, or career development - a more pedagogically oriented approach would ask for *learning outcomes*. To answer this question, we need not only precise data on learning activities, but also on the development of individual competencies. Studies targeted at adult persons that combine both topics in a longitudinal design are currently underway (see section 4).

Learning activities are embedded in the adult life course. Up until now we have known little about these *framing mechanisms of adult education* and how they interact with participation, since research on educational pathways and how they are embedded in employment histories and other life domains is still at an early stage (Jacob 2004; Hillmert and Jacob 2004). The decision to participate in further education is connected to specific personal circumstances. Certain factors, such as unemployment, promote participation due to an expected increase in employment chances. Other circumstances may reduce participation due to the time restrictions they impose (e.g., childbearing) or because of the expectation that such education does not pay off anymore (e.g., in the case of older persons). To explore these research questions, rich data sources in a life-course oriented framework are needed.

Another aspect of framing adult education within the life course is the *household*, since it determines the opportunities and restrictions surrounding participation in several respects: first, economic resources and their allocation among household members determine participation; second, the division of labor within households and partnerships has an impact on participation. Thus, the relative position of household members, their educational resources, and their time budgets decide about participation in adult education. These aspects are particularly important for assessing gender differences in lifelong learning. Another household characteristic that is primarily significant for self-learning processes is the learning

environment at home. Finally, the household situation not only influences participation in adult education, but even more it affects the *decision-making processes that precede it*. In sociology particularly, there are highly-developed theories and many empirical results related to parental decisions about the educational choices of their children, but far less research is available concerning educational decisions made during adulthood.

Another important research question addresses further education in Germany among adults with a migration background. *Migrants and their descendants* are a group that, in part at least, is urgently in need of education during adulthood since their educational endowment is often inadequate and certificates acquired in their countries of origin are frequently not recognized in Germany.

Finally, many countries are struggling with an aging society; this is especially true in Germany (Fuchs and Dörfler 2005). Thus, it must be ensured that the older population will be equipped for participating in working life longer than it is today by providing access to continuing education. Yet, in contrast to these necessities, we find that older people participate less in continuing learning than younger ones (Kuwan et al. 2006). Thus, it is important that research can identify the *opportunities and barriers to continuing education in older age groups*. To do so, it is necessary to gain additional knowledge about the returns of educational activities later in life.

Taken together, these research questions call not only for data sources that collect detailed information on adult education with repeated measurements and in different cohorts, but they should also include data on other life spheres, such as education and working histories, partnership and household information, and competence development in different domains.

2. A Complex Field of Research

The main challenge that faces data collection in the field of adult education is the complexity of the object of investigation. It is therefore fruitful to distinguish it analytically before describing the relevant data sources. For this purpose we classify adult education according to the form of learning, the learning location and context, and the purpose and contents of learning (Wohn 2007).

Generally, adult education can be defined as “the continuing or resumption of formal, non-formal, and/or informal learning with general or vocational content after completion of initial training” (Expertenkommission Finanzierung Lebenslangen Lernens 2002, 56). *Formal education* is institutionalized and leads to recognized certificates that strongly determine labor

market chances in Germany. Therefore most existing data sources are limited to this type of education and the data situation here is well developed. A second - and in quantity and quality more important - type of adult education is *non-formal education*, which includes shorter institutionalized training courses that do not lead to certificates (or to certificates not fully recognized). This is the type of educational activity that is commonly understood when referring to “adult education.” However, data on non-formal education is more difficult to collect: Participation differs individually and problems of recall and identification of these events are common. Even less is known about *intentional informal learning*, learning processes organized by the individuals themselves (e.g., by participating in conferences, reading textbooks, or learning a new computer program). This is particularly true regarding the decisions that lead to these learning processes or their (cumulative) returns. In this context, it is important to mention the limitations of standardized survey research. First, people have difficulty remembering such activities over a longer period of time. Thus, information on non-formal and informal learning can only be collected in a panel design or for a limited retrospective period. Furthermore, survey questionnaires cannot measure *unintentional informal learning* that takes place in the context of other activities - at least not directly. Still, we assume that this form of learning is very important, particularly when it takes place on the job. Many adults constantly obtain new skills, typically without being aware of it, simply by fulfilling their tasks and responding to the challenges of everyday working life or by performing voluntary activities. Thus, unintentional informal learning can be assessed only indirectly by measuring employment experience, activities and requirements on the job, and social engagement.

