The School Subject as an Action Framework—Traditions and Perspectives of Research

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At a time when there is so much talk of interdisciplinarity in general and interdisciplinary teaching in schools, it may seem strange to publish a volume on the school subject as a framework for action. Is the school subject even the correct framework for future teaching? On the other hand, there are few institutionalizations in schools and society that have proven to be as stable and unchanging over more than two centuries as school subjects and the associated classification of the school canon. In recent years, school research in several countries has also turned its attention to the construction and impact of school subjects, moving beyond the traditional boundaries of didactic research in the narrower sense. In addition to didactic research within the individual subjects, a comparative research branch has developed that deals with the history, structure, and impact of school subjects in an "interdisciplinary" way.

It may be that the crisis in which specialized didactics currently seems to find itself has contributed to the development of this research. Many of the subject-specific didactic developments of the 1970s and 1980s, which were launched with great expectations, have not been able to be implemented in schools. Examples could be the large chemistry curriculum, "Substances and Substance Conversion," which in its didactic purity was understood by few and hardly ever applied by anyone (Weninger, 1979), or the sad history of language didactics, which has led foreign language teaching to "authentic" communication failure in some places (cf. Späni, 1998). The list could be extended indefinitely—also with international examples.

Now, great failure is not a specialty of didactics. On the contrary, it can sometimes be surmised that, from Rousseau, Basedow, and Herbart to some

[1] Translation of Hopmann, S. T., & Riquarts, K. (1999). Das Schulfach als Handlungsrahmen - Traditionen und Perspektiven der Forschung. In S.T. Hopmann, K. Riquarts & I. Goodson. *Das Schulfach als Handlungsrahmen. Vergleichende Untersuchung zur Geschichte und Funktion der Schulfächer* (pp. 7–28). Böhlau. Permission for re-publishing granted by Böhlau Verlag and (living) authors.

contemporary school educators, practical failure is a prerequisite for inclusion in the annals of educational intellectual history. On the other hand, it should not be overlooked that subject didactics in particular has made important contributions to the further development of schools and teaching. For example, it was specialized didactics, from Piaget and Aebli to radical constructivism, that brought the new learning psychology into schools (cf. Duit & von Rhöneck, 1996), not general didactics and certainly not school theorists. And here, too, the list could be extended indefinitely.

The difficult relationship of didactics to science, school, and curriculum that emerges in the stories of success and failure should not be dramatized here but should be taken as an opportunity for some rather fundamental reflections on the "state-of-the-art" of didactic research and teaching, and consideration of what research on school subjects can contribute to the future development of an understanding of school and teaching. The chapter is structured as follows:

1. We recall some basic features of the history of the institutionalization of didactics, subject didactics, and school subjects.
2. We present some empirical findings on the use and self-image of specialized didactics.
3. We systematically reflect on the structure of the didactic sciences.
4. We ask for the contribution of research on school subjects.[2]

On the Institutionalization History of the Subjects and Subject Didactics

The Tower of Babel is perhaps the oldest example of how a great endeavor failed due to communication problems. It is difficult to say exactly when this communication problem was recognized as a didactic problem. Who the

[2] This is based on a number of international comparative research projects, such as the multi-year dialogue project "Didactics meets Curriculum" (cf. Hopmann & Riquards 1995) or an empirical study currently being carried out in five countries (Germany, Finland, Norway, Switzerland, and the United States) on the relationship between teaching and lesson planning in different didactic cultures. Final research reports are not yet available for all of these projects, so some of the following considerations must be understood as workshop reports from ongoing research (cf. Westbury, Hopmann & Riquarts, 1999).

first subject didactician was is probably more a question of definition than of history. However, it is possible to identify when the problem of subject and teaching, of subject content and learning, began to be systematically discussed. It is no coincidence that the problem emerged at the same time as the beginnings of public schooling and didactic reflection, i.e., in the Greek city republics of the 5th and 4th centuries BC. It is above all the sophists, the traveling teachers who were famous for their oratory skills and thus enormously successful economically, for whom the relationship to the subject matter became a problem. In their endeavors to package their clients' message in well-formed words, they were faced with the question of primacy: what is more important for a good, i.e., "successful" speech? Expertise or oratory?

