8-25-2015

# Pedagogical Media Competencies of Preservice Teachers in Germany and the United States: A Comparative Analysis of Theory and Practice

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## Citation/Publisher Attribution

Tiede, Jennifer, et al. "Pedagogical Media Competencies of Preservice Teachers in Germany and the United States: A Comparative Analysis of Theory and Practice." *Peabody Journal of Education*, vol. 90, no. 4, 2015, pp. 533-545. http://dx.doi.org/10.1080/0161956X.2015.1068083
Available at: http://dx.doi.org/10.1080/0161956X.2015.1068083

# Pedagogical Media Competencies of Preservice Teachers in Germany and the United States: A Comparative Analysis of Theory and Practice

Pedagogical Media Competencies of Pre-service Teachers in an International Perspective: Germany and the United States of America

**Abstract**:

This article is concerned with modeling pedagogical media competencies and with its relevance for teacher education and, ultimately, for teaching with media in school. To provide a theoretical basis, the field of work will be introduced and defined first and then located in the context of the relevant literature of both Germany and the USA. Afterwards, results of a comparative analysis of German and U.S.-American pedagogical media competency models will be introduced and analyzed theoretically under consideration of country-specific aspects. In a third step, an exploratory study will be presented which illustrates the situation of media pedagogical teacher training in Germany and the USA and thus allows for conclusions on the (missing) connection between the theoretical framework of pedagogical media competencies and the current practice of media pedagogical teacher training. Ultimately, comparative conclusions can be drawn on the present status of both countries, which will reveal implications for further work and necessary practical steps to improve the integration of media in different school-related contexts.

## Introduction: pedagogical media competencies in Germany and the USA

Years have passed since the so-called "new media" found their ways into the classrooms all over the world, and naturally, this innovation brought about new demands and challenges for teachers. It is generally agreed upon the assumption that teaching with media requires specific skills and competencies. However, modeling and measuring one all-embracing concept of the competencies which will be referred to as 'pedagogical media competencies' in the following is not as straightforward as

recognizing its importance, and the variety of existing approaches hints at a broad and only vaguely limited field. This is certainly also due to the fact that pedagogical media competencies cannot be observed directly but have to be concluded from indicators such as behavior and cognitive aspects, with further predictors influencing its performance. Furthermore, it appears to include a wide range of areas and aspects which various models try to grasp.

Looking at this debatable construct from an internationally comparative perspective adds a number of further challenges. With regard to methodical concerns, it is necessary to make use of terms which are not coined by the perspective of the countries in question, as it is the case for example with "typically German" scientific constructs like *Bildung*, *Erziehung* and *Didaktik*. A word-by-word translation is not possible since *Bildung* and *Erziehung* would have to be subsumed under the term *education*, thus losing their differentiated facets of meaning. Likewise, *Didaktik* does not carry the same layers of meaning like *didactics* which is seldom used in US-American educational literature (cf. for an overview Grafe, 2011). Hence, a *tertium comparationis* (cf. Hilker, 1962) has to be found which allows for a "neutral" comparison and leaves aside country-specific connotations. For the purpose of this paper, this requires a definition of the afore-mentioned pedagogical media competencies as "pedagogical competencies for teaching with and about media". The aspects which this construct comprises will be introduced in the following.

If the German and U.S.-American pedagogical literature on the field of competencies for teaching with and about media are analyzed to get an idea of these aspects, it can be concluded that researchers from both contexts have been having an intensive and professional discourse primarily on the competent handling of media, summarized under the key terms 'media literacy' and 'media (literacy) education' in

the USA (cf. for example Hobbs, 2011; Heins & Cho, 2003; Tyner, 1998); ‘media competence’ would serve as a rough German equivalence. However, further competencies teachers will need for successfully teaching with and about media have clearly been focused less extensively.