While most individuals participate in learning in earlier educational stages within the same predefined institutional contexts, learning processes of adults happen in a multitude of different *learning environments*. Firms are the major providers of adult education in Germany. Thus, certain kinds of information on participation in firm-based training and education cannot be accessed by individual and household surveys alone, but also by firm-level data. Other institutions are important providers of adult education as well. Second-chance programs (*Zweiter Bildungsweg*) allow people to complete upper-secondary qualifications and to proceed to tertiary education (evening schools, adult apprenticeships). Upgrade training for employed workers is offered by the Chamber of Industry and Commerce (IHK) or by the Chamber of Crafts and Trades (HWK) and allows for the acquisition of additional formal certificates in relatively short courses. A variety of shorter and longer training programs aiming mainly at reintegrating unemployed persons into the labor market

are provided by the Federal Employment Agency (BA). Adult Learning Centers (*Volkshochschulen*) provide courses in many areas of self-development including languages, art and music, political developments, and information technology. Non-vocational adult education is also provided by a variety of voluntary and non-governmental organizations including religious groups. These courses often target specific sections of the population, such as women or migrants. This list of examples shows how difficult it is to gain a complete overview of the providers of adult education in Germany. This variety also limits the possible information on the institutional contexts of adult education in empirical data.

Finally, adult education covers many *fields*, ranging from basic cognitive competencies to vocational and non-cognitive skills. Adults do not only participate in further education with the objective of vocational training, but also for personal reasons. Researchers, however, are interested mainly in adult education relevant to working life, employability, active participation in society, or coping with everyday life. Whereas formal training undertaken for these purposes can theoretically be distinguished clearly from educational activities taken up for private reasons, such a distinction is not possible for non-formal education. Taking a foreign language course can, for example, be of central importance for the career advancement of one individual, whereas for another person it serves mainly private interests and has no effect on her or his further working life. This problem calls for relatively broad questioning strategies on the one hand, and for a detailed collection of the contents of further education on the other hand.

This brief overview already suggests that the data situation in the field of adult education may be both confusing and limited. In the next section, we describe and evaluate the most important data sources and their accessibility before presenting new developments in national and international data collection.

3. Status Quo: Data Bases and Access

In the following, we distinguish between the actors involved in adult education (providers, firms, or individuals) on the one hand, and cross-sectional and longitudinal data on the other hand. Our discussion of datasets is largely focused on German research and includes only selected examples of international and comparative studies.¹

¹ An overview on data sources concerning adult education in other countries is found in the article by Kristen and colleagues (Kristen et al. 2005). Additionally, Statistics Canada (<http://www.statcan.gc.ca>), the US National Center for Education Statistics (<http://nces.ed.gov/>), the Longitudinal Studies Centre (<http://www.iser.essex.ac.uk/survey>) and the Inter-university Consortium for Political and Social Research (<http://www.icpsr.umich.edu/ICPSR/access/index.html>) in the UK, and the Data Archiving and Networked Services in the Netherlands (<http://www.dans.knaw.nl/en/>) offer online information on studies referring to adult education. A web guide

In Germany, a comprehensive *statistic* on adult education does not exist. Rather, different statistics are found that are only partly compatible (Weishaupt and Fickermann 2001), since they differ in definitions, variables, periods, etc. Official statistics, for instance, the Statistics of the General Education Schools (evening schools), the Statistics of Technical Schools, or the Statistics of Vocational Education provide information on the number of participants and their socio-demographic characteristics within the respective school types. In addition, the manifold providers of adult education produce statistics relating to their own programs (for example, the German Institute for Adult Education (DIE) generated the Statistics of the Adult Education Program).

More data sources are available for firms, the most important group of adult education providers. Regarding cross-sectional firm data, most important to mention are the IW Survey on in-firm further training conducted by the Institute of the German Economy (IW) and the Continuing Vocational Training Survey (CVTS) conducted by the Federal Institute for Vocational Training and Education (BIBB). The IW Survey contains data on the provision of workers' educational activities initiated or financed by the firm (such as on-the-job training, reading literature, participation in internal or external seminars, informative meetings, or retraining) (Werner 2006). However, it is hard to gather information on the survey because there is no systematic overview and its data is not yet available. CVTS is a firm survey on the European level containing information on participation rates, hours, costs, and socio-demographic characteristics of the participants. The advantage of CVTS is its voluminous structural information on further education provided and financed by firms, but its value and comparative possibilities are limited, mainly by methodological problems, for example the change of research unit (firm vs. establishment), or the probable higher response rate of firms or establishments that do provide further education.

