ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

Personalized Learning Instruction in Vocational Education and Training: A Design-Based Case Study on Challenges and Approaches

Dr. Andrea Zoyke
University of Paderborn
Department Business and Human Resource Education
Warburger Str. 100
33098 Paderborn
GERMANY

E-mail: andrea.zoyke@wiwi.uni-paderborn.de
Phone: +49 (0) 5251 60-3564

Abstract

There are many calls for personalized learning (instruction) (in Germany 'Individuelle Förderung'), especially for persons with special educational needs in the transition to vocational training or retraining. Teachers can find a variety of concepts and instruments to construct personalized learning. The challenge is to combine and to connect several concepts and instruments (e.g. for competence diagnosis or for transferring results of the competence diagnosis to support competence development) as we do not have the one unique instrument that guarantees personalized learning instruction. Furthermore, teachers and students have problems with the implementation of some concepts and instruments, considering the conditions, resources, and goals in their practical field. Against this background, the contribution looks at the question of how teachers in these courses with usually heterogeneous groups design personalized learning instruction. A focus will be on the reception, adaption, and design of concepts and instruments. Described is the research design of the case study in a practical field of vocational rehabilitation according to design-based research. Several instruments (e.g. a curriculum with learning situations of vocational orientation, a learning diary, and an individualized education plan) were designed, implemented, evaluated, and re-designed in a cooperative process between actors of practice and actors of science. Based on problem-centered interviews and group discussions during the whole design process with teachers and learners, qualitative data were collected to reconstruct the personalized learning (instruction) in this practical field. Main findings with reference to the implementation of concepts and instruments are stated. The contribution ends with a short conclusion.

Introduction – Definitions, Instruments and Problems of Personalized Learning Instruction

There is a demand for personalized learning instruction in all educational sectors in Germany. We find it e.g. in school laws (e.g. § 1 SchulG NRW) and in standards for teacher education (KMK, 2004). It is relevant for all students. Moreover, there is a special demand for personalized learning instruction for

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

students and adults with special educational needs in Vocational Education and Training (VET). Personalized learning instruction is quality criteria for supporting disadvantaged people (Bundesanstalt für Arbeit, 50/99) and an aspect of the reform of vocational rehabilitation (RehaFutur, 2009). Main characteristics of the group are that they are called disadvantaged (e.g. they have no or only bad school graduation and grades; they are slow learners). They have problems on pathways to worksites (e.g. do not get an apprenticeship in the dual system, do not know what occupation they could take up) (Euler, 2011, Enggruber, 2005, BfA, 2006). Summarizing, they do have special educational needs and in addition, they need a vocational orientation to pass from general school or unemployment into a vocational training or retraining. Furthermore, there are very heterogeneous groups in the sector of VET; students do have very different special needs and interests, so that individualization of instructions is necessary to address the needs and requirements of each individual.

For a first definition of personalized learning or 'Individuelle Förderung' we can follow Kunze (2009). She defines 'Individuelle Förderung' as all actions of teachers and students that aim at supporting the learning of each individual learner, with respect to his/her specific learning requirements, ways, objectives, and possibilities or that implicate this (p. 19).

Having a closer look, we can divide two perspectives: personalized learning instruction as the perspective of teaching and instruction and competence development as the perspective of learning of the student (Kremer & Zoyke, 2010). Competence development in this contribution means to develop a vocational competence of action ('berufliche Handlungskompetenz') according to the curricula of the German Dual System (KMK, 2011). This is a holistic understanding of competence that includes domain, social, and personal competences that are required to cope with problems and to perform responsibly in different situations of action.

To realize personalized learning instruction in the educational practice, we can find a variety of instruments (see

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

Table **1**). On the one hand, there are instruments for competence diagnosis, as personalized learning instruction is based on the competences respective to the (learning) background of the student. For this, we can do tests and observations, implement learning diaries, interview parents, and so on. On the other hand, there are instruments and approaches for supporting the competence development of the student based on the results of the competence diagnosis. To this end, we can do counseling interviews or differentiation in a course by individualized learning tasks, as well as install weekly schedules or free work, etc. (Kunze, 2009; Gericke & Sommer, 2008; Buschmeyer 2007; BMBF, 2005).