Socrates discusses this question at length in an argument with Gorgias, certainly one of the most successful representatives of his profession (Plato: Gorgias). They argue about what kind of physician is more likely to be trusted. For Gorgias there can be no doubt: you will always trust someone who knows how to talk well rather than someone who only knows his subject but is unable to put it into the right words; sophists can talk eloquently about anything and everything. Socrates, however, is quite skeptical about this: what if a well-spoken charlatan wins a duel with a less eloquent doctor? Isn't knowledge of the subject matter a prerequisite for good speech? Doesn't the organization of the speech have to follow the requirements of the subject matter, i.e. be—as we would say today—"didactic"? The topic is taken up again and again in the rhetorical debates of antiquity and the early Middle Ages, for example, in the works of Cicero (*De oratore*) and Tacitus (*Dialogus de oratoribus*) on the art of oratory or later in Augustine's reflections on how the knowledge of faith should be conveyed to those who still do not believe (*De catechisandis rudibus*). The topic is given renewed and increased importance in the break-up of knowledge structures at the beginning of the second millennium AD, for example, when Hugh of St. Victor deals with the question of the structure and teachability of the disciplines in his *Didascalicon* around 1100.

Despite this long and honorable history, the beginnings of what will later be called subject didactics must be sought much later. Historically, its most important prerequisite is the disciplinary differentiation of first academic, then higher, and finally popular education, i.e., the disciplining of teaching knowledge, which essentially only took on its current form in

the late 18th century and in the course of the 19th century. The canon of subjects prevalent in most Western countries was essentially crystallized for higher education before 1850 (for Germany, the Prussian grammar school reforms of the Humboldt era were decisive here), while the same process was largely completed for elementary and lower secondary schools around 1900 (for Germany, the *Prussian General Provisions* (Die Preussischen allgemeinen Bestimmungen) of 1872 should be mentioned here first and foremost). More recent research impressively documents how the fairly standardized basic model of the subject canon developed at that time has become established worldwide (cf. Meyer, Kamens & Benavot, 1992; Hopmann, 1993).

In terms of the history of institutionalization, the first universities in the German-speaking world to elevate the problem of teaching specific subjects to an independent subject were the universities, starting with Gesner's *Seminarium Philologicum* in Göttingen in 1737. However, until Thaulow's pedagogical seminar at the University of Kiel in the 1840s, these philological seminars were more general didactic propaedeutics for future scholarly teaching than specifically subject-didactic-oriented courses. The same can be said of the first university seminar for the pedagogy of the natural sciences, which began its work at the University of Bonn in the mid-1920s. The history of subject didactics for elementary schools is somewhat more confused, not least because the categorization of elementary school subject matter into school subjects rather than knowledge and skills (such as reading, writing, and arithmetic) only emerged in most parts of Central and Northern Europe toward the end of the 19th century. In addition, at that time—as is still the case in some places today (e.g. Norway)—most elementary school teachers were trained as all-subject teachers, where the subject of the seminar-based subject teaching was the same subject knowledge that was to be taught at school, while the didactic questions were left to the seminar teaching in didactics or school studies. However, the delayed history of institutionalization should not obscure the fact that it was precisely the seminar teachers who systematically dealt with the subject-specific problems of teaching comparatively early on. For example, as early as the turn of the 18th and 19th centuries, seminary textbooks sometimes contain detailed considerations on how certain subject content should be prepared and presented (cf. Decker, 1820).

The implementation of the state curriculum has played a decisive role in the institutionalization of didactics since the beginning of the 19th century

(cf. Hopmann, 1988). The distinction between centralized curriculum planning and local lesson planning opens up a broad field of pedagogical interpretation that links the legitimacy of school activities to the ability of teachers to interpret and present their lessons as an expression of central expectations. In fact, it can be shown that in the teaching programs of the seminaries, for example, subject didactics was initially closely linked to the interpretation and implementation of the expectations formulated in the curricula. The duplication of teaching and lesson planning had and still has the central effect for the teaching profession of tying their professionalism to their ability to speak didactically about their lessons. The aftereffects are well known: New curricula change little about actual teaching as long as teachers are able to didactically legitimize what they have done so far, even within the horizon of the new curriculum. The most recent example of this was found in our study of the introduction of the new Norwegian curricula (cf. Hauge, 1999; Stenmo, 1999). These curricula were perceived by many, including most teachers, as almost revolutionary. However, according to the teachers we interviewed, they have had little effect on everyday schoolwork or on the concrete planning and implementation of lessons. In most cases, they have not even recognized the need to fundamentally revise their own lesson planning.