With regard to mutual references between the discourses of the two countries, it seems that the long tradition of German media pedagogy has only rarely been noticed by the Anglo-American language area, even if few exceptions do exist (cf. for example Bertelsmann Foundation, 1994). Despite single efforts, the respective debates on ‘media literacy’ and ‘pedagogical media literacy skills’ in Germany and the USA are largely independent from each other.

Against this background, this article will first introduce an overview of common models of pedagogical media competencies in Germany and the USA, so that shared aspects and differences can be summarized. To consolidate these theoretical findings, results of a study will be presented which has analyzed the respective teacher training at German and U.S.-American universities. An evaluation and comparison will conclude important observations on the actual media pedagogical practice. In a third step, efforts of educational policy of both countries will be described and thus allow for a final comparison and further research desiderata. All in all, this procedure serves the purpose of relating those two separate discourses on necessary media pedagogical skills of teachers to each other. Eventually, further work in this field should be inspired to build upon and to embrace the rich discourse tradition of both countries, which will certainly broaden the perspective, help improve the media pedagogical teacher education and thus ultimately advance media-enriched teaching at schools.

**Models of pedagogical media competencies in Germany**

In Germany, approaches to defining and modelling pedagogical media competencies took their beginning with the scientific discourse about media competencies in the 1970s. In the context of teacher training, the focus shifted towards the term "pedagogical media competencies" in the 1990s when several respective pilot projects revealed the importance of teacher skills which go beyond mere media competencies in the sense of handling and using media successfully, such as preparing appropriate media-enriched learning environments for students. In accordance with this development and the increasing acknowledgment of the importance of media education, the first standards for pedagogical media education in teacher training were issued at that time. The construct as such was modelled and subsequently redefined and advanced. In the course of this process, Tulodziecki and Blömeke (1997) identified five target areas of pedagogical media competencies: (1) applying media in a competent way, which includes skills like choosing, implementing and producing media contents; (2) understanding and considering the meaning of media for children and youths sensitively; (3) analyzing and assessing given media contents with regards to aspects of teaching and learning; (4) fulfilling media-related educational and advisory tasks in lessons and projects and (5) understanding and influencing personal, equipment-specific, organizational and further school-related conditions for media education work at school (see also Tulodziecki, 2012, 271 f.).

On the basis of this work, Blömeke (2000) formulated five areas of pedagogical media competencies for preservice teachers: media didactical competencies, media educational competencies, competencies in socialization, school development competencies with regards to media and the own media competencies (377). Amongst others, Blömeke (2000), Siller (2007), Gysbers (2008), and Tulodziecki (2007, 2010,

2012) worked on further specifications and thus helped shape a German construct of pedagogical media competencies.

The recent project "Modelling and Measuring of Media Competency" (M³K), funded by the German Federal Ministry of Research and Education, builds on and includes these preliminary studies and attempts to both model and measure pedagogical media competencies of preservice teachers, thus pioneering in an integrative approach to a comprehensive, well-grounded and validated construct.

In this context, competencies are understood as learnable dispositions which comprise cognitive as well as attitudinal aspects and are directed towards the accomplishment of specific demands. Pedagogical media competencies are defined as an interplay of three areas, namely media didactics (the use of media to stimulate and support learning processes), media education (the performance of media-related educational and teaching tasks) and school development (the performance of media-related school development tasks). Each of these areas is further divided into five competency aspects, which are (1) understanding and assessing conditions, (2) describing and evaluating theoretical approaches, (3) analyzing and evaluating examples, (4) developing one's own theory-based suggestions and (5) implementing and evaluating theory-based examples. In addition to these areas which make up pedagogical media competencies, media-related beliefs and perceived self-efficiency as well as technical media knowledge are assumed to be beneficial preconditions for pedagogical media activities (Grafe & Breiter, 2014; Herzig et al., in press).