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

Table 1. Instruments for personalized learning instruction.

Competence diagnosis	Supporting competence development
– tests – assessment center – observation – portfolio – learning diary – (self-)reflection – interview with parents – …	– counseling interview – differentiation within a course – weekly schedule – free work – special classes – individualized education plan – …

Although we do have an idea of personalized learning instruction and possible instruments, there are some challenges left, especially for teachers and trainers in practical fields. At first, we can state that we cannot identify the one and only instrument for personalized learning instruction. Teachers have to select instruments under consideration of complex conditions (e.g. personnel resources, availability of instruments, time) and aim (e.g. competence focus, curricula and individual aims). To diagnose and to develop a holistic competence of action, it seems to be necessary to choose more than one instrument. Then, the combination and matching of these single instruments have to be considered. Moreover, these instruments usually have to be adapted to the complex conditions of the practical fields (e.g. to cope with special needs and interests of students, with available resources and competences of teachers). These decisions have to be taken within one of these categories of instruments (diagnosis or development) (e.g. how to coordinate counseling interviews and weekly schedules) as well as between them (e.g. how to use portfolios to accompany and regulate free work, which tests are needed to design special classes).

Problem Analysis in a Practical Field of VET

Besides this literature review-based analysis, a problem analysis in a practical field of VET was done, namely in a course of vocational or occupational rehabilitation (in German: Rehavorbereitungslehrgang für besondere Zielgruppen – RVL-fbZ). This is a preparatory course for vocational retraining in a Vocational Training Center for People with Disabilities (in German: Berufsförderungswerk – BFW). These people are adults that are not able to keep on working in their occupation due to mental or physical disability (Biermann, 2008, pp. 69 ff.). They have to do a vocational retraining to get a new job in a new occupational field (e.g. a geriatric nurse suffering from back pain can do a retraining course for a position in an office of a health insurance). In this specific course, training for rehabilitants with very special educational needs is provided (e.g. to improve writing skills, social behavior, self-confidence, concentration and cognitive learning and working in general).

In the analysis at the beginning of the project, the following main approaches of personalized learning instruction have been found: Flexible beginning and endings of this course as well as flexible schedules

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

and relative high personnel resources to support personalized learning to individualize the learning processes in the course and to take care of everyone. On the other hand, some problems and challenges for teachers in this course have been identified:

1. Heterogeneity of students and their needs, as well as of sought vocational retraining (e.g. sector of IT, health, and electrical engineering). Some of the students only had vague ideas of interesting and manageable occupations.
2. Subject-oriented curriculum (German grammar and orthography, mathematical rules etc.). No information about competence and action orientation. It was unclear what students were able to do after having successfully completed this course.
3. Transfer problem: Many of the results of the competence diagnosis of previous courses and tests of vocational education have not been transferred to the vocational rehabilitation course. Even during the course, teachers, trainers and social staff were challenged to discuss and handle various results of each student.

Research Question

Based on the literature review and the empirical analysis, the following research question can be formulated:

How can personalized learning instruction in transition courses be designed to provide a pathway to vocational (re)training?

Hereafter, we will focus on instruments for personalized learning, on these two challenges:

1. Selection, adaption, and matching (during development and implementation)
2. Usability in practice (by teachers and students)

The focus will be on the teachers' perspective. In addition to this, the students' perspective will be considered.

Research Design – Development of Prototypes and Data Generation and Analysis

The research design of this study is an adaption of design-based research (Edelson, 2002; DBR Collective, 2003; Plomp, 2010; Reinmann, 2005; Euler 2011; Sloane, 2007), that means research in a development context in a field of practice (Kremer, 2007a). One of the main characteristics is the design process in cooperation with stakeholders of the practical field – teachers, trainers, and social workers of the preparatory vocational courses – and stakeholders in the field of science. During this design process, several instruments for personalized learning instruction (so-called 'prototypes' or 'interventions') have been designed, implemented, evaluated, and redesigned in view of theory as well as of practice.