In contrast to these cross-sectional firm surveys, the IAB Establishment Panel is an annual panel survey of nearly 16,000 German establishments. One of main topics surveyed in this multi-issue study is further education, including information on evaluation of employee demands, provision of internal or external courses, on-the-job training, and participation in self-learning activities. Additionally, data on participant characteristics is available. Since the panel contains a wide range of firm characteristics, it also allows for an analysis of firm-based training in a longitudinal research design. The IAB Establishment Panel is available through the Research Data Center of the German Federal Employment Agency.

Regarding individual data, the most important data source in Germany has been the *Berichtssystem Weiterbildung* up until now, a national, repeated, cross-sectional survey dedicated specifically to further education (Kuwan et al. 2006). Its data - available for the years 1979 and 1988 to 2003 via the data archive at GESIS - mainly supports analyses of participation in adult learning. About 7,000 respondents have been asked every three years about their participation in a broad range of educational activities and their learning interests. Since 1994, non-formal education has been included, and questions about self-regulated learning have been asked since 2000, containing instruments to record learning environments, learning dispositions, and support by other persons. However, due to its cross-sectional structure, longitudinal analyses on educational careers are not possible.

Another large-scale dataset containing information on adult education activities of individuals is the German Microcensus (MZ), a one-percent sample of all German households conducted yearly by the Federal Statistical Office. Between 1970 and 1995, respondents were asked every two years about further education over the previous two years; since 1996 these questions have been surveyed on an annual basis. The advantage of the MZ is the obligation to participate as well as the high number of respondents, so that even results focusing on small subgroups are reliable. Unfortunately, in the MZ adult education is restricted to “training, further education and retraining” and there is no information on when exactly the relevant events took place. Furthermore, comparisons between different survey years are limited due to changing instruments and time references. Except for two four-year panel files (1996-1999, 2001-2004) covering 25 percent of yearly sample, analyses are restricted to cross-sectional designs. The MZ data is available via the Research Data Center of the Federal Statistical Office, the scientific use files via the German micro data lab at GESIS.

Finally, the *BIBB/IAB Surveys* are a series of large-scale, representative cross-sectional surveys of huge samples of the employed conducted in 1979, 1985/86, 1991/92, and 1998/99. Like all other previous waves, the most recent survey from 2006 (*BIBB-BAuA Survey*) will be available in 2009 via the data archive at GESIS. These surveys gathered rich representative information on qualification profiles and occupational developments, as well as the organizational, technological, and qualification frameworks at the workplace. They also contain limited retrospective data on former educational careers, in particular on initial training. The data on adult education is cross-sectional as well, but it has the advantage of capturing formal, non-formal and informal training, as well as activities and requirements of the current job that can be used indirectly as proxies for informal learning activities.

In the field of cross-sectional individual survey data, the situation in Germany can be compared to many other Western countries. Regularly implemented surveys focused on adult education and available for scientific use can be found in the UK with the National Adult Learning Survey,² in Finland with the Adult Education Survey,³ in Sweden's Staff Training Statistics,⁴ or in the US Adult Education Survey.⁵ In the future, national surveys in Europe - in Germany the Berichtssystem Weiterbildung - will be replaced by a common data source, the European Adult Education Survey (AES). AES was carried out for the first time in 2007 on a voluntary basis in over twenty European countries and provides information about adult participation in formal, non-formal, and informal training. The first round of obligatory data collection will be in 2011 (e.g., Gnahn et al. 2008; Rosenblatt and Bilger 2008). The German AES data is available at the data archive at GESIS.

In the US, the long tradition of student assessment has also led to a comprehensive literacy assessment study focused on the adult population, the National Assessment of Adult Literacy (NAAL),⁶ which was carried out in 1992 and 2003. This survey also set the groundwork for international studies on adult skills, learning, and competencies, including the International Adult Literacy survey (IALS) from the mid 1990s with twenty-two participating countries, and the six-country Adult Literacy and Lifeskills Survey (ALL)⁷ carried out in 2003. These studies combine questionnaire data on educational qualifications and different forms of learning with assessments of basic cognitive domains, such as reading literacy or numeracy. Germany participated in IALS, but not in ALL.

Longitudinal datasets on adult education from an individual perspective are available as well. Rich data on educational and employment careers can be found in the German Life History Study (GLHS) of the Max Planck Institute for Human Development, which collected retrospective data on educational, employment, and family histories of several birth cohorts (from the 1920s to 1971). A Scientific Use File is available via the data archive at GESIS or by contacting the Center for Research on Inequality and the Life Course (CIQLE) at Yale University. However, it is well known that the recall of continuing education, in particular of short or relatively minor courses, is restricted. Thus, the extent of non-formal educational activities is underestimated in this survey and probably systematically selective.

