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Approaches to Learning with Media and Media Literacy Education – Trends and Current Situation in Germany

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Abstract

German approaches to media literacy education are concerned with the questions, how the variety of media can be used in a meaningful way for learning and teaching and what educational tasks result from the extensive use of media. Considering these questions there are various conceptual ideas, research and development projects as well as implementations into practice in the field of education and teacher training. The development and the current situation of approaches to media literacy education in Germany are described and discussed in the article. Thereby, the focus is on media literacy education in schools.

Keywords: media literacy, Germany, learning, education

In many countries, children, adolescents, and adults use a wide variety of media. These include news media and books, radio broadcasting and audio formats, film and television, computers and the Internet. In countries in which these media are based on constitutional rights securing freedom of opinion, information and the press, they offer a broad variety of programs, from information and communication to entertainment and gaming to education and counselling. In many democratic societies media sources are primarily in the hands of private investors and thus oriented towards economic success. However, with regard to broadcasting, Germany features a dual structure that is characterized by both commercial and public service products.

In industrialized countries, the amount of media equipment at home is usually substantial. For example, in Germany and the United States most households with teenagers were equipped with at least one television set (U.S.: 99% in 2009, GER: 97% in 2010), DVD or VCR player (U.S.: 97%, GER: 89%) and computer (U.S.: 93%, GER: 100%) (Kaiser Family Foundation 2010, 9; MPFS 2011, 5). The overall time for *media use* was 645 minutes per day in the USA in 2009 and 583 minutes in Germany in 2010 with television being the greatest attraction (U.S.: 269 minutes; GER: 220 minutes), followed by the radio (U.S.: 151 minutes, GER: 187 minutes) and the computer/Internet (U.S.: 89 minutes; GER: 83 minutes) (Kaiser Family Foundation 2010, 11; MedienPerspektiven 2010, 68).

In addition to media in the home, in many countries comprehensive media equipment is available in schools. The ratio of the number of computers and number of students has been frequently discussed in recent years. During this time the ratio has increased in the United States and in Germany: Almost 100 percent of public schools in the U.S. had access to the Internet in 2005 – compared with 35 percent in 1994 (National Center for Education Statistics 2006, 4). Furthermore, in U.S. public schools in 2005 the ratio of students to instructional computers with Internet access was 3.8 to 1, a remarkable decrease from the 12.1 to 1 ratio in 1998 (Ibid., 6). In German schools, the ratio in 2002 was still 17 to 1, whereas for the school year 2007/2008 it has changed from 9 to 1 (Breiter, Welling, and Stolpmann 2010, 164). At the same time, 88 percent of all German schools were connected to the Internet in this school year (Ibid., 6).

Overall, in industrialized countries media has a significant influence on leisure and work, learning and education, socialization and training, art and culture, economy and politics. By the same token, media use has been associated with increased problems, including distraction and manipulation, illegal propaganda and

advertising, the dangers of data misuse, breach of copyright, personal rights, fraud, and other criminal activities.

Against this background, the aim of this article is to describe and discuss the development and current situation of learning with media and media literacy education in Germany. The focus is on education in schools. Such a country profile is internationally relevant in our opinion as it can be compared with developments in different countries and push forward new knowledge and information that can be used in different contexts. Our country profile is based on an analysis of various local publications of the last decades. We chose a hermeneutical-systematic approach to be able to give a systematic overview of developments and the current situation. Our article contains synoptical elements, interpreting and concluding statements as well as evaluations and recommendations for further developments.

Media literacy education in general has to deal with two questions:

- How can the wide variety of media be used in meaningful ways for both teaching and learning purposes?
- Which educational tasks result from the extensive use of media and how can they be realized?

Although both questions are variously linked with each other, respective conceptual thoughts and activities mostly develop in an unconnected way. This is the case in Germany as well as in other countries. For example, in the Anglo-American region, research results on teaching and learning with media (especially in educational technology) are discussed separately from those in the field of media literacy education. On the practical level, approaches to media in education are characterized by media use for teaching and learning purposes on the one hand and by the realization of media-related educational tasks on the other hand. According to this distinction on the level of theory and research, one can distinguish between "media didactics" ("Mediendidaktik") and a "theory of media-related educational tasks" ("media literacy education" / "Theorie der Medienerziehung" or "Medienbildung"). The interpretation and distinctions of these terms, however, is by no means commonly agreed upon in Germany (Tulodziecki 2011a), and the use of the term "media didactics" ("Mediendidaktik") is uncommon in many countries. It has most similarities to the field of educational technology in the Anglo-American region, whereas "Theorie der Medienerziehung" and "Medienbildung" can be compared with the discipline of media literacy education. In the following article the German developments in the areas of media use for teaching and learning purposes ("media didactics") and the realization of media-related educational tasks and their theory ("media literacy education") will be discussed. Due to the limited length of this article, it will not be possible to highlight and give equal weight to all aspects of the discussion. Our focus will be on questions of teaching and learning with media and about media in school (a comprehensive treatment with detailed references can be found as well in Tulodziecki 2005). Furthermore, it will not be possible to extensively compare the German situation with global developments of media literacy education. However, we will draw connections to the international situation in passages of particular relevance.