While this model of pedagogical media competencies has been validated by a number of national and international experts and while international models have been taken into view as well for its design, it is yet based on the German scientific

discourse to a large extend and therefore represents a primarily German perspective. In contrast, the following overview will describe the US-American perspective on pedagogical media competencies.

**Models of pedagogical media competencies in the USA**

A considerable amount of conceptual and empirical research has been done on the construct of media literacy by international researchers (cf. for example Hobbs, 2011, 2013; Buckingham, 2003; Arke & Primack, 2009; Hobbs & Frost, 2003; Potter, 2008). However, substantial shortcomings are revealed when the international literature on the modeling and measurement of pedagogical media competencies is taken into account. If pedagogical media competencies are assumed to comprise three dimensions which refer to aspects of media didactics, media education and school development as suggested by the German model outlined above, then corresponding international preliminary studies are primarily found in the field of media didactics.

In the USA, the International Society for Technology in Education established standards and performance indicators for this field. Four of these standards which are known as the 'National Educational Technology Standards (NETS)' address media didactical aspects such as stimulating learning processes and students' creativity or designing digital learning environments. Besides, one standard takes into account media educational aspects like legal and ethic dimensions of media use and the sixth standard refers to on-the-job training and leadership competencies (cf. ISTE, 2008). In this way, all three areas of pedagogical media competencies are referred to while the extent of media didactical references emphasizes the importance of this field compared to media education and school development.

Based on these NETS, a number of measuring instruments were developed. In their study for the U.S. Department of Education, Mathematica Policy Research (2000) analyze 26 of these instruments and conclude that their majority consists of portfolio instruments (10) and self-assessment instruments (9).

Furthermore, the framework for 'Technological Pedagogical Content Knowledge (TPACK)', based on the idea of pedagogical content knowledge (PCK) first described by Shulman (1986), was developed in the USA by Mishra and Koehler (2006). It is probably the most common and internationally most established framework. It describes seven components which in combination are assumed to facilitate teachers' successful integration of technology into the classroom (1017). These components are 'pedagogical content knowledge' (Shulman, 1986), 'content knowledge', 'technological knowledge', 'pedagogical knowledge', 'technological content knowledge', 'technological pedagogical knowledge' and 'technological pedagogical content knowledge'.

Building upon this model, several instruments were developed to measure the extent to which teachers possess these aspects of knowledge. Most of these instruments use self-assessments as well (for an overview, cf. Schmidt et al., 2009).

Like the NETS, this TPACK model focuses on media didactical skills. And yet, media educational competencies also have repeatedly been recognized as important (cf. for example Hobbs, 2010; Kellner & Share, 2005). Hence, their modelling and measuring appear to be substantial research desiderata for the US-American context, as it is the case with media-related school development.

Overall, no preliminary studies can be found to model and empirically measure pedagogical media competencies with regard to all three areas of

pedagogical media competencies. Therefore, bringing together media didactical and media educational competencies with school development can be considered another international research desideratum, the importance of which is highlighted by numerous U.S. American researchers (cf. for example Hobbs, 2010; Jenkins, 2006).

**Media education study programs: an explorative study**

As the respective literature suggests, the conceptualizations of pedagogical media competencies in Germany and the USA differ to some extent. In order to understand in how far this might influence the role of media education in both countries and to evaluate how the three dimensions of competencies are put into practice, it is helpful to examine the media education teacher training at universities since the respective study fields can be assumed to mirror predominant research interests. Hence, an exploratory overview was compiled listing all relevant certificates and study programs in Germany and the USA, the results of which will be introduced in the following chapter. It will then be possible to broaden the perspective by comparing the current situation of the two countries on this basis.

