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**Teaching, Learning and Assessment
for Adults
Improving Foundation Skills**

German-language Literature Review

Anke Grotlüschen and Franziska Bonna

Centre for Educational Research and Innovation

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TEACHING, LEARNING AND ASSESSMENT FOR ADULTS IMPROVING FOUNDATION SKILLS

German-language Literature Review
Anke Grotlüschen and Franziska Bonna

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1. Formative Assessment in Adult Basic Education?

When asked about “formative assessment”, German researchers of adult basic education react in an interested, yet puzzled manner. The long and intense discussion on formative assessment in German-language primary and secondary school research, very much inspired by the Bielefeld Laboratory School (Bielefelder Laborschule), seems to be unknown in the “adult education” realm of the educational scientific community.

On the other hand, a range of prior research can be re-analysed to garner information about the impact of formative assessment approaches on learning. In order to answer the question “what works?” in efforts to improve teaching and learning for adults with basic skill needs through formative assessment, it will be useful to link results from research on learning in general and research on adults with basic skills needs.

We did not find a general definition of formative assessment for adult education (in contrast to diagnostic, remedial or summative assessment). The word “assessment” can be translated as *Test*, *Beurteilung*, *Feststellung*, *Prüfung*, *Diagnose* or *Evaluation*. All these activities try to uncover a person’s abilities or competences. While *tests* focus on specific content, *Beurteilung* refers to a more holistic description of an individual’s performance at school or at work -- generally a written statement provided by work supervisors or teachers. *Feststellung* refers to the definition of competences, *i.e.* in a training course offered by job agencies for those who are unemployed. The term *Prüfung* is related more closely to final exams, while the term *Diagnose* refers to a kind of assessment used for either remedial or selective purposes. *Evaluation* refers to the use of scientific methods to test the quality of education, projects, institutions or products. As a whole we can see that quite different terms and areas of study may be relevant here.

We only found one definition of formative assessment in German-language publications on adult education. Later in this paper we will refer to more specific and detailed definitions from school level research. For our first look, however, we refer to the current discussion within the field of adult education. The definition used here is from a European project, ASSET, funded under the Socrates/Grundtvig programme of the General Directorate Education and Culture (European Commission). The source in and of itself suggests that assessment in adult education is still innovative. ASSET (an Austrian project) defines the three assessment approaches that are – from their point of view – relevant to adult education. They are to:

- diagnose a student's strengths and weaknesses (diagnostic assessment);
- provide him/her with feedback about how he/she is doing (formative assessment);
- provide a formal recognition of accomplishment or competence (summative assessment).

Based on this practical definition, we decided to search for more details in two areas that are clearly concerned with assessment: school education and special education.

Progressive School: Alternative Assessment

As there is no current definition of formative assessment in the scientific literature on adult education in German-language countries, we use the terms from educational science at the school level. It is useful to refer to the definition developed by Felix Winter, an educational scientist and psychologist at the Bielefeld Laboratory School. His position belongs to the tradition of Progressive Education (Reformpädagogik), based on approach of the American educational scientist and philosopher, John Dewey (1859-1952). Winter uses the German term “Leistungsbewertung” (assessment of achievement) and suggests a “Reformierte Leistungsbewertung” (alternative assessment of achievement). The idea is comparable to the Anglo-Saxon discussion of “formative assessment” (cf. Black and Wiliam, 1998, p.7), which points out that the central idea of formative assessment is to provide feedback to modify teaching and learning. For the purposes of this review, we decided to use “formative” and “alternative” assessment synonymously. This definition of alternative assessment contains eight elements (cf. Winter 2004, p. 72f). Alternative assessment:

- is product- and process oriented;
- is integrated into the teaching process and into the didactic planning process;
- is content oriented and descriptive, with less emphasis on “ social reference norms” (see below);
- is organised as dialogue and reflection;
- is diagnostic, and used for remediation and decisions on next steps in the learning process;
- is multilateral and involves parents, other teachers and students incl. self- and peer-assessment;

- includes presentation and information of a larger public;
- includes direct documentation of achievement instead of the documentation of grades.

With this definition, we were able to search for qualitative and quantitative empirical studies which do not *expressis verbis* focus on formative assessment, but whose results relate to the eight items mentioned above.

Special education: selective and remedial diagnostics

In addition to the discussion on “alternative assessment” at the school level, another term in German-language literature is “*Diagnose (diagnostics)*”, which refers to one particular kind of assessment. We distinguish between *selective* and *remedial diagnostics*. Selective approaches test individual abilities in order to establish next steps. For example, selective tests are used to decide whether a six-year-old child is ready to enter school or should wait (Schuleingangsdiagnostik), or whether a student is ready to enter the Gymnasium or certain university programmes, such as medicine. In other words, the aim of these diagnostic assessments is to select who should enter which school or educational programme.

Remedial diagnostics can be carried out simultaneously, but are used for a different purpose. The aim is to decide what kind of support might help the student or adult learner to improve his/ her performance. This is close to the concept of formative assessment, so we will concentrate on remedial approaches in further discussion. There is an overlapping area where selective assessment can be used for formative reflection, while on the other hand remedial diagnostics may always be used or misused for selection.

2. Basis of the Literature Review

We began our review by referring to the primary handbooks of the scientific community on adult education and adult basic education. We also searched databases, referring to two key areas (*assessment* and *adult basic education*). During this research phase we learned that many other areas, such as primary education, special education and vocational education better inform the discussion on formative assessment. We added these areas to our search, and set out to learn if the instruments developed and used there might also be relevant for formative assessment in adult basic education.

Handbooks, Dictionary for Adult Education, Databases

Our first step was to consult the handbooks on “Educational Research” (Tippelt 2002) and “Adult and Further Education” (Tippelt 1999), and the Dictionary for Adult Education, (Arnold/Nolda/Nuissl 2001). None of these handbooks mentions assessment, diagnostics or other similar terms. We next checked the databases relevant to research in psychology and education, especially the FIS Bildung,¹ as well as ERIC and PSYNDEX with different Keywords, *i.e.*

- Assessment/Kompetenzmessung/Test/Leistungsbewertung.
- Grundbildung/Benachteiligte/Alphabetisierung.
- Diagnostik/Förderdiagnostik/Einstufungsberatung/Einstufungstest.
- Weiterbildungsberatung.

The search yielded many results: primarily from abroad or from school related research, from the OECD Programme for International Student Assessment (PISA), on tests of literacy for primary schools, and literature on approaches to improving student achievement. We found only a few articles related to adult basic education which report on results from research on certification, vocational competences, or assessment, rather than on adult basic skills.

To further refine our research on the literature in German-language countries, we consulted the “German Books” section of online bookshops and “Results in German” from Google Scholar² with relevant keywords such as “formative assessment”, which led to about 300 results. The key criterion for relevance was the existence of empirical results (qualitative or quantitative). The next criterion was the whether the results were from research with adults (aged 16 or older).

We also searched these key words on *www.alphabetisierung.de* and on the website of a nationally financed project APOLL, which co-ordinates the activities in Adult Basic Education, *www.apoll-online.de*. These networks rely heavily on the journal Alfa-Forum. To include German-speaking countries beyond Germany, we also searched the websites of *www.alphabetisierung.at* and *www.lesenschreiben.ch*. Through these websites we learned about Austrian and Swiss methods of certification of informally acquired skills, and found relevant articles in the journal “Österreichische Volkshochschule”. We completed the research phase when

¹ www.fachportal-paedagogik.de

² <http://scholar.google.de/>

the different search strategies began to lead to results we had already encountered.

Adult Education Journals (2003-2006)

On a more systematic level, we checked the last three years of the three most renowned scientific quarterlies which focus on adult education, each issue comprising 6-8 articles. Every issue includes 5-10 book announcements and reviews of recent studies, ensuring wide coverage of the relevant work in this area. In total, the systematic part of the research covered more than 250 articles and 300 reviews and announcements. We found some thematic issues that were relevant in the *Hessische Blätter für Volksbildung* (school and adult education with essays about competencies, life-long-learning, PISA etc). Two special issues of the *REPORT Literatur- und Forschungsreport* focus on certification, or “PISA for adults”.³ The other journals of *REPORT* did not mention formative assessment or anything comparable. The *DIE Zeitschrift für Erwachsenenbildung* did not provide relevant essays, but offered some interesting book reviews, such as Stefan Hofer’s 2004 “Internationale Kompetenz Zertifizierung” (International certification of competencies). As mentioned above, we checked the complete issues of the *Alfa-Forum – Zeitschrift für Alphabetisierung und Grundbildung*, including two special issues on diagnostics, and the *Österreichische Volkshochschule*, which did not lead to further results.

It did not prove necessary to systematically consult the journals of the scientific section Vocational Education and Training, as we received direct information from experts on assessment. Therefore we did not make a systematic check of the “Berufs- und Wirtschaftspädagogik online [bwp@]” and the *Zeitschrift für Berufs- und Wirtschaftspädagogik (ZBW)* as we relied upon specialists for direct information on handbooks, dissertations and evaluations.

Recent Workshops and Conferences

At the “Hochschultage 2006”, a bi-annual vocationally oriented research and practitioners’ conference, we offered a workshop entitled “Vocationally oriented Basic Skills Education: Diagnosis, Tests and Remediation”. Among those intervening were B. Egloff, A. Linde, C. Löffler, J. Rüsseler, M. Tröster, R. Wilhelm and D. Gnahs, who work in the area of diagnosis, assessment and teacher training as well as linguistics and neuropsychology.

³ The articles in this edition focus on the necessity of assessment for adults. Some of them refer to PIAAC.

A second workshop on adult assessment, offered by the German Institute of Adult Education (DIE), took place in Spring 2006, and focused on the Adult Literacy and Life Skills Survey (ALL) (OECD and Statistics Canada, 2005). The third workshop on adult assessment, also offered by DIE, focused on diagnostics of basic education, languages and vocational competences. A fourth meeting was offered by the German Institute of Educational Research (DIPF) in co-operation with the DIE, and concentrated on a recent grant of the German Research Foundation (Deutsche Forschungsgemeinschaft DFG) on assessment of competences (E.Klieme/D.Leutner).

Several other specialists, who contributed to our edited volume “Literacy, Basic Education or Reading Competencies?” (Grotlüschen/Linde in press) provided further suggestions. They included experts from special education (R. Kretschmann), adult education (E. Schlutz), and literacy (S. Nickel, R. Kellershohn). Others were contacted with special questions about their findings, such as researchers of vocational education (R. Meyer, J. Gillen, G. Straka).

As a whole, this discussion with colleagues helped to identify about thirty relevant articles. Combined with the free search in online databases and the more targeted research in adult education journals, we continued a snowball system, which identified 104 relevant articles, which we reviewed in detail. The complete set of relevant, but not fully reviewed articles, books and book chapters included an additional 120 titles.

Overview

Our first impression was that we would be able to report on experiences from pilot projects and practice, although with few research results specifically focused on formative assessment in adult basic education. Therefore we also checked a variety of additional research areas focused on low achievers, including the areas of special education and neuropsychological research on dyslexia. We found that there is a great deal on diagnostics, but little on formative assessment.