At the same time, the implementation of centralized curriculum regulations encouraged the specialization of schools and teacher training. Only with the clear demarcation of school subject areas was it possible to deploy teachers primarily as subject teachers in accordance with the curriculum structure and to switch to subject-orientated teacher training for elementary schools. It is therefore no coincidence that the first self-proclaimed "theory of the curriculum" in the German-speaking world, Dörpfeld's 1872 work of the same name, focused mainly on the relationship between school subjects. In the further course of time, this orientation led to an increasing fragmentation of the school curriculum into subject curricula, which were only loosely connected by common framework regulations and preambles, up to the thick subject-didactic guidelines that subject curricula degenerated into in some places in the sixties and seventies. It is only in recent years that forces have become noticeable in several European countries that want to reduce this compartmentalization of school and curriculum.

Unfortunately, there are no exact dates available as to when the first thematization of subject didactics as an independent field led to the first recruitment

of seminar or university teachers with the explicit task of dealing exclusively with the didactics of certain subjects. In German elementary school teacher training, this process probably began in the 19th century (cf. Thiele, 1938). It is likely that many of these first specialists were in subjects that were marginal to teacher training at the time, such as gymnastics, needlework, and handicrafts, while at first it was expected that seminary teachers should be able to master all the core subjects of teaching. Nevertheless, specialization probably first took place at the seminaries and other teacher training institutions, while until well into the 20th century, didactic questions at universities—if they were addressed at all—were left to subject specialists interested in didactics (cf. von der Burg, 1989).

The actual breakthrough of subject didactics as an independent field of teaching and research only came about in Germany, for example, after initial beginnings in the Weimar period, with the expansion and nationwide academization of teacher training after 1945 (see Bolling, 1983, for a summary). The entry of subject didactics into the universities then took place mainly in the 1960s and 1970s, not from within, through a differentiation of the academic courses on offer, but through the incorporation of the teacher training colleges into the universities. It will certainly be possible to find exceptions here and there, but it is fair to say that the main phase of the academic establishment of subject didactics in Central Europe was in the seventies and eighties. In contrast, the Scandinavian development is still considerably delayed. Neither Sweden nor Norway established their first purely subject didactics professorships until the 1990s.

It is somewhat difficult to categorize the development in the Anglo-Saxon countries here. Historically, curriculum research has been characterized by a division of labor that left questions of curriculum organization to so-called "curriculum studies," while questions of teaching and learning were primarily the subject of educational psychology, which for its part was little concerned with the structure of school operations and school subjects (cf. Doyle & Westbury, 1992). It is only in recent years that a fundamental change has taken place here, under keywords such as "pedagogical content knowledge" (Shulman, 1986) or "subject matters" (Stodolsky, 1988), and one can probably assume that this also has to do with the structural convergence of curriculum systems that can be observed in recent years (cf. Hopmann & Riquarts, 1995).

In terms of institutionalization history, subject didactics are therefore among the youngest voices in the chorus of sciences despite their great tradition. The picture looks somewhat different if—as already indicated—the history of thematization rather than institutionalization is taken as the yardstick. There is hardly a scientific discipline of any standing, or, for example, a natural scientist of any standing, who has not dealt with the problems of mediation in their discipline. This not only refers to the fact that associations for university pedagogy have been established at individual universities since the end of the last century or, for example, the fundamental considerations on the relationship between research and teaching, such as those found long before Humboldt and Schleiermacher, but above all the didactic considerations that are still exciting today, such as those made by the "canonisers" of the disciplines, the textbook authors, and the debates that are linked to the public communication of scientific knowledge in the 19th and 20th centuries. These debates were linked to the public communication of scientific knowledge in the 19th and 20th centuries and, not least, promoted reflection on and criticism of science within the discipline (for a summary of the history of university didactics, see Wagemann, 1998).