1. Media use for learning and teaching from a conceptual view

Thoughts on the question of how educational content for children and adolescents should be approached have a long historical tradition. As early as Comenius and his illustrated textbook *Orbis Sensualium Pictus* (1658), didactic concepts have focussed on adequate means and sources for teaching. In addition to this—and starting with the progressive educational movement in the first decades of the 20th century—adequate materials for the teacher accompanied by working materials for students´ use became increasingly important. However, thoughts pertaining to this subject were considered to be part of methods of teaching until the 1950s in Germany. Only since Heimann (1962) pointed out that the choice of media was as important for teaching and learning as the decision on objectives, contents and methods has an independent field of "media didactics" been developed in Germany.

1.1 From the "teaching aid concept" to the "learning environment concept"

In the context of the developing field of "media didactics," in Germany, early approaches to the use of media in teaching and learning can be summarized by two conceptual terms. The use of media for flexible and selective support of teaching can be subsumed under the label "teaching aid concept" and the use of media as a working tool for accomplishing given tasks by students can be called "working material concept".

Different attempts to use films as a teaching aid in the classroom during the first half of the 20th century emphasized the extended importance of this media for teaching and learning purposes. Especially with the development of more complex audio media and television programs for schools, there was a considerable change in the appreciation of media in teaching and learning processes. Thereby it is important to note that educational films and programs have not only specific contents but also a particular didactical structure. Therefore such media has to be seen not so much as teaching aids or working materials, but rather as "building blocks" for teaching and learning processes. In Germany, the so-called "building block concept of media use" was very important in the 1960s and 1970s. This period of time was characterized by an increasing production of educational films and audio media by the "Institute for Film and Pictures in Research and Teaching" (FWU) as well as by the further development of radio programmes for schools and the new development of educational television programmes by various broadcasting corporations.

However, during the 1960s, this "building block concept" was influenced—mainly in West-Germany— by the adoption of Anglo-American approaches of programmed instruction and concepts for the development of teaching machines and other programmed instruction material, which were first connected with a behaviorist learning perspective. These approaches were partly adopted, partly criticized and improved within the so-called "system concept" in Germany. This concept is characterized by the attempt to encompass as many teaching and learning aspects as possible in order to arrive at a technology that is ultimately meant to take over teaching. As in the 1960s and early 1970s there was not only a lack of teachers, but also a need for some curricular innovations in Germany. These thoughts generally fell on fertile ground. However, in schools neither such teaching machines nor comprehensive programmed technology including programmed instructional material—for instance, television programmes, books, and worksheets— were able to succeed.

Since the 1980s there has been a new educational development that can be distinguished from the other concepts and called "learning environment-concept". It is fundamentally important for this concept that learning is not just viewed as a process of imparting knowledge, skills, and abilities from a teacher or a teaching system to a learner. Learning should rather be understood as an active process of dealing with meaningful tasks in a learning environment. Elements of such a learning environment could be different media ranging from newspapers to the Internet. The "learning environment concept" contains the following basic assumptions: Learners should—by dealing with relevant topics—differentiate complex tasks or develop their own questions. They should carry out analyses and come up with solutions independently by using relevant information and learning aids (e.g. different media). Furthermore, they should be able to present the results of their work in the form of a booklet, a video clip, a website, or any other medium.

The development of the "learning environment concept" was fostered partly by the change of position in theoretical approaches to learning—from behaviorism to cognitivism to constructivism. Thus, the approach of situated learning (as a connection of cognitive theory and constructivist learning concepts) is of particular importance (Mandl, Gruber and Renkl 2002). This approach is mainly based on the concepts of "anchored instruction," "cognitive apprenticeship," and "cognitive flexibility" (CTGV 1997; Spiro et al. 2003; Collins et al. 1989). On the other hand, so called "action-oriented principles of teaching and learning," offer a good basis for the "learning environment concept" (see for instance Tulodziecki, Herzig, and Grafe 2010, 120). By the same token, technical developments—such as the computer, the Internet, learning platforms, and weblogs—facilitate the realization of the "learning environment concept" (Ibid., 134).

1.2 Additional developments

The digital opportunities not only led to new realizations of the "learning environment concept," but also to various other developments in connection with *e-learning*. In a broad sense e-learning includes all forms of learning and teaching with digital media (Reinmann 2007, 179). Thereby various types of educational software can be differentiated (for example, according to the "State Institute for Schools and Further Training" LSW 1999): educational programs, exercise programs, open learning systems, learning games, experimentation and simulation environments, databases and tools, communication and collaboration environments. E-learning has certain conceptual relations to several questions: To what extent should learning be pre-structured in a didactic manner? What level of self-regulation is required? Which communication facilities need to be provided? Which types of learning are

expected and accepted? What should the relationship between individual and shared learning be? How wide should the learning opportunities and learning objects be designed?

There are other questions to consider as well: In which scenarios can e-learning be realized? What is the ratio of personal and virtually designed learning and teaching? Schulmeister (2003), for example, selects the categories of form, function, and method to characterize these scenarios: *Form* ranges from solely class courses to various mixed forms up to exclusively virtual events or virtual self-study. *Function* ranges from information only to the exchange of files up to synchronous communication and cooperation. *Methods* range from simple instruction to tutor accompanied and interactive learning up to moderated groups and self-organized learning communities. In other systematizations the focus is on *software features*: a distinction is made between authoring software, Learning Management Systems (LMS), learning platforms, Learning Content Management Systems (LCMS) and Web 2.0 applications (each with different educational and organizational possibilities).