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

Development of Prototypes for Personalized Learning Instruction

There are three main prototypes for personalized learning instruction that have been developed in the design process:

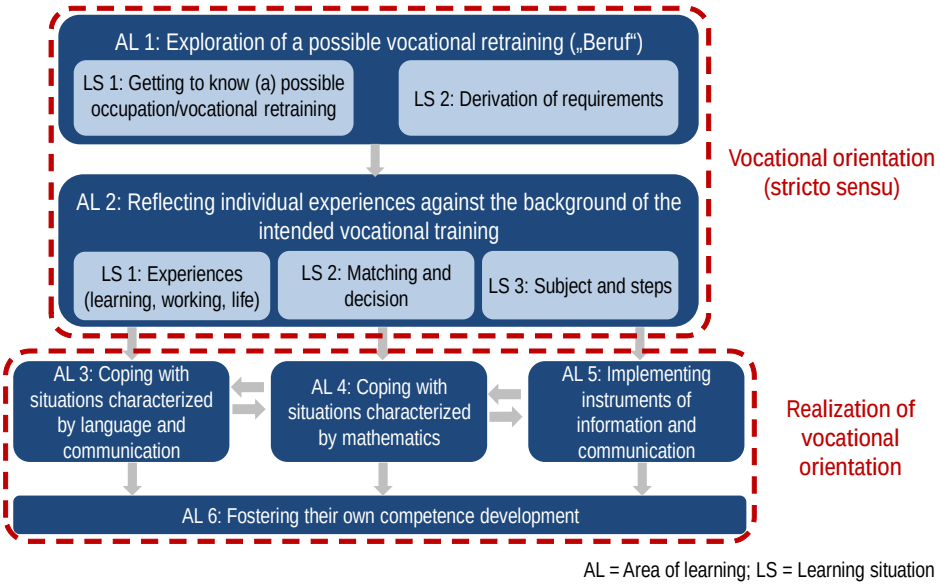
1. a reformed curriculum – a competence and action-oriented framework for the whole course.

To accompany this and to individualize the learning process

2. a learning diary and
3. an individualized education plan. To foster the connection and the matching of these instruments, a uniform understanding of competence of action according to Kremer (2007b; 2010) is used.

1. First, a reformed competence and action-oriented **curriculum** has been developed. According to the German 'Lernfeldkonzept', it is structured along areas of learning that are differentiated by several learning situations (KMK, 2011; Sloane 2005; 2010; Buschfeld 2003; Kremer 2007b; see Figure 1). There are six areas of learning that should foster individualization and the vocational orientation of each student (Kremer & Wilde 2006; Kremer 2010). For the first two areas of learning, the associated learning situations are exemplarily elaborated and material for students and teachers is developed (e.g. work sheets, didactical hints). In these areas of learning, the focus is on fostering students' vocational orientation *stricto sensu*, i.e. the students collect information about one or more possible occupations (e.g. requirements, income, and career opportunities). Then, they reflect their own interests, strengths and weaknesses, match the requirements, and make an occupational decision. This orientation and decision is the basis for the following areas of learning. In these areas of learning and the accompanying learning situations, the students work on realizing their occupational perspective.

Figure 1. Re



ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

2. Within this framework of the course, a **learning diary** for the students has been developed to accompany and to support the individual learning process during the whole course by self-reflection (Brouër & Gläser-Zikuda, 2010; Renkl et al., 2004; Zeder, 2006). The learning diary consists of two components:

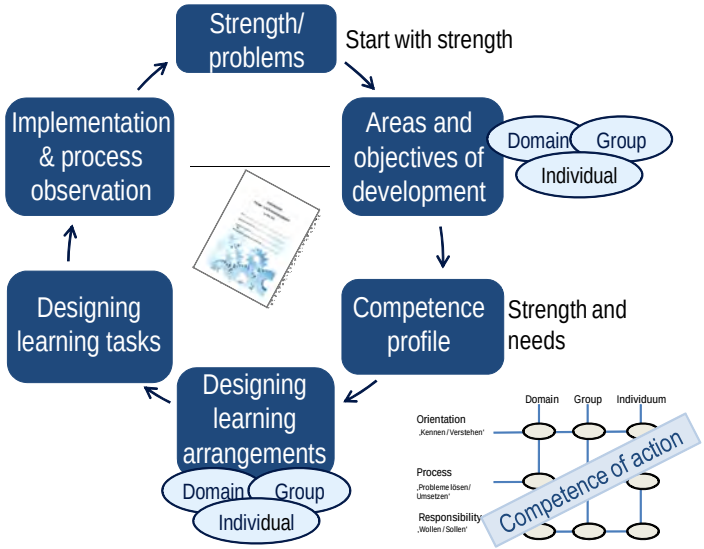
A. List of questions for self-reflection concerning subjects of the course as well as problems, aims, and planning of the further learning process.
B. Table of self and external assessment of specific competences that are needed in the learning situation.

The first component is relatively fixed, but students as well as teachers can select questions considering e.g. the learning process and level, structural needs, and interests. The second component, the table of assessment, has been exemplarily examined for a learning situation of the first area of learning. Subsequently, it should be changed from one learning situation to another as the situations and the competences, which should be developed in these situations, change. In addition, it can be individualized for students to consider the learners' needs (e.g. focus on media competence for the collection of information about an occupation or focus on communication with others while preparing a presentation about the requirements of an occupation). In addition to this material, a guide for students and trainers with hints for individualization (e.g. how or when one could select questions and change the focus of the table of assessment) has been developed.

3. Furthermore, to match the various results of competence diagnosis, to support the connection of diagnosis, and competence development concerning the students, an **individualized education plan** has been developed (Lippegaus, 2000; Eggert, 2000; Hüttenhölscher, Koch & Kortenbusch 2007; 2009). This is a form to plan, to evaluate, and to regulate the learning process of each student in the course. The first part deals with the competence diagnosis respective to the collection and the merger of results of different competence diagnoses. Based on this, the (occupational) goal is formulated and the planning of supporting steps and learning tasks is done. In addition to the planning and the documentation, the idea is to do counseling interviews between teachers and students and, if possible, with social staff, to foster students' cooperation and participation. The form can be used to structure, to regulate, and to document the whole process (see Figure 2).

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

Figu

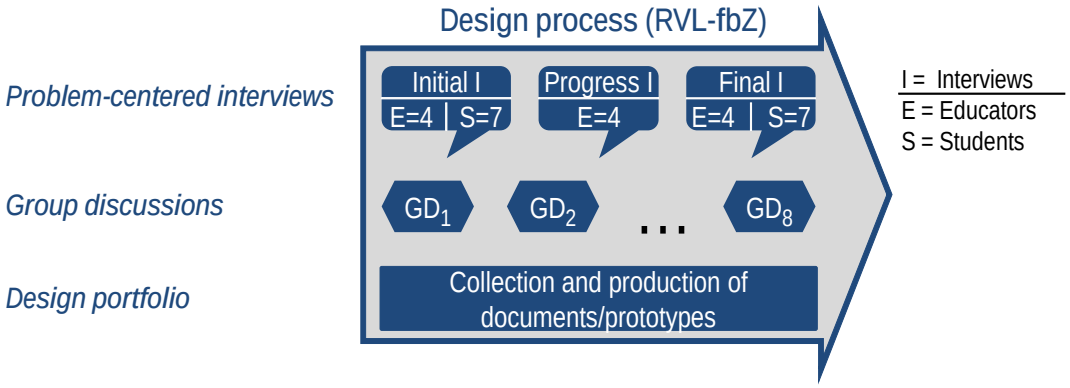


Data Generation and Analysis

Mainly qualitative data have been collected during the whole design process (three years) during the development of these main prototypes for personalized learning instruction. There are mainly three types (see Figure 3):

1. Group discussions with the teachers, trainers, and social workers of the course (Lamnek 2005; Bohnsack 2008). In summary, there were eight group discussions along the whole design process, from the beginning to the end. With this kind of data collection accompanying the process of construction and reflection of instruments, it was aimed to get a deeper understanding of personalized learning instruction, its challenges, and approaches.
2. Problem-centered interviews (Witzel 1985; 2000) with teachers and students. They have been done at the beginning, in the middle, and at the end of the design process. Regarding the respective status of the development process, they vary according to their focus.
3. Design Portfolio (Gerholz, 2009) to collect documents of the practical field (e.g. learning tasks) and texts that have been produced in connection with the prototypes (e.g. concept of the individualized education plan and filled-in form).