Like the science-orientated subject didactics of the 1970s, the constitutive problem of subject didactics can be seen precisely in the fact that these two traditional strands—the reflection on science within the discipline and the subject didactics originating from the school subjects—have not grown together. Fruitful connections have emerged from these considerations in some subjects (e.g., with topics such as "mathematical thinking" and "mathematical problem solving"), which appear to have been widely recognized in both subject-specific science and subject-specific didactics (cf. Blum & Neubrand, 1998; Neubrand, 2000).

On the other hand, the divide between the two, internal disciplinary reflection and subject didactics, is also an expression of the structural difference between scientific and school knowledge, between scientific subject and school subject. The German and Swiss subject didacticians we interviewed make a clear choice here: their frame of reference is the school subjects and not the academic disciplines corresponding to their subjects (cf. Hügli, 1998). Seen in this light, the birth defect of subject didactics would be that historically it has not been possible to institutionalize its actual reference sciences, the school sciences—as the Herbartians called them—independently and

separately from the scientific disciplines, so that subject didactics can only define its own place with difficulty between *Scylla* and *Charybdis*, between school education and the subject sciences.

An expression of this uncertainty is the very different form of academic institutionalization of subject didactics at German and Scandinavian universities, which are sometimes assigned to the subjects, sometimes to the educational sciences and—regardless of where they end up—often feel that they are in last place.[3] This is illustrated by the university catalogues, where subject didactics is regularly listed last, either behind the disciplinary subdivisions (organic, inorganic chemistry, algebra, geometry, etc.) or behind the general education. Engaging in the teaching of subject knowledge in or out of school rarely brings prestige. A young, talented academic can only be advised to avoid specializing in didactics if they want to pursue a quick academic career. This is all the truer as chairs in subject didactics that become vacant are often either immediately cancelled or filled with applicants who have no specific connection to subject didactics research but feel more at home in other sub-disciplines of their subject. Characteristic here is the Brandenburg state government, which at times seriously considered abolishing the subject didactics chairs altogether, as anyone who knew their subject would be able to teach it—therefore every outstanding subject specialist should be considered sufficiently didactically qualified to teach the didactics of the subject.[4]

Didactics easily slips into the role of the little stepsister who, like Cinderella, is not allowed to take part in the big parties—until a prince comes to redeem her. But where will the prince come from? At universities with a primarily scientific and technical focus, such as Aalborg University in Denmark or the Technical University of Trondheim, we are currently experiencing considerable pressure from politicians and industry to finally take the communication problems of the sciences in relation to each other and the public seriously. Major international corporations such as STATOIL and IBM regard quality assurance in knowledge transfer as one of the most important resources for

[3] Here and in the following, we draw on our own experience gained at various universities in Scandinavia and in German-speaking countries.

[4] I owe this tip to colleagues in Potsdam.

their future development.[5] For example, since last year, engineering students at the University of Trondheim have been required to deal with the social consequences and educational communication of engineering. Renowned universities such as Stanford have launched programs worth millions to improve the quality of teaching and teaching staff. However, there is little to suggest that this will help traditional, school-orientated didactics to gain academic recognition. On the contrary, there is an almost panicked endeavor to keep subject didactics, which originate from the school subjects, out of such efforts.

On the Relationship of Subject Didactics to the Curriculum and Teacher Training

Obviously, Cinderella is not attractive enough for the princes. And the question is whether Cinderella herself is to blame for the fact that no prince wants to redeem her. In any case, she does not seem to be very convinced of her own qualities. This was the impression gleaned from the aforementioned survey of subject didacticians that we conducted in Germany and Switzerland as part of the NRP project "From curriculum planning to lesson organisation" (cf. Biehl et al., 1998). According to the results, the respondents simply do not believe in the special significance of their own subject: faced with a choice between six different scientific and social development areas, they only recognize subject didactics as being of minor importance for the future development of schools and teaching. Only the subject-specific and educational sciences ranked slightly lower. They also expect that the decisive impulses will come from outside, from social development and the world in which children and young people live, and from shifts in the relationship between teachers and learners. When describing future development trends in school teaching, subject-specific topics do not play a prominent role either. The trends highlighted by subject didactics experts (for example, from the teacher to the learning guide and to more individualization) reflect more trends in the general didactic discourse than specific subject didactic challenges.