Apart from technical possibilities and organisational forms of e-learning from a *didactic point of view*, software can be used for a variety of functions (Tulodziecki, Herzig, and Grafe 2010, 124): to introduce cases or learning tasks, as an information source and a learning aid; as a tool to find solutions to an answer; as a tool for feedback to the learning process; to provide materials for their own analysis or processing; as an instrument to arrange, store, and present results; and to organize knowledge resources and tools for communication and cooperation.

To understand the debate in Germany it is important to realize that "media didactics" has traditionally been concerned with the use of existing media equipment in the classroom as well as with the development and design of media products (from the perspective of teachers or of producing media institutions). Right now—in connection with the possibilities of digital media—the *design perspective* is particularly stressed in "media didactics" associated with the claim "to solve a certain educational problem" by creating a media-based learning environment (Kerres 2008, 118, own translation). Moreover, in the context of a digital learning environment and an action-oriented approach there are new perspectives for the design of media by the learners themselves (Tulodziecki, Herzig. and Blömeke 2009; Tulodziecki, Herzig, and Grafe 2010, 120).

This is linked to the attempt to connect media use in teaching and learning processes and the design of learning environments with educational goals, which are considered important for the actions of people in a media-shaped world and for their participation in a mediated culture and society (Tulodziecki 1999; Kerres and de Witt 2002).

The development described above can be compared with international developments in many aspects (for an overview, compare the description of the American development of educational technology by Saettler 2004). As many research results regarding learning theory and technology instruction were adopted from international developments in the Anglo-American region, concepts regarding the media use for purposes of teaching and learning were based on similar ideas, which lead to similar developments or even adoptions. One main difference with regard to scientifc disciplines is that in Germany a distinct scientific field of "media didactics" exists, which originates in the strong tradition of the scientific field of "didactics." The subject of "didactics" theory and research is the design of the instructional process as well as the identification and legitimation of goals and contents for learning in school. As a consequence, subjects of media didactics can be found internationally in the fields of educational technology, instructional design, curriculum studies or educational psychology.

2. Media related educational tasks from a conceptual view

Besides the question of how the wide variety of media can be used for learning and teaching, there is also a long tradition in Germany of discussing which educational tasks result from the extensive out-of-school media use of children and adolescents for parents, teachers, and educators. During the last decades different conceptual ideas that deal with these tasks have been developed.

2.1 From the "protecting-supporting concept" to the "action-oriented concept"

In the first decades of the 20th century, German considerations on media literacy education were initially associated with the mass distribution of certain

print media that were considered valueless and were later associated with the dissemination of movies. They were based on the problem that children and adolescents needed to be protected against the possible dangers of such media, but that they should also be acquainted with valuable products. In the context of the "protecting-supporting concept"— flanked by youth protection policy— parents and educators supported valuable films through school film festivals and protected pupils from potential dangers through film analysis and discussions. These were meant to point out the moral aspects of actions shown in the movies and to deal with their aesthetic and technical realisation. *Protection against damage and nurturing the valuable* were therefore early guidelines for media literacy education in Germany and are still part of the German discussion. However, these principles seem to be even more important, for example, in American concepts where this approach is called "Protectionism" or the "Inoculationist approach" (Tyner 1991; Kubey 1998).

However, inherent in this concept is the problem that children and adolescents do not reach self-selection and evaluation of media. Therefore, against the backdrop of the development of film as art as well as the increasing availability of movies, many called for the student to become a judicious and aesthetic literate recipient. As a result, in the 1960s an "*aesthetic culture-oriented concept*", was developed that dealt with these phenomena. This concept— which is based on "visual literacy"—is similar to the concept of "media arts education" in the U.S. (Tyner 1998). Main goals of the aesthetic culture-oriented concept were not only to deal with the film as a work of art, but to truly understand its "language" and to focus on the critical reflection of both its contents and its realisation. "Optical literacy" and "visual literacy" were seen as main objectives. The *appreciation of these media as works of art and the cultivation of adequate judgements* are thus further principles of media literacy education.

The dissemination of television in the 1960s—mainly in West Germany—led to considerable hopes for new educational possibilities, for the economy, and with regard to democracy. The empowered recipients should be in a position to adequately understand and use as well as independently evaluate and categorize program offerings. Referring to the so-called "*functional system-oriented concept*", which is comparable to the "film grammar approach" or the "Screen Education Movement" in the USA (Hobbs and Jensen 2009; Thoman and Hobbs 2009), media are seen as important instruments of information, opinion forming, and economic growth. Therefore, schools should offer different teaching units, for example, to news and advertising as well as to newspaper and television, which allows students to gain insights into the structure of media messages, conditions of media production and media reception, and the social relevance of public communication. A *responsible use of media to promote education, economy, and democracy* were seen as main objectives.

If the development of guiding ideas in media literacy education had been limited to the principles described above, we would have ignored the important problem of how media can be abused to manipulate and to disseminate ideologies in a societal context. In West Germany at the end of the 1960s, this problem was dealt with in the context of the student movement and neo-Marxist approaches. In this context the "*critical-materialist approach*" was developed to teach children and adolescents to analyze media, their ideological character and social conditions. In addition, learners should be enabled to create media messages and publicity for their own interests and needs. Thus, *criticisms of ideologies* and *production of own media messages* enhanced the spectrum of guiding ideas on media literacy education.