More respondents are interviewed in the German Socio-Economic Panel (SOEP), a large general household panel survey carried out every year since 1984. The data is made available

2 <http://www.statistics.gov.uk/StatBase/Source.asp?vlnk=1329&More=Y>

3 www.stat.fi/meta/til/aku_en.html

4 http://www.scb.se/Pages/Product____9001.aspx

5 <http://nces.ed.gov/nhes/>

6 <http://nces.ed.gov/naal/>

7 <http://nces.ed.gov/surveys/all/>

to researchers by the research data center of the SOEP. This survey focuses on economic issues and employment careers by combining retrospective information with panel data. Further education was the main topic in 1989, 1993, 2000, and 2004. These panel waves cover information on participation in adult education, the number of courses, their extent and duration, goals, providers, costs and financing, with additional questions on the general motivation to participate in adult education. However, the instruments were mainly focused on formal and non-formal training (Pischke 2001) and further education was not linked to the employment history or the employer (Kuckulenz 2007).

Another longitudinal dataset that can be used for analyzing a particular type of adult education - programs provided by the Federal Employment Agency (BA) - is the Integrated Employment Biographies Sample (IEBS). This process-produced dataset contains observations on employment, unemployment benefits, job search, and participation in active labor market programs on a daily basis, combining records from four data sources: the IAB employment history, the IAB benefit recipient history, the participants-in-measures data, and data on job search originating from the applicant pool database. Thus, the IEBS enables detailed longitudinal analyses of the participation in measures of active labor market policy. This dataset is available through the Research Data Center of the Federal Employment Agency.

In the field of longitudinal data on individuals, Anglo-American countries, having launched birth cohort panel studies focused on educational pathways already decades ago, play a leading role today. In the UK, these panels started with newborns (the National Child Development Study, or NCDS, with birth cohort 1958 and the British Cohort Study, or BCS, with cohort 1970⁸), while US studies began primarily with high school students (the National Longitudinal Study of the High School Class of 1972, or NLS-72; the High School and Beyond Longitudinal Study of 1980, or HS&B; and the National Education Longitudinal Study of 1988, or NELS:88⁹). Both approaches have certain disadvantages. The UK panel studies were followed up only in long intervals during adult life. The US surveys concentrate on transitions from training and higher education into employment and usually stop following up their respondents after their mid-twenties. Thus, these data sources are suitable only to a limited extent for analyzing questions about adult education.

To sum up, there are several large-scale datasets containing information on adult education in Germany. Since the publication of the initial expert report and recommendations

8 <http://www.cls.ioe.ac.uk/>

9 <http://nces.ed.gov/surveys/>

on the improvement of the informational infrastructure in 2001, the possibilities for data access have improved considerably. However, a representative longitudinal study with the main focus on educational issues, such as the birth cohort studies in Anglo-American countries, is still missing. Most large-scale panel studies in Germany still have a broader focus and thus do not provide a systematic overview of educational activities of adults in all panel waves. Studies focusing on adult education are either small-scale or cross-sectional and contain little context information. Moreover, most data sources do not cover all sources of educational activities, and thus do not provide a comprehensive view of educational histories over the life span. Finally, the field of adult education also includes the aspect of lifelong learning, at least from an educational science perspective. This view calls for instruments measuring competence attainment and development. A study that covers both - information on educational activities as well as the repeated assessment of competencies - is still lacking.

4. Future Developments

These deficits will be partially resolved by large-scale surveys that have either been recently conducted or are currently being prepared: the IAB study ALWA, the adult stage of the National Educational Panel Study (NEPS), and the international survey PIAAC.

The IAB panel study Changing Conditions of Working and Learning (ALWA) was designed to study relationships between formal education, basic cognitive skills, and the working life of adults from a longitudinal perspective (Kleinert et al. 2008). It focuses on recording detailed education and employment biographies of the respondents and on testing their literacy and numeracy skills. The design combines these two components in the form of computer-assisted telephone interviews and paper-and-pencil personal interviews. The target group of the survey is the German population, age 18 to 50. In the 2007-2008 survey, 10,000 persons, chosen on the basis of a random sample from the Resident Registration Offices, were questioned by telephone, and a subsample of 4,000 persons participated in the skills tests. In the CATI questionnaires, all formal educational activities over the whole life course were surveyed. Questions on non-formal education were integrated into the modules on employment, unemployment, and other events to ensure better recall. In addition, data on informal learning activities were collected for the last two years before the interview. Due to its complex structure, the dataset will not be made publicly available (via the Research Data Center of the Federal Employment Agency) until mid-2010.