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[5] The following considerations are based on discussions with industry representatives and university didactics experts as part of the interdisciplinary ikt@babel project at NTNU Trondheim.

Ultimately, our attempts to persuade subject didacticians to evaluate didactic controversies that they felt could be significant for the future of teaching failed completely.[6] Neither the controversy over chronological vs. thematic history teaching nor that over everyday life vs. science orientation in the natural sciences was able to raise the temperature. The most frequent response to the controversial topics on offer was that of Winnie the Pooh: "Yes, thank you, we want both." A discipline that neither believes in its own power nor attaches any practical relevance to its internal disputes is difficult to convince others of.

The obvious doubts of subject didactics about their own effectiveness come at a time when the performance of individual school subjects is being problematized in public as rarely before. The results of international comparative studies such as TIMSS and the IEA's reading survey easily become headlines in the daily press, where the poor performance of pupils is lamented and remedial action is demanded as quickly as possible (cf. Baumert et al., 1997). Governments look more anxiously than football club presidents at the league tables of international comparative research, initiate reform programs costing millions, and demand everything necessary to be able to appear in the top group of eighth-graders in mathematics lessons next time. This is where subject didactics is effective, but in the form of a hidden curriculum that promotes the narrow knowledge and skills that such studies can reflect on the status of a national issue. The detailed studies and complex knowledge of subject didactic research, on the other hand, have never been able to provoke anywhere near as much impact.

What is interesting is the contradiction between the implicit subject didactics of comparative assessment and what subject didacticians and curriculum makers consider important: In studies such as TIMSS, the focus is clearly on intra-subject knowledge and skills (cf. for many Baumert & Lehmann, 1997; Moser et al., 1997; Lie, Kjaernsli & Brekke, 1997; Weng & Lau, 1996). In subject didactics and curriculum work, on the other hand, this area in particular is assigned rather low priority. When choosing between several possible main orientations for subject teaching, the transfer of knowledge within the subject regularly comes last, while the contribution of the subject to a general understanding of the world, to individual development, and to

[6] This experiment was part of the study described by Biehl et al. (1998).

general education are emphasized as the most important tasks of the subject by a clear margin (cf. Biehl et al., 1998).[7]

In contrast to the international comparative studies, subject didacticians and curriculum makers are clearly not focusing on the teaching of subject content. Perhaps it is a coincidence, perhaps an effect, that at the same time subject didactic research is probably on the retreat. A survey of teacher training institutions in Germany on subject-specific didactic research projects yielded only a low response rate and few references to larger subject-specific didactic research projects. An analysis of journal and publication indices was unable to refute this impression. However, the empirical basis of this study is too weak to allow detailed conclusions or generalizations.[8] However, a parallel study in Switzerland did not lead to fundamentally different impressions (cf. Hügli, 1998). As in Germany, the main picture here was that subject didactics had retreated to working on textbooks and teaching materials but hardly saw itself as school or educational research. In this context, it is probably not surprising that in recent years, education and psychology academics have usually been at the forefront of the steering committees of major research projects relevant to schools (such as TIMSS), and only rarely didactics specialists.

Unfortunately, as our surveys of teachers have shown, there are also good reasons for the lack of trust in the innovative power of one's own discipline. According to their own statements, teachers in Switzerland, Norway, and the Federal Republic of Germany rarely make use of subject didactic sources and literature in their daily work.[9] In addition to their own teaching materials, they prefer to obtain their information from textbooks, the daily press, and reference works. The situation is not much better for curriculum makers. When asked by us about the sources of information they use as a basis for planning, didactic contributions play only a subordinate role. Old plans, other people's plans, and teaching materials are usually sufficient for them. Quite a few of them do subscribe to didactic journals. But according to the figures, association journals, general educational journals, and even popular science journals are often more popular. Finally, it is possible to point to a

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[7] For the curriculum makers, I refer here to the data from the investigation.

[8] For this reason, a separate publication has been omitted. However, surveys on the situation of science didactics in Germany point in a similar direction (cf. Nentwig 1996).