The principles of this concept can be closely connected with the "critical literacy" approach of Kellner and Share (2005) who demand the promotion of counter-hegemonic media products as well as a multi-perspective and critical analysis of media culture and media industry. However, the theoretical foundations of the concepts are different.

In international media research, the question "what media do to people?" changed to "what people do with media?". In the 1970s (in West Germany) this brought into focus the fact that media use is a need-controlled social activity. Children and adolescents turn to the media with their needs and interpret media messages against the background of their own knowledge, their attitudes, and their social conditions. By the same token, one can say about the production of one's own media that they have to be interpreted as a means of communication on the basis of individual and social prerequisites. *The reflected use of existing media products and the own design of media contributions in the sense of communicative competence and social action*, complete the range of media literacy education principles. These principles are dominant for the "*action-oriented concept*," which is the leading

concept in the German discussion about media literacy education up until now (e.g. Aufenanger 2001; Baacke 1997; Bachmair 1984; Schorb 1995; Tulodziecki 1997). With regard to the main principles, this concept shows many similarities with the Core Principles of Media Literacy Education in the U.S., for example concerning to the development of "informed, reflective, and engaged participants essential for a democratic society" or "that people use their individual skills, beliefs and experiences to construct their own meanings from media messages" (NAMLE, 2007; see for more detail Grafe 2011).

2.2 Further developments

Since the 1980s and parallel to the considerations concerning media literacy education, a basic ICT-education has become a pedagogical task. Computer and microprocessor technology were initially understood to be an important key technology for economic growth. After this, there was an increased awareness of the cultural significance of computer-based information and communication. Against this background, there are two guiding principles in the concept for ICT-education of the "Joint Commission for Educational Planning and Research" (BLK 1987): a) *understanding computer technology and its applications*, and b) *responsible use of ICT to promote the economy and society*. These principles are fairly close to the "functional system-oriented concept" of media literacy education. Connected with these principles, there are four main conceptual contents: data processing and word-processing, file management and calculation, modelling and simulation, and telecommunication. Concerning the current state of the discussion in Germany, the medial aspects of computers are seen as a part of an all-encompassing media literacy education, whereby basics of computer science are understood as an important part (Herzig 2001).

Besides attempts to integrate computer and Internet education in the context of media literacy education, different emphases—usually in connection with an action-oriented position— have been introduced in the media literacy education discussion. Thereby, design-, development-, education- and competence-perspectives are emphasized in a special way.

In the *design perspective*, the focus is on an appropriation of the media and of the world, which can be characterized as a practical-reflexive or sensory-aesthetic process. Moreover, the interest is on the extension of the communicative possibilities of coping with life and social participation (e.g. Schorb 1995; Röll 1998; Niesyto 2003).

The *development perspective* is based on the demand that media literacy education activities should be seen in the context of development processes and that educational activities with media should promote the affective, cognitive-intellectual, social, and moral development. Possibilities to promote such processes by media literacy activities are in the center of interest (Tulodziecki 1997; Spanhel 2006).

In the *education perspective* ("Bildung"), the focus is beyond the idea to make use of media for learning and teaching in the context of educational objectives (see section 1.2). Rather, the request is to set media-related education tasks in the context of general education goals and to justify it from this perspective (Tulodziecki 1997; Spanhel 2006). For the analysis of this issue two additional aspects are of importance: what contribution media can make to personal development and the education ("Bildung") of a person (Marotzki and Jörissen 2008; Bachmair 2009) as well as how the term "Bildung" itself has to change due to new media developments (e.g. Sesink 2007). The range of educational theories that are used as a basis for such considerations range from the neo-humanist educational theory of Humboldt (1792) up to a structural theory of education, which draws—with reference to Kant (1800)—attention to a critical analysis and autonomous reflection of knowledge-, action-, transcendence -,and biography-related aspects of human life.

The *competence perspective* is based— like many others— on Baacke (1973) who connected the concept of communicative competence with reference to critical theories with mass communication. From the late 1980s, the term "media competence" has spread in Germany. In non-educational contexts it has often (only) taken a functional-pragmatic meaning and is understood as the ability to deal with technology-related requirements of media. In contrast, in educational contexts it is mostly understood as the reflection, critical analysis, and judgement of media and action in social contexts (e.g. Schorb 1995; Baacke 1997; Groeben 2002). In this sense, "media competence" can be summarized on a general level as "the ability and the willingness to deal with media in an adequate, autonomous, creative and socially responsible way" (Tulodziecki 1998, 700).

On a next level, different dimensions and different areas or fields of "media competence" are highlighted in the German discussion. Aufenanger (2001), for example, differentiates a cognitive, a moral, a social, an affective, an aesthetic, and an action dimension of "media competence." In the description by areas or fields, there are many different variations. Baacke (1996) differentiates for example media criticism, media knowledge, media use and media creation. Tulodziecki (1997) selects a sub-division of two fields of activity (distinguishing and using appropriate types of media for a variety of purposes, creating and disseminating own media messages). Furthermore, three fields based on central aspects of communication and relevant for action and reflection are described (understanding and evaluating media messages, becoming aware of and dealing with media influences, identifying and evaluating conditions of media production and media dissemination), so that a total of five task areas of media literacy education emerge. Areas and fields of this type formed the conceptual basis for educational policy guidelines and recommendations for media literacy education in schools (see, for example, BLK 1995; KMK 1995).