In the course of this research, all relevant educational institutions in the respective countries were taken into view. Educational institutions were regarded as relevant in this context if they are public and offer both teacher training and graduate studies. In Germany, this applied to 64 universities or colleges of teacher education while in the USA, 316 universities met the requirements[1]. The universities and colleges in question were then checked for specifically media education study

[1] The institutions were identified and classified by means of a broad internet research where several data bases and the homepages of all universities and colleges in question were analyzed. Hence, it cannot be fully excluded that some information might be out of date. Furthermore, very few homepages were not accessible due to technical reasons, which is why single institutions might be omitted although relevant.

programs and certificates, which were identified according to their titles that indicate a direct reference to media education as well as to their brief descriptions on the university homepages which hint at media education relevance.

**Germany**

In the Federal Republic of Germany, there have been extensive activities to implement media education into teacher education programs in the last two decades. 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 & Hamm, 2001). Now, about 15 years later, it can be assumed that every German teacher education program at universities offers lectures and courses dealing with media issues which can be elected voluntarily, as teacher training curricula and teacher training examination regulations even demand dealing with media issues (e.g. Kammerl & Ostermann, 2010; Breiter, Welling & Stolpmann, 2010).

However, this wide range of voluntary options within teacher training is disproportionate to the range of specific study programs and certificate studies which focus on media pedagogical issues explicitly. Out of 64 universities and colleges of teacher education examined in the course of the exploratory study, only 11 offer such study programs, as for example "Educational Media"[2] or "E-Learning and Media Education"[3]. In total, 12 respective study programs were identified, all of which lead to an M.A. degree. These programs cover all aspects of media pedagogical

[2] M.A. degree program at the Universität Duisburg-Essen. Cf. http://mediendidaktik.uni-due.de/buchseite/3069

[3] M.A. degree program at the Pädagogische Hochschule Heidelberg. Cf. http://www.ph-heidelberg.de/elmeb21/

competencies, namely media didactics (11 of all 12 study programs), technical knowledge (10 of all 12 study programs), media-related school development (4 of all 12 study programs) and media education (3 of all 12 study programs). They mainly address teachers, educational leaders, out-of-school educators, employees who produce and work with educational media and other interested students. If inservice teachers decide for one of these Master's programs, it will usually be their second Master's degree as a Master of Education degree is the regular first educational achievement for teachers.

As a second, less complex way for teachers who wish to study media education, certificates and extended studies can be opted for. These may be achieved during or after the regular preservice teacher education at 11 German universities or colleges of teacher education. Their costs in terms of money and time vary, but what they all have in common is the declared aim of providing teachers with the pedagogical media competencies they need in order to integrate media into their lessons successfully.

**The USA**

Media education is also increasingly present in teacher training and at universities in the United States of America, as the necessity of integrating media education into the curriculum has been realized and is met by an increasing number of course offers (Stobaugh & Tassel, 2011).

During their teacher preparation program, preservice teachers can often opt for respective courses. Moreover, pedagogical media competencies can also be acquired during, on top of or independent from basic teacher preparation programs: more than 180 Master's programs offer specializations in all areas of media education at 163 universities, which is a share of 52 % of all American universities in the study. These

programs lead to an M.Ed. (45 %), M.Sc. (30 %), or M.A. (25 %) degree, and their topics cover a wide range of media pedagogical issues. The most common study program is Educational or Instructional Technology (58 % of all study programs); a variety of different focuses is summed up here, as these study programs may concentrate on any aspect from the programming or production of educational media to their use in class. Further large groups of study programs, grouped due to their close relation with regards to content, comprise programs focusing on the design and development of educational media explicitly (12 % of all study programs) and programs preparing specialists for the integration of media into schools and their administration (12 %) or library media specialists (11 %). Apparently, all aspects of media pedagogy as defined above are covered, but to different degrees. Media didactics and technological knowledge seem to be the predominant aspects, followed by media-related school development. Only very few references to media education could be identified.

Some of these Master's programs include an initial teacher certification. Hence, it is possible to become a teacher and study media pedagogy at the same time in the USA. Beside these programs, many universities also offer certificate programs which extend preservice and inservice teachers' knowledge by additional media-related aspects.