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)



For the data analysis, an approach of reconstruction by generating categories of personalized learning instruction has been developed. It is derived from qualitative content analysis (Mayring, 2000), thematic coding (Hopf/Schmidt, 1993), and theoretical coding (grounded theory) (Glaser/Strauss, 2009; Strauss/Corbin, 1990).

Results

In this chapter, main results of the study concerning the three main prototypes and an overall view on personalized learning instruction are described.

1. Regarding the reformed **curriculum** and the exemplarily examined **learning situations for the vocational orientation,** it can be stated that vocational orientation is a very important topic for teachers as well as for students. Having or getting an occupation idea or vision is important for the students' motivation. They need learning situations and possibilities to take a reasoned decision or to review it. Moreover, being vocationally oriented can frame a reference for subsequent decisions on subjects and methods that could be supportive for the individual's competence development and the preparation for a vocational retraining. Nevertheless, it seems to be difficult to realize this kind of strict individualization by taking into account each individual occupational decision and related requirements in the following areas of learning and learning situations. Beyond that, the newly introduced concept of areas of learning and the forms to plan and to document learning situations were difficult for the teachers to work with. They need support, especially in the first phase. In addition to this, restrictions on time for this extensive documentation may be a problem. In case of negative experiences of the students in the past, the self-reflection should be handled very carefully. It seems to be important to focus on and to start with the strengths and positive experiences.

2. Concerning the **learning diary,** it can be assumed that besides documentation and self-reflection especially, teachers see a potential to foster writing skills and, if students show their diary to teachers, to use it for competence diagnosis. This seems to be different from the students' point of

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

view. Some students agree, but some do not and wonder why they should do this. The students' as well as the trainers' data indicate that this may also be a problem of introducing the learning diary (e.g. how to explain the reasons and potentials of the learning diary). Furthermore, it seems to be important to individualize the learning diary, i.e. to adjust to the students' individual needs and interests regarding the form of the diary, but also the use of it and accompanying instructions. The data also show that this individual adaption is very time-consuming for the teachers and they could not do this for all students. Furthermore, the teachers said that the table for the assessment of specific competences in a learning situation is a good idea for more individualization, but it is the same problem with time consumption.

3. Regarding the **individualized education plan and planning**, we can state that trainers see several useful functions by using this instrument, e.g. to get a very deep insight in each student's competences, seen from multiple perspectives of different teachers, social staff, and so on. They point out the form supports knowing the strengths of the students and that it supports focusing on these strengths and not only on weaknesses and deficits. In particular, the documentation in this form and its structure, with the transfer from competence diagnosis to individual support, combined with the conversation about each student between the teacher's team is very helpful; however, this procedure is also time-consuming, so they made up the documentation with only a few students. Regarding the counseling interviews, the students said that they are not that important for them. They explained that there are enough situations in lessons and beyond in which they can talk to the teachers, discuss problems, and get (positive) feedback.

In an overall view, independently of specific instruments, the main findings on personalized learning instruction can be summarized as followed:

- the learner is central!
- vocational orientation is important;
- participation of the students is important as well as communication between teachers and students;
- cooperation and communication in a team of teachers is necessary;
- instruments for students (e.g. learning diary) as well as for teachers (e.g. form for competence diagnosis, individualized education plan) are required;
- implementation requires the adjustment of instruments by teachers (and students);
- increased efforts by teachers (and students) in terms of planning, documentation, reflection, and time (complex requirements) are required (further education, training on the job).