The mentioned areas and fields also formed the conceptual basis for the guidelines "Media literacy education in school" by the "Commission for Educational Planning and Research Promotion of the states of the Federal Republic of Germany" (BLK 1995) and for the declaration of the "The Standing Conference of the Ministers of Education and Cultural Affairs of the Federal States in the Federal Republic of Germany" on 'Media Literacy Education in Schools' (KMK 1995). Furthermore they were subsequently fundamental for concepts of media literacy education at schools or frameworks of media literacy education in various German states (see, for example, Bavarian State Ministry of Education, Culture, Science, and Art 1996). By contrast, in the 2008 published "competency-oriented approach to media literacy education at schools" by the "Conference Media Literacy Education of the Federal States" (LKM) the following six areas of competence are mentioned (in an eclectic way): information, communication, presentation, production, analysis, and media society (LKM 2008). In the "Expert Commission for media literacy education of the Federal Ministry for Education and Research" document, four areas of responsibility are described: information and knowledge, communication and cooperation, the search for identity and orientation, and digital realities and productive action (BMBF 2010).

In contrast to that, the areas and fields of "media competence" mentioned above are reflected in the "Manifesto for Media Literacy Education" which has been signed by many important German media literacy education organizations and institutions.

The term "media competency" can be found very rarely in international publications, even though sometimes media literacy educators talk about "media literacy competency (e.g. Tyner 2007, Hobbs 2011). If the fields or dimensions of these concepts are compared, various similarities occur, e.g. the ability to critically analyze and reflect about media messages as well as to create and disseminate media messages and take action (e.g. Hobbs 2011; Martens 2010; Buckingham 2003). Despite many similarities on the terminological level, one has to take into account that the theoretical foundations of competency in the German discussion are in linguistic theory (e.g. Chomsky (1968) and Habermas´s critical theory (1971)), whereas the understanding of literacy is based for example on insights of cultural studies or on the concept of pragmatism and is a modern concept of education in an information and knowledge society (Tulodziecki 2011c).

3. Research on learning with media and media literacy education

In research and development on media in education in Germany, one finds individual studies and projects that evolve in certain universities or institutions because of their research interests and as a result of dissertations. There are also interconnected activities which often evolve when research is financially supported, for example by the German Research Foundation (DFG), the Federal Ministry of Education and Research (BMBF), media institutions or individual ministries of the federal states, various foundations, or large companies.

From a methodological point of view, one can distinguish between surveys (e.g. on media use in schools), experiments (e.g. to measure the influence of image and text design on learning success) and evaluations (e.g. to assess the achievement of certain objectives using computer simulations).

Against this background, we will first outline the general situation, before we briefly describe recent developments in the research on competency models and standards as a goal for media literacy education.

3.1 The general situation

Early German (as well as Anglo-American) research within *media didactics* and *educational technology* focused on experimental comparative studies, for example between standard teaching and teaching using media. Since these studies often yielded non-significant results, they were replaced by studies that were concerned with the effects of specific characteristics of media on learners' outcome. In some of these studies, the effect has been investigated taking into account the prerequisites for learning (for an overview see e.g. Tulodziecki, Herzig, and Grafe 2010).

Furthermore, several survey studies and numerous evaluations have been conducted on media use in the classroom, especially since the appearance of educational television in the Federal Republic of Germany in the 1970s (for overviews of former research see Tulodziecki 1977; Strittmatter 1979). There are similar studies concerning the increasing computer and Internet use in the classroom (e.g. Schaumburg and Issing 2002; Schulz-Zander and Preussler 2005; Herzig and Grafe 2007; Bofinger 2007; Gysbers 2008; Breiter, Welling, and Stolpmann 2010). Some results of these studies are described in section 4 of this article.

In Germany, research in the field of *media literacy education* is built on important international findings. For example, German researchers were also part of turning research focus from media effect research to reception studies where individual and social preconditions were considered. These approaches were, and still are, influenced by ethnographic research and the cultural studies approach. This transition from one approach to another can be seen as combined with a development from quantitative to qualitative methodology. In present-day German research, both approaches are employed side-by-side and also combined (an overview e.g. Sander, von Gross, and Hugger 2008). Furthermore, there are also several survey studies and evaluations on media literacy education in practice (see section 4 in this article).

Moreover, particularly with the advent of computer-based media, German attempts have been made to unite research and development in the field of media through extensive economic support. Prominent projects are as follows: the initiative "Schools Online" (Schulen ans Netz) of the "Federal Ministry of Education and Research" (BMBF) and "Deutsche Telekom AG", which was launched in 1996 and continues in the form of a competence center, the BLK-priority program "Systematic integration of media, information, and communication technologies in teaching-learning processes (SEMIK)" (1998 to 2003), the BMBF program "New Media in Education" with the three pillars of school, vocational training, and university (2000 to 2004) and a number of other programs in different states.

