

# FOSTERING SELF-REGULATED LEARNING WITH PORTFOLIOS IN SCHOOLS AND HIGHER EDUCATION

MICHAELA GLÄSER-ZIKUDA, JAN FENDLER, JULIA NOACK,  
SASHA ZIEGELBAUER

Friedrich Schiller University in Jena

**Abstract:** *The portfolio is often described as an approach effective for the fostering of self-regulated learning in different educational areas. The processes of planning, documenting, and reflecting on individual learning activities are core issues of the portfolio approach. Two aims of the use of portfolios in education are discussed in this contribution. First, the enhancement of self-regulated learning and learning competencies is an important topic. Second, aspects of evaluation and assessment through the use of portfolios are discussed. In this context, the application of portfolios may be seen as an example of a shift from teacher-based instruction to student-centered learning. However, up to now, there has been a lack of empirical evidence regarding these assumptions. In this contribution, three studies are presented that focus on portfolio implementation for the fostering of self-regulated learning in schools, teacher education, and higher education. Central theoretical aspects of the portfolio concept and empirical designs of the studies are described.*

**Key words:** *self-regulated learning and learning competencies, accent on learning rather than teaching, portfolio as a tool, portfolio types, studies on portfolio implementation in school, teacher education, higher education*

## Introduction

For several years now, there has been an increased interest in the potential of self-regulation and self-monitoring in learning. Self-monitoring, understood as the systematic observation and documentation of thoughts, feelings and actions regarding the attainment of goals, is one element of self-regulation (Bandura, 1982; Zimmerman, 2000). Baumeister, Heatherton, and Tice (1994) point out that a lack of self-monitoring is a central cause of failure in self-regulation. Three phases of self-regulation may be described during the learning process: (1) a planning or pre-

actional phase, (2) an actional phase, and (3) a post-actional or reflectional phase (Schmitz, Schmidt, Landmann, & Spiel, 2007). In the pre-actional phase, the learner compares his or her actual status with the desired goals. During the actional phase, the learner documents and reflects upon the learning process (self-monitoring). In the post-actional phase, the actualized status and attainment of goals are compared with expectations at the beginning of the learning process. In general, it is assumed that self-regulation represents an essential ability to cope with complex, constantly changing life requirements, especially those of professional life (Zimmerman, 2000). Self-regulation is understood as a developable competence focusing on cognitive, metacognitive, motivational and social processes (Boekaerts, 1995; cf. Gläser-Zikuda & Järvelä, 2008).

Results of international large-scale assessments of 15-year-old school students, such as PISA (Prenzel, Artelt, Baumert et al., 2008) or TIMSS (Baumert, Lehmann, Lehrke et al., 1997) have shown that students' learning strategies, one important indicator of self-regulation, may be characterized as superficial. In addition to this, it was shown that students are able to use their knowledge in school contexts, such as tests, but they have great problems using their knowledge in authentic contexts to solve problem-based tasks (Gruber, Mandl, & Renkl, 1999; Renkl, 1996). The same problem is identified in higher education (Hmelo-Silver, 2004).

Consequently, school instruction – as well as instruction at higher-education level – should focus on the development and support of students' acquisition of knowledge, learning strategies and competencies that concern the solving of complex problems. Such an understanding of instruction presumes a learning environment characterized by various, complex and challenging tasks, which are student-focused and relevant to real life (Kember, 1997). Accordingly, in teacher education the acquisition of essential professional competencies is crucial. In this respect, the portfolio approach is a promising option.