We also checked other areas which deal with assessment, including discussion on alternative assessment, such as in primary education, linguistic and language education and testing, computing and certification of computer skills, e-learning/e-assessment and on competencies and their assessment in vocational education and training. We found many different approaches and testing instruments. Wherever one of these instruments had been evaluated, we reviewed the findings in detail.

Another approach was to consider assessment as a part of the whole learning process, and to search for studies focused on learning, particularly adult basic skill learners. We include some practical approaches as well, even though they are not focused on basic skills.

The report is built up in steps, and explores evidence and findings that can tell us whether teaching and learning in adult basic education can be improved through formative assessment. One central finding of this research is that there is a certain distance from the concept of formative assessment. We set out our hypothesis as to why this might be so in Section 3. We continue with the core discussion on adult basic skills (Section 4). Then we amplify the discussion on formative assessment, although the focus is not necessarily limited to basic skills (Section 5). We endeavour to indicate that general research on teaching and learning justifies the practical assessments we found, even if there is no research specifically focused on formative assessment for adults with basic skill needs in German-speaking countries (Section 6).

3. Adult Education: Reasons for minimal research on formative assessment

With the descriptions developed in Section 2, we were able to re-analyse studies and results which had not highlighted assessment as a core theme. We wondered why the research community on adult basic education, concentrates so little on formative assessment? We identified several possible explanations.

Adults with Basic Skill Needs: Fear of Being Tested

Assessment seems to be something, adults with basic skills needs *fear* very much. This phenomenon is widely assumed and described in practical reports (Genuneit 2004, Füssenich 2004). The journal Alfa- Forum (issue No. 56) reports participants’ “Feelings at the first consulting session”. The material retains the authenticity of learners’ voices (Alfa Forum No. 56, p. 20). Of 15 one-sentence-statements, eight explicitly mention fear, tears, shivering or statements like “My main fear was a test”. Although these statements are not part of a scientific study, they show how centrally the fear of being tested is anchored inside the emotional world of low-achieving readers.

Another researcher, Birte Egloff, presented qualitative, biographical interviews with functionally illiterate adults. One of the main sections of her book deals with the motives and coping strategies of individuals with low

functional literacy. Egloff describes the “[lifelong] fear of being discovered with their deficit” (Egloff 1997, p. 118). The interviewees explain in emotionally dense descriptions how intense their fear is in situations when they are asked to fill in documents, to take notes, etc. They speak of fear, sweating, shivering and feelings like there is a “wall in front of you” (Egloff 1997, p. 118). The interviewees report shame about lying in everyday situations (Egloff 1997, p. 166), as well as in front of their children. Egloff concludes that these are fears of discrimination and “stigma management” as a part of the everyday life of functionally illiterate persons (Egloff 1997, p. 177). Apart from the fear of being discovered, the study also reports the fear of entering a course (Egloff 1997, p. 166 and 177).

In the field of adult basic education, Almut Schladebach reports findings from the Volkshochschule, the central institution that offers literacy and numeracy courses for adults in Austria and Germany. She reports that filling in documents is like a “red rag to a bull” for many people, especially for those with low reading and writing skills. Therefore the Volkshochschule had to adopt their quality management questionnaire for the needs of this target group. One-hundred and forty-seven of 300 participants in 32 literacy courses answered the questionnaire. Her findings reveal: “For 56%, the entrance interview was an encouraging and informative experience, 85.7% are satisfied with the level at which they were graded” (Schladebach in press/2006). So this fear, which seems so relevant prior to entering a course, is gone when participants realise that they are not being tested for summative purposes and that they are not alone.

Schladebach reports that the majority (88.4%) of participants participate in courses in order to “do something for themselves” – not for employment-related reasons or because of a job agencies’ instruction that they attend a course (Schladebach in press/2006). This situation allows us to assume that assessment is judged negatively by adults with basic skill needs when it is used as a summative or selective instrument. However, if we use assessment in formative ways and for remedial purposes, the target group seems to accept it as a legitimate approach to tailoring teaching and learning.

Compensatory Mission of Adult Basic Education

Another reason for the absence of a research tradition related to adult assessment is that adult basic education has a compensatory mission, which doesn’t fit well with the selection of learners at the end of the learning process. The discussion of assessment has a connotation of selectivity in the ears of both the scientific and the practitioners’ community. This keeps researchers from studying the impact of assessment – and it keeps them from discussing *alternative* forms of assessment as well.

Another explanation may be found in the differences across systems. The school system, as well as Vocational Education and Training (VET) system must assess their pupils before awarding certificates. However, participation in adult basic education does not necessarily lead to certification. As a consequence, there is little discussion of *alternative* assessment.

Research on Motivation and Feedback

While there is little adult educational research on the impact of assessment on learning, some relevant studies are conducted in the field of psychology, *primarily in the context of secondary school. Most of this research focuses on motivational aspects and examines the impact of assessment or feedback on learners' motivation.* It is useful to cite some relevant results which refer to reference norms, feedback and tests.

- Social and individual reference norms: learners who are compared on an individual level with what they have achieved in a certain time, are more motivated than low achievers who are compared to others in a group (Rheinberg 1980).
- Paradoxical effects of teachers' sanctions (Meyer 1988, Rheinberg & Weich 1988): teachers' praise can be interpreted as denoting low ability, and vice versa.
- Tests improve achievement in several ways (Jakobs without year/2006, based on Anglo-Saxon research with secondary school students). Tests draw attention to the most important topics needing to be addressed, offer options for practice, and due to the repetition involved, improve the retention of the learning content. Moreover, motivational effects are seen in rewards and sanctions on the part of instructors.

As there is a great deal of literature on motivation and interest on the secondary school level, we suppose that the discussion on adult education has not yet found it necessary to question these results. *The findings are thus taken as given, and support the assumption that individual and informational feedback are the best approach for adult learners, as well.*

Improving Teaching and Learning: New Learning Culture

An additional reason for the relatively scarce attention to assessment as a means to improve teaching and learning is that more attention is given to other approaches. The discussion on how to improve students' performance focuses on the shift towards an active learner with the teacher playing the

role of moderator. The theoretical background for this approach can be found in Pragmatism, Constructivism, Situated Cognition and Subject-Scientific Theory. These four theoretical “families” all have in common that they suggest a more active learner, who chooses his/her learning content based on his/her daily life needs.

The research focus is on building environments that allow adult students to learn in a way that is relevant to them, and in a self-directed manner. Of course, here we touch on formative assessment, because self-direction means: the learner *chooses his/her aims*, develops the learning *topic*, defines the *steps*, carries them out, *controls* his/her progress and *evaluates* the results in comparison with his/her aims. The competences needed for directing one’s learning process have to be learned. Several studies show that people with lower qualifications participate less in self-directed forms of learning (Kuwan 2006; Schiersmann 2006, Barz/Tippelt 2004, Grotlüschen/Brauchle 2004 and 2006, Grotlüschen 2006). One reason is that they must first learn how to handle the process itself.

Our own research on adults with low qualifications using multimedia learning software in a classroom training session revealed many difficulties. The learners were observed with a half-standardised scheme, and these qualitative data were triangulated with questionnaires on their skills. The questions were asked both before and after the session. The first wave covered 45 learners in 3 courses. The second wave included 110 interviewees. In regard to learning competences, our findings suggest that low achievers prefer the tutor’s guidance, especially in the choice of topics and evaluation of results. We learned that reflection on the learning process is not automatic. Results show that learners don’t even realise that they are stuck in the middle of a learning process, and are unable to decide what went wrong. Even token incidents like clicking on a lesson with material already known to the learner, lead to boredom, resistance, reluctance, and frustration (Grotlüschen/Brauchle 2004).

We are convinced that better skills in peer and self-assessment would lead to a more reflective approach to the learning process and therefore to a more intense and concentrated process.⁴ The continuation of the research programme from 2004 to 2006 led us to the conclusion that the term “learning competences” does not cover the adult basic education realm very well so we proposed “learning literacy” as a central term. This would include the competences to choose aims, develop the learning topics, and evaluate the outcomes. It would also demand basic competences necessary in computing and in literacy (cf. Grotlüschen/Brauchle 2006).

⁴ These arguments are also discussed as Metacognition and Learning Competencies, cf. Kaiser 2003.

On the whole, the German-language discussion focuses on the improvement of learning with the help of innovative, learner-oriented arrangements. These approaches are intended to enable the learner to choose his/her own aims and topics based on his/her everyday needs. The instructor is primarily concerned with helping learners to develop learning competences (rather than teaching the subject matter).

As assessment was never considered of much importance in adult education in these countries, the discussion does not specifically focus on alternative forms of assessment. On the other hand, recent research results show that low achievers need much more support in a.) entering adult education courses and b.) directing their learning process. It is thus consequent to search for innovative forms of assessment for a more tailor-made learning offer. We also assume that diagnosis and assessment improves the learners' reflection of his/her goals and results (cf. Weinert 2000).

4. Discussions on basic skills, literacy and competences

The core discussions on basic skills, literacy and competences focus on the technical vs. the holistic view of competences; what should be included in the range of competences (reading, writing, language, media/ technical/ digital literacy, science literacy, health literacy), and what basic skills are needed to function in individual and social life, employment or for citizenship. The technical approach to literacy focuses on grammar, spelling and calculation techniques. Yet, in order to participate in a modern society, literacy must include more than the ability to spell or calculate. Citizens in western society must be able to read plans, to complete forms, to use cash machines, to compare rebates, to use computers and mobile phones and to develop new skills. Therefore most authors and surveys prefer a holistic view of literacy and numeracy, referring to functional competences needed in daily life (cf. UIE 2005).

Several international surveys have been carried out, the most well-known and recent of which are the International Adult Literacy Survey (IALS) and its successor, the Adult Literacy and Life Skills Survey (ALL). Another international survey, the Programme for the International Assessment of Adult Competencies (PIAAC) is currently in the preparation stages and is being discussed in Germany (cf. Gnahn in press/2006). These surveys are carried out by the OECD and/or Statistics Canada in co-operation with national institutions in the participating countries. They focus on:

- Prose/Document Literacy, Numeracy & Problem Solving (IALS/ALL).
- Reading Literacy & ICT Literacy (PIAAC).

The aim of these surveys is to assess competences in a more holistic way, rather than by simply asking if respondents if they know how to spell a word or to add some figures. The items used for assessment in these surveys are for everyday purposes, *i.e.* reading a train schedule (document literacy), reading a newspaper article (prose literacy) or comparing prices in a supermarket (numeracy).

We also explore the terms “literacy” and “competences”. Both terms are used in the holistic sense – that is, they are not seen as mere technical abilities, such as spelling. The term “literacy” belongs to the question of alphabetisation in German-speaking countries. It is based on the UNESCO definition, which connects literacy to the surrounding group or society. Somebody is literate if he/she is able to engage in all activities for which literacy is required for effective functioning of his group and community. Literacy enables the individuals to read, write and calculate for their own and the community’s development (UNESCO 1979). The scientific discussion of literacy has always focused on low achievers, poorly educated or other adults with basic skills needs – those who are *not* literate.