On the one hand, programs such as these have brought great changes to the German educational scene and have raised discussions concerning the use of computers and the Internet in schools and other educational institutions. On the other hand, each program revealed its specific weaknesses. For example, the activities of the initiative "Schools Online" and many related initiatives of the federal states were initially too focused on technical issues, without relating such activities to adequate innovation strategies. In all programs, there is still a lack of sustainability. In addition to this, the programs listed above were specifically occupied with development rather than research. As a result of this, it was difficult to yield any new scientific insights that can be used for the further development of scientific theories. Consequently, these evaluations led to a desideratum of a theory-based investigation of the relation between prerequisites, relevant processes concerning media literacy education and their respective results. This desideratum is internationally evident (e.g. Hobbs 2010, Petko 2011). One solution for future programs is a concept that combines a practice- and theory-driven development and empirical evaluation of concepts for media literacy education actions (e.g. Tulodziecki and Herzig 1998; Grafe 2008). Such an approach is in some aspects similar to the "design-based research approach" which is has been developed and discussed in the U.S. since the early 1990s (cf. Brown 1992; The Design-Based research Collective 2003).

3.2 Development of competence models and standards

In Germany, educational standards for key school subjects have been developed as a consequence of the results of international comparative studies like PISA. Subsequently, supporters of interdisciplinary fields such as media literacy education have started calling for goals in the form of competency models and standards, too (e.g. Computer + Unterricht 2006, volume 63).

In the German-speaking area the "Zurich competency model" has been a forerunner. This model consists of three areas of activity (use and design of media products, exchange and transfer of media messages, media reflection and media criticism) and

three personal competencies (knowledge competencies, methological competencies, and social competencies), which form the basis for four levels of competence standards. Besides the "Zurich competency model" there are different approaches, competence expectations, or standards for media literacy education in the German-speaking area.

However, only few of them have an explicit competence model as a basis like the "Paderborn Competency Standard Model" (Tulodziecki 2007, 2010). Taking into account important aspects of the discussion about media competence and media literacy education, the five tasks of media literacy (which have been described earlier) are defined as competence areas and are each differentiated by five aspects of competence as follows:

- *distinguishing and using appropriate types of media for a variety of purpose*s by the following aspects: information, learning, entertainment and game, exchange and cooperation, analysis, and simulation;
- *creating and disseminating own media by the following aspects*: pictures/ photos, print media, audio media, video contributions, and interactive media;
- *understanding and evaluating the design of media messages* by the following aspects: representational systems, techniques of design, types of programs, structure of course, and types of media;
- *becoming aware of and dealing with media influences* by the following aspects: emotions, concepts and beliefs, behaviour patterns, value orientations, and social contexts;
- *identifying and evaluating conditions of media production and media dissemination* by the following aspects: technical conditions, economic conditions, legal conditions, personal and other institutional conditions, political, and further societal conditions (Ibid.).

On this basis, standards for three levels (at the end of the primary school, at the end of the sixth school year and at end of secondary education) are formulated with a mean level of abstraction so that no further indicators seem necessary for assessment. This competency standard model is the result of a complex decision making process. Decisions taken in this process are rationalized and theory-driven. Principally, different decisions could be taken to structure and design the model so that this innovative approach could be adapted to other international concepts of media literacy (see for more detail Tulodziecki and Grafe 2012). In future research the focus needs to be on the further development and validation of appropriate research instruments to assess media competence levels and their use in empirical evaluations.

4. The current situation of media use for learning and teaching and of media literacy education in practice

Corresponding to the various conceptual views of media literacy education, there is an extensive variety of materials and examples of applications in schools as well as in projects. These are developed either by teachers or by the Institute for Film and Images in Research and Teaching (FWU) or offered by publishing companies, State Institutes, media centres or film centres of the federal states, broadcasting corporations, Federal or State Agencies for Civic Education, societal alliances, churches, companies, and public or private institutions. The materials range from printed brochures, schoolbooks, and audiovisual media to computer- and net-based information. Materials offered through websites become increasingly important. In this context the portals "Teacher-Online" of the BMBF and "lo-net" (now "lo-net 2") are of special importance. Additionally, the German media centers offer an important infrastructure for information about and distribution of media and advisory service.

Only a few representative studies about the current use of media for teaching and learning purposes and about the efforts of media literacy education literacy on a practical level can be found. As a consequence, the situation in Germany cannot be reviewed comprehensively. Nevertheless some conclusions can be drawn by present studies.

4.1 The frequency of media use in the classroom

Referring to the use of digital media in order to support teaching and learning processes in German schools one has to assume an underachievement. While school books and other print materials are used regularly, the empirical data concerning the use of computer and Internet is disillusioning (e.g. OECD 2011, 321). However, studies on the use of computers and the Internet in recent years show an increasing—although only moderate—trend. For example, Herzig and Grafe (2007) found in their survey study an increasing use, but still "it can not be spoken of a comprehensive integration of digital media in the classroom" (14). Summarizing the results of different studies, they expect that "depending

on the type of school there is a core group of 10% to 30% of teachers who are regular users of digital media in the classroom" (Ibid., own translation). The PISA 2009 study results indicate that 64.6% of 15-year-old students use a computer at school—this is below the OECD average of 71.4%. However, 98.4 % of German students use a computer regulary at home, which means a place in the middle group of OECD countries (which have an average of 92.6 %) (Ibid.). Regarding online reading, German students are also above the OECD average and especially the results for reading online news and chatting are higher than the average (Artelt, Naumann, and Schneider 2010, 85).

In some studies teachers have been asked to describe problems in the media use or reasons why they do not use media in their classroom. For example, according to the study of Bofinger (2007), teachers waive media because of a general time pressure, little recognizable value, other more suitable methods, insufficient media equipment and learning environments, inappropriate or missing software, and lack of technical knowledge (see also Gysbers 2008; Tulodziecki and Six 2000). Similar reasons appear in various international contexts (for an overview, see Bingimlas 2009).