Conclusion

This case study delivers only first hints on how instruments for personalized learning instruction can be designed. It is limited on the German context. For proven results, more tests must be done. The transfer of research data and experiences of advanced other countries should be examined, too. But, despite the

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

limitations of this case study, we can state that the construction of instruments for personalized learning is only one side of the coin. In addition to this, it will be a never-ending repeated challenge to adjust instruments to the individual requirements of each student as well as to the context conditions. In this regard, the useful combination of several instruments must be considered as well.

References

Biermann, H. (2008). *Pädagogik der beruflichen Rehabilitation. Eine Einführung.* Stuttgart: Kohlhammer.

Bohnsack, R. (2008). *Rekonstruktive Sozialforschung. Einführung in qualitative Methoden.* Stuttgart: UTB.

Brouër, B., & Gläser-Zikuda, M. (2010). Förderung selbstregulativer Fähigkeiten im Kontext selbstorganisierten Lernens. In J. Seifried, E. Wuttke, R. Nickolaus, & P. F. E. Sloane (Eds.), *Lehr-Lern-Forschung in der kaufmännischen Berufsbildung – Ergebnisse und Gestaltungsaufgaben* (pp. 123-136). Stuttgart: Steiner.

Bundesagentur für Arbeit (BfA) (2006). *Nationaler Pakt für Ausbildung und Fachkräftenachwuchs in Deutschland. Kriterienkatalog zur Ausbildungsreife.* Berlin/Nürnberg.

Bundesanstalt für Arbeit (50/99). *Dienstblatt-Runderlass 50/99, Entscheidungsleitfaden zur fachlichen Qualitätsbeurteilung bei der Vergabe von Maßnahmen der Benachteiligtenförderung.* Nürnberg.

Bundesministerium für Bildung und Forschung (BMBF) (2005). *Berufliche Qualifizierung Jugendlicher mit besonderem Förderbedarf. Benachteiligtenförderung.* Bonn, Berlin.

Buschfeld, D. (2003). Draußen vom Lernfeld komm‘ ich her…? Plädoyer für einen alltäglichen Umgang mit Lernsituationen. *bwp@ - online* (4). Retrieved from http://www.bwpat.de/ausgabe4/buschfeld_bwpat4.pdf

Buschmeyer, H. (2007). *Individuelle Förderung bei zunehmender Heterogenität.* G.I.B. Gesellschaft für innovative Beschäftigungsförderung mbH (NRW).

Design-Based Research (DBR) Collective (2003). Design-Based Research: An Emerging Paradigm for Educational Inquiry. *Educational Researcher, 32* (1), 5-8.

Edelson, D. C. (2002). Design Research: What We Learn When We Engage in Design. *The Journal of the Learning Science, 11* (1), 105-121.

Enggruber, R. (2005). Zur Vielfalt benachteiligter junger Menschen. *Berufsbildung 59* (93), 35-37.

Eggert, D. (2000). *Von den Stärken ausgehen … Individuelle Entwicklungspläne in der Lernförderungsdiagnostik. Ein Plädoyer für andere Denkgewohnheiten und eine veränderte Praxis.* Dortmund: Borgmann.

Euler, D. (2011). Wirkungs- vs. Gestaltungsforschung - eine feindliche Koexistenz? *Zeitschrift für Berufs- und Wirtschaftspädagogik*, *107* (4), 520-542.

Gerholz, K.-H. (2009). Das Forschungsportfolio. Ein Dokumentator und Reflektor in qualitativen Sozialforschungsprozessen. In H.-H. Kremer, & P. F. E. Sloane (Eds.), *Paderborner Forschungs- und Entwicklungswerkstatt. Aktuelle Fragestellungen aus wirtschaftspädagogischen Promotionsprojekten* (pp. 65-88). Paderborn: Eusl.

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

Gericke, T., & Sommer, v. J. (2008). *Ergebnisse der wissenschaftlichen Begleitung und Evaluation.* Bonn, Berlin.

Glaser, B. G., & Strauss, A. L. (2009). *The Discovery of Grounded Theory. Strategies for Qualitative Research*. New Brunswick/London: Transaction Publisher.