## The Portfolio as an Instrument of Self-Reflection

In education there is a long tradition of using different approaches to motivate learners to document and reflect upon their learning processes. Written formats in particular are seen as very supportive (Aufferkorte-Michaelis & Szczyrba, 2004). Instruments such as learning diaries, learning journals or protocols, and portfolios have been developed. From the perspectives of learning psychology and educational science, these approaches have contributed to a paradigm shift from teaching to learning (Berendt, 2005). Learning diaries, for example, have a broad and long tradition in different disciplines, e.g., in clinical, educational, and social psychology (Seiffge-Krenke, Scherbaum, & Aengenheister, 1997). A learning diary, for example, allows and supports continuous documentation of and reflection on learning processes. Complementary to a learning diary or learning protocol, a portfolio is characterized as a collection of documentation and reflections on learning processes and outcomes, as well as operating for their evaluation and assessment (Paulson, Paulson, & Meyer, 1991). In the same way, a teaching

portfolio helps the documenting of and reflecting on professional development in teaching (Szczyrba, 2008; Auferkorte-Michaelis & Szczyrba, 2004). Teachers use portfolios to write about their teaching biography, teaching philosophy, applied teaching methods and evaluations, as well as about the effectiveness of their instruction. In our understanding, the teaching and the learning portfolios are the same instrument with different perspectives and learning goals. The teaching portfolio and the learning portfolio can be categorized in five different types (Spandel & Culham, 1997) as follows: (1) The working portfolio is used to document strengths and weaknesses of a learning process (diagnostic purposes, and for consultation); (2) Learning progress and improvement are in the focus of a developmental portfolio. Learners can more easily observe and evaluate their own learning processes and plan further learning steps; (3) The presentation portfolio is a collection of an individual's best learning documents or products and is used to demonstrate personal abilities in one or more than one domain; (4) The fourth type is an evaluation or assessment portfolio, which helps to document a learner's performance; (5) Finally, the application or showcase portfolio focuses on the documentation of and reflection on qualifications and performances.

Furthermore, communication and reflection on learning processes and outcomes with classmates, teachers, and parents play an important role. In addition, for all portfolio types reflection and discussion on differences between self-reflection and external feedback is required. The guidance of learners regarding aims and objects of reflection is helpful for the development of a portfolio. One way of doing this is by giving written instructions on the main objectives. A second possibility is the formulating of open, guided questions or 'prompts' focusing on the purpose and aim of reflection (Berthold, Nückles, & Renkl, 2007).

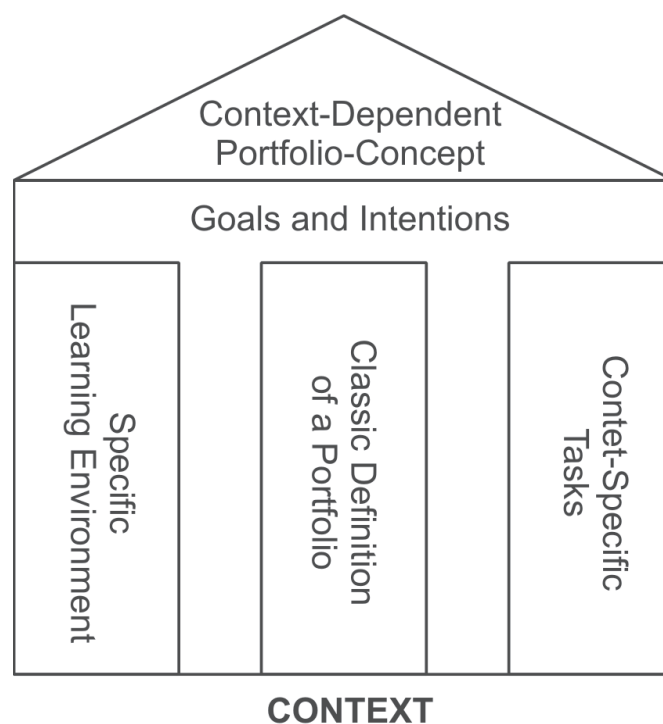


Figure 1. Concept of a context-dependent portfolio concept

As shown above, there are specific consequences of the application of portfolios in different contexts (Figure 1). Furthermore, the portfolio concept has an influence on the learning environment itself. In secondary-school and higher education, a complex, demanding, and student-oriented learning environment is required in order for students to gain competence in self-regulated learning and to support students' autonomy.