The discussion of “competences” has a different tradition, however, as it is very much connected with vocational competences. This means that the discussion is focused on many different themes and covers all levels of competences. The term evolved from “qualifications”, which refers to simple abilities, such as a carpenters’ qualification to make tables and chairs. The term competences symbolises a broader approach, which sees an employee as an individual who does not simply carry out what he/she is told to do. As work life has changed, the term “competences” now includes the ability to understand complex situations, to act, and to make decisions related to work processes. The carpenter, for example, has to make decisions about the quality of material, where to buy it, how to process it, whether to ask for advice from his/ her boss and so on.

Which term is the most adequate? If we focus on low achievers and a basic curriculum which contains reading, writing, numeracy and ICT literacy, we prefer the term “literacy”. When we discuss all levels and every content domain, the term “competences” seems more appropriate. This will be the case when we refer to findings on assessment in the area of vocational education and training later in the report.

In regard to the content domains, we have tried to focus on reading and writing literacy, numeracy and German as a second language. Some

interesting approaches that touch on other domains will also be reported, because they connect research results with formative assessment.

How many adults with basic skill needs live in German-speaking countries?

For the purposes of this report, we focus primarily on the 25% of the population with the lowest levels of literacy – rather than those who are considered as functionally illiterate – estimated to be 4 million (Döbert/Hubertus 2000, p. 25ff) in Germany, and 500 000 in Switzerland (www.lesenschreiben.ch, referring to ALL).

Germany, Switzerland and Austria do not carry out regular country-based surveys of literacy in their adult populations. We therefore report on the results of IALS and ALL – to the extent that the German-speaking countries participated in these surveys. Even though the IALS and ALL results were far better than PISA, we assume that the real figure in 2006 is higher than 14.4% (Germany) or 16% (Switzerland). We suggest that many more people can be seen as “at risk”. If we follow the German PISA results, approximately 23% of the fifteen-year-olds read on level one (13%) or below (10%).

IALS (International Adult Literacy Survey) and ALL (Adult Literacy and Life Skills Survey)

Germany participated in the 1994 IALS. The survey analyses competences in prose and document literacy and in basic skills in numeracy. Each of the three scales was divided into five levels of achievement. IALS had further waves, but Germany and Austria did not participate. The most recent data for Switzerland are from the later ALL Survey (see below).

Germany obtained average results, comparable to the results of Switzerland and the Netherlands. About 14.4% of the population achieved only the first level in prose literacy. Germany achieved its best results in numeracy: about 6.7% of the population perform at level one, while others perform at higher levels. The highest performing country was Sweden and the lowest was Poland (Lehmann/ Peek 1996)

Switzerland participated in the International Association for the Evaluation of Educational Achievement (IEA) Reading Literacy Study 1991, IALS 1994 and 1998, PISA 2000 and 2003, as well as in ALL (cf. BFS 2005). Switzerland attained an average ranking in prose literacy as well as in document literacy. The statistical spread is as low as in Norway, while other countries have a larger statistical spread. About 16% of the

Swiss population achieve on the lowest level of prose literacy and 14% are inadequately able to read documents (cf. BFS 2005, p. 12).

Research on target groups and access to learning

Target group research aims to describe those who do and do not participate in adult education, and ways to reach these groups. This has been an area of concern in German speaking areas since the Vienna University expansion movement of 1895. We divide the different approaches into demographic studies providing representative data on age, sex, income, formal education, vocational position etc. of participants and non-participants. Demographic research is provided on a tri-annual basis (Kuwan *et al.* 2006). Recent demographic studies have been developed by the Expertenkommission of 2004, Schiersmann of 2006 and Baethge/Baethge-Kinsky of 2004. They provide information on the characteristics of non-participants and their reasons for not participating in adult education. The most important reason identified is the perceived lack of need for new skills for daily and work life (44%, Schiersmann 2006). All surveys demonstrate that poorly educated adults participate far less in adult education than those who are better educated (overview: Bremer 2005).

A different approach is so-called *milieu research*, which is based upon the field theory developed by the French sociologist Pierre Bourdieu. This approach is often used for marketing purposes, but has also been applied to adult education. The central idea is to divide society not only into horizontal classes, such as upper, middle and lower classes, but to also divide the classes vertically based on life style orientation (*habitus*). From intense qualitative research, which described the fields in France, further research led to descriptions of social milieus in other countries. In Germany, Michael Vester has been responsible for much of the development of the qualitative and theoretical framework. Today, we speak of ten different social milieus in Germany (Vester *et al.* 2001). In recent years, results have been presented on adult education and social milieus in Germany (Barz/Tippelt 2004). Michael Vester has provided data on transition and education for several years and cohorts (Vester *et al.* 2001). Helmut Bremer (2005) has provided an overview on milieu research. Milieus not often participating in adult education are – as expected – the traditionalists (TRA) and the hedonists (HED) (in horizontal terms on a low socio-economic level). These two groups prefer different lifestyles, so if teaching is offered to traditionalists, it should follow traditional ideas of teachers' and learners' roles. On the other hand, for hedonists, the setting should fit their intense preference for enjoying their lives. One surprising finding was that the consumer materialists (KON) were above-average in their participation in adult education (Barz/Tippelt 2004). It had been expected that this group would

not participate in adult education (along with the other two underclass milieus). However, the explanation for this finding is that job agencies or employers may require them to attend adult and further education.

In general, target group research shows that the main principle is always: education is a cumulative phenomenon. A well-known German phrase characterises this situation with a quote from the Bible “To him that hath, shall more be given”. This is known as the “Matthew Principle” (Ehmann 2003, Tippelt *et al.* 2003). The situation in German-speaking countries is the same as that found in other OECD countries (cf. OECD, *Education at a Glance*, 2005, p. 351).

Conclusion

As a whole, we can see that German-speaking countries have substantial problems with their populations’ literacy. Unlike England or Scotland, these countries have no literacy policy or adult literacy and numeracy strategy. They have no public agency like the National Agency to Fight Illiteracy (ANLCI) in France, or the Association for Reading and Writing Lire-et-Ecrire in Belgium, France and francophone Switzerland. These institutions conduct national surveys, lobby, provide information to policy makers and provide further education for literacy instructors. Even if IALS and ALL show that 14-16% of the German-language population has significant difficulties in reading and writing, and the target group research shows that these groups seldom participate in adult education, there is still relatively little discussion about literacy.

Research on adults with basic skill needs in German-speaking countries

The general public, or adult education practitioners, policy makers and researchers have little awareness of the phenomenon of adults with basic skill needs. The IALS has not had much impact, ALL was only carried out in Switzerland, and national studies on literacy levels do not exist. General research on adults with basic skill needs in our scientific community relies on very few studies, notably the doctoral thesis by A. Linde and the diploma thesis by B. Egloff. The German Institute for Adult Education is an important institution in this field. It was formerly part of the German Volkshochschulen, and today is a governmentally funded research institution (*Blaue Liste – Insitute*). The institution conducts research in different areas of adult education. The area of adult basic education is covered in the department of D. Gnahs, especially by M. Tröster.

Qualitative research on adults with basic skill needs

One of the first empirical approaches to adults with basic skills needs is the thesis of Birte Egloff (1997). We reported on her findings about fear of tests above, and we will now take a brief look at the design of that study. Egloff uses a biographical point of view to explore the lives and transitions of functionally illiterate adults. The findings are based on ten narrative interviews with illiterate participants of literacy courses (four women, six men) lasting between 25 minutes and 3 hours. The interviews have been analysed according to a “Grounded Theory” approach, a scientific method used to categorise and develop logical explanations of a complex phenomenon.

Egloff found respondents suffered a continuity of humiliations and stigmatisations between school and vocational practice. Her qualitative data show how functionally illiterate individuals handle critical points in their biography and how they cope with difficult and selective passages. The step into working life is interpreted by the adults as a chance to get rid of a negative life story (Egloff in press/2006; Egloff 1997). The biographies of functionally illiterate persons show critical situations that lead to participation in an adult literacy course. Although interviewees report feelings of fear before entering the course, they talk about their relief upon arrival in the training situation at not being the only person who doesn’t read and write. Our re-analysis of her findings makes clear that assessment is a symbolic problem for adults with basic skill needs. However, formative assessment in initial consultation or during training does not lead to the same fear. It appears that the main fear is of being discovered as an illiterate person. Within the training situation, this fear is no longer relevant, because all participants have low levels of literacy and they feel accepted by the literacy trainers.

Another research project, a doctoral thesis by Andrea Linde, is currently being carried out, and the results are not yet available. Andrea Linde’s research deals with so-called functionally illiterate adults who participate in training courses. The qualitative approach aims at describing and categorizing their points of view. The theoretical background integrates concepts of literacies, subject-scientific learning theory as well as Bourdieu’s field theory.⁵ Core categories found in the interviews are Learning, Habitus, and Literacy (Linde in preparation, Linde 2006).

⁵ Bourdieu distinguishes between different sections of a society. People in different areas of society belong to groups, so-called milieus, which generate a common habitus. A habitus is a way to behave, shared values about family, work, courtesy and many other areas. Habitus are difficult to change, because they are in a way subconscious. Via reflection and education one can realise his/her own habitus and then start to transform it.

Monika Tröster of the German Institute for Adult Education Further has conducted further research (Deutsches Institut für Erwachsenenbildung, DIE). The DIE launched a project with the title “workplace oriented basic education” (Berufsorientierte Grundbildung) [founded by the national Ministry of Education (BMBF)]. One of the outcomes is a set of specific, such as:

- “What do I have to do?”
- “How do I have to do it”
- “Which tools do I need?”
- “Why do I do it”

This model is used for structuring the learning process and defining work based requests, which must be taught in basic vocational education. It can be used as a diagnostic instrument for remedial purposes (identifying and agreeing on next steps in the learning process) (cf. Tröster 2002 and especially Steindl 2002, p. 51). Although the project focuses on more on development of innovative concepts than on evaluation or research, we can see that the idea of formative assessment finds its expression in the practitioners’ community.

Neuropsychological research on dyslexia

Recent research in neuropsychology of literacy focuses on dyslexia. The ICD-10 (International Classification of Diseases) defines dyslexia⁶ as a substantial impairment in the development of reading abilities, which are not only explainable by age, problems of vision, or inadequate schooling. About 5% to 12% of the population in the German-speaking area are dyslexic (Rüsseler in press, p. 2).

Some diagnostic approaches use the knowledge developed in neuropsychological research to improve the readers’ achievement. Tests of “rapid auditory processing” assume that the rapid discrimination between sounds is a core problem for dyslexic readers. One of the diagnostic tools is the “Brainboy”. This instrument tests and trains the visual and *auditory threshold* as well as other auditory functions (Rüsseler in press, p. 12f). The results show that these aspects are trainable. Small-scale studies with young learners show that the readers’ achievement improves substantially after

⁶ The ICD research criteria define the diagnosis as the difference between the achievement predicted by a nonverbal intelligence test and the real achievement of at least two standard deviations.

auditory training (Rüsseler in press, p. 13). If adult learners seem unable to learn, it would be worthwhile to assess and train auditory skills.