Hopf, C., & Schmidt, C. (1993). *Zum Verhältnis von innerfamilialen sozialen Erfahrungen, Persönlichkeitsentwicklung und politischen Orientierungen. Dokumentation und Erörterung des methodischen Vorgehens in einer Studie zu diesem Thema.* Hildesheim: Institut für Sozialwissenschaften der Universität Hildesheim.

Hüttenhölscher, B., & Koch, B., & Kortenbusch, J. (2005). *Individueller Förderplan „Berufliche Integration"*. Bielefeld.

KMK (Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland) (2011). *Handreichungen für die Erarbeitung von Rahmenlehrplänen der Kultusministerkonferenz (KMK) für den berufsbezogenen Unterricht in der Berufsschule und ihre Abstimmung mit Ausbildungsordnungen des Bundes für anerkannte Ausbildungsberufe.* Berlin. Retrieved from http://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2011/2011_09_23_GEP-Handreichung.pdf

Kunze, I. (2009). Begründungen und Problembereiche individueller Förderung in der Schule. Vorüberlegungen zu einer empirischen Untersuchung. In I. Kunze, & C. Solzbacher (Eds.), *Individuelle Förderung in der Sekundarstufe I und II* (pp. 13-25). Baltmannsweiler: Schneider.

Koch, B., & Kortenbusch, J. (2007). *Individuelle Förderplanung Berufliche Integration. Benachteiligte Jugendliche finden ihren Weg von der Schule in den Beruf.* Bielefeld: Bertelsmann.

Koch, B., & Kortenbusch, J. (2009). *Anschlussorientierte Kompetenzfeststellung und -förderung.* Bielefeld: Ministerium für Schule und Weiterbildung des Landes Nordrhein-Westfalen.

Kremer, H.-H. (Ed.) (2007a). *Lernen in medienbasierten kooperativen Lernumgebungen. Modellversuch KooL*. Paderborn: Eusl.

Kremer, H.-H. (2007b). Selbstgesteuertes Lernen in medienbasierten kooperativen Lernumgebungen. In H.-H. Kremer (Ed.), *Lernen in medienbasierten kooperativen Lernumgebungen. Modellversuch KooL* (pp. 25-46). Paderborn: Eusl.

Kremer, H.-H. (2010). Berufsorientierung als Herausforderung und Chance für die schulisch strukturierten Bildungsgänge des Übergangssystems. In H.-H. Kremer, & A. Zoyke (Eds.), *Individuelle Förderung in der beruflichen Bildung. Grundlegung und Annäherung im Kontext von Forschungs- und Entwicklungsprojekten* (pp. 143-162). Paderborn: Eusl.

Kremer, H.-H., & Wilde, S. (2006). Entwicklung und Implementation einer komplexen Lernumgebung zur Berufswahlvorbereitung. *Wirtschaftspädagogische Beiträge.* Paderborn: Universität Paderborn, Institut für Wirtschaftspädagogik. Retrieved from http://wiwi.uni-paderborn.de/fileadmin/departments/wiwi-dep-5/Dokumente/wipaed-beitraege/wpb_h12.pdf

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

Kremer, H.-H., & Zoyke, A. (2010). Individuelle Förderung zur Kompetenzentwicklung in der beruflichen Bildung - Überlegungen zur Gestaltung eines Forschungs- und Entwicklungsbereichs. In H.-H. Kremer, & A. Zoyke (Eds.), *Individuelle Förderung in der beruflichen Bildung. Grundlegung und Annäherung im Kontext von Forschungs- und Entwicklungsprojekten* (pp. 9-27). Paderborn: Eusl.

Lamnek, S. (2005). *Qualitative Sozialforschung. Lehrbuch.* Weinheim: Beltz.

Lippegaus, P. (2000). *Individuelle Förderung benachteiligter Jugendlicher und junger Erwachsener. Förderdiagnose, Förderplan und differenzierte Lernangebote. Berichte und Materialien.* Offenbach am Main: INBAS.