The portfolio concepts presented in this paper describe examples of the application of portfolios from different perspectives and in different contexts. First, a portfolio concept will be described as a learning tool and as an element of a competence-oriented learning environment in physics education. Second, the use of a portfolio concept for professional development in teacher education will be presented. Third, the application of a teaching portfolio as an assessment and learning tool in higher education will be illustrated.

## Portfolio Concepts in Various Contexts

### Promoting students' self-regulation and learning competencies using portfolios in physics education

Following on from a discussion of educational standards, education should focus not only on fostering students' declarative knowledge, but also on submitting key skills like problem-solving, self-regulation, and social competencies. The aim of this claim is to enable students to cope with multiple challenges in complex life situations (National Standards for Physics Education in Germany; KMK, 2004a). Therefore, it is necessary to create problem- and competence-orientated learning environments. The learning conditions should also offer opportunities for interaction between learners and teachers, for cooperative learning, and for a balanced relation between teacher's instruction and students' self-regulated learning processes (Reinmann-Rothmeier & Mandl, 1998).

The intervention study *Promoting students' learning competence based on the portfolio approach* is an attempt to realize these claims in school instruction using portfolios. The study is conducted at the University of Jena and funded by the German Research Foundation (DFG). The aim of the study is to test the effects of the portfolio concept in 8<sup>th</sup> grade classrooms in respect of students' self-regulation, learning competencies and performance. Four physics teachers and approximately N = 200 14-year-old-students from four secondary schools in Thuringia (Germany) participate in this study. In a quasi-experimental treatment-control-group design with pre-, post- and follow-up tests, the treatment class is taught in a student-centered and problem-oriented instructional setting (topic: electricity; duration: 26 lessons over three months; school-year: 2010/2011) that includes the application of a portfolio. The control class is taught the same topic by the same teacher in a teacher-centered instructional setting over the same period of time. In order to avoid transfer- and exercise effects regarding the method (portfolio) and the

content taught by the teacher, the same topic is taught in the treatment and control classes in the following way: In two of the four schools, the control class starts with electricity, and the treatment class follows. In the other two schools, instruction in the control class deals with the topic of electricity after the treatment class has been taught by the same teacher.

In order to help students gain awareness of and regulate their own learning process, the project focuses on the application of portfolios as working portfolios. The portfolio supports students in planning, monitoring, and reflecting on their learning process (Schmitz, Schmidt, Landmann, & Spiel, 2007). Therefore, the working unit in the treatment class consists of different exercises (both compulsory and optional) that are selected and carried out by students autonomously. Some exercises include the written documentation of and reflection on the working process according to the three phases of self-regulated learning mentioned above. In addition, to support communication about learning students regularly discuss the progress of their portfolio in small groups with their classmates. To help the fostering of communication, everyone gets written feedback from a classmate four times. All documents pertaining to the learning process (worksheets, planning, and reflection documents) are collected by the student him/herself.

The effectiveness of portfolio application is measured by standardized tests concerning (1) competencies of self-regulated learning (e.g., Gläser-Zikuda, Lindacher, & Fuß, 2006; following Wild & Schiefele, 1994), (2) ability in problem solving (PISA-Consortium Germany, 2008), (3) students' performance (self-constructed test), (4) learning motivation (Ryan & Deci, n.d.), (5) learning emotions (e.g., Gläser-Zikuda & Fuß, 2008; Pekrun, Goetz, Titz, & Perry, 2002), and (6) social competencies (e.g., Jerusalem, Drössler, Kleine et al., 2009). Furthermore, teachers report on their instructional methods and student interviews are analyzed in order to document the quality of portfolio implementation.

This intervention is conducted in all four schools, and we have already received the first positive feedback from students and teachers. The first results of the study are expected in autumn 2011.

## The portfolio in teacher education

Teacher education may be seen as a multidimensional, dynamic process in which student, pre-service and in-service teachers acquire content knowledge, professional knowledge and skills, and professional dispositions. Professional development is an important topic for all phases of teacher education. It is required of teachers that they move from a simple to a more complex understanding of what teaching means and requires. This process of forming experiences, reflections, and self-evaluations may be substantially supported by the creation of a portfolio that encourages teachers to make use of metacognitive strategies. It has already been noted that this is way to become 'a reflective practitioner' (Schön, 1983).