The best predictor for reading achievement seems to be phonological awareness. The syndrome demonstrates problems with exchanging phonemes (house > mouse) to create new words. Unaware readers cannot tell, for example, if the word “sun” contains an “s”. They do not recognise rhymes. Training improves their achievement substantially.

As a whole, findings from brain research do not mean that dyslexia is a primarily biological phenomenon. They suggest that dyslexia, which is not explainable by low IQ, bad schooling or low socio-economic background, could have neuropsychological origins– although none of these hypotheses have been proven.⁷ On the other hand, in order to improve teaching and learning, instructors should be aware of auditory processing and phonological awareness. Both are technical skills which can be diagnosed and trained, and appear to be fundamental to the acquirement of literacy.

Conclusion

As we see from Linde, Egloff and Tröster, the fear of being tested and the fear of being judged negatively in a transition situation are everyday topics for functionally illiterate adults. So we should be very sensitive in assessing people. However we can also conclude that formative assessment, when carried out carefully, does help these target groups. Once learners attend a course and feel safe with their peers and trainers, testing no longer creates as much stress.

The neuropsychological approach gives us hints for a different approach to formative assessment: it might be important to test and train phonological awareness and rapid auditory processing.

⁷ Other approaches try to explain the causes of dyslexia as the result of cerebral impairment. The “magnocellular theory” posits that the visual attention and eye movement are impaired. Typical syndromes are swapping similar letters (b and d) and the feeling that letters are melting or doubling. However, the empirical basis for the magnocellular theory seems to be thin (Rüsseler 2006, p. 6).

Another hypothesis posits a deficit in the Cerebellum, which leads to low automation of skills. If this thesis was true, the findings would mean that dyslexia would be a biological problem, which couldn't be healed. The thesis is doubted for several reasons. Quite well-known are some post-mortem studies about an abnormally *symmetric* Planum Temporale. The core critique is the small empirical basis of only nine brains. All dyslectic brains had symmetric Plana, but this is true for 16-30% of the non-dyslexic population as well (Rüsseler 2006, p. 9).

5. Formative assessment methods – research results on “what works”

A multitude of assessment approaches are used in the educational landscape. We will now present selected approaches. We chose instruments that had been evaluated or developed by scientists, even if there are no findings on their impact. As to whether formative assessment improves learning, we agree with researchers who found that in school situations, assessment based on individual reference norms is more motivating than social reference norms (Rheinberg, 1980). This should mean that the impact of formative assessment on the learning process is positive. We would agree with conclusions from research on school and vocational education (where grades and marks, or summative assessments, are everyday practice) that formative assessment is more effective than summative assessment in improving learning processes and results.

Adult education and especially adult basic education usually don't use summative assessments. Thus, we cannot compare formative with summative assessment approaches. However, we *find certain evidence that reflection on competences helps to improve the participation in adult education.*

In any case, we would argue in favour of formative assessment, and suggest that assessment implies individual self-reflection on learning aims and results. This kind of reflection strengthens learning motivation as well as outcomes.⁸ It is one of the aims of so-called portfolio approaches, which connect counselling, reflection, certification and the definition of future learning activities.

Portfolio Approaches

The idea of validation of competences via portfolios is that individuals who never went through any kind of training can receive a certificate describing their competences, which would “make the results of informal learning visible (Bjornavold 1999). Portfolios are put into practice via the development of systems for the accreditation of informally acquired competences. In German speaking countries, the development of systems is quite late compared to the French “Validation d'Acquis par l'Experience (VAE)” and the English “Accreditation of Prior Learning (APL)”. However, the “Weiterbildungspass” and some other approaches have been reported in

⁸ We found the connection between self-reflection and learning motivation and outcomes in a qualitative study about adult e-learning (Grotlischen 2003). The data suggest that individual reasons for learning, which become clear through reflection, lead to more intense work with the e-learning arrangement.

the journal REPORT 4/2003 (esp.: Gnahs 2003). In 2006, Germany released the ProfilPASS system. Switzerland works with the Swiss Handbook of Competences (Schweizer Kompetenzhandbuch, CH-Q) and Austria offers a balance of competences (Kompetenzbilanz). Evaluation results inform us that this kind of assessment improves the motivation for learning, as will be further discussed below.

ProfilPASS

Germany has more than 50 different “further education passports” (Bretschneider/ Preißer 2003). Under a long-term pilot project, financed by the Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung, a consortium of DIPF, IES and DIE developed the so-called ProfilPASS.⁹ This is a portfolio used to validate informally acquired competences. It is carried out with the help of counsellors, who use a special booklet (the ProfilPASS form). Adults can come to regional agencies, mostly training institutions, and ask for a ProfilPASS. They pay about EUR 30 for the material and have two to three talks with a counsellor. The narration of the individual about his/her activities leads to the common definition of competences, which are recorded in the ProfilPASS booklet. The individual and the counsellor define and validate the competences the individual already has and identify learning needs for the future. The complete procedure can be seen as a formative assessment process. For example:

... a 43-year-old woman might have managed all her families' activities, the sports lessons of two children, the dinner parties related to her husband's business, the household, and so on, so she and the counsellor can define that she has an “organisational competence”. This will be recorded in the Pass and finally validated on a separate sheet. ... [S]he might want to start etiquette training in order to better support her husband. This would be put down as future learning needs, and the counselling agency tells her where she can find offers to meet her demand.

The aim of the ProfilPASS is to bring unconscious competences into the consciousness of the user (DIE/ DIPF/ IES 2006, p. 88) and thus to strengthen self-esteem and learning motivation. Based on the identified competences, further needs are specified and future steps for a personal qualification plan are developed.

⁹ The pass does not lead to formal rights, *i.e.* the right to enter university programmes, as is the case in other European countries.

The pilot phase of ProfilPASS (2004-2005) involved 1 178 users in different contexts. The quantitative portion of the evaluation reports high acceptance. In regard to the *reflection of formerly unconscious competences*, the evaluation reports that 27% of the users became aware of formerly unconscious competences and 41% did not (DIE/ DIPF/ IES 2006, p. 88).

The qualitative portion of the evaluation reports that those who already were aware of their competences, added that they had not been aware of their *relevance as something special* (etwas Besonderes). The users agreed that the ProfilPASS approach encouraged them to initiate further steps for learning and further education (DIE/ DIPF/ IES 2006, p. 90)...

- ...for their personal development: 51%
- ...for their professional development: 36%
- ...for their further education: 35%

The results are not as positive as the scientific community expected. According to our interpretation of the study, the questions included in the quantitative evaluation don't make clear if there is an impact on the learning process, as such. There is an impact on the willingness to participate in further education, but we don't know if counselling led to better learning processes or results. The conclusion we can draw – based on the different theories mentioned above – is that reflection on personal learning improves the ability and willingness to learn. The results of the ProfilPASS evaluation show that the consciousness of acquired competences and their relevance improves.

CH-Q Kompetenz-Management-Modell (Switzerland)

Switzerland uses the Kompetenz-Management-Modell, also known as “Schweizerisches Qualitätshandbuch” (CH-Q). It was developed and implemented in Switzerland in 1995 and is currently used in five European countries (DIE/ DIPF/ IES 2006, Hofer 2004). The difference between CH-Q and the German ProfilPASS is the legal accreditation of informal learning. Switzerland recently changed its law on vocational training and now offers “Gleichwertigkeitsprüfungen” (assessment to validate informally acquired vocational skills). Now individuals can attain vocational certifications without participating in the official VET system (cf. Hofer 2004). The design and implementation of CH-Q has not been evaluated (cf. Käßlinger 2002, p. 16). The programme is highly accepted and seems to provide useful material for self-assessment (*ibid.*). Due to the lack of scientific evaluation, the professional use of the CH-Q Handbook by educationalists and counsellors cannot be estimated (*ibid.*).

Kompetenzbilanz and KOMPAZ (Austria)

The same kind of portfolio is offered in Austria. Based on CH-Q, the Zukunftszentrum Tirol developed a “balance of competences” (Kompetenzbilanz). The balance of competences is a description of a person’s position in his/her life; it helps individuals to discover their strengths and skills and to define objectives for the future. The process of balancing competences takes four to five weeks and includes six steps.¹⁰ The Zukunftszentrum Tirol evaluated the balance of competences and summarised the results (Triebel 2005). On a basis of questionnaires and interviews important questions were evaluated:

- How satisfied are the participants with the different parts of the “balance of competences”?
- Which participant processes are activated through the different methods of the balance of competencies?
- What expectations do the participants have for the balance of competencies? Were these expectations met?
- What was the psychological effect of participation in the process for the balance of competencies?

The impact was measured quantitatively and qualitatively four times (T1-T4). T1 took place before the training, T2 was conducted after the final dialogue, T3 took place two months later and T4 took place six months after the concluding dialogue. *In general the results are positive.* Half a year after the training, most participants report feeling encouraged about their vocational future. Their self-concept in regard to their own abilities (Fähigkeitsselbstkonzept) improved through the balance of competences exercises. The participants feel more self-confident, are more active than before, deal better with stress and are less troubled vocationally (cf. Triebel 2005, p. 10ff). To understand satisfaction levels, participants were asked about their prior expectations. The most frequently mentioned were:

¹⁰ At first, a workshop introduces the participants to the process. The participants reflect on initial questions like “By whom or what have I been formed? (Was hat mich geprägt?)” and “What were my most important experiences? (Was sind meine wichtigsten Erfahrungen?)”. The second step takes place at home, where the participants have to record a profile of their life, including family, education, work, and leisure time. A first dialogue with a personal coach takes place at step three. The dialogue aims at helping the participant to become aware of important experiences in each area of his/her life and to recognise skills. After that the participant writes his own curriculum vitae, including all certificates and competences. The second dialogue with the coach is intended to raise and address questions about the self-perception, about the future etc. In a final step a concluding dialogue defines achievements for the future.

- “I want to be aware of my skills and competencies, which I had not thought about before!” (“Ich möchte, dass mir Fähigkeiten und Kompetenzen bewusst werden, an die ich vorher nicht gedacht habe!”)
- “I want to take on new challenges in my life or in my occupation!” (“Ich möchte neue Ziele in meinem Leben oder in meinem Beruf finden!”) (cf. Triebel 2005, p. 13).

Half a year after participating in the balance of competences, the participants were asked whether their expectations were satisfied. The entries (Nennungen) as to expectations before the training were matched with entries made after the training. The participants evaluated most methods as necessary and helpful. Some did not agree with the task of recording their curriculum vitae, which was refused by 8.7% of the 103 persons interviewed (cf. Triebel 2005, p. 16ff). The component on curriculum vitae was made optional after the evaluation. The need for dialogue with the coach was seen very positively by 85.8% of the participants. The participants were asked if they agreed with the statement “I have achieved my most important aim”.¹¹ Of 104 answers, 30.8% affirmed “I agree mostly with the statement”. The evaluation of balance of competencies shows that the training is helpful in making people aware of their informally acquired competences and skills and in developing aims for their vocational future.

KOMPAZ is another system. It comprises the Kompetenzprofil, provided by the Kompetenzerkennungszentrum. It is similar to the balance of competences. It is also based on CH-Q and the recommendation of the EU to validate informally acquired competences.