Mayring, P. (2000). Qualitative Content Analysis. *Forum Qualitative Social Research*, *1* (2), 28 paragraphs. Retrieved from http://qualitative-research.net/fqs/fqs-e/2-00inhalt-e.htm

Plomp, T. (2010). Educational Design Research: an Introduction. In T. Plomp, & N. Nieveen (Eds.), *An Introduction to Educational Research. Proceedings of the seminar conducted at the East China Normal University, Shanghai (PR China), November 23-26, 2007* (pp. 9-35). Enschede: SLO Netherlands institute for curriculum development. Retrieved from http://www.slo.nl/downloads/2009/Introduction_20to_20education_20design_20research.pdf

RehaFutur (2009). *Stellungnahme der wissenschaftlichen Fachgruppe RehaFutur zur Zukunft der beruflichen Rehabilitation in Deutschland*. Bonn: Deutsche Akademie für Rehabilitation e.V. Retrieved from http://www.arge-bfw.de/cms/upload/downloads/Broschren_und_Flyer/Bericht_Rehafutur_August_2009.pdf

Reinmann, G. (2005). Innovation ohne Forschung? *Unterrichtswissenschaft, 33* (1), 52-69.

Renkl, A., Nückles, M., Schwonke, R., Berthold, K., & Hauser, S. (2004). Lerntagebücher als Medium selbstgesteuerten Lernens: Theoretischer Hintergrund, empirische Befunde, praktische Entwicklungen. In M. Wosnitza, A. Frey, & R. S. Jäger (Eds.), *Lernprozess, Lernumgebung und Lerndiagnostik. Wissenschaftliche Beiträge zum Lernen im 21. Jahrhundert* (pp. 101-116). Landau: Empirische Pädagogik e.V.

Schulgesetz für das Land Nordrhein-Westfalen (SchulG NRW), vom 15. Februar 2005, zuletzt geändert durch Gesetz vom 5. April 2011. Retrieved from http://www.schulministerium.nrw.de/BP/Schulrecht/Gesetze/Schulgesetz.pdf

Strauss, A. L., & Corbin, J. (1990). *Basics of Qualitative Research*. London: Thousand Oaks; New Delhi: Sage.

Sloane, P. F. E. (2005). Kompetenzen im Lernfeldansatz der KMK: Eine deutsche Diskussion um kompetenzbasierte Lehrpläne. In H. Ertl, & P. F. E. Sloane (Eds.), *Kompetenzerwerb und Kompetenzbegriff in der Berufsbildung in internationaler Perspektive* (pp. 46-59). Paderborn: Eusl.

Sloane, P. F. E. (2007). Berufsbildungsforschung im Kontext von Modellversuchen und ihre Orientierungsleistung für die Praxis – Versuch einer Bilanzierung und Perspektiven. In R. Nickolaus, & A. Zöllner (Eds.), *Perspektiven der Berufsbildungsforschung – Orientierungsleistungen der Forschung für die Praxis. Ergebnisse des AG BFN-Expertenworkshops vom 15. und 16. März 2006 im Rahmen der Hochschultage Berufliche Bildung in Bremen* (pp. 11-60). Bielefeld: Bertelsmann.

ISSN 2164-2877 (print)
ISSN 2164-2885 (online)

Sloane, P. F. E. (2010). Prozessbezogene Bildungsgangarbeit in der kaufmännischen Bildung - Ein Designprojekt zur Sequenzierung. In J. Seifried, E. Wuttke, R. Nickolaus, & P. F. E. Sloane (Eds.), *Lehr-Lern-Forschung in der kaufmännischen Berufsbildung. Ergebnisse und Gestaltungsaufgaben* (pp. 27-48). Stuttgart: Steiner.

Witzel, A. (1985). Das problemzentrierte Interview. In G. Jüttemann (Ed.), *Qualitative Forschung in der Psychologie. Grundfragen, Verfahrensweisen, Anwendungsfelder* (pp. 227-255). Weinheim: Beltz.

Witzel, A. (2000). The Problem-Centered Interview. *Forum Qualitative Social Research*, *1* (1). Retrieved from http://www.qualitative-research.net/index.php/fqs/article/view/1132/2520

Zeder, A. (2006). *Das Lernjournal. Ein Instrument zur Förderung metakognitiver und fachlicher Kompetenzen*. Paderborn: Eusl.