Funded by the German 'Stifterverband', the Center of Teacher Education started a program at the University of Jena in 2010 called *From Teaching to Learning – and*

*Back.* The aim of this three-year project is the advanced development and empirical evaluation of the conceptualization and organization of the linkage of the three phases of teacher education. One part of the program focuses specifically on the implementation of a portfolio concept in all phases of teacher education, taking into account basic teaching competencies defined as *German Standards of Teacher Education* (educating, teaching, assessing, and innovating; KMK, 2004b).

With reference to the system of teacher education in Germany, a portfolio concept has been developed that includes all aspects and phases of teachers' professional development. In order to have the same conceptual basis in all phases, comparable parts are included in all three portfolio types. There is an additional focus on specific topics, contexts, and requirements of each professional phase. In the first phase, students are encouraged to reflect upon their theoretical knowledge with respect to their experiences in early teaching practice. In the second phase, pre-service teachers are invited to reflect upon their advanced experiences and activities within the context of the school with respect to their theoretical knowledge. Finally, in the third phase, in-service teachers are asked to reflect upon their practical routines and methods, as well as their own professional effectiveness. The teacher's personality is a further focus of the portfolio, but in a more distinctive manner than in the first phase of professional development.

Aside from the individual documentation and reflection within the portfolio, core elements of the portfolio concept applied in this program are the communication of practical experiences and routines, as well as the development of teacher expertise. During all three phases of teacher education, reflective discussion with other student teachers or colleagues takes place. In this way, the portfolio can be seen as a working portfolio or a developmental portfolio. In the third phase, the portfolio serves different purposes; it may serve for discussion with the principal, as with a showcase portfolio, for example. Furthermore, in an evaluation or an assessment portfolio supervisors can get an insight into the specific qualifications of a teacher. Both student teachers and experienced teachers are seen as learners who observe themselves, reflect upon their actual knowledge and competencies, and plan further steps based on individual goals. To gain a deeper insight into the potentials and limitations of the portfolio concept, the entire implementation process is evaluated formatively by questionnaires. In the 2011 summer semester approximately 200 university students are participating in this study. Besides the acceptance of the portfolio (including: SRQ-A of Ryan & Connell in the adapted version of Müller, Hanfstingel & Andreitz, 2007), the subjective value of the portfolio (Ziegelbauer & Voigt, in preparation), teaching competencies (content and pedagogical knowledge; cf. Shulman, 1985; methodological, social, and personal competencies; Ziegelbauer & Voigt, in preparation) and self-reflection competence (cf. Wild & Schiefele, 1994) are considered. The first results of this study are expected in autumn 2011 and will be used to develop a specific portfolio approach. The final version of the portfolio will be systematically tested and evaluated in all three phases of teacher education in Thuringia in 2012.

## The teaching portfolio in higher education

Teaching portfolios are a result of an increase in quality management in higher education over the past ten years. Universities have developed qualification programs to optimize the qualifications of their staff. Standards for employment in teaching, too, are a subject of intensive discussion (Webler, 2008). As described above, teaching portfolios may be used for documentation of and reflection on self-regulated learning, as a working or developmental portfolio, for appointments of university teachers according to evaluation, as an assessment, and as a showcase portfolio.

The University of Jena founded the university project *LehreLernen* ([www.lehrelernen.uni-jena.de/](http://www.lehrelernen.uni-jena.de/)) (cf. Seidel & Johannes, 2008) to support academic teachers in their teaching competencies and experiences, and to identify relevant aspects of teaching. In this two-year certificate program – called *Advanced Teaching* – university teachers have the opportunity to qualify themselves systematically to teach in higher education. The program focuses on the training of self-regulation techniques for teaching (planning, acting, and reflection upon teaching) through coaching, by participating in different workshops, and last but not least by creating an individual teaching portfolio. Concerning the planning phase of self-regulated learning, all participants attend five didactical workshops on the topics of a) writing a teaching portfolio, b) planning, c) giving lectures, d) evaluating one's own teaching, and e) supervision and consultation on the lectures given.