[9] See footnote 1 on this and the following.

whole series of studies on teacher training in which the teachers surveyed almost all gave poor marks to their own school-practical and subject-didactic training (cf. Hopmann, 1998, for a summary). Academic subject didactics (like large parts of teacher training in general) clearly have a problem with those whom they want to address.

However, there are also contrary findings in our study and others. Teachers, for example, rate the subject-specific and subject-didactic professional development activities that they have attended in connection with new curricula implementation almost entirely positively (ibid.). When asked about the importance of various arguments in curriculum decisions, curriculum makers clearly prioritize subject-specific arguments in addition to practical school arguments over other areas of argumentation, such as political or legal arguments.[10] When asked who should have the most influence on the curriculum, both teachers and curriculum makers are somewhat more favorable: Here they rank subject didactics ahead of education and subject sciences and well ahead of all social interest groups—but a long way behind school practitioners. There are therefore clear indications that subject-specific didactics already plays a relevant role from the perspective of those involved in school and curriculum work, only that they do not link their expectations to subject-specific didactic research or its publications. In this context, it is also interesting to note that the assessment of one's own (subject) didactic training becomes more favorable with increasing distance from training (cf. Hopmann, 1998). To put it somewhat maliciously, the greater the temporal distance to one's subject-didactic training, the better the relationship to subject-specific didactics.

The Structure of the Didactic Sciences

Of course, none of this says much about the quality of subject-specific didactic work at teacher training institutions or universities, nor much more about the quality of their research and development work. This is not intended to criticize the status and performance of subject-specific didactic research and teaching in any way. However, it is fair to conclude that these problems with the reception of subject-specific didactic research cannot only be due to the

[10] See footnote 1 and Hopmann 1988.

unwillingness or lack of education of the addressees. In one way or another, the way in which subject-specific didactic knowledge is produced and communicated must also play a decisive role. Obviously, a clear distinction must be made here between different levels of subject-specific didactic knowledge. Teachers obviously have no problem in judging their own decisions as subject-specific didactic decisions and at the same time show a clear distance to subject-specific didactics as a science. The same could be said of the academic world: efforts to improve the transfer of knowledge within and outside the subject disciplines do not deal with different issues than subject-specific didactic research. The central issues are problem-oriented learning, open forms of learning, individualization of learning, etc. Nevertheless, intradisciplinary and interdisciplinary attempts in these areas only rarely make explicit use of the expertise that traditional subject didactics could contribute. Conversely, the distance between the subject sciences and subject didactics is reflected in the determination with which the subject didactics experts almost exclusively regard the school subjects as their object and not the subject disciplines or the social application of subject knowledge.

Why does Cinderella look so ugly—or why doesn't she like princes? The construction of didactics as a science plays a decisive role here—alongside many other structural and institutional factors. This can perhaps be illustrated by a distinction between different forms of scholarship introduced by Ernest Boyer (1990). Boyer distinguishes four types of scholarship:

- the scholarship of discovery,
- the scholarship of application,
- the scholarship of integration, and
- the scholarship of teaching.

This distinction can now be linked to an observation of the scientific community. In the so-called liberal sciences, the humanities, the natural sciences, etc., the "scholarship of discovery," the acquisition of new scientific knowledge, is usually regarded as the highest achievable level of scientific knowledge. In academic professional training programs (for engineers, doctors, etc.), the "scholarship of application" plays an equally central role. Particularly at the frontier of the research, but increasingly also in business and society, special emphasis is also placed on the "scholarship of integration," i.e., the ability to

think and act holistically and interdisciplinarity beyond the narrow boundaries of subject knowledge. However, in none of the disciplines is disciplinary identity and appreciation first and foremost linked to the "scholarship of teaching," which, according to Aristotle—as Boyer emphasizes—should be the highest form of knowledge. Quite the opposite: as indicated above, dealing with the didactics of a subject counts for little in the assessment of disciplinary performance. The subject-didactic discourse, as reflected in the survey results cited above, now shows an almost exactly reversed profile: the "scholarship of discovery," i.e., new subject-didactic research findings, is not accorded great importance either by their authors or by their addressees. The assessment of "scholarship of application" is obviously more of a double-edged sword: one applies one's own subject-specific didactic findings and convictions, but hardly those of scientific subject-specific didactic research and development. The "scholarship of integration" superficially plays a central role in didactic and subject-didactic research, as it usually involves bringing together psychological, educational, and scientific findings. At the same time, however, there are also clear limits here: for example, interdisciplinary cooperation, which is so urgently required at schools and in business and society, does not play a central role in everyday subject didactic research, at least as far as we can see.