**Germany and the USA in comparison**

It is commonly known that the educational systems in Germany and the USA significantly differ from each concerning some central aspects; for example, the second, post-university phase of teacher education in Germany roughly corresponds to the extended internships during the studies in the USA, and the required academic qualification for teachers also differs, since German teachers end their studies with a

Master of Education degree (formerly: *Staatsexamen*) while teachers in the USA need to earn a Bachelor degree and a teaching certificate. Yet, when media pedagogy in Germany and the USA is compared based on the conducted study, it becomes evident that the differences are not as striking here as one might expect. In both cases, there are basically three ways to acquire media pedagogical knowledge: optional and elective courses during the basic teacher training, additional certificates and extended studies for preservice and inservice teachers, and graduate studies focusing on one or more aspects of media pedagogy.

Naturally, systemic differences between the educational systems in Germany and the USA also bring about differences in media education. One of these is the important role of school libraries in the USA which does not have an equivalent in Germany; hence, a combination of library and media studies is common only in the United States. Graduates from this field of studies are usually prepared to become library and media specialists, and their scope of responsibilities often comprises support and organization of the media integration within their school. The same is true for graduates of studies in the field of media-related educational leadership since they, too, become specialists for school development processes. As the overview of media pedagogy-related study programs at German state universities reveals, this tendency of qualifying specialists for the integration of media into schools is less common here; only very few study programs emphasize such school development processes explicitly. Instead, most of the respective study programs deal with issues of media didactics, technological competencies, and media education. At state universities in the United States on the other hand the study programs, which comprise a broader range of specializations, tend to focus on technological competencies to a larger part and to put less emphasis on media education.

Another difference can be noted when considering the integration of media pedagogy into the educational system. In the United States of America, media pedagogy study programs are available at a majority of universities that offer teacher training, namely at 52 % of them. By the Master's programs which include an initial teacher certification, students can become a teacher and study media pedagogy at the same time. All in all, this wide spread and variety of programs hint at the perceived importance and advancing integration of media pedagogy in the USA. In Germany on the other hand, the correspondent study programs are rather limited and available at 19 % of the eligible universities and colleges only. Here, Master's programs in media pedagogy are often completed alongside work and as a second degree, which emphasizes the exceptional status media pedagogy still seem to have.

**Policy implications and conclusion**

Despite these differences, the comparison of media pedagogy in Germany and in the United States of America reveals that both countries are facing similar problems and challenges. A full and nationwide inclusion of media pedagogical content into teacher training has not taken place until now. Consequentially, the results of the media pedagogical teacher training in both countries are often considered dissatisfactory; the US-American scientific community points out that teacher training still does not provide preservice teachers with all the skills they will need in order to integrate technology in their classes effectively (cf. Schieble, 2010; Tondeur et al., 2012), and also in Germany, 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.

Although these observations may suggest other findings, it is an observable fact that the educational policy in both countries has acknowledged the importance of media pedagogy and published respective prescriptions. In Germany for example, the Conference of the Ministers of Education and Cultural Affairs is responsible for country-wide educational issues. In their 2012 paper on "Media Education in School", they elaborate on the relevance of media education, consider it a core responsibility of schools (3-4) and conclude that it has to become an obligatory part of preservice and inservice teacher education (7). As Hobbs (2010) points out, the U.S. Department of Education's 2010 technology plan likewise emphasizes the importance of multimedia communication for all students (vi). A consequent step towards the fulfilment of these claims could certainly be respective regulations for teacher education to ensure a basic media education for every future teacher; however, such regulations do not exist. Hence, a lot of work will be necessary for policy makers responsible in this field. It is necessary to introduce obligatory courses into basic teacher training. Furthermore interdisciplinary bridge building helps to bring together faculties and students as suggested by Hobbs (2010).

The field of modelling and measuring pedagogical media competencies deserves further research, development and innovation in an international perspective to further enhance a global movement of media literacy education.

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