In the didactical workshops, participants acquire knowledge about learning and teaching in higher education (pre-actional phase). One lecture given by each participant is video-recorded and evaluated by students (actional phase). The participants get individual feedback on their recordings in an individual consultation with experts, as well as in reflection groups with other participants (post-actional or reflecting phase). These reflection workshops highlight the process of reflection on individual teaching concepts as well as aspects of self-regulated learning. Above all, each participant is required to develop a teaching portfolio. In the first didactical workshop, participants are introduced to systematic strategies for the development of their teaching portfolio. Every reflection workshop also includes aspects of guided learning in real contexts aimed at the reflection of individual teaching approaches. The teaching portfolio in this project is used as a reflected collection of teaching elements, as with the program *From Teaching to Learning – and Back* (see Section b for more information).

The teaching portfolio may also be used for evaluation and assessment, or as a showcase portfolio, in the case of a job application. This kind of portfolio represents an approach to teaching assessment. In the *Advanced Teaching* certificate program, two perspectives on the teaching portfolio are of particular relevance: one focus is the individual characterization of one's own teaching strategies by video recording and feedback on one's own lectures, another the documentation of teaching competencies by the portfolio writer. As with the study on teacher education, the portfolio may be supportive to the 'reflective practitioner' in higher education (Schön, 1983).

To analyze how teaching portfolios are used in higher education, and how they influence the development of teaching competencies, a study (n=12) is conducted in the context of the *Advanced Teaching* certificate program. It is a single case study with time-series interrogation based on interviews and questionnaires. Based on a pre-post-design, three measurements with questionnaires are conducted to analyze participants' self-regulated learning processes as university teachers. The single case study involved only participants of the *Advanced Teaching* certificate program (n=12), while the questionnaires were completed by lecturers at the University of Jena who were not participants in any teaching qualification program (n=28). To measure self-regulated learning a questionnaire was applied focusing on teaching approach, motivation, teaching knowledge, and skills in planning, giving lectures, evaluating one's own work, and supervision and consultation regarding lectures given (Johannes, Fendler, Hoppert, & Seidel, 2010). It is assumed that the score differences between the first and the last two measurements may be characterized as a development in university teachers' self-regulated learning. In addition, interviews are conducted to describe the learning process of university teachers' regarding the development of teaching abilities. Another aim is to investigate their specific usage of the portfolio in this process. First results show that participants in the certificate program have a relatively high student-oriented teaching approach in the beginning. This group has also a higher motivation to teach in comparison with university teachers not participating in a certificate program. After one year, the teaching approach of participants in the certificate program is less student-oriented. At the same time, participants on the certificate program show a slightly higher level of skill in terms of planning and evaluating their own teaching competence (Fendler & Gläser-Zikuda, 2010). Final results are expected in spring 2012.

## Discussion

In this paper, the portfolio approach is presented and discussed with respect to the enhancement of self-regulated learning in different educational contexts. In the portfolio study in physics education, the implementation of the usage of portfolios aims to enhance students' learning competencies as an important part of self-regulation. The portfolio is defined as a learning tool, but in addition, the learning environment, as well as the roles of learners and teachers, needs to change. To change these roles, in the portfolio study students are required to assume self-responsibility for their own learning for the whole teaching unit. One important aspect is the monitoring of the time needed for the teaching unit in the treatment and control classes, because this may have an effect on performance. Furthermore, the qualities of the learning environment and especially of the tasks have to be taken into account. Further covariates, such as students' and teachers' personalities, cognitive abilities, learning strategies and classroom climate, must be controlled.

In the teacher-education study, the implementation of a portfolio concept including specific teacher competencies focuses on support during teachers'



professionalization, based on continuous individual and discursive reflection. The portfolio is viewed as a learning tool (learning portfolio) but also fulfills the function of a presentation tool (showcase portfolio). One of the main questions is raised concerns whether the portfolio will be accepted by teacher students and teachers. Further to this, a positive effect on teachers' professional development is expected. But this needs to be investigated in further studies.