This leaves the "scholarship of teaching": It is difficult to judge what role it plays in the identity of the didactic and subject didactic sciences. If we take the recently presented evaluation studies on teacher training as a starting point, the scholarship of teaching plays the decisive role, as teacher training is usually evaluated in these analyses on the basis of the assessment of the future teachers' own study experience. In contrast, there are hardly any empirical studies on the connection between certain forms of didactic and subject didactic training and later teaching practice. There is also a lack of studies on the connection between subject and didactics in teacher training, for example, on the question of whether different subject disciplines and subject didactics operate with different ideas of good teaching and learning and to what extent these ideas define their own teaching practice. Overall, there is still much less research on subjects and their didactics than the already rather sparse research within subject didactics. Another possible approach to this topic would be the question of which form of "scholarships" is decisive when filling didactic and subject didactic positions. Here, too, we have no

comparative empirical findings. We can therefore only give our personal impression that here, too, the "scholarship of teaching" often weighs less than the number of published articles.

Be that as it may, the decisive factor in this situation is that in the self-image and reception of general and subject didactic research and science, precisely that form of "scholarship" that generally enjoys the highest recognition, namely the "scholarship of discovery," does not play a comparably prominent role. Seen in this light, it is only right that didactics and subject didactics are held in lower academic esteem. It is then right to ask, as Rudolf Künzli (1993) and Jürgen Oelkers (1992) have done, whether didactics can be considered a science at all. In fact, as Rudolf Künzli has shown on various occasions, it can be observed in didactics that its research findings are rarely style-forming and almost never school-forming. Didactic directions are established along general didactic theories and models that are anchored less in empirical teaching science than in general reflection on schools and teaching, on their peculiarity or—as was probably said in the past—essence. The canonical writings of didactics, from Herbart to Klafki and Hilbert Meyer, are more elaborations on the very concept of didactics than explications of the latest research findings. The classics of empirical teaching research, on the other hand, have rarely moved beyond the experts since Ernst Trapp's 1780 draft of an empirical pedagogical science. The core of didactic knowledge would therefore not be one of the "scholarships" mentioned by Boyer, but a fifth form of scholarship, "the scholarship of common sense," i.e., the ability to rhetorically qualify the discourse that accompanies the everyday life of the profession.

From this perspective, didactics could be better understood as a professional semantics than as a scientific domain. This would indeed correspond to the institutionalization history of didactics, which, as mentioned at the beginning, owes itself primarily to the needs of the differentiating teaching profession and not to scientific insights. Didactics would therefore be the language in which the profession understands and constitutes itself (cf. also Peyer & Künzli, 1999). The almost exclusive orientation of subject didactics toward school practice and its clearly expressed distance from both the subject-specific and educational sciences would be a consistent expression of the realization of its own role.

Teaching didactics would therefore be practicing the language of the profession. From this point of view, it would be easy to understand why teachers

see themselves as didactically active and subject-didactically decisive—and at the same time, can maintain their distance from didactic and educational research. The power of the latter would then primarily be sought where it has a language-forming effect, i.e., where it provides the school's practical common sense with new images and metaphors for talking about school behavior. The fact that language games borrowed from educational science, psychology, or general didactics can be used just as well as those taken from the language of economics, politics, or art would not be surprising, because the decisive factor would not be the scientific content of these language games but their functionality in the discourse of the profession.

Of course, this view would create an unsolvable dilemma for both general and subject didactics. As a science, its task would be the production of professionally suitable language games; it would be based more on Gorgias than on Socrates, which could probably improve its acceptance among its addressees but at the same time considerably damage its reputation in the subject sciences. If, on the other hand, it concentrated on what brings academic recognition, the "scholarship of discovery," it would perhaps be more favorably received by the specialist and educational scientists but possibly weaken the close link with the professional semantics that underpin and shape it. It would then be in danger of becoming just as "esoteric" as Heinz-Elmar Tenorth (1987) wished for the educational sciences.