Sprachenportfolio, European Language Framework and „Zertifikat Deutsch”

Languages and German as a Second Language (Deutsch als Zweitsprache, DaZ) are another area where the portfolio approach is often used. Unlike secondary school, where language tests are sometimes used in formative ways for self-assessment (Bosenius 2003, p. 421ff), trainers in adult education do not use language tests for alternative assessment. The former approaches do not lead to further development (Raasch 1998). The largest language testing agency in Germany, Weiterbildungs-Testsysteme GmbH (WBT), develops valid and reliable tests to meet the European Frameworks’ requirements. The tests are used in a summative way, so we

¹¹ on a scale from 1 = “I don’t agree at all” to 5 = “I fully agree”.

did not take them into consideration. There are also tests for German as second language (Zertifikat Deutsch and TestDaF), but they are not used for formative purposes.

Conclusion: portfolio assessment improves self-esteem and motivation

The kind of portfolios discussed above appear to be the most frequent formative assessment activity within adult basic education in the German-speaking countries. As they are still innovative and new, we know little about their impact, but the first evaluation results indicate that the approach improves learning motivation and reflection.

As a whole, the different portfolio approaches validate formal, non-formal and informal learning¹² and are put into action in all three countries. From a theoretical perspective,¹³ and based on evaluation results, we can conclude that there is a certain impact on future learning resulting from the counselling process. The counsellors assess adults according to an individual reference norm. Based on the work of Rheinberg (see above), we can therefore assume that the portfolio approach will motivate future learning.

Quantitative, standardised tests

We find important research on quantitative, standardised tests of literacy and basic skills. These tests are usually developed by psychologists and are widely used in schools. However, they are discussed here in regard to the diagnostic assessment of adults, as adult education lacks its own set of tests.

¹² The international and national discussions provide different definitions of the terms formal, non-formal and informal learning. For this report, we use the terms in a way that fits the German-language adult and further educational system: “Non-formal learning” does not lead to formal certification, but usually takes place with the help of an institution, a trainer and/ or training material. “Informal learning” is designed and organised by the learner, *i.e.* the stand-alone use of teaching software.

¹³ Pragmatist learning theory (Dewey) and subject-scientific learning theory (Holzkamp) explain “learning” as a procedure that starts as the result of reflection on a problem. The problem is described as a contradiction between previous experiences and recent observation (Dewey) or as a gap between the activities the individual wants to undertake and the few activities he/she is able to undertake (Holzkamp). Both theories imply that the original learning problem is somehow clear and understood by the learner. Therefore we suggest that reflection will lead to more intense learning activities and better outcomes.

Hamburger Schreib-Probe, P.May

One example is the “*Hamburger Schreib-Probe HSP*”, developed by P. May. The test is used for diagnostic purposes in schools from grades one to nine. Validity and reliability are reported according to the standards of the “Testzentrale.de” (test centre) of Hogrefe Publishers: internal consistency lies between $r = .92$ and $r = .99$ (Cronbachs Alpha). Validity was tested against another writing test, with correlations of $r = .87$. The correlation between HSP and the achievement in written school examinations is between $r = .78$ and $r = .81$. Results are delivered on an individual level, in combination with the norms of each class (percentiles and average). As the HSP, which tests orthographical and grammatical issues, is valid for young learners, we can assume that it is valid for adults as well. However, these tests are seldom used in adult basic education.

European computer driving licence

The European Computer Driving Licence (ECDL) is another quantitative test used in Germany. This test checks computer literacy—that is, the ability to handle standard software. A diagnostic test is offered. There is a fee for the test.

Several training institutions offer the diagnostic test and carry out the summative test, which, if passed, leads to an ECDL certificate. As far as we can see from the evaluation of an EQUAL project in Hamburg, the ECDL is too difficult for adults with basic skill needs (Grotlüschen/Brauchle 2004). On the other hand, those adults who pass the test do not need the certification for job applications, because employers expect that they will have sufficient computer skills (cf. Root in press/2006).

Conclusion: Little Use of Quantitative Tests

Standardised tests are quite problematic for the adult basic skills target group because they result in frustrating comparisons such as “your reading level is below the lowest 25% of eleven-year-old children”. Therefore these tests are criticised as being irrelevant for adults. We do not know if such tests are used for formative purposes.

Qualitative Diagnostics

A different and more common approach in adult basic education is the use of qualitative diagnostics. The design consists of sheets with diagnostic items for the learner. While the learner works on the test items, the teacher observes his/her progress, the kind of mistakes made, emotional reactions,

etc. The observation is not standardised as in quantitative diagnostics, but it is sometimes supported by special observation forms. The results can be used for feedback, especially in regard to typical mistakes (*i.e.* problems to decide about double consonants, problems to hear and write syllables, etc.). This information is used to tailor the lessons following the diagnosis. The complete setting is formative.

The journal Alfa-Forum published two issues on diagnostics (No. 56 & 57/2004). The discussion focuses on several elements, such as the fear people with low literacy have of any kind of test (see above); several scientific and practical approaches and models as well as computer aided assessment (see below). We report the most well-known or widespread approaches in detail, and include insights from the discussion on special education. Most of the instruments available are prepared for children or adolescents with basic skill needs.

Process Diagnosis of Literacy (Kretschmann)

One of the well-known systems of qualitative diagnostics was established by Rudolf Kretschmann *et al.* (1990) The most recent monograph, published in 2005, is entitled Process Diagnosis of Literacy (*Prozessdiagnose der Schriftsprachkompetenz*). Kretschmann is an expert in special education. He has developed about 40 diagnostic sheets to assess and improve the literacy learning process. The sheets are not a traditional form of test. Teachers are to use these diagnostic sheets regularly to better understand the student's learning process. They are used as formative assessment, and early diagnosis and advancement should prevent deficiencies in reading and writing. The sheets also consider *methods of learning* and the *emotional attitudes* toward the subject of study.

There are different types of sheets:

- The first type of diagnostic sheet is used to gather *general information* on the student, learning gaps and existing skills in language and communication, and to observe their social behaviour and study methods (Chap. 1, p. 10-12). Teachers observe their students filling out the papers.
- A second type includes specialised questions concerning *emotional attitudes* toward reading and writing. Data can be collected by asking the students directly, or by asking the teachers for their point of view. Typical questions are: "Are you afraid of taking a class test?" or "Is there anybody at home reading to you?" (Chap. 3, p. 42-44).

- Another type of sheet focuses on *language*, letters and numbers. These sheets are to systematically control and improve the students' progress. There are about 30 different papers, starting with a differentiation between letters and figures and ending with a picture based story (to be written by the student) (Chap. 6-12).

Comparable sheets are useful for adults with basic skill needs and some rudimentary versions are already in use.

Analysis of mistakes: AFRA (Herné)

Karl Ludwig Herné presents in this essay another qualitative method to analyse spelling mistakes, called AFRA (Aachener förderdiagnostische Rechtschreibfehler-Analyse, Herné 2004). In adult basic education it is said to be inappropriate to count an individual's mistakes, because this is seen as de-motivating for the adult learners. Therefore, AFRA discusses how the analysis of spelling mistakes might be improved. Two approaches are described: the lexical vs. sublexical knowledge of spelling/orthography, and so-called level-based schemes (Stufenmodelle). AFRA uses three levels for analysis of the acquisition of the written language: the logographical stadium (recognising logotypes), the alphabetical stadium (spelling) and the orthographical stadium (reading).

AFRA contains 16 categories of mistakes. These categories are grouped into four levels of analysis based on phonology, morphology, syntax and the quantity of vowels. The results are evaluated by examining the learners' mistakes and the possible mistakes in a category (called the "basic rate" – Fehlerverlockungen). This leads to the development of individual profiles, which can be compared over time.

Writing and spelling (Herbst) and Kieler Leseaufbau (Dummer)

The "Test of writing and spelling" by Dieter Herbst (2004) is a scheme to diagnose learners' spelling and includes four sheets. Every sheet includes 20 picture-word-dictations (Bild-Wort-Diktate). The "Kieler Leseaufbau" consists of diagnostic lists of pictures (Diagnostische Bilderlisten), which are used to check the level of each learner and to choose the right class level for them (Scholz/ Großkappenberg 2002, p. 143). The levels are defined as follows:

1. cannot read, and can write only single letters, the own name and perhaps some short words;
2. can read slowly and write some simple words;

3. can decipher the meaning of a text (sinnentnehmend Lesen) and write a text with difficulties.

The Kieler Leseaufbau was constructed for children with dyslexia, but it is appropriate for adult basic education as well. As the ideas of Dummers' and Herbsts' assessments are similar to the previous two approaches, we will not go into further detail here.

Conclusion: tailor-made instruction as result of qualitative diagnostics

The adult basic skills sector in German-speaking countries seems to use a lot of detailed diagnostics for teaching reading and writing. We did not find anything in the area of numeracy or problem solving, but we are confident that there is more regarding German as second language.

Even though qualitative diagnostics are seldom used as self- or peer-assessment, we still believe that the detailed diagnostics of the *kind of mistakes* somebody makes leads to better teaching and learning than a diagnosis of the *number of mistakes compared to others* of the same age (quantitative, standardised, norm-referenced approaches). These approaches are accepted by trainers and learners, but there are still important questions regarding the duration of the diagnostic session and the evaluation workload.

As a whole, we would suggest that qualitative diagnostics have a special impact on the design of instruction. If teachers and learners know the details of literacy deficits, they can use class time for specific training. We assume that this would significantly improve learning speed and results.

Counselling before and during a Training

Several training providers, *i.e.* the “Volkshochschulen”, use entry tests or entry talks with adults with low literacy skills to diagnose their level and to select appropriate courses. Guidelines are available for teachers. The instruments are sometimes similar to those used in qualitative diagnostics, but are usually shorter and more embedded in an entry talk, thus avoiding a “testing atmosphere”. In many cases, adult illiterates tell their trainers that they fear the first talk, even if it is not technically a test. They report panic, frustration and fear (Brigitte¹⁴ 2004, p. 20).

¹⁴ Brigitte is an author in the *Alfa Forum* journal. The journal invites adults with low literacy as well as researchers and practitioners to write. Brigitte published a report about her feelings and experiences before and during the entry talk. It was her choice not to publish her last name.

Regarding the standards of the counselling situation, Scholz provides a list of criteria, *i.e.* to avoid long waiting times, to avoid desktop barriers between the two persons, instructors should have a good knowledge of diagnostics, etc. (Scholz 2004, 15f). He also provides a list of techniques and instruments such as schemes of the alphabet, newspaper headlines, texts written by individuals with low functional literacy to assess reading literacy. He recommends tasks such as writing down the address, filling in gaps in texts etc. for assessing writing literacy. As a whole, the counselling process often uses instruments like the Kieler Leseaufbau, sheets provided by the Bundesverband Alphabetisierung (Federal Association for Literacy), or information from the linguistic scheme which is used in the AFRA and *ich-will-schreiben-lernen.de* as well.

We find several reports from daily practice of formative assessment (see below). One publication, edited by Monika Tröster from the German Institute for Adult Education¹⁵ (Tröster 2002) includes experiences gathered for the project “Development and experimentation of elements for vocationally oriented basic skills modules and development of teacher further education modules.”¹⁶

Counselling, reflection and guidance can include a combination of an entry talk, counselling on the learning process, and a learning guidance paper (Steindl 2002). Several practitioners report on counselling and reflection-oriented questions (*i.e.* Hübner-Heynemann 2002).