The study in higher education highlights the portfolio as an instrument for quality management. The main benefits given by teaching portfolios show a relationship between evaluation, self-regulated learning and teaching. The teaching portfolio may also be used for reflection on one's own teaching competencies. Therefore, it serves additionally as a learning tool. Individual cases will describe on an individual and process-oriented level whether and how university teachers reflect on their teaching. The first results illustrate that systematic qualification programs may have different and unexpected effects on the participants' teaching competence and motivation to teach. Further analyses are needed. But some first implications of this study may be seen with respect to post-doc-qualification programs, changes in the quality of university teaching, and the relation of research to teaching at university in general.

As all three studies point out, the application of portfolios may be seen as an example of a shift from teaching to learning. From this point of view, educational institutions have to be seen no longer primarily as places for the transfer of knowledge, but rather as well-prepared learning environments in which individual learning processes are supported while taking into account the individual as a whole.

The quality of reflection documented in a portfolio depends on the learner's personality, epistemology, individual goals and motives, as well as on conditions of the learning environment. In general, the establishing of reflective elements in education is a very demanding task. Reflective interaction and communication with other people involved in the education, such as classmates, peers, teachers, colleagues, headmasters and other individuals (parents, educators, school psychologists etc.), are assumed to be highly relevant. Finally, adequate portfolio types, a transparent and clearly structured portfolio format (with prompts), continuous support, and supervision are needed to support learners. First experiences from the studies presented in this contribution show the great importance of the continuous support of students, teacher students, schools and university teachers as they work to develop a portfolio.

Finally, systematical analyses are needed to clarify the individual, social and environmental conditions for and influences and effects of portfolios on learners' affective, cognitive and social variables. Different formats for the portfolio need to be tested, including open, less- or highly-structured instruments, paper-based, digital or web-based versions. The existing perception of the potentials of the portfolio needs to be systematically expanded with respect to different groups of learners, domains and institutions. Furthermore, it is of interest to see how implementation of these instruments may be transposed to different educational

settings and contexts, as described in this paper. The three studies are a first attempt in this direction.

## References

- Auferkorte-Michaelis, N. & Szczyrba, B. (2004). Das Lehrportfolio in der Reflexions- und Schreibwerkstatt: Ein Portfolio zur Dokumentation der Lehrer. In B. Behrendt, H.-P. Voss, & J. Wildt (Eds.), *Neues Handbuch Hochschullehre* (pp. 1–28). Berlin: Raabe.
- Bandura, A. (1982). The self and mechanism of agency. In J. M. Suls (Eds.), *Psychological perspectives on the self* (pp. 3–39). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1994). *Losing Control: How and Why People Fail at Self-Regulation*. San Diego: Academic Press.
- Baumert, J., Lehmann, R., Lehrke, M., Schmitz, B., Clausen, M., Hosenfeld, I., Köller, O., & Neubrand, J. (1997). *TIMSS – Mathematisch-naturwissenschaftlicher Unterricht im internationalen Vergleich. Deskriptive Befunde*. Opladen: Leske + Budrich.
- Berendt, B. (2005). The Shift from Teaching to Learning – mehr als eine 'Redewendung': Relevanz – Forschungshintergrund – Umsetzung. In U. Welbers & O. Gaus (Eds.), *The shift from teaching to learning* (pp. 35–41). Bielefeld: wbv.
- Berthold, K., Nückles, M., & Renkl, A. (2007). Do learning protocols support learning strategies and outcomes? The role of cognitive and metacognitive prompts. *Learning & Instruction, 17*(5), 564–577.
- Boekaerts, M. (1995). Self-regulated learning: Bridging the gap between metacognitive and metamotivation theories. *Educational Psychologist, 30*(4), 195–200.
- Fendler, J. & Gläser-Zikuda, M. (2010). Lehrportfolios zur Qualitätsentwicklung und -sicherung in der Hochschuldidaktik (Conference paper). 74. *Tagung der Arbeitsgruppe für empirische Pädagogische Forschung in Jena* (National Conference of Empirical Research in Educational Science).
- Gläser-Zikuda, M. & Fuß, S. (2008). Impact of teacher competencies on students' emotion – a multi-method approach. In M. Gläser-Zikuda & S. Järvelä (Eds.), Special Issue: Qualitative and quantitative approaches to enrich understanding of emotional and motivational aspects of learning. *International Journal of Educational Research, 47*(2), 136–147.
- Gläser-Zikuda, M. & Järvelä, S. (Eds.). (2008). Application of qualitative and quantitative methods to enrich understanding of emotional and motivational aspects of learning. *International Journal of Educational Research, 47*(2).
- Gläser-Zikuda, M., Lindacher, T., & Fuß, S. (2006). Wirksamkeit eines Portfolios zur Förderung von Lernleistungen und Lernstrategien – eine quasi-experimentelle Studie. *Empirische Pädagogik, 20*(3), 229–244.
- Gruber, H., Mandl, H., & Renkl, A. (1999). *Was lernen wir in Schule und Hochschule: Träges Wissen?* (Forschungsbericht Nr. 101). München: Ludwig-Maximilians-