An Opportunity for the Future?

It would be easy to recommend the medicine of the seventies or eighties to the patient, i.e., either to orientate the didactic production of knowledge more toward the "scholarship of discovery" or the "scholarship of application," i.e., either to place more emphasis on basic research in teaching science or on immediate usefulness. However, once institutionalized, disciplines cannot simply be rededicated and realigned because their current constitution is unhealthy. It is therefore no coincidence that in the history of general didactics and subject didactics, waves of scientific orientation and direct practical orientation have followed one another with regularity, without being able to determine the development of didactics in the long term. Good advice is therefore expensive, except perhaps to strengthen research into didactics and subject didactics, the construction and acquisition of general

and subject didactic knowledge, in order to be able to better sound out the scope of didactic knowledge production and use. This is precisely where the above-mentioned research on school subjects comes in, which is not immanent to subject didactics but meta-didactically questions the construction and mode of action of school subjects. This volume brings together historical and current case studies and combines them with more fundamental theoretical considerations on this research.

In the English-speaking world, it is not least to Ivor Goodson's credit that this topic has been put on the agenda. Goodson's research deciphers school subjects as historical constructions, in the creation of which highly conflicting interests and diverse processes have played a part. While Ivor Goodson primarily examined the constitutional history of school subjects, a research group led by John Meyer at Stanford University turned its attention to the question of how the subject canon is composed worldwide, whether there are common basic structures, how these came about, and what they achieve. The work of Goodson and Meyer is an example of a field of research that is expanding rapidly in the Anglo-Saxon countries and to whose development Sue Stodolsky (1988), Leslie Siskin (1994), Stephen Ball (1987), and Tom Popkewitz (1987), among others, have also made decisive contributions.

In the Scandinavian countries, this research *on* school subjects has been stimulated above all by Björg B. Gundem (including a broad-based research network on the history and structure of several subjects; cf. Gundem 1990; 1992). Similar projects can also be found in Denmark (cf. Larsen, 1991), Finland (cf. Hansen, 1991), and Sweden (cf. Selander, 1988, 1998). In German-speaking countries, there are also a number of commendable older works, for example, on the history of the subject canon (from Paulsen's major work on the history of academic teaching to the curriculum-historical tradition of Dörpfeld and Rein to Flitner and Dolch to studies on subject history and the subject canon, such as Haarmann, 1971; Mannzmann et al., 1983; 1984), and not least the work of Künzli (1981) on the school subject as a framework for thought and action, which was not subsequently taken up in Germany. The fact that German-speaking countries have not yet developed an intensity of research in the field of empirical or historically comparative didactics comparable to that of Anglo-Saxon and Scandinavian countries may seem somewhat surprising, given the tradition of German didactics in particular of making school content the core of its endeavors.

What does this research contribute to the reorientation of the research field? If, as suggested here and by Goodson and Gundem, among others, school subjects are understood as social constructions that are "negotiated" under certain school-structural and profession-specific conditions and are realized in a highly subject-specific way in the classroom, then attempts to restructure these subjects from the outside, as it were—whether through the science orientation of the 1970s or the life-world orientation of the 1980s—systematically miss their target. The content and stability of the subjects are not at the disposal of the curriculum designers and syllabus makers but are, on the one hand, closely linked to the supporting framework of the "localization" and "measurement" of the school and, on the other hand, to the inherent logic of the development of the "profession-creating semantics," the, if you like, subject-didactic discourse constructed by school practice. These basic conditions also set limits for the attempts that became so popular in the 1990s to overcome or at least soften subject boundaries, be it through "interdisciplinary teaching" or topic-centered project teaching, which takes its quasi-naturalistic starting point from the undisciplined nature of extracurricular problems. One can also assume that this is one of the reasons why these forms of teaching not only cyclically disappear from school life (cf. Cuban, 1990; Hopmann, 1999) but have also proved to be less conducive to learning, at least for the weaker pupils (cf. Grossen, 1999; Weinert, 1996).

What needs to be changed is therefore linked to preconditions that can be established by historical and comparative research, which can only be ignored under penalty of the ineffectiveness of the didactic designs. This opens up a wide field for comparative and historical didactics, for which we hope to find many more supporters.

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