Learning diaries

We found only a few examples of learning diaries for adults with basic skill needs (*i.e.* Scholz/ Großekappenberg 2002, p. 166). Literacy classes for adults sometimes use the diaries as a training method for beginning writing. Scholz *et al.* report that in one case, the teacher wrote sentences on the board while the students were asked to write them in their diaries. This cannot be regarded as formative assessment or self- assessment via reflection on the learning process. On the other hand, there are ways in which learning diaries can be used as part of the formative process, as illustrated in the following paragraph.

Frigga Haug, sociologist and critical psychologist, provides dense reports from the University of Economy and Politics, where students who have had vocational careers begin their studies. Several of them are aged 30 and over and have gained access via special exams, not the Abitur (higher

¹⁵ Deutsches Institut für Erwachsenenbildung (DIE).

¹⁶ Developing and testing conceptual elements of a professionally-oriented literacy/Building foundations as well as developing an accompanying module with examples, conducted for BMBF.

education entrance qualification). They use learning diaries to reflect upon their relationship with difficult theoretical work (Haug 2003¹⁷). Based on their descriptions, we can conclude that the diaries serve for stabilisation of their self-consciousness and that they help to identify and overcome barriers to learning (Haug 2003, p. 180ff).

Learning Diaries are also used for the APO-IT system, which was developed to certify ICT skills used in an employee's work process (see below). The approach contains a detailed documentation of the work and learning process – so-called diaries. The impact of the diaries on the learning process or the results has not been evaluated in detail. However, the general evaluation reports that the work of documenting processes in diaries was difficult, was too much work for ICT professionals, and that the tutors had to remember and heavily guide the learners in the documentation process (cf. Loroff *et al.* 2004, Meyer 2006). Thus one of the weak points of the diaries is the amount of work involved. On the other hand, it still seems more adequate for a process-oriented certification like APO-IT to collect project results in diaries instead of requiring final exams.

Learning Contracts

The idea of learning contracts is discussed in alternative assessment literature on school education, especially as an approach from the laboratory school in Bielefeld (Winter 2004). Ott reports on learning contracts in vocational education, which are similar to the management-by-objectives approach. The contracts deal with small projects and contain the task(s), objectives, a plan for development of competences and timeframe. They are used for problem-solving in the German apprenticeship system (Ott 1999, p. 61). The results of the projects are presented and are part of the final grade.

Learning contracts are also found in university education. Based on research with students, we learn that contracts are set up as an improvement to the feedback system (Graebner 2002). Students' critiques are threefold:

- The first group of students likes the contracts and reports that they encourage them to reflect on and articulate the aims of their study. The contracts are said to be helpful for structuring group processes as well.

¹⁷ The book was not written as qualitative research on learning – its aim is to criticise and develop subject-scientific learning theory (Holzkamp 1993). Thus it doesn't provide systematic data about learning diaries, just a very dense qualitative description.

- The second group praises the contracts as well, but seldom uses the system. The contract scheme is said to be too complex. In cases where there is more than one contract, the administrative work is too high.
- The third group of students rejects the economic terminology of the contracts, which doesn't seem to fit into educational science studies. One individual said: "This reminds me of my time as a hospital nurse, where I already hated agreements on objectives (Zielvereinbarungen)" (Graeßner 2002, p. 11).

As a whole, the contracts are used in educational situations where people attend for a longer time and use project approaches to learning. Once more, we know little about the impact of the intervention on the learning process or outcomes.

Conclusion: Counselling improves Reflection onto Learning Steps and Needs

These approaches cover counselling before and during the learning process. Entry talks, learning diaries and learning contracts are instruments to help focus attention on the level, aims and progress of learning with the adult learner. The approaches respond to a certain need to involve the learner in the reflection of his level, aims and progress to support his/her autonomy. We learn a lot about practical experience, but not very much on the research level. It would be interesting to conduct field research in connection to formative assessment and learning results, especially in courses where assessment doesn't play a significant role, as in many adult education courses.

Assessment via E-Learning Systems (E-Assessment)

E-learning seems to be the wrong approach for adults with basic skill needs. Demographic surveys show that poorly educated adults, *i.e.* workers, do not use e-learning (0%), while about 10% of well-educated academics or managers use it (Kuwan 2006). However, some recent projects from adult basic education show that didactically intelligent systems are a good method to reach learners. Research recommends intense guidance and tutoring in the first phases (Grotlüschen/Brauchle 2004). In regard to formative assessment, we report on diagnostic systems and results of two e-learning projects: one of them was specifically created for adult basic education, the other one is targeted to mainstream adult education, but has relevance to formative assessment.

ich-will-schreiben-lernen.de

The most well-known approach is the Internet platform *ich-will-schreiben-lernen.de*. It can be used for independent learning, but most of the users belong to adult basic education trainings throughout Germany. The system was activated on 8 September 2004, the Day of Literacy. A follow-up project is called “Second Chance Online” (“Zweite Chance Online”) and follows the scheme for English, numeracy and other modules. The platform is used by 9 623 anonymous learners, another 1 907 registered learners and approximately 400 teachers from the Volkshochschulen in many different cities. There are also six online tutors who focus especially on the anonymous learners (figures: June 2006).

We focus on the initial assessment here, because the system automatically checks the entry level of each learner. The programmes’ algorithms have been developed according to a linguistic review of diagnostic tools. The assessment process begins with an extremely short self-assessment, where the learners listen to three different statements and have to click on one of them, *i.e.* “I know several letters, but I am not able to write words.” This is followed by some *diagnostic items*, such as tasks where the learner has to underline vowels or to write several words. According to the results, the system proposes small modules consisting of interactive tasks, called “learning packages”. Finally, the learning scheme is established: every learner has his/her own timeline for learning, consisting of one to four packages per day. It may take about 30 minutes to work through a package. After each package, the learner receives a pictogram which shows his/her results. The follow-up packages are adapted automatically to his/her results. As far as we know, most learning activities included in the platform are used by the 1 907 registered adults with basic skills needs in classroom settings (primarily in literacy courses of the Volkshochschule), where a tutor is present to support them.

The learning packages can be adjusted to different themes of life (Lebenswelten) *i.e.* banking transactions, supermarket shopping, job applications, etc. The learner can choose the themes after the initial diagnosis, and is guided through a word pool, which is interesting and relevant to his/her needs. This word pool consists of words which include typical linguistic problems, *i.e.* upper and lower case, doubling of consonants and vowels, endings and so on. All learning results are registered and assessed automatically, so that the following week of learning is adapted to the results of the previous week.

When a linguistic theme is successfully completed, the learner reaches the next level. If he/she repeats mistakes which had been addressed previously, the system is able to include some exercises to repeat relevant

lessons. However, the user is not downgraded (cf. Kellershohn 2006). While the number of mistakes is unimportant, the learner has the option of looking at the number and type of mistakes made each time (cf. Lübs, Alfa-Forum 2004, p. 34).

There are three levels, according to the strategies of acquirement of written language. This follows the model of levels, as in AFRA. Each level includes two steps.

Logographical level:

- The learner is able to write his name and may know several letters.
- The learner knows nearly all letters but is not able to synthesise them.

Alphabetical level:

- The learner is able to write words on phonemic level (lautgetreu) and to read short texts without extracting the sense.
- The learner is able to write words, easy and short sentences and texts as they are spoken.

Orthographical level:

- The learner is able to write and to extract the meaning while reading (sinnentnehmend). There are still difficulties in spelling, so he/she avoids writing.
- The learner makes just a few mistakes, but wants to become more sure of his/her writing (cf. Lübs, p. 34).

We can report the reactions towards the platform from a practical point of view and with respect to the teaching process. Most learners find the system to be interesting. However, it requires learners to do a couple of tasks on a daily basis. Many adult learners use it within the classes at the Volkshochschulen all over Germany, which take place once or twice a week. So the learners, who are not able to go online at home do not necessarily have a chance to complete all packages for the week. This leads to negative feedback through the automatic score, which shows “smileys” if somebody is on time and successful with his/her learning programme. The learners express unhappiness about not earning these smileys.

“Zweite Chance Online” is going to expand its platform, and *www.ich-will-schreiben-lernen.de* will add new levels, with standards comparable to those of the lowest formal school certificate (Hauptschulabschluss). The platform continues to win awards and to receive additional funding.

Multiple Choice vs. Open Questions & Project Results

In regards to the effect of self-assessment on learning, we find some information from recent research on e-learning. The use of multiple-choice tests for assessment is widespread. The automatic response has several effects. Our own qualitative study with adult learners in companies and in training situations included questions about the use of multiple choice tests, open questions and an application portfolio. The study used “Grounded Theory” methodology (Strauss/Corbin) to categorise types of adult e-learning. We can report the categories, which were derived from 10 one-hour-interviews in Hamburg. The qualitative data are valid, but not generalised for other groups. However the *patterns* and so-called “subjective reasons” are generalisable (Grotlüschen 2003, p. 286ff).

Multiple Choice tests were offered at the end of each chapter of a “web-based training” software. The learners used them to check their achievement and to motivate themselves to get through the chapter. The pattern is: *if tests are good for self-evaluation and if I can improve my performance by re-reading the previous chapter, it makes sense to use the tests.* Learners sometimes self-assess before learning with multimedia tools, and tests are used to choose the right level and chapter: *if my test results are negative, it makes sense to work through the chapter (if the results are positive, I don’t need to work through the lesson).* Successful tests are included in a personal “learning account” within the training software, and produce “green traffic lights” as a symbol for learning success. These small tricks seem to be motivating: *if I can control my efficiency and success with the traffic lights, it is reasonable to use the tests.* Test questions lead to an estimate of relevance: *if these ten questions are provided as a test, their content must be the most important parts of the chapter.* We did not utilize any measurements of learning outcomes. However the use of multiple choice tests did not result in the *ability to talk about the content of the lesson.* We asked the interviewees about the contents they liked best, and the interviewees answered that they preferred to have a look at the software chapters, because they couldn’t tell by heart what the chapters were about(!).

Some chapters led to *tests with open questions.* After answering the questions, the participants were able to compare their solution with a sample solution. The trainer, who belonged to the training institution offering the e-learning-course, was not able to check the answers, This was initially unbeknownst to the users. As a result of this set-up, none of the learners used these tests. The pattern shows that the effort involved in solving the test question is considered as too high: *if the sample solution is available, it is reasonable to check it instead of trying to solve the task with the risk of failure.* Another problem of these questions is the lack of response: *if I won’t*

receive any personalised information about how good or bad my solution was, it is reasonable to skip the task.