4.2 The frequency of media literacy education activities in the classroom

With regard to the practice of teaching about media in schools, empirical results show that many activities already exist, but that there are still significant expansion needs. Tulodziecki and Six (2000) found out that most primary school teachers consider teaching about media as an important task, but only a few of them perform media-educational activities in their lessons. Teachers in a study by Gysbers (2008, 153) also describe teaching about media as an important task of school: 79% of these teachers agree with the statement "Teaching about media should be integrated in as many school subjects as possible" and 98% think that students should learn in school to critically review and analyze media. With regard to the question of implementation, the results showed that on average every teacher carried out 2.7 media literacy activities or projects of a given list of seven at least once in their teaching career. However, with regard to the planning frequency for future lessons or projects more of a decline than a rise can be expected (Ibid., 138).

In the study by Breiter, Welling, and Stolpmann (2010, 110) 74% of the teachers agree that media should be a topic in as many subjects as possible and 32% state that current TV shows are regularly or occasionally a topic in their teaching, while only 44% discuss contributions from newspapers and 39% discuss the content of Wikipedia in their classrooms. Twenty percent of the teachers say that they address the responsible use of media regularly or occasionally in their teaching (Ibid., 126). Using a slightly different question Bofinger (2007, 26) found out that only 8% of teachers often or very often teach about media in their lessons or in projects, but that at least 44% do so occasionally or rarely.

Besides the above mentioned reasons for waiving various media, the following reasons can be responsible for the divergence between the acknowledgement of media literacy education and its practical and effective implementation: other priorities in the school subjects and learning areas, lack of training for lessons or projects on teaching about media, doubts about the effectiveness of media literacy education at school, and resignation considering the media use of students in their leisure time (Tulodziecki and Six 2000; Breiter, Welling, and Stolpmann 2010)

It can be assumed that further developments are—above all things—dependent on the successful integration of media literacy education into processes of school development. School guidelines, curricula and standards offer important conditions for implementation. In the present situation, the content of media literacy education is an important part of the curriculum and standards for different academic subjects and areas of learning in Germany (e.g. Tulodziecki and Six 2000; Wagner 2008; Kammerl and Ostermann 2010; Breiter, Welling, and Stolpmann 2010). Furthermore, different cross-curricular guidelines point out the importance of teaching about media in the classroom (e.g. "Saxon State Ministry of Culture and Sports" (Sächsisches Staatsministerium für Kultus 2004); "Ministry of Cultural Affairs, Youth and Sports, Baden-Wuerttemberg" (Ministerium für Kultus, Jugend und Sport Baden-Württemberg 2004)). Moreover, many federal states have developed concepts for media literacy education in schools. These were essentially based on published recommendations by BLK (1995) and KMK (1995) (e.g. "Ministry of Education and Cultural Affairs, Thuringia" (Thüringer Kultusministerium 2002)). Such recommendations led also to the implementation of non-

compulsary courses of media literacy education (e.g. "Ministry of Education and Cultural Affairs of Saxony-Anhalt" (Kultusministerium des Landes Sachsen-Anhalt 2000), "Ministry of Education, Cultural Affairs and Science, Saarland" (Ministerium für Bildung, Kultus und Wissenschaft, Saarland 2006)).

However, despite of promising developments the analysis of relevant documents shows a very heterogeneous picture in the different federal states. In particular, weaknesses remain about the systematic integration and the liability of media literacy education (c.f. a summary: http://www.vision-loom.net/dokuwiki/doku.php?id=sekundarstufe:arbeitsbereich). This picture is not unfamiliar in countries, where media literacy education is not a compulsory subject, but where concepts and ideas have to be developed to be integrated across the K-12 curriculum (e.g. Scheibe 2004). Current developments of compulsory core curricula, the demand to develop school curricula as well as calls for an "all-day school" offer fundamental chances for media literacy education. However, one has to wait and see if they will be realized.

5. On Teacher Training within the Field of Media Use and Media Literacy Education

In addition to the aspects mentioned above, for the use of media and the implementation of media literacy education it is particularly important to examine the extent to which respective topics are implemented in initial training and continuing professional education of educators.

In the Federal Republic of Germany, media literacy education is a compulsory or an elective field in different vocational trainings: in the training of kindergarten teachers, in the study of social pedagogy at technical colleges and universities, in educational sciences, in teacher education, and in other study programs as well (e.g., media studies). In the last years, there have been extensive activities to implement media literacy education into teacher education programs. For example, after pilot tests in the second half of the 1990s, the Bertelsmann Foundation and the Heinz-Nixdorf Foundation supported the development of a high school network "teacher training and new media" in which seven universities were involved (Bentlage and Hamm 2001). In this context, the following parts of pedagogical media literacy skills, were—and still are—taken into account (e.g. Blömeke 2000; Spanhel and Tulodziecki 2001; Gysbers 2008):

- general media literacy to provide a basis,
- becoming aware of the importance of media as a part of the socialisation of children and adolescents,
- using media for teaching and learning purposes,
- designing and carrying out projects and other media literacy education activities,
- developing and implementing programs of media literacy education in schools.