- Universität, Lehrstuhl für Empirische Pädagogik und Pädagogische Psychologie. Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review*, 16(3), 235–266.
- Johannes, C., Fendler, J., Hoppert, A., & Seidel, T. (2011). *Projekt LehreLernen (2008–2010): Dokumentation der Erhebungsinstrumente*. München: Technische Universität München & Jena: Friedrich-Schiller-Universität.
- Jerusalem, M., Drössler, S., Kleine, D., Klein-Heßling, J., Mittag, W., & Röder, B. (2009). *Förderung von Selbstwirksamkeit und Selbstbestimmung im Unterricht. Skalen zur Erfassung von Lehrer- und Schülermerkmalen*. HU Berlin. Retrieved June 21, 2010, from [http://psilab.educat.hu-berlin.de/forschung/Skalenbuch\\_FoSS.pdf](http://psilab.educat.hu-berlin.de/forschung/Skalenbuch_FoSS.pdf)
- Kember, D. (1997). A reconceptualisation of the research into university academics' conceptions of Teaching, *Learning and Instruction*, 7(3), 225–275.
- KMK (Ständige Konferenz der Kultusminister der Länder der Bundesrepublik Deutschland) (2004a). *Bildungsstandards im Fach Physik für den Mittleren Schulabschluss*. Beschluss vom 16.12.2004. Retrieved January 19, 2011, from [http://www.kmk.org/fileadmin/veroeffentlichungen\\_beschluesse/2004/2004\\_12\\_16-Bildungsstandards-Physik-Mittleren-SA.pdf](http://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2004/2004_12_16-Bildungsstandards-Physik-Mittleren-SA.pdf)
- KMK (Ständige Konferenz der Kultusminister der Länder der Bundesrepublik Deutschland) (2004b). *Standards für die Lehrerbildung: Bildungswissenschaften*. Beschluss der Kultusministerkonferenz vom 16.12.2004. Retrieved January 19, 2011, from [http://www.kmk.org/fileadmin/veroeffentlichungen\\_beschluesse/2004/2004\\_12\\_16-Standards-Lehrerbildung.pdf](http://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2004/2004_12_16-Standards-Lehrerbildung.pdf)
- Müller F. H., Hanfstiel, B., & Andreitz, I. (2007). *Skalen zur motivationalen Regulation beim Lernen von Schülerinnen und Schülern. Adaptierte und ergänzte Version des Academic Self-Regulation Questionnaire (SRQ-A) nach Ryan & Connell*. Wissenschaftliche Beiträge aus dem Institut für Unterrichts- und Schulentwicklung (IUS) Nr. 1.
- Paulson, F. L., Paulson, P. R., & Meyer, C. A. (1991). What makes a portfolio a portfolio? *Educational Leadership*, 48, 60–63.
- Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: a program of qualitative and quantitative research. *Educational Psychologist*, 37(2), 91–105.
- PISA-Konsortium Deutschland (Hrsg.) (2008). *PISA 2006 in Deutschland – Die Kompetenzen der Jugendlichen im dritten Ländervergleich*. Münster: Waxmann.
- Prenzel, M., Artelt, C., Baumert, J., Blum, W., Hammann, M., Klieme, E., & Pekrun, R. (Eds.). (2008). *PISA 2006 in Deutschland. Die Kompetenzen der Jugendlichen im dritten Ländervergleich*. Münster: Waxmann.
- Reinmann-Rothmeier, G. & Mandl, H. (1998). Wissensvermittlung: Ansätze zur Förderung des Wissenserwerbs. In F. E. Weinert (Ed.), *Enzyklopädie der Psychologie*. Bd. 6, (pp. 457–500) Göttingen: Hogrefe.
- Ryan, R. M., & Deci, E. L. (n.d.). *Academic Self-Regulation Questionnaire (SRQ-A)*. Retrieved June 21, 2010, from [http://www.psych.rochester.edu/SDT/measures/SRQ\\_academic.php](http://www.psych.rochester.edu/SDT/measures/SRQ_academic.php)
- Schmitz, B., Schmidt, M., Landmann, M., & Spiel, C. (2007). New Development in the