Another approach is to *present project* and case study results or presentations online to the peers and the tutor. One of the training courses dealt with application procedures. Assessment was carried out via an individual check of the application portfolios and curriculum vitae (Grotlüschen 2003, p. 218ff). From the learners' point of view, the feedback was often too late, but was nevertheless seen as necessary and helpful. The learners reported that they accepted the tutor as highly competent. The tutor used feedback not as control, but to give hints for further improvement, while it was up to the learner to insert the hints into his/her project. This constellation contains further patterns: *if I accept the tutors' technical competence, it is reasonable to ask him for advice.* So the status and acceptance of a tutor is of core relevance for the efficiency of formative assessment for adults. Another aspect is the kind of feedback. Learners themselves decided whether the tutors' comments improved performance or not: *if the tutor accepts my ownership and use of the reviewed product, it is reasonable to participate in the assessment.* We also see that the feedback needs to contain information about the learning content, rather than simply providing marks, which don't inform the user what was good and what was wrong (cf. Krapp/Ryan 2002, p. 60).

Conclusion: E-Assessment surprisingly well accepted, if feedback is provided

The online platform appears to have a highly developed automatic assessment system. The diagnosis takes less than twenty minutes and is followed by learning packages which ask the learner to train in those areas where he/she did not previously perform well. The learner receives feedback on the results of the tasks, as his/her solution is compared to the right solution with additional symbols like “smileys” and the option of checking the *actual time needed* in comparison with the *estimated time needed*. This time estimate is an important competence for self-directed learning. The results suggest that the most effective didactic scenario for e-learning and e-assessment in adult basic education is in a classroom with a tutor who uses the platform to help differentiate tasks within a heterogeneous group of learners.

Additionally, we have qualitative results related to self-assessment in adult education, which strongly recommend the use of formative, computer-generated assessment for e-learning situations in order to motivate people. Open-ended questions were not used when they did not provide individual feedback. On the other hand, feedback on complex tasks is required from

competent people, and it is appreciated as *advice*, not as correction. That means adults do not tend to accept feedback from people they do not judge to be experts. They also do not want the tutor to prescribe how they should complete a complex task; they prefer to decide on their own whether they accept the tutors' proposals or not.

Vocational Education and Training

Many projects examine the diagnosis of competences from a vocational point of view. None of these is related to adult basic education, so we examine some very different approaches for insight into the discussion. In contrast to adult education, we find a great deal of regular and primarily summative assessment in vocational education.

First, the system of vocational qualifications is quite well established and well known in Germany. Nationwide curricula are fixed and adapted regularly. The assessment of vocational qualifications is in the hands of the chambers of industry and commerce, and/or the crafts organisations.

Second, Human Resource Management (HRM) uses different techniques to assess employees' competences. This may be a structured, regular conversation focused on the employees' profile and development, assessment sheets (Beurteilungsbögen) for the regular certification of achievement (Arbeitszeugnisse), etc. (DIE/ DIPF/ IES 2006, p. 167ff). Austria also discusses the existence and challenges of informal assessment (Putz/Jordan 2004).

Certification systems comprise a third area where assessment of work-based skills occurs. When safety certificates are necessary for safety reasons, *i.e.* for airplane construction or for welding in the steel and shipping industry, learning results are assessed and certified. Assessment and certification related to the installation and maintenance of machines, hardware and software, *i.e.* the Cisco-, Microsoft- and SAP certification systems. These assessments are summative and are not (yet) used for formative purposes, so we did not take them into account.

A fourth area is in newer professions. A recent dissertation (Vespermann 2005) examined different kinds of assessment for IT certification. The results show a wide variety of parallel systems. However, there is no information about the use or impact of assessment as a formative tool for the learning process.

We will now provide results from some approaches that have formative purposes and that have been evaluated.

Vocational Preparation Courses: DIATRAIN

The aims of DIA-TRAIN are to diagnose and to train competences of adolescents, who are going to leave school and who are participating in vocational preparation (Berufsvorbereitung), students in schools of vocational education, as well as unemployed adolescents (Lippegaus 2005). There are different methods for the participants to discover (DIAGNOSIS) something about their competences, potential, attitudes, attributes and their behaviour and how to TRAIN them:

- a three day social training;
- a narrative interview;
- a two day Assessment-Centre (AC);
- training of learning;
- experimental-pedagogy practices (erlebnispädagogische Übungen);
- a workshop to look ahead (Zukunftswerkstatt).

Every participant who completes DIA-TRAIN receives a certificate with an individual report of promotion and an individual recommendation.

DIA-TRAIN was evaluated with a (non-representative) sample of 183 participants. The evaluation contains three questionnaires. The first one asks the trainers about the results of the process, the second one asks the trainers about each participant, and a third questionnaire had to be completed by the participants themselves. Trainer responses on the individual participants are put together with the answers of the participants. The participants seemed to be motivated by DIA-TRAIN and those who were de-motivated in the beginning, developed motivation during the process. The participants answered questions about the effects of DIA-TRAIN positively:

- 81.6% answered that they know something new about themselves (“Ich habe etwas Neues über mich erfahren.”) and that they know more about their skills now (“Ich weiß jetzt besser, was ich kann”).
- 71.1% look more optimistically into the future (Ich habe Mut für die Zukunft bekommen”).
- 47.4% have a more exact impression of their vocational future (“Ich weiß jetzt besser, was ich später machen will”) than before.
- However, 13.2% who said that DIA-TRAIN did not make sense (“DIA-TRAIN hat eigentlich nichts gebracht”).

These results may be interpreted from the point of view of formative assessment. If the participants learnt more about their skills, they might have learned about their learning gaps as well. Their vocational orientation became clearer, so it should be reasonable to assume that their readiness to identify and close learning gaps improved as well. For this group it is important to mention that improved self-esteem is also a good basis for future learning. On a scale of 1 to 5, the trainers assessed the need for DIA-TRAIN with a 4,4; elements related to diagnosis were evaluated more highly than those related to the training. (Lippegaus 2005, p. 147).

Assessment within work processes in IT Professions: APO-IT

Within work processes, there are many kinds of assessment. One of the most important systems assesses skills in information technology (IT-Weiterbildungssystem, legal act from May 2002, cf. Meyer 2006, p.99). The system focuses on skills that have been acquired during the work process and is called “arbeitsprozessorientiertes Lernen” (APO-IT). The Fraunhofer ISST Institute developed the system and has evaluated it. There are several projects monitoring the implementation and results of this assessment and certification system. We found minimal yet interesting information in regard to formative assessment. First of all, the system sets up the *reflection and documentation of so-called ‘reference processes’* as one of the core aspects of the learning and certification process. Reference processes mean that employees in the IT branch who participate in APO IT have to identify important business and coding procedures from their work life, and document how they handle these procedures. This also includes learning diaries. The system requires a so-called *tutor for the learning process* (Lernprozessbegleiter), whose task is to analyse competences and potential, as well as to carry out a reflection on key situations with the learner. The *reflection on about ten key situations* and the *documentation portfolio* of the learners’ projects are used for the final examination talk (cf. Meyer 2006, p. 108).

From the different evaluation approaches regarding the different levels of the system (*i.e.* professionals and specialists) we now concentrate on those which use *formative assessment* procedures within the learning process.

- Of 17 participants in a Thüringen pilot project, only five were certified. The evaluation report explains that too much time and effort were required for the documentation of reference processes (Mattauch 2004, p. 14).

- The participants had use a Likert scale to estimate the level of different competences before and after the process. The comparison of the scales shows the three processes out of 28, which have the highest improvement of competences as estimated by the participants themselves (Mattauch 2003, p. 44).
- Tutors found that the learners' ability to estimate the level of their competences improved in the area of technical competences, but remained low in the area of social competences (Mattauch 2003, p. 54).
- Participants and tutors report that the reflection was important, but this is not explained in further detail (Loroff *et al.* 2004, p. 61ff).

The quality of the evaluation series – for our purposes – is problematic. The quantitative aspects build upon a small number of participants (*i.e.* 17 plus two tutors) and the qualitative data are more descriptive, but do not use appropriate scientific methods of analysis (*i.e.* Mayring or Strauss). Once again we cannot report the impact of formative assessment methods for the teaching and learning process.

Vocational education schools: self- and peer-assessment

Another discussion focuses on self-, peer- and tutor -assessment on the one hand, and the assessment approach, *i.e.* a test or a project on the other (cf. Elster, Dippl, Zimmer 2003). The underlying idea is the “model of complete action” (Modell der vollständigen Handlung). The authors suggest that learning improves when it doesn't focus on a single step of a process, but instead follows the complete action.

In vocational education, this might be the procedure which begins with the customer entering a car service station, asking for advice about a car that has broken-down, via the control of the car's motor and its surroundings, search for possible malfunctions, identifying a broken battery, ordering a new battery, building the battery into the car, examining whether everything is built in correctly, and evaluating if the car works now.

This model of complete action belongs to “action theory” and includes self-control (is everything built in correctly?) and self-evaluation (did I reach the aim, does the car work now? cf. Herold 2003, p. 102f). The refined theoretical approach in Germany is “subject-scientific learning theory”¹⁸

¹⁸ A summary, the core terms like “expansives” and “defensives Lernen” and an estimate of the impact of this theory onto German language research have recently been published in English, French, Spanish and Portuguese: Grotlüschen 2005.

(Klaus Holzkamp 1993). The central idea is to offer *reasons for learning* and to also ask students for their own motivations. The German critical psychologist Holzkamp refers to a special “analysis of power” inside the educational relation. He found this analysis in Michel Foucault’s *Discipline and Punishment* (French: *Surveiller et Punir*, 1975). As Foucault examined assessment and examinations in detail, the group discusses their approaches to self-and peer-assessment, as well as different approaches of alternative assessment that are part of the VET system in relation to Foucault’s theory.

One example is given by Katja Lenz. She belongs to the research project EDUKAT, conducted by LOS, a group of researchers focused on self-directed learning. The group belongs to the Institute of Technology and Education at Bremen University (G.A.Straka). Among other tasks, the group developed a system to assess competences on a basis of five central questions (Lenz 2003, p. 113). During four workshops, the approach was tested with teachers of vocational schools for bankers:

1. *Why are competences assessed?* Vocational schools are in charge of developing “action competence” (Handlungskompetenz). This means teachers must diagnose, assess and evaluate the competences of each student.
2. *What is assessed?* The team of teachers and researchers found a consensus that social and methodical competences are most important for bankers (Methodenkompetenz). Technical competences (Fachkompetenz) are not assessed.
3. *How are competences assessed?* Competences are assessed with the group. Students are observed and rating sheets are completed (Beobachtungs- und Beurteilungsbögen) before, during and after the assessment process. The criteria are established with the students.
4. *When are competences assessed?* Formative assessment of competences are desirable in all lessons. According to the majority of students, the teachers concentrate on specific situations, i.e. during a project or during a role-play.
5. *Who assesses the competences?* The teachers decided that the assessment should increasingly involve the students throughout the process.

The project focused on methods of “assessing competencies during activity orientated lessons” (handlungsorientierter Unterricht). The outcome of these workshops is a “Manual”, which contains different sheets to observe and to assess students in special situations, and provides guidance on how to set up these situations (e.g. project, role-playing).

EDUKAT is a large research project, which contains one important result for this review: Straka *et al.* found *no significant effects* of “learning strategies and strategies of control” related to the specific “professional competence” of vocational education (cf. Straka, Lenz 2001, p. 76). The relation between learning strategies, evaluated by the research team, and professional competence, evaluated by teachers via written examinations, was not significant. This result does not fit theoretical expectations. The group suggests that the special kind of written examinations the teachers used were not closely related to the activity oriented lessons which had been evaluated (cf. Straka, Lenz 2001, p. 76).