One can assume that every German teacher education program at universities offers lectures and courses dealing with media issues, especially as teacher training curricula and teacher training examination regulations demand dealing with media issues (e.g. Tulodziecki and Six 2000 ; Kammerl and Ostermann 2010; Breiter, Welling, and Stolpmann 2010). Moreover, there are some universities that offer to set a major field of study in the field of media or offer an additional qualification certificate (Herzig and Grafe 2007). However, all in all, the present situation shows that the recent activities—including the involvement of approaches for the second phase of teacher education—are still not sufficient to secure that all future teachers acquire the necessary skills for teaching about and with media (Ibid., 20; Breiter, Welling, and Stolpmann 2010, 206). This is the case in other countries, too (see e.g. Hobbs 2010). The future will show if the existing activities in the currently ongoing restructuring of teacher training courses (conversion to Bachelor- and Master-degree programs) can be intensified.

At least, media literacy education is mentioned as a major focus in the field of education sciences in the KMK's (2004) "Standards for Teacher Education" (Ibid., 5). In addition, there is the attempt to develop—on the basis of recent discussions about pedagogical media literacy skills and goals for teacher education—a competency standard model for teacher education (Tulodziecki 2011b).

In addition to the special activities in the field of teacher education, there were and still are extensive initiatives concerning continuing professional teacher education in the different federal states. Thus, practically every federal state has organized continuing teacher education programs for the introduction of computer-based media. In this context, to some extent, various materials have been developed (e.g. "Media Literacy in Schools and Teaching" http://thales.cs.upb.de:8080/mksu). Furthermore the teacher training program "Intel—Teach to the Future" has to be mentioned, which was started under the auspices of the KMK

president in 2000 and carried out to 2004. It yielded the projects "Intel ® Teaching" and "Intel ® Teaching – Interactive". Moreover, the platforms "Teachers-Online", "lo-net 2" and the education servers of the federal states offer useful material for teacher training on media use and media literacy education. Some federal states also offer the opportunity to use portfolios as a purposeful collection to exhibit and reflect efforts, progress, and achievements concerning skills in media literacy education in the first and second phase of teacher education, in professional development and other contexts.

In future research the focus needs to be on the development of a deductive and inductive derived and empirically verified structural model of pedagogical media literacy skills of teachers and the development and validation of an appropriate research instrument for empirical evaluations of teacher trainings. Such efforts have been recently started in Germany by the authors in collaboration with other universities.

6. Future Prospects

Due to the rapid developments in the fields of computer and Internet the use of computer-based media in educational institutions has been thoughtfully regarded by German educational policy and funds since the 1990's. Initially (and unfortunately), funds were basically used for technical equipment. Furthermore, there was a lack of corresponding innovation and implementation strategies. But as time went by, the importance of initial and continuing teacher training and of the development of concepts and research for the successful implementation of media literacy education was realized.

Later, the results of the PISA-Study have led to a shift of interest from media literacy to different fields (e.g., reading literacy, mathematical and scientific literacy, national educational standards, and core curricula). However, the fact that there is a relation between these subjects and media issues is often ignored. Against this background, one has to state that questions dealing with the use of computer and media as well as media literacy education are not fundamental subjects of education policy any longer. In the context of a general shortage of financial resources, funds for media literacy education are reduced or used for other fields. Furthermore, one has to notice that independent media institutions are scaled down or are integrated into other units.

The shift is also evident in the BMBF's "program to promote educational research" of 2007 because media education issues are only explicitly mentioned in two places in connection with the optimal design of teaching and learning processes (Ibid., 12). However, there might be the opportunity to work on media literacy education issues in the specified thematic focus, (e.g. "competence diagnosis" and the "professionalization of teaching staff"). Different project proposals allow for this suggestion (http://www.bmbf.de/foerderungen/677.php). And of course, research projects on media literacy education are still supported by DFG media priority programs, for example educational media research is possible in the current priority program "Mediatized worlds: culture and society in a media age" (http://www.mediatisiertewelten.de).

In this situation, where there is not always public attention for media literacy education, it is important to preserve and if possible to improve media literacy education activities and research and to also raise awareness for media questions which are of central importance for education because children, adolescents and adults—whether intentionally or not—learn much about the world through media experiences. In this sense, the above-mentioned German "Manifesto for Media Literacy Education" helped to keep the media issue in the public consciousness and the related conference in March 2011 in Berlin made an important contribution to it (http://www.keine-bildung-ohne-medien.de).

Current media literacy education activities and future projects will benefit from several scientific and practically oriented associations, consortia, and institutions dealing with media literacy education issues in Germany, e.g. the "Media Literacy Education section" of the 'German Association of Educational Science" (DGfE), the "Association of Media Pedagogy and Communication Culture" (GMK), the "Society for Media in Science" (GMW) and the "Institute for Media Research and Media Literacy Education" (JFF).

All in all, German activities regarding learning with media and media literacy education—despite of some deficiencies—have considerable potential. This potential is based on the conceptual work and the approaches to integrate teaching with and about media in schools, teacher education, and other educational contexts as well as on conditions of infrastructure and institutions. Due to this background, in the next years we might witness fundamental developments in German media research and media literacy education as well as German contributions to international discussions on

media literacy education. Furthermore, we think that national efforts should lead more often to international and interdisciplinary collaborations and partnerships in research and practice to globally promote developments of learning with media and media literacy education. To understand the national context in different countries is a necessary prerequisite to find links for partnerships and joint efforts. This article is meant to foster respective activities.

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