- Field of Self-Regulated Learning, *Journal of Psychology*, 215(3), 153–156.
- Schön, D. A. (1983). The reflective practitioner. *How professionals think in action*. New York: Basic books.
- Seidel, T. & Johannes, C. (2008). *Projektkonzeption LehreLernen. Projektantrag Universität Jena*. Jena: Friedrich-Schiller-Universität.
- Seiffge-Krenke, I., Scherbaum, S., & Aengenheister, N. (1997). Das 'Tagebuch': Ein Überblick über die Anwendung der Tagebuchmethode in Forschung und Therapiepraxis. In G. Wilz & E. Brähler (Eds.), *Tagebücher in Therapie und Forschung: ein anwendungsorientierter Leitfaden* (pp. 35–60). Göttingen u.a.: Hogrefe.
- Shulman, L. S. (1985). Paradigms and Research Programs in the Study of Teaching. A Contemporary Perspective. In M. C. Wittrock (Ed.), *Handbook of Research on Teaching*, (pp. 3–36) New York.
- Spandel, V. & Culham, R. (1997). *Six-Trait writing*. Portland, OR: Northwest Regional Education Laboratory.
- Szczyrba, B. (2008). *Die Lehrportfolio-Werkstatt: Entwicklung und Dokumentation des eigenen Lehrprofils*. Arbeitspapier des HDZ der Technischen Universität Dortmund.
- Webler, W.-D. (2008). *Curriculare Form des Kompetenzerwerbs für die Lehre: Modularisierter Auf- und Ausbau der Lehrkompetenz*. Bielefeld.
- Wild, K.-P. & Schiefele, U. (1994). Lernstrategien im Studium. Ergebnisse zur Faktorenstruktur und Reliabilität eines neuen Fragebogens. *Zeitschrift für Differentielle und Diagnostische Psychologie*, 15, 185–200.
- Ziegelbauer, S. & Voigt, C. (in preparation). Evaluating the acceptance of portfolio in school and higher education.
- Zimmerman, B. J. (2000). Attaining self-regulation. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). San Diego: Academic Press.

#### Contact information

Michaela Gläser-Zikuda  
Jan Fendler  
Julia Noack  
Sascha Ziegelbauer  
Institut für Erziehungswissenschaft  
Lehrstuhl für Schulpädagogik und Didaktik  
Friedrich-Schiller-Universität Jena  
Am Planetarium 4  
07737 Jena  
Germany  
michaela.glaeser-zikuda@uni-jena.de  
Jan.Fendler@uni-jena.de  
Julia.Noack.1@uni-jena.de  
Sascha.Ziegelbauer@uni-jena.de