From 2009 on, the ALWA participants will be followed up in the context of the adult stage of the National Educational Panel Study (NEPS), in a panel design with yearly intervals. Additionally, the sample will be extended: the study will cover all adults (including migrants) of working age older than twenty-two years, regardless of employment status. In contrast to the ALWA study, the NEPS adult stage is more strongly focused on adult education and lifelong learning. Thus, it is planned to design, test, and implement more detailed instruments covering non-formal and informal learning activities for the retrospective period between panel waves, and to supplement them by indirect measures of informal learning such as job tasks and requirements, and volunteering. One of the main goals of NEPS is to make its data publicly available quickly after the data is gathered.

A second new development in the field of adult training was inspired by the realization that we need to know more about the providers of adult education in order to learn about training decisions and learning processes. Considering the multitude of actors in the field, this would be a difficult goal to achieve in the case of adult education in general; however, it is a more reasonable goal for firm-based training and education. One approach to this is combining individual and firm data, a method that is currently implemented in projects linking individual survey data and administrative data. For instance, ALWA and NEPS will use record-linkage routines to enrich respondents' data on employment periods with establishment information from administrative data.

Another approach to data linkage was undertaken in the project 'Further Training as a Part of Lifelong Learning (WeLL). This project of RWI Essen, IAB, infas, and DIE aims at analyzing the joint training decisions of employers and their employees (Bender et al. 2008a; b). First, an employer survey was conducted in 2007, followed by a panel survey of employees in the respective firms. Both surveys focus on the collection of training information together with a variety of employee and employer background characteristics. Moreover, administrative longitudinal employee data can be linked with these data sources. In 2010, the project will provide its data via the Research Data Center of the Federal Employment Agency (BA).

Finally, a large-scale international OECD survey on adult education is currently being prepared. The Programme for the International Assessment of Adult Competencies (PIAAC) will assess the level and distribution of adult skills by focusing on key cognitive and workplace skills across countries. PIAAC will also gather information on the antecedents and outcomes of skills, as well as on the use of information technology and literacy and numeracy practices in general. Its data will allow researchers to investigate links between key cognitive

skills and a range of demographic variables, economic and other outcomes, as well as the use of skills in the workplace and other settings. The survey will be administered in 2011 and its results are scheduled to be released in early 2013.

5. Two Final Recommendations

The comparison between two important data sources on adult education in Germany results in astonishing disparities, even in terms of basic information. For example, according to the data of the Berichtssystem Weiterbildung IX, 41 percent of the adult population in Germany participated in further education in 2003, while the Microcensus reported only 13 percent (Wohn 2007). The main reason for this significant discrepancy seems to be the highly different instruments of the two surveys. This problem arises not only around these particular studies. Most other surveys use specific, non-comparable instruments as well. Often, they are constructed ad hoc and not sufficiently tested. In part, this problem is simply a reflection of the complexity of adult education and its 'resistance' to standardized survey research. Thus, an important challenge to be met over the next few years is to develop standardized, valid, and reliable instruments representing the entire range of educational activities in adulthood, at least as far as they are undertaken intentionally and can be recalled. To a certain extent, these development tasks are central to the above mentioned new studies- above all to the National Educational Panel Study (NEPS). Moreover, the call for standardized instruments has also an international dimension. To date, the results of most German studies cannot be compared internationally, since instruments and item batteries differ considerably by country. This is not only a problem of poor international coordination, but also of different national meanings of adult education, educational cultures and institutional conditions. Here, new international studies such as PIAAC could take a lead in helping to integrate instruments.

Since we are now (it is hoped) taking a step forward with tackling these problems by way of the new surveys mentioned above, we are not issuing a call for new data sources on adult education. What is far more important in the next years, in our view, is testing these new large-scale data sources, analyzing the data thoroughly, but also developing new theoretical approaches to adult education. It is from these areas that we will find the greatest challenges in the upcoming years. More researchers from diverse fields - including sociology, economics, psychology, and educational science - should work with innovative theoretical approaches and state-of-the-art empirical methods on the existing and the new data to generate more knowledge about adult education and to explore its development and its

relationship with structural changes in the labor market and the life course. This calls for a strong initiative in the training and promotion of young empirical researchers in these fields.

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