There are several other approaches mentioned by Elster *et al.* (2003). Most of them relate to assessment in vocational education. The compilation offers minimal research results, as it primarily includes reports based on practical experiences. Yet in combination with the reflection on Foucault’s work, it shows that alternative assessment is being put into practice.

Trade Unions: Job-Navigator

A recent dissertation (Gillen 2005) evaluates a portfolio procedure provided by the trade union of metal industry (IG Metall), the so-called Kompetenz-Handbuch. It is part of an instrument known as “Job-Navigator”. Julia Gillens’ question is whether the analysis of competence is helpful as an instrument for the further development of competence. Many measurement instruments in companies are used for documentation, not for the development or improvement of competences. Approaches that focus on the users’ development seem to dominate in educational situations outside companies, but not inside (Gillen 2005, p. 214). The Handbook of Competences (Kompetenz-Handbuch) tries to analyse competences with the aim of improving competences via the procedure.

The qualitative evaluation checks whether the Handbook meets central criteria, such as “orientation towards the user”, “development”, “interaction”, “co-operation”. The most interesting criterion from the formative point of view is that of “reflection”. The results from Gillens’ research point out that only the first steps of reflection – the first talks – have been carried out. For real development of competences, it would have been necessary to repeat the talks in regard to an individual’s competences and his/her future development. However, continuity and sustainability have not been evident (Gillen 2005, p. 208). Gillen goes on to say that these kinds of instruments, so-called analysis of competences (Kompetenzanalysen), are useful for connecting experience and reflection. Her research showed that reflection is a core element of competence development (Gillen 2005, p. 209). Furthermore, she draws the conclusion that combinations of self-

assessment and external assessment lead to more valid results (Gillen 2005, p. 210), because the bias of self-assessment is corrected with the help of external assessors.

Gillen continues her work with five criteria for instruments that *analyse and develop* competences:

1. Reflection of competences.
2. Continuity (re-analysis on a regular basis).
3. Guided self-assessment.
4. Supportive surroundings.
5. Differentiation and combination of self- and external assessment (Gillen 2005, p. 215).

The first two criteria are based on the theory of “learning through experience” by John Dewey (progressive education). The well-known educational pragmatist states that practical experiences lead to learning and theoretical understanding, if they are reflected upon and made explicit. On the other hand – and this makes Dewey a pragmatist – theoretical explanations have to be proven through experimentation in practice. This approach means that theory cannot claim validity unless it is empirically tested.

Dewey’s approach of progressive education is the basis of formative assessment in the Bielefeld Laboratory School, in the Jena Plan School and others. Kerschensteiner and Dewey are often quoted in vocational education and training, especially because of the strong link between theory and practice which is central for the German Dual System. As a whole, we can assume that progressive learning theory like John Dewey’s approaches to “Democracy and Education (Dewey 1916)”, as well as “How we think (Dewey 1910)”, are still at the foundation of formative assessment approaches in vocational education.

Enterprises and Job Agencies: KODE & KODEX

One system, which is very well known and widely used in enterprises and in employment agencies across the German-speaking countries is the so-called KODE grid for evaluating basic competencies (cf. Heyse, Erpenbeck, Max 2004). This grid refers to four basic competencies (personal, activity-related, technical and methodical, social and communicative). Each of these four competences is split into four sub-competences and combined with the other areas, so the complete grid includes 64 competences.

The person being tested receives 95 questions/situations and is asked to rank four activity options with the values 1-4. The software then calculates the strengths and weaknesses and presents a matrix (example: Buhr, Ortman 2004, p. 115). The developers argue that KODE and KODEX are used for the development of competences, not as a psychometric test (Erpenbeck 2004, p. 126f). This means, the test results are discussed with the persons being tested. The individual explains the results, which means he/she reflects on his/her competences and learning gaps. There are additional procedures within the process, which seem to be the reason for the low half-split reliability and retest reliability rates (0.65 to 0.87). KODE was compared to other tests which focus on personality, interests, and intelligence.¹⁹ The correlations range from low to high, which means that KODE does not have the same level of validity. The development of the system continues (Erpenbeck/von Rosenstiel 2003).

Further research was carried out on validity and reliability of KODE (Schwarz 2004). KODE was compared to another newly developed test (InterOrient) and showed correlations in the expected directions (Schwarz 2004, p. 138f). The internal consistency (Cronbachs Alpha) lies within the four competencies in the first sample (n=172) as follows (Schwarz 2004, p. 141):

- Personal (P) 0.54
- Activity (A) 0.76
- Technical-Methodical (F) 0.79
- Social (S) 0.83

The Test-Retest correlations vary from .34 to .78 (Schwarz 2004, p. 142). The scales have been revised by deleting critical items, but the results were not satisfying.

From our point of view, the system is interesting as a counselling process, but not as a scientific instrument. Many use it for talking with the person being tested about his/her profile, areas where improvement is needed, and the reasons for low or high results. The person being tested provides his/her own explanations of many of the results, so the whole instrument leads to reflection on key competences and development needs, which is a formative use. The grid is used for executives as well as for the unemployed, students, adolescents and in several different companies and job centres. Trainers and counsellors require a licence to use this system.

¹⁹ Myer-Briggs MBTI, LIFO, AIST, and NEO-FFI. This kind of normed tests can be purchased at the Hogrefe test center, www.testzentrale.de

Enterprises and Teams: Kasseler-Kompetenz-Raster

The Kasseler-Kompetenz-Raster (KKR) was created by Simone Kauffeld (2002). We discuss it here because the approach is very different from the KODE and many other tests presented in the “handbook for measurement of competences” (Erpenbeck/von Rosenstiel 2003). In a company setting, the KKR uses a group discussion about a common problem (*i.e.* “The reduction of machine standstills”). Groups are asked to find solutions during a 60-90 minute session. The session is recorded on video and then a trained student is charged with evaluating the session according to a prepared sheet.

This sheet includes aspects of four competence areas: technical, methodical, social and self-competence (Fach-, Methoden-, Sozial-, and Selbstkompetenz). All aspects of the group discussion are categorised on a code sheet. A trained student needs about 30 hours to evaluate a 60-90 minute session, which is the biggest disadvantage of the system. Software to reduce this time is currently under construction. The authors suggest a realistic estimate of five hours to evaluate a group discussion with the help of the software (Kauffeld 2002, p. 146).

The system seems to hold interesting possibilities for formative assessment. It is used as a mirror for employees. The results are categorised according to the four different competences on the code sheet. Yet further uses remain unclear. Another problem is that the instrument is used in the company setting, which means that people fear negative results more than they would in a training situation.

Conclusion: Low validity of the statistical approaches, but positive impact of alternative assessment

On the whole, we find more on assessment for summative purposes and in higher-level education than we find on assessment for formative purposes or in adult basic education. The main problem in regard to vocational education and training (VET) is the unclear theoretical basis of competences. Some authors already write ironically about hyphen-competences, referring to the inflationary use of the term competences in connection with hundreds of areas (*i.e.* media-competence, communication-competence...). The VET scientific community is divided into two groups: those who criticise the assessment of underdetermined competences with instruments whose validity and reliability is not reported or of low quality; and, those who prepare instruments and pilot them in the specific practical fields.

Our personal position is that it is better to work with instruments whose mistakes are known on a scientific level than to promote the use of employer- or self-made instruments without any reflection on their impact, validity or reliability. The funding programme mentioned above (Klieme/Leutner: Kompetenzdiagnostik) might help to improve this situation in VET and adult education.

On the other hand, approaches that use self- and peer-assessment seem to have good results. Students appear to be able to evaluate their peer's work, and to participate in the discussion of assessment criteria and techniques. Learners gain a certain level of responsibility for their learning. As we have seen above, learners do not automatically have the competences needed for learning or assessing progress on their own. Therefore the formative approach fits in the vocational education sector very well, where taking responsibility for one's own work and learning is a key goal.

Assessment during the work process, as used in IT professions, also seems to improve the teaching and learning process because it uses methods of assessment that are very much tied to the practical world of these specialised professions. Exams are not held for the sake of holding exams, but to fulfil needed and practical tasks.

6. Summary, Trends and Research desiderata

Formative assessment leads to reflection on learning processes and steps to close learning gaps. We suggest that, based on the research results about learning in general,²⁰ it can be concluded that formative assessment can be an effective instrument to improve teaching and learning.

Indeed the German-language literature on formative assessment is relatively underdeveloped. Teachers in adult education do not feel that assessment and diagnosis is a task for them. Research which focuses on roles and tasks of adult educators, do not even mention this aspect (Arnold/Gómez Tutor 2006, p. 44).

We found several approaches in related areas with more or less scientific claims. Most of them lack a research perspective, which would examine evidence of the impact of formative assessment on the learning

²⁰ A search for expertise on empirical research on learning in adult and continuous education (Schrader/ Berzbach 2005) found around 50 studies between 1990 and 2004. Most of this research focuses on the process of learning, but not the results (Schrader/Berzbach 2005, p. 55). None of the studies takes into account the effect of formative diagnostics, feedback, peer- or self-assessment, alternative assessment, portfolios, etc. Nor did we find any research on the impact of traditional assessment onto the learning process or outcomes for adults.

process and outcomes. Therefore we searched for arguments that indicate whether there is an impact. The literature review produces some evidence for the thesis that formative assessment can improve adult basic skill learning:

1. Learning theory and research on adult learning tell us that poorly educated people do not have the habit of reflecting on their own strategies and perspectives.
2. We also believe that reflection and good diagnosis of the learners' levels leads to teaching tailored to the needs of individual learners, and that instruction therefore leads to better learning results.
3. We further assume that diagnosis of mistakes is necessary to identify the needs of a learner.
4. And we know that individual reference norms, which are used in many formative assessment approaches, are more motivating than social reference norms, which are associated with summative assessment.

If these arguments are true, we must assume that improvement of reflection on learning leads to improved results. The literature review has shown that reflection may be improved through portfolio approaches, the combination of diagnosis and training, the certification of job based competences, learning contracts, etc. Even though these results are very rough, we find support for our conclusions in evaluations of current practice.

Yet we find a lack of research on formative assessment in adult education in the German-language literature. The instruments we have identified are not used for summative assessment (neither the qualitative diagnostic tests nor the portfolio approaches). Most reading and writing diagnostics ask learners to perform specific tasks, but we know little about the level of the tasks. On the other hand, probabilistic psychometric approaches are used for summative language testing; the elements of language tests are not used for formative purposes. *We know that phonemic awareness is a good predictor for reading and writing achievement, but we do not use tests for phonemic awareness in a formative way and we have no training instruments to improve it.*

We know a lot about fear and frustration of low achievers in adult basic education. This leads to a careful sensitivity amongst practitioners and researchers. Yet it also leads to a certain overprotection, which keeps the scientific community from developing formative assessment schemes and validating them with the target group. Maybe this will change, once practitioners and scientists understand that assessment is not necessarily always used for summative